AN ACT TO COMBAT INTERNATIONAL TERRORISM

HEARINGS

BEFORE THE

COMMITTEE ON GOVERNMENTAL AFFAIRS UNITED STATES SENATE

NINETY-FIFTH CONGRESS

SECOND SESSION

ON

S. 2236

A BILL TO STRENGTHEN FEDERAL POLICIES AND PROGRAMS AND INTERNATIONAL COOPERATION TO COMBAT INTERNATIONAL TERRORISM

JANUARY 23, 25, 27, 30; FEBRUARY 22; MARCH 22, AND 23, 1978

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AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

MONDAY, JANUARY 23, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS
Washington, D.C.

The committee met at 10 a.m., pursuant to notice in room 3302 of the Dirksen Senate Office Building; Hon. Abraham Ribicoff (chairman) presiding.

Present: Senators Ribicoff, Glenn, Percy, Javits, Stevens, Mathias, and Heinz.

Staff members present: Richard A. Wegman, chief counsel and staff director; Ellen Miller, professional staff member; Brian Conboy, special counsel to the minority; John Childers, chief counsel to the minority; Ken Ackerman, professional staff member; Robert V. Heffernan, research assistant.

Chairman RIBICOFF. The committee will be in order.

While the hearing is today on the Omnibus Terrorist Act I do want to thank you, Mr. Secretary, for coming here after a grueling week in the Middle East.

You spent all of this time on an airplane. You arrived home last night and now you are here on the Hill testifying. I do want to take this opportunity to express my personal confidence in your activities and action in the Middle East.

I kept pretty close touch with you since December 1976, and I realize the deep commitment you and the President of the United States have in trying to bring peace to the Middle East.

It is a tough job and the news of the last 24 hours indicate that there has been a postponement. I, too, have recently come from some of the Middle Eastern countries and I realize the failure of Israel and Egypt to undertake a real peace initiative and come to a real peace agreement will result in an unparalleled tragedy for Egypt, Israel, and the entire world.

I know how steadfast your commitment is. I know your quiet diplomacy, some of it in the front pages and some quietly behind the scenes.

I have the highest respect for your actions and your thinking. And I would hope that you would take an opportunity after the opening statements or even now, to give us a capsule idea of the reasons for the present postponement, the prospects for resumption in the future, this is not the Foreign Relations Committee, but you have come home

and I think it is important for the parties, important for the Congress, and important for the people of this Nation to try to have an understanding of what the situation is as of this morning.

Secretary VANCE. Thank you very much, Mr. Chairman.

I appreciate your kind words and confidence in the efforts which we have been undertaking to help the parties move towards a settlement of the Middle East problem.

The meetings between the parties, after commencement of the Cairo meetings, as all of us know, were conducted in two separate forums.

One was the security committee which dealt primarily with military matters relating to the Sinai, and the other the political committee dealing with the broader issues which related to the subjects of a declaration of principles, guidelines for the resolution of the problems of West Bank and Gaza and the delineation of the essential elements of peace treaties which would be achieved, hopefully, at the end of the road.

Insofar as the meetings in Jerusalem are concerned, we all know that those meetings were suspended as a result of the decision taken by President Sadat to recall his delegation for consultation with him.

The reasons for that were expounded at considerable length by him in the statement which he delivered to the National Assembly on Saturday night.

There is little really that I can add to those factors. I think that there is a feeling on both sides, as the two heads of government have indicated, that each feels he has made a major step in the direction of peace and that that has not been sufficiently recognized by the other party.

As a consequence of this and other specific matters, such as the issue of settlements in the northern Sinai as raised by President Sadat, and other matters as raised by Prime Minister Begin, the meetings have been suspended. Yesterday there was an announcement that the decision with respect to the continuation of the meetings of the military committee would also be postponed but would be reconsidered in the future.

It is my belief, and it has been repeated by the heads of both of the governments, that they desire peace. That peace is an objective which they will continue to pursue.

The door to peace is not closed. I believe that they sincerely do believe that and that that is the fact.

I believe that we are in the midst of one of those down periods that one finds in any negotiation. There are always ups and downs.

I believe that the parties will pass through this period and that discussions between them will be resumed again.

I do not want to predict at this point when that will happen because it will depend upon events which are within the hands of others and which are often difficult to predict, in any event.

I would say one further thing. I would hope very much that it would be possible for the amount and strength of rhetoric on both sides to be reduced.

I think this would propagate an atmosphere in which it would be possible to begin discussions again.

I know both of the parties do desire that, and I remain hopeful in the long run that we will get the negotiations back on the track and

that the ultimate objective of all of the parties is a comprehensive settlement of the problem.

OPENING STATEMENT OF SENATOR RIBICOFF

Chairman RIBICOFF. Thank you very much.

Today's world has a serious terrorist problem. Recently, we have seen people willing to risk their own lives for political aims. We are the hostages. We who believe in democracy and progressive social change are being threatened. Today a desperate person can seize an airplane or a powerplant or a building and demand that the world conform to his desires.

We in the United States have been relatively lucky so far. But we have no reason for complacency. No international flight is taken today without some apprehension. Some of our West European partners live today with posters everywhere and armed guards around public places and prominent leaders.

The terrorist now is a threat to our basic values. And the level of our technology gives him the means to wreak havoc upon a society which does not protect itself. Frankly, we're here today to protect ourselves. I wish this set of hearings was not necessary. I've been a U.S. Senator for 15 years. Most of the hearings I've attended have sought social or economic progress. Unfortunately, today we have to spend some time examining how to control or prevent evil.

I am convinced that the United States can face the growing problem of terrorism with confidence. The American people see hijacking and assassinations and cold violence, and they are outraged. They want to know who is in charge. And they want to see some leadership stand up and say that we need not let terrorists bend our country all out of shape.

The purpose of these hearings is to help the United States face terrorism before we have to react to terrorism.

We must understand the modern terrorist, who he is or she is, and why the terrorist lives his destructive life.

We must be organized as a Government and a society to thwart the terrorist and to protect every individual.

We must staff whatever organization we have with experts at all levels to manage terrorism with flexibility and firmness.

We must be prepared to deal with an unknown array of threats.

And we must be prepared as a country to deny the terrorist the subversion of our free society. This last point is the most difficult. We have to take our gloves off and fight within the law in order to protect the rule of law.

There is no way to have all the answers to all contingencies. But the American people are looking for reassurance that we can cope with the unexpected. It's no longer enough to say that our bureaucracy has a terrorism officer or that a secret "P.R.M. 30" exists and we should rest assured. If our citizens are going to be asked to persevere in time of crisis, they have a right to know that we are prepared for crisis.

On the international level, other countries operate unsafe airports which endanger the American traveler. Some countries train, equip, and provide safe haven to guerillas. Some use diplomatic facilities to

support this activity. It's time that we join with other countries in striking back at the promotion of terrorism. Those who would tolerate terrorists have no reason to expect the tolerance of the civilized world.

The legislation pending before the committee, S. 2236, combines diplomatic initiatives with strong unilateral U.S. policy to combat terrorism. The thrust of this legislation is to ensure that we have an adequate structure to handle terrorist problems as they arise and to assure the citizens of this Nation that our handling of terrorist incidents will be with a firm hand. Further, it is the intent of this legislation that the United States take swift and direct action against any country which aids terrorist acts.

It is an outrage and even unthinkable that the civilized world could tolerate the practices of some nations whose governments directly support terrorist activities against innocent citizens. The United States must lead the world comunity in our response and preparedness for such actions.

I am very pleased that some extremely impressive witnesses have agreed to help us in these hearings. During the next few days we will have a chance to learn about various aspects of the terrorist threat. From their testimony, we will be better able to shape this particular legislation and to face this problem with greater confidence.

We are honored to have as the leadoff witness our distinguished Secretary of State. Mr. Vance has been hard at work on one of our main foreign policy problems—and one not unrelated to the business before us today. I understand, Mr. Vance, that you arrived in Washington from the Middle East only last night. You have the gratitude of this committee by appearing before us today. We are most eager to hear your testimony.

Senator Heinz, Senator Glenn, Senator Hodges, do you have an opening statement?

OPENING STATEMENT OF SENATOR HEINZ

Senator HEINZ. I have a brief opening statement, Mr. Chairman.

Mr. Chairman, Mr. Secretary, let me just say briefly, I welcome these hearings. I want to commend you, Mr. Chairman, for taking the lead in this area, and for beginning this examination of your legislation, S. 2236, the Omnibus Antiterrorism Act. I think these hearings are particularly important because they represent an impressive effort on the part of Congress to deal comprehensively with what is becoming an increasingly important and difficult problem.

Although improved U.S. security measures in the past few years have resulted in a decrease in the number of domestic hijackings, on the whole terrorist incidents, including those on the rise, involving Americans, are notably bombings and assassinations.

In 1977, there were dramatic incidents such as the Lufthansa incident, which ended in Somalia, and the terrorist attack on industrialist Hans-Martin Schleyer.

Each such incident promotes new incidents and tests security and uneven commitment to solving the problem multiply those cases into a situation that is rapidly becoming unmanageable. The American people clearly share this view. A Harris poll last year showed broad

support for a tough antiterrorism policy, including some of the provisions in this bill, S. 2236.

Mr. Chairman, I would also like to point out that these hearings have a special interest for me, as it was 1 year ago this week that I introduced one of the first pieces of legislation in this Congress to deal with the problem of terrorism.

I am pleased to see some of the elements of that bill, which attempt to impose meaningful sanctions against countries which aid or abet terrorism, have been included in S. 2236, which we are discussing in these hearings, although the latter is more comprehensive.

That very comprehensiveness, while making the bill a better vehicle for a broad-based approach to the parameters of terrorist activity, raises questions that the committee will want to answer. Although there should be no question that all Senators should support the bill's objectives, certain details will be the subject of debate.

The committee should think carefully whether the reorganization mandated in the legislation is the most appropriate for an effective antiterrorism policy or whether the bill effectively structures the relationship between Congress and the executive branch in administering the list of nations which aid or abet terrorism.

In addition to this close analysis of what is in the bill, I hope the committee will also think carefully about some of the things which are not in it. For example, about the effects and the role of the media in publicizing terrorist incidents while they are happening, what responsibility the Federal Government has to provide training in counterterrorist tactics for both our own defense and for that of other nations; whether policies or negotiations with terrorists and payment of ransom should be clearly articulated or developed on an ad hoc basis; whether there should be an effort to coordinate Federal policy with that of local governments, or that of private companies; and what role the intelligence community should play in a comprehensive antiterrorism policy.

Mr. Chairman, I wouldn't want you or anybody else to believe that I have the answers to all of these questions about what is in the bill, or what is missing from it. But I do have some thoughts which I expect to offer from time to time as we proceed.

The results of our efforts will, I hope, be the creation of a comprehensive strategy for dealing with terrorism on a worldwide basis. Such a strategy is overdue, and I congratulate you, Mr. Chairman, for your work thus far in seeking to develop it.

Thank you.

Chairman RIBICOFF. You may proceed, Mr. Secretary.

STATEMENT OF CYRUS R. VANCE, SECRETARY OF STATE, AND HEYWARD ISHAM, DIRECTOR, OFFICE OF COMBATING TERRORISM, DEPARTMENT OF STATE

Secretary VANCE. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee: I am pleased to appear before you today to discuss a subject of greatest concern and urgency: how to defend our citizens and our national interests against threats of terrorism around the world. Congress and the ad-

ministration must work closely on this vital issue, so that as a Government we are prepared to deal with terrorist acts rapidly, decisively, and effectively.

Terrorism is one of the most inhumane phenomena of our time. We must do everything we can to combat this problem. As your first witness, let me present the administration's position on the overall problem of terrorism and the need for effective legislation.

It is clear from the pending legislation that the administration and Congress share common goals: to deter terrorist attacks, to discourage other governments from cooperating with or giving refuge to terrorists, to capture and prosecute those who participate in such crimes, and to do this in cooperation with other governments.

Strong legislation can help achieve these goals. It will demonstrate to the world that the American Government and people will not tolerate such violence and that we are prepared to act promptly and firmly. Effective legislation can strengthen our ability to work together with other governments toward this shared goal.

Let me begin by describing the scope of the terrorist threat, as we see it today.

International airplane hijackings have increased in the past 2 years, after a brief pause in their frequency.

Worldwide, the number of terrorist attacks, including bombings, assassinations, ambushes and arson, has been higher in the past 2 years than in any previous comparable period.

There has been a shift away from attacks against U.S. Government officials and property to attacks on American businessmen and corporate facilities. The indications are that these threats on overseas facilities of U.S. corporations and their employees could continue at least at their present level.

Cooperation among terrorist groups, with totally different goals, appears to be growing. Groups such as the Popular Front for the Liberation of Palestine, the Japanese Red Army, and the Baader-Meinhof Gang increasingly cooperate in lethal attacks against innocent victims, regardless of their nationality.

Some terrorist groups find their ideology in a radical nationalism that allows no compromise. Others seek to destroy the political order of their countries, either because they reject all authority or because they seek to intimidate the established authorities.

While the motivations of individual terrorists vary, however, it is clear that there is one common thread: they will attack the forms of organized society by all the means they can comand.

In their common pursuit of violence, they share information, weapons, money and, at times, logistical support. In the expression of that violence, they threaten the personal freedom and security of us all.

Before I talk about what the United States is doing to combat this threat, let me briefly discuss the international response that is emerging, for as much as any other problem we face, the fight against terrorism must be international in scope.

There have been some encouraging developments: Hijackers find they can no longer count on landing in countries which once gave them sanctuary. During the recent Japan Air Lines and Lufthansa

hijackings nearly every nation in the Middle East where the hijackers sought refuge turned them away.

We must, nonetheless, gain universal acceptance of the responsibility of nations to prosecute or extradite terrorists apprehended within their jurisdiction, as prescribed by The Hague and Montreal Conventions.

On November 3, 1977, the U.N. General Assembly passed a resolution condemning hijacking and urging the adoption of effective measures to combat it. The approval of this consensus resolution reflects a growing appreciation by nations throughout the world of the need for more effective action against this form of political violence.

The successful actions of the Israelis at Entebbe and the West Germans at Mogadiscio demonstrated that terrorists can be defeated by a combination of appropriate rescue capacity, flexible contingency planning, and skillful tactics.

We should recognize, however, that such operations entail great risk to the hostages and may not always be feasible.

For our part, the United States has taken strong actions on a number of fronts:

First, we have made clear to all that we will reject terrorist blackmail. We have clearly and repeatedly stated our intention to reject demands for ransom or for the release of prisoners.

Second, in this and past administrations, we have strengthened airport security within the United States. There has been only one successful hijacking of a U.S. scheduled air carrier since November 1972. We will continue these essential security measures.

Third, we have improved safety measures to protect U.S. officials and property abroad. We have provided protective armor for official vehicles and mandated security training for all personnel posted overseas.

Together with the Department of Commerce, the State Department is advising private corporations, and their employees, how to protect themselves and their property against terrorist attacks. In most cases, we have been able to carry out these measures in close cooperation with foreign governments.

Fourth, through action initiated this fall by Secretary Adams at the International Civil Aviation Organization, we have been working to upgrade the international standards for airport security. The primary focus of this effort is to require mandatory preflight inspection of all passengers and accompanying baggage.

Fifth, we have intensified our efforts to move other countries to ratify the Tokyo, Hague, and Montreal Conventions. As you know, these Conventions provide for the apprehension, prosecution, and extradiction of those who hijack or sabotage commercial aircraft.

To date, 62 countries have ratified all three Conventions; 55 have ratified none. We are not satisfied with these numbers; worldwide acceptance of these basic principles is essential.

Sixth, we have developed, and are improving, procedures for cooperating and exchanging information among law enforcement agencies around the world. For example, during the hijackings of the Japan Air Lines and Lufthansa aircraft last fall, we provided background

information on terrorist groups and their past operations, and guidelines for protecting and obtaining the release of hostages.

Seventh, we have made major organizational changes within the executive branch that are designed to improve our ability to combat terrorism. Shortly after assuming office, the President reorganized the structure of the National Security Council. Among the actions taken was the establishment of the Special Coordination Committee to handle, among other matters, crisis management.

The Assistant to the President for National Security Affairs chairs this committee; its members are the statutory members of the NSC and other senior officials as necessary.

In a crisis situation, the Special Coordination Committee would convene immediately.

This committee ensures that necessary decisions will be made at the highest levels of the government.

The Special Coordination Committee supervises a senior-level interagency group to ensure coordination among agencies dealing with terrorism. The interagency group has an executive committee consisting of representatives from the Departments of State, Defense, Justice, Treasury, Transportation, Energy, the CIA, and the NSC staff. It is chaired by the representative of the State Department; the deputy chairman is the representative of the Department of Justice. It has met frequently since it was established in September 1977.

The Chairman of the Executive Committee, Ambassador Isham, is sitting here on my right.

To fulfill our responsibilities within this framework, the State Department has developed its own procedures.

Our operations center is fully staffed on a 24-hour basis to manage crisis situations. It has instantaneous communications to all parts of the Government, direct access to top officials, and prompt communication to all posts overseas. It has performed well in the past, and it will do so in the future.

Our procedures are designed to anticipate terrorist attempts, as well as to deal with ongoing incidents.

Specialized units in the U.S. intelligence community, as well as other agencies of the Federal Government, place high priority on the collection and evaluation of necessary intelligence.

We are working to improve the effectiveness and promptness with which we exchange this information with friendly agencies abroad.

When U.S. citizens in foreign countries are threatened, we immediately communicate with foreign governments and make available to them our information, advice, and experience to assist them in carrying out their responsibilities.

Finally, cooperation on antiterrorism has become an important part of our bilateral relations with other nations. We are urging other governments to take appropriate steps to combat terrorism and bring terrorists to justice.

Obstacles to effective cooperation among governments remain. Some governments, sympathetic to the asserted cause of particular terrorist organizations, not only provide safe-haven, but also arm, train, and provide cover.

Others shy away from resolute action, to avoid jeopardizing relations with countries that support terrorist organizations; still others prefer to avoid the apprehension or prosecution of terrorists for fear of new terrorist attacks aimed at freeing comrades. We will continue to press these governments to assume the full measure of their international responsibilities.

The administration and this committee have the same goals—stopping terrorism. We will continue to work closely with you, as you develop effective legislation.

Let me address the provisions we hope will be embodied in such legislation.

One, we are prepared to submit regular reports to Congress on acts of international terrorism that affect American citizens or interests. We suggest that these reports be issued quarterly, and in a form that can be made public, so that all concerned Americans will have authoritative and current data on terrorist incidents.

The Department of Justice will address these reporting requirements in greater detail in its testimony.

Two, we will appear periodically before this committee to supplement these written reports. I know that the committee will appreciate that much of this information will be sensitive. As a result, we strongly urge that these briefings be in closed sessions and on a classified basis.

Three, the administration supports the concept of a public list of countries which aid or abet terrorist actions. Public exposure and condemnation can be effective in discouraging support for terrorist activities. Removal of a country from the list would signal a change toward greater responsibility and restraint.

Four, we are prepared to support appropriate sanctions against countries appearing on such a list; indeed, we already impose sanctions against certain countries which have been identified with terrorist operations.

We believe that any such sanctions should be considered on a case-by-case basis, taking into account probable effectiveness, the interests of U.S. citizens living abroad, and our overall political, security, and economic relationships.

In addition, to be effective, sanctions must be fashioned so that they can be altered or lifted in response to evidence of change.

Five, we support the objective of publishing a list of airports that are deficient in their security measures. However, we must recognize that there are significant technical constraints on evaluating the security of foreign airports and that we must work together with the responsible government to upgrade these procedures. The Department of Transportation will address this issue in greater detail in its testimony.

Six, we hope that Congress will enact enabling legislation that will result in full United States compliance with the terms of the Montreal Convention on Aircraft Sabotage. In this connection, we seek provisions for civil penalties to complement the criminal penalties already available under aircraft security legislation.

Seven, and finally, it is our hope that the legislation developed by this committee will be consistent with the NSC–SCC reorganization I have described to you.

Let me say again that we welcome the action of this committee, and we will cooperate with you fully in the development of legislation that will be effective in dealing with this dangerous threat.

Chairman RIBICOFF. Thank you very much, Mr. Secretary. Why is it that certain countries such as Libya and Iraq are able to promote terrorism without suffering the sanctions of other countries?

Secretary VANCE. The reasons are varied. Sometimes the reasons are political reasons, where other countries in the area do not wish to take positions which are contrary to the positions of such countries. Other times, the relationships which exist on an economic level affect the unwilingness of other countries to take action against such countries. And thirdly, there are overall political reasons which may affect it.

However, there are countries which will be willing to take actions; we have indeed taken actions in the United States with respect to Libya as a result of their actions in this area. Insofar as Iraq is concerned, which has been another country which has permitted the training and has supported terrorist organizations within its borders, we simply do not have any diplomatic relations with them.

We have really no practical way of affecting relationships with them. We have communicated our unhappiness and dissatisfaction with the situation and have urged them to change through the low levels of diplomatic intercourse which we have, but this is not a very effective way to treat this.

Therefore, I think we must develop ways of working together within the international community as well as unilaterally if we are going to become effective in mobilizing the world against this action.

Chairman RIBICOFF. What reaction do you get in discussion with other countries, which have suffered as a result of terrorist tactics, about developing a code of international sanctions that the major countries in the airline transportation field will live by and live with?

Secretary VANCE. It depends on what you're talking about. The fact we were able to get a consensus resolution in the United Nations this fall, even though it was somewhat watered down in its final form, indicates a growing willingness to move in this area.

That was followed, as I indicated in my statement, by the meeting in Montreal which was held at which Mr. Adams, our Secretary of Transportation, appeared and as a result of which it was agreed that there would be a tightening of airport safety regulations, and I think that that can and will be implemented.

If you're talking about a broader code, the problems there rest in the kinds of issues I have indicated earlier, and that's the political-economic types of problems that affect their willingness to act. And these are the basic types of factors which affect the decisions of these various countries.

Chairman RIBICOFF. In the modern world, could any nation of any economic or political size survive commercially and politically, if international aircraft refused to use the airport facilities of these countries that cooperated or even encouraged terrorist activities?

Secretary VANCE. It would be very difficult in the modern world for a country to carry out effective trade in commerce and its day-to-day business with other nations if it were denied access to the airports of other nations throughout the world.

Chairman RIBICOFF. Suppose the United States, Great Britain, France, West Germany, the Scandinavian countries, the Netherlands, Japan—the nations with the big international air fleet—got together and had a common policy. Would that type of sanction have a salutary effect against the so-called outlaw countries who encourage terrorism?

Secretary VANCE. I think this is a proposal or suggestion that should be followed up, and I think that we should pursue it with vigor.

Chairman RIBICOFF. You mentioned in your testimony the United States from time to time has imposed sanctions. Would you explain some of the sanctions our country has taken against other nations?

Secretary VANCE. Yes, sir. In the case of Libya, we have refused requested sales of equipment which have a potential military use. We have refused some licenses required for the export of aircraft which are nonmilitary in nature. We have refused requests for expert help in other areas which have been requested. We have denied license for third-country transfers of United States origin equipment and technology which would enhance the military capability of that country.

Those are some of the types of things.

Chairman RIBICOFF. In most countries in Western Europe, the terrorist activities are handled basically by justice ministeries as criminal acts. By establishing the primacy of the State Department, don't we infuse this as a political act as opposed to a criminal act? Do you believe it should stay in State, should be transferred to Justice, or should Justice and State have a cochairmanship depending on the type of activity we are talking about? Have you given any thought to that?

Secretary VANCE. I have given thought to that and I would like to comment, and then I would like to ask Ambassador Isham to comment.

It seems to me, Mr. Chairman, that when we are dealing with a situation that involves a foreign nation, the principal concern is the protection of American citizens. And this has to be carried out through the channels which will be most effective in dealing with the situation that exists. We have the normal channels through our diplomatic relations with these countries. These channels have been used in the past, such as the incident which occurred in the hijacking in Bangladesh very recently.

We worked very effectively there. When we pulled together the task forces which worked on these, we had the various elements of the Government working hand in glove together on it. Therefore, it seems to me that the responsibility should be left in the Department of State, which can deal with this with the help of the other agencies on a timely and effective basis.

In addition, in these incidents, one has to always take into account the political relationships between the various nations. These are complex and difficult matters and it's appropriate that these matters should be in the hands of the Department of State, which has the principal responsibility for advice to the President in regard to these matters.

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Do you want to speak to that?

Mr. ISHAM. Yes, sir. I would add to that that the new organization of the working group and the executive committee, of which the Department of Justice representative is the deputy chairman. In fact, Mr. Gibson is here with us today and our cooperation is extremely close and would be tailored to whatever incident, international or domestic, might arise.

Chairman RIBICOFF. Senator Heinz.

Senator HEINZ. Thank You, Mr. Chairman.

Mr. Secretary, in your testimony you expressed support for appropriate sanctions against countries which aid or abet terrorism. First of all, does the State Department have a list of countries now that you have determined do aid or abet terrorism?

Secretary VANCE. Yes, we do.

Senator HEINZ. Do you publish this list?

Secretary VANCE. That list has been made available to Senator Javits and it was published, I believe, after it was made available to him.

Senator HEINZ. It has been made public?

Senator JAVITS. I made it public, but I ask unanimous consent that my exchange of correspondence be made part of the record.

Chairman RIBICOFF. Without objection.

[The material referred to follows:]

U.S. SENATE,
Washington, D.C., February 23, 1977.

Hon. DOUGLAS HECK,
Coordinator for Combating Terrorism, Department of State, Washington, D.C.

DEAR AMBASSADOR HECK: I intend to follow up the Senate's passage in the 94th Congress of S. Res. 524, which condemned the August 11th terrorist attack at Yesilkoy Airport, Turkey, with hearings before the Senate Foreign Relations Committee. As one who was particularly concerned with our efforts to combat terrorism and who was tragically and intimately affected by the Yesilkoy Airport attack, I have been particularly disturbed by reports of assistance rendered by the Government of Libya to facilitate that and other terrorist attacks. In addition, I am sure that you are aware of reports of assistance by the governments of Iraq, South Yemen and Somalia to terrorists. Accordingly, I would like to have from the Department of State a report, in writing, preferably unclassified, setting forth in detail the operations, assistance, and methods that Libya and any other countries have pursued in furtherance of terrorists and terrorism.

In addition, I am interested to know what new approaches, if any, the Administration intends to take to combat terrorism. I hope that any new departures that will be taken will be formulated in consultation with the Congress where I believe a most cooperative and constructive attitude will be found.

I believe that the information I am herein requesting will be most helpful in laying a constructive basis for the Senate Foreign Relations Committee hearings which I intend to request.

With best regards,
Sincerely,

JACOB K. JAVITS.

DEPARTMENT OF STATE,
Washington, D.C., April 27, 1977.

Hon. JACOB K. JAVITS,
U.S. Senate.

DEAR SENATOR JAVITS: With further reference to your letter of February 23 to Ambassador Heck and to the interim reply of March 8, and consequent to

Ambassador Heck's discussion with your staff, I have enclosed summary statements in response to your request for information on assistance given to terrorists by various governments in recent years. Also enclosed is a short paper on the present status of our thinking with regard to new initiatives against international terrorism which are currently under consideration by the Executive Branch.

We fully share your concern about terrorism and value your support of our efforts to cope with it. There is, unfortunately, every indication that international terrorism is on the increase and we will have to prepare ourselves to deal with further attacks on American citizens and installations abroad including those of American companies. The initiatives set forth in the enclosed paper are designed to prepare us to handle such threats more effectively in the future and hopefully to deter as many as possible. There may be other initiatives and measures that should be considered. Ambassador Heck will be pleased to meet with you or members of your staff if you wish to discuss these questions at further length.

Sincerely,

DOUGLAS J. BENNET, Jr.,
Assistant Secretary
for Congressional Relations.

Enclosures.

LIBYA

Although the Libyan Government claims that it is opposed to terrorists it has qualified this by saying that "freedom fighters" are not "terrorists" and have the right to carry on their struggles "by whatever means" they deem necessary.

The Libyan Government, since at least 1972, has actively assisted a number of terrorist groups and individuals. These have primarily been members of the several "rejectionist" factions of the Palestinian movement who have broken away from more moderate Palestinian leaders on the issue of the legitimacy of politically motivated violence as a means of carrying on the struggle against Israel.

It is a matter of public record that Libya has received and given refuge to international terrorists involved in a long history of terrorist acts, including:

The perpetrators of the October 1972 massacre at the Munich Olympics;

The hijackers of the Lufthansa aircraft in October 1972;

The hijackers of the Japanese Air Line Boeing blown up in July 1973;

The terrorists who attacked the TWA plane at Athens airport in August 1973;

The terrorists who attempted to shoot down the El Al plane outside of Rome in September 1973;

The terrorists who commandeered a train in Czechoslavakia bound for Austria in September 1973;

The hijackers of the BOAC plane over Dubai of November 1974;

The kidnappers of certain OPEC oil ministers in December 1975.

IRAQ

The Government of Iraq is a major supporter of Rejectionist Palestinian elements which repudiate a negotiated settlement to the Arab/Israel dispute. The Rejectionist Palestinians include groups which use terrorism as a policy instrument.

Baghdad lends political and moral support to all rejectionist groups. To what degree Baghdad provides financial, military, logistical or training support is unclear, but it appears that a substantial degree of some such support goes to one renegade Fatah group and the Wadi Haddad wing of the Palestinian Front for the Liberation of Palestine (PFLP), both of which carry out international terrorist activities.

PEOPLE'S DEMOCRATIC REPUBLIC OF YEMEN (EDEN)

There is some public evidence that the People's Democratic Republic of Yemen has on occasion allowed its territory to be used as a sanctuary for terrorists. The absence of any U.S. representation in South Yemen and the general restrictions placed on the movements and contracts of foreigners there

make it difficult for the United States to verify the existence and extent of PDRY support for terrorism.

In recent months there have been some tentative movements toward improvement of relations between PDRY and certain of its moderate Arab neighbors which have consistently repudiated international terrorism. We are not able to predict with any certainty, however, whether this trend will have a significant effect on PDRY's attitude toward terrorism.

SOMALIA AND TERRORISM

There have been two major terrorist incidents involving the Front for the Liberation of the Somali Coast (FLCS), a Somali Government-supported group, in the past two years. In March, 1975, three members of the FLCS seized the French Ambassador to Mogadiscio, and only freed him five days later in exchange for money and two FLCS members who were prisoners in France. The exchange took place in Aden at the public request of both France and Somalia.

In February, 1976, a group of FLCS commandos seized a school bus containing 31 French children in Djibouti and attempted to drive it across the border into Somalia. The bus was halted before it reached the border. French sharpshooters eventually killed six of the commandos and re-took the bus. Two of the children were killed.

There is open cooperation between the Somali Government and the FLCS, a cooperation which the Somali Government justifies on the grounds that the FLCS has been recognized by the Organization of African Unity as a legitimate liberation movement. While it is generally agreed that the FLCS is dependent on Somali Government support, there is no evidence which establishes that the two incidents described above were precipitated with the knowledge of the Somali Government.

In a December, 1976 meeting in Somalia, the Central Committee of the FLCS expelled five of its top leaders. While the FLCS leadership did not use the occasion to renounce terrorism as policy, some of the reasons cited for the expulsions were the infiltrating of armed gangs into Djibouti without consulting the FLCS policy-making body, conspiracy to assassinate other members, kidnapping, killing, robbing, and misappropriation of funds. The disciplinary action appears to be in accord with the apparent Somali Government decision to cooperate peacefully with the French in bringing about Djibouti's independence. Independence is expected in June of this year.

NEW INITIATIVES AGAINST TERRORISM

There are numerous ongoing efforts by the Department and other agencies to improve our counter-terrorist capabilities and activities. These include developing close bilateral and multilateral cooperation with other like minded governments, better physical security, expanded intelligence data bases and intelligence exchange practices, improved aircraft security as well as other anti-hijacking measures at home and abroad and closer bilateral and multilateral cooperation on political and legal measures for controlling, apprehending, and prosecuting those guilty of committing or abetting acts of international terrorism.

Specifically we have encouraged all of our posts to seek additional parties to the Hague, Montreal and Protection of Diplomats Conventions. Moreover, we have actively supported the FRG initiative in the UN General Assembly to draft a hostage convention and expect to take an appropriate role in the UN's consideration of that convention. Our bilateral contacts with other countries sharing an interest in combatting terrorism continually explore new avenues to address the problems of international terrorism through international law and new bilateral and multilateral initiatives in this area. We are encouraged by what we have achieved, but the threat persists and there is much more that can and should be done.

In this connection, the question arises as to the feasibility of multilateral enforcement agreements against countries which fail to maintain minimal airport security standards or to cooperate in other efforts against terrorists. Based upon experience in the International Civil Aviation Organization regarding a previously proposed enforcement convention, we believe there would be significant resistance among member states to compulsory enforce-

ment of such measures as the minimal security standards set forth in Annex 17 to the Convention on International Civil Aviation (the Chicago Convention). Although there has been a number of terrorist attacks and bombings at major airports in the past few years and despite US support for implementation of security standards, the prospects of success for a multilateral enforcement agreement are not considered good. However, we continue unilaterally to urge other governments to adopt Annex 17 standards as we search for new ways and means to increase international support for enforcement.

Within the existing institutional framework of the Cabinet Committee to Combat Terrorism and its operating-level Working Group, this administration is energetically searching for new approaches as well as the improvement of currently employed methods and techniques to cope with international terrorism. We are presently exploring the prospects for further advance in several areas:

Crisis management.—We are seeking to improve the management of terrorist acts committed in the United States which have important foreign policy implications. We are considering recommendations for a new interagency effort to integrate and refine our policy options in this area and to identify realistic procedural alternatives for the management of such incidents.

Guidelines on mass destruction terrorism.—We believe attention should be focused on the development of a government-wide policy and an operational mechanism to deal with terrorist threats of mass destruction. There is an urgent need for establishing clear and coordinated policy and operational guidelines which identify and instruct the lead and supportive agencies whose capabilities to deal with terrorist threats of nuclear, bacteriological or chemical mass destruction are yet untested.

Counterterrorism technology.—We have been examining the need for the research and development of equipment to improve our counter-terrorist capabilities. Requirements in this area have been tentatively identified by studies on mass-destruction and intermediate terrorism and in an overview of technology requirements.

Ready reaction teams.—Our experience with terrorist incidents abroad has revealed a need at overseas posts for the early on-scene assistance of specialists in the procedures and techniques of managing terrorist incidents such as kidnappings and hostage-barricade situations. The peculiarities of a given situation will determine whether such a team is needed, and if so, its number and composition. We have in mind an experienced crisis manager and a phychiatrist with terrorist/hostage-barricade training as being the key members. We hope to develop the Ready Reaction Team concept into an operational procedure to give immediate Washington support to overseas Missions confronted by a terrorist challenge.

Chairman RIBICOFF. Since our curiosity has been aroused, Senator Javits will read the list of names.

Senator JAVITS. It's brief. There are four countries involved which the United States has named as aiding or abetting terrorism. The People's Democratic Republic of Yemen, Somalia, Libya, and Iraq. I was going to ask the Department today whether the Department wished to review the inclusion of Somalia.

Secretary VANCE. Since we furnished that list the situation changed in Somalia. Somalia helped effectively in the Lufthansa incident. In light of those circumstances and those which have changed since the time we sent the letter to Senator Javits, we would no longer include Somalia on the list.

With respect to South Yemen, let me point out the situation there remains under review. They refused to accept in the Lufthansa incident the landing of the aircraft in that country. They indicate that their position with respect to terrorist situations has changed from the past and therefore the matter should be reviewed.

Senator HEINZ. Mr. Secretary, what are the criteria by which a country makes that list?

Mr. ISHAM. There would be a whole range of criteria. The degree to which a country would aid or abet a terrorist act by protecting from prosecution, under the laws, hijackers or terrorists that might come into its territory.

This would, of course, violate the Hague and the Montreal Conventions.

Second, the degree to which it would provide logistic support, financial support, training, weapons, diplomatic facilities, and other means of support for a terrorist, all of these factors would be taken into account.

Senator HEINZ. What I hear you saying is that there are no firm guidelines. It is done on a case-by-case basis, unless I misinterpret the term "the degree to which."

What you are saying is, that you are reserving judgment in each and every instance as to how bad the situation is, and that there are no clear guidelines that a potentially proterrorist country may refer to.

You are saying if you get too bad in aiding or abetting terrorists, too bad in providing logistical support, you might get on the list.

Am I unfairly characterizing the State Department's policy?

Mr. ISHAM. No. The aiding and abetting is a firm policy guideline which is effected in legislation.

Senator HEINZ. Are those guidelines available to the Congress?

Mr. ISHAM. Yes. For example, they are contained in our Foreign Assistance Act. It contains these prohibitions.

The Export Control Act makes reference to such matters.

Senator HEINZ. But I am interested in how the State Department makes a determination that a country has crossed the unacceptable threshold of aiding or abetting terrorists.

Secretary VANCE. The decision is one which has to be made after evaluating what the specific factors are in the field of aiding and abetting. Then a determination has to be made.

That would be made by making a recommendation to the Secretary of State, namely, to me. I would then make the decision that it should be included.

Senator HEINZ. Mr. Secretary, maybe you or Mr. Isham can answer this. Are there any triggers that force that review through channels to you?

Secretary VANCE. There is a continuing review going on by the working group and the executive committee of the intelligence information with respect to terrorist incidents, and potential incidents, and what is going on within each of these countries. That kind of information, and the reports coming out of that are indeed trigger incidents which would generate the kind of reports to me and to others involved in the process to make such a decision.

Senator HEINZ. Let's take a specific example, so that we can get down to cases, as apparently you do in the State Department.

The Abu Daoud case involving the failure, in my judgment, of the French authorities to give the German authorities any real opportunity to seek the extradition of the terrorist Abu Daoud. What was, in fact, our role, if any, if you know, in that matter? And what did we threaten to do, if anything, to the French? What words did we have

with our former NATO friends—at least they are still our friends, but they have been less active militarily than maybe we would prefer.

It seems to me that was a pretty reprehensible act by the French. Did we ignore them?

Secretary VANCE. Further investigation has been made of that. There are a number of factors that relate to it that I would be happy to go into in closed session. I do not think it would be appropriate, frankly, to go into that in this open session.

Senator HEINZ. Let me turn, then, if I may, to a different issue. What are the kinds of sanctions that we do and don't use against countries that do get on the list.

Maybe in closed session we will have to come back to some of the cases, and how you do work it in the State Department. It is not entirely clear to me, but I don't pretend to be an expert on this.

Have we got an embargo against the sales of commercial aircraft, or the use of Eximbank credits, one or the other, or both, with respect to Libya, Iraq, South Yemen, and Somalia at this point?

Secretary VANCE. There is, in the case of Libya, an embargo on the sale of commercial aircraft with significant unilateral capability and the granting of licenses for that.

Senator HEINZ. In 1976 we sold both these countries, Iraq, for example, $31 million of one category of aircraft, $89 million of another category of aircraft. That was in calendar 1976.

Are you saying that with respect to Iraq, which is one of the major supporters of international terrorism, particularly logistic support of terrorism, we did not have in effect during 1977, or at this point in 1978, a policy that proscribes, forbids commercial aircraft sales to that country; is that correct?

Secretary VANCE. That is correct.

Senator HEINZ. The same would be true with respect to South Yemen and Somalia?

Secretary VANCE. With respect to South Yemen, the situation has not arisen with respect to it.

Senator HEINZ. Why don't we have such a policy in effect with respect to Iraq?

Secretary VANCE. There were some indications that Iraq might be willing to change its position. It has come out against skyjacking. It has indicated it was willing to consider other steps which would move away from its past policies.

In light of that, it was felt that it would be premature at this point to take that step until we see what might be able to be resolved.

Senator HEINZ. Do you believe that it was wise of this country in 1976—and that was a prior administration—to sell such a large amount of commercial aircraft to Iraq?

Secretary VANCE. This is a crucial question—the impeding of commercial transactions to foreign nations, that is, private sales, as long as they are not military aircraft.

Senator HEINZ. Is there something wrong with imposing an embargo on a country?

Secretary VANCE. No, but it is one which I say must be taken with care.

Senator HEINZ. I seem to remember you, Mr. Secretary, before the Banking Committee testifying that although you and I might disagree on this policy, the Saudis and other Arabs had every right to enforce a primary embargo against Israel.

Secretary VANCE. I did, indeed, say that. But the decision to enter into an embargo in the case we were talking about, and generally the decision of embargoing commercial transactions with another country, is a very serious decision that usually is taken only after consultation with the Congress, and it is not something done lightly.

Senator HEINZ. I applaud the caution in your statements.

My time has expired.

It is, nonetheless, a subject to which I hope we will return because the issue of support, and commercial transactions with countries that aid or abet terrorism is, I am sure, of great concern to you and the members of this committee. I think we have to pin the policy down a little more clearly, because if we fail to do so, countries will look at our policy with respect to the most intransigent countries, such as Iraq, and they will think they have nothing to lose because Iraq, which has been supporting terrorists unless a miracle has taken place in the last few hours is having free commercial transactions with the United State, for all I know, subsidized by the Export-Import Bank. I am not sure of that. This is a question we have to return to later on.

Thank you, Mr. Secretary.

Chairman RIBICOFF. Senator Glenn.

Senator GLENN. Thank you very much.

I think any time we are dealing with terrorists, we are dealing with unstable people. They are not people who respond rationally. I think any time we give in to them, whatever their minor demands, their incentive is increased. I think this is true of refueling aircraft. If, when terrorist activities first started, we had made a flat rule, no refueling, no nothing, there probably would not have been as many incidents.

That is easy to say. If my family was aboard a hijacked airplane, I might feel quite different.

I think any time we give in, however, even to refueling a plane, we encourage them more.

Do you have anything in mind that would affect the whole terrorist picture that is not being done now in the executive branch? What ideas have been advanced that have not been put into place?

Secretary VANCE. I think we have to look further at the question of whether we should not, if we cannot accompish it within the framework of the existing conventions, look for further actions such as the German suggestion with respect to outlawing the taking of hostages under any circumstances whatsoever. We would support very enthusiastically such a convention.

It seems to me that this is one thing that ought to be pinned down and it ought to be made clear that this should be a crime, a crime which is prosecuted; and second, we ought to see if we cannot broaden the scope of those who will participate in the activities mandated by the existing conventions.

The numbers that we have are really very, very small when you look at the 55 I talked about. We must find ways of better working

together to increase those who will agree to abide by even the existing conventions. I'm sure that as we go forward there ought to be new ideas that can be generated. That will be constructive.

I hope in our dialog with this committee we can come up with new thoughts, within the new structure we have in the Government, and within the interagency working group; I hope that through the interaction of this group, which is charged with the daily responsibilities of devoting themselves to these issues, we will be able to come up with new thoughts as well as better ways of implementing the existing conventions which exist, but which have not been followed by too many countries.

Senator GLENN. Considering the German proposal and broadening the scope of our study of this problem are the only two things you know of right now that we are not doing?

Secretary VANCE. At this moment.

Senator GLENN. I spent considerable time last week with Mr. Isham——

Secretary VANCE. Let me add one other thing. At the moment we are also taking a look at a number of airports to see whether they should be put on the list of dangerous airports and whether or not it will be possible to get the countries involved to take the necessary actions to remove the danger situation which exists there. If it is not possible to get this done in a cooperative way, then I think we will have to take concrete action with respect to these particular airports.

This is another specific area in which I think we can and should move.

Senator GLENN. You mentioned that enabling legislation was needed. What specifically were you referring to in your statement?

Mr. ISHAM. This would be the enabling legislation to provide full compliance with the Montreal Convention by this Government. That has been submitted on November 11 and it is also contained in this bill. We think this should be done.

Senator GLENN. Who needs to take action on that, the Senate?

Mr. ISHAM. Yes, as well as the House of Representatives.

Senator GLENN. In the form of a treaty, executive agreement?

Mr. ISHAM. The Senate gave its advice and consent to the Montreal Convention and it was ratified in 1972 as a treaty. The legislation is now necessary to enable us to discharge fully our obligations under that Convention.

Senator GLENN. Are there major differences among the Tokyo, Hague, and Montreal agreements?

Secretary VANCE. In what respect?

Senator GLENN. Do they differ or are they the same?

Secretary VANCE. No, they really complement each other. The Tokyo Convention first mandated the necessity for criminal jurisdiction with respect to hijacking incidents.

My recollection as far as the Hague Convention is concerned is that the Hague Convention requires the parties to punish by severe penalties persons who have unlawfully seized aircraft and obliges the parties having custody of the offenders to prosecute or extradite the offender.

That left a loophole. Therefore, you had the Montreal Convention and that requires parties to punish by severe penalties persons who

commit acts of violence aboard aircraft in flight, damage or sabotage aircraft in service, or air navigation, and also provides for prosecution and/or extradition. And the latter was enacted to plug the loophole that had been left as a result of the Hague Convention.

Senator GLENN. You have the Special Coordination Committee which was placed into effect this past spring or early summer. Now, I met for some time last week with Mr. Isham and some of his associates, going into some information that I wanted in advance of these hearings, particularly with regard to nuclear questions. I wound up at the end of our session wondering whether the bill that we are considering here, S.2236, was not duplicating what has already been done. Do you think that this bill would add anything to what was done as far as giving you jurisdiction, better authority, or better language? Does it accomplish anything that you have not already accomplished in advance of the bill's passage.

Secretary VANCE. Insofar as organization is concerned, we believe that the steps which have been taken by the establishment of the Special Coordination Committee, by the establishment of the interagency working group, and by the establishment of the executive committee of the interagency working group, plus the implementing, further steps taken in each of the departments, has established a reorganization which is necessary. Therefore, we do not need the proposed reorganization in terms of the council proposed for the White House, the Special Council on Terrorism, nor do we need a special Assistant Secretary for Terrorism within the Department of State, nor indeed another Assistant Attorney General. But the Department of Justice will have to speak to that.

We believe the steps taken by the President in his reorganization of the NSC structure have, from an organizational standpoint, strengthened our terrorist capability within the Government from an organizational standpoint.

However, there are other aspects of that bill which we think are very important and which we endorse. We would hope that after examining fully what has been done in the reorganization of the National Security Council and the establishment of the special coordinating committee, that this committee would conclude that it is a sufficient organization and would in fact endorse it in its legislation.

Senator GLENN. There is one area of concern I have followed especially closely in the international field: the spread of nuclear weapons around the world. As the Secretary is aware, because we have worked together closely on legislation, along with Senator Percy, we have a bill ready to go to the floor.

I would submit, as far as terrorism goes, that we haven't reached the worst stage yet. We have spread thousands upon thousands of artillery shells of nuclear capability around the world. We have increasing capability to miniaturize these weapons. Some day, one or more of them will turn up missing. Someone will be able to carry them in a backpack.

I don't think once that happens and once we send our teams out to try to determine whether we really have an atomic weapon planted under a building in New York or in a major population center or in the Capitol of the United States, we are really going to get into the general issue of terrorism at that time.

With Mr. Isham, I went into some of the things that will happen when this occurs, because we have threats of this happening occasionally now. Fortunately they have proven to be untrue up to this time. One day when there is material really missing out of our stockpile we will have a real problem to deal with. It is bound to happen some time in the future, that something is missing and we think this may be a real threat. We haven't seen terrorism like that is going to be.

I would like to have comments before the gentlemen leave today, certainly on exactly what happens when we get a threat like that, what goes into action, who checks it out, as much as we can give in open session, because I think the American public is entitled to an answer to that question.

Chairman RIBICOFF. I will allow time for the answer to that question.

Mr. ISHAM. Senator, as we mentioned in our briefing the other day with you, the procedures that the Department of Energy have and the Nuclear Regulatory Commission have for the detection and the reaction to threats are elaborate, well-established, and have been tested. The whole Defense Department mechanism exists for achieving the same purposes in the military. I think that we should, however, examine very closely, in the light of your comments, what additional measures we need to strengthen these existing procedures.

I would have to say that these are long-established and administered by the agencies responsible, that is, the Department of Energy and the Nuclear Regulatory Commission, with the utmost attention. And it would be there, I think, that we really need to go into them, with the witnesses from those two Departments, into this subject in greater detail.

Senator GLENN. Mr. Chairman, perhaps that should come at a more detailed, later session. We went into this in detail in my office the other day. I asked if this subject matter was classified at that time. It was indicated then that all of the things we talked about were not classified, in the public domain. I think this morning, or later on, we want to go into that in greater depth.

There is a sequence of events which occurs with a team: who does what, goes where, and who has to request that. It is a reasonably organized approach. It should be brought out in public so people are aware of the procedure. One of these days we will have a real emergency on our hands and people should know what the procedure is.

Chairman RIBICOFF. Senator Stevens?

Senator STEVENS. Thank you.

Mr. Secretary, you say 55 nations have not ratified these conventions. Have you provided the committee with a list of nations that have not ratified the conventions? Will you do so?

Secretary VANCE. I certainly will do so. Yes, indeed.

I have been away for a week so I don't know if they have been provided or not.

Senator STEVENS. Would it be possible to ask your staff to identify, of the 55, how many are receiving any foreign aid or are the recipients of any military sales?

Secretary VANCE. Indeed you can and we will.

[The information requested and subsequently supplied follows:]

Page 43
Lines 9, 13
January 23, 1978

A: The following states are not parties to any of the three aviation security conventions (Tokyo, Hague, Montreal). Those states receiving US economic or military assistance for Fiscal Year 1978 are annotated E and/or M respectively.

Albania
Algeria - E
Angola - E
Bahrain - E
Bangladesh - E, M
Bhutan - E
Bolivia - E, M
Botswana - E
Burma - E
Central African Empire - E
People's Republic of China
Comoros
Congo - E
Cuba
Democratic Kampuchea
Democratic Yemen
Djibouti - E
Equatorial Guinea
Ethiopia - E
Gambia - E
Grenada
Guinea - E
Haiti - E, M
Honduras - E, M
Jamaica - E
Kuwait
Liberia - E, M
Malaysia - E, M
Maldives - E
Malta - E
Mauritius - E
Mozambique - E
Nepal - E, M
Peru - E, M
Qatar
Samoa - E
Sao Tome & Principe - E
Seychelles - E
Somalia - E
Sri Lanka - E, M
Sudan - E, M
Surinam
Swaziland - E
Syria - E
United Arab Emirates
United Republic of Tanzania - E
Venezuela - M
Vietnam
Yemen - E, M

Senator STEVENS. Have we taken any initiatives to have the United Nations step forward to have a cellective sanction on the countries that do not follow the principles that are recognized in these three conventions?

Secretary VANCE. We were active and really the most active of the countries in trying to get something through the U.N. this fall.

We came out with the consensus resolution and that got watered down, unfortunately, in the process.

It is difficult to get anything with real teeth in it out of the United Nations in this area. So at this point, we don't really have anything else.

Senator STEVENS. Would it be effective, with regard to the countries that have not ratified, that we indicate we are prepared to take some steps against them if they do not agree in advance to recognize these three conventions?

Secretary VANCE. The answer is this would have, I think, to be done only after very careful examination of what the consequences would be in respect of our relations with these various countries.

In some cases one runs into the question of the claim of sovereignty and their right to execute or to make their sovereign decisions with respect to what they will and will not ratify.

I don't want to try to make a broad, sweeping statement with respect to it. I think it is so complex that it would be inappropriate.

Senator STEVENS. You have indicated we are not satisfied with these numbers. I think the committee would agree with that.

I wonder if there is some role the Congress can play in connection with the foreign aid bills, and military sales bills that might grant you some additional authority to suspend sales or to suspend aid if there is not an acceptance of those conventions within a reasonable period of time.

Mr. ISHAM. I think we would be glad to consider that. We have found that approaches, diplomatic approaches have somewhat better chance of having the right effect, and we are engaged in such an effort right now which I would be glad to tell you about in private session.

I will be frank to tell you that there are a number of nations that want to make sure that whatever they do would seem to be as their own initiative and not as a response to any ultimatum of the United States.

We must be frank to concede that this whole matter of sanctions involve sovereignty, political considerations, and deeply rooted conflicts.

But I do think it would be good to discuss how we could support these initiatives.

Senator STEVENS. Maybe the chairman or some of the people on the Foreign Relations Committee ought to do that.

Let me ask one last question about your crisis management organization. I commend you for it. I think that we have seen crises in this country that indicated that crisis management procedures were not really on a 24-hour basis.

Has it been tested?

Secretary VANCE. Yes, it has been tested. One of the tests occurred at the time that one of our helicopters was shot down in Korea. The system went to work immediately.

I, the Secretary of Defense, and the National Security Advisor immediately assembled. We took all of the necessary steps including getting in touch with the various necessary parties within our own governmental structure, including those in Korea and overseas, both military and diplomatic.

We were in touch with other governments immediately so as to seek their assistance should it be necessary in connection with the resolution of the matter.

The President participated in the process and joined us within a very short time. I think the matter was handled promptly, expeditiously, and efficiently and I think the matter worked well.

Senator STEVENS. Thank you very much.

Chairman RIBICOFF. Senator Percy?

Senator PERCY. Mr. Chairman, I am sorry I was not here at the outset of the hearing.

I would like to ask unanimous consent to incorporate an opening statement at an appropriate point.

Chairman RIBICOFF. Without objection.

Senator PERCY. I would like to quote a few figures from my opening statement which indicate that we are making progress in curbing air piracy but that we still have a terrible problem.

Terrorist groups continue to flourish and threaten the safety of citizens of all nations. Since 1975 we have had 14 terrorist bombings in the city of Chicago alone.

I ask unanimous consent to incorporate the details of those bombings in the record.

[The information referred to follows:]

JANUARY 20, 1978.

To: Ken Ackerman.
Fm: Barbara Klein.
Re: Terrorist incidents in Chicago.

June 14, 1975, 12:45 a.m.

Bombs planted at the Mid-Continental Building, United of America Bank and the Champlain Building. (main offices of Trans World Airways)

The bomb was left by an unidentified man near the Chagall mosaic at the First National Bank Building. The case in which the bomb hidden was picked up by several people. They opened it in their car, discovered it was a bomb and threw it out the window near the Mid-Continental. The bomb exploded injuring the 4 persons in the car and causing damage to the entrance of the Mid-continental.

The bombs at the United of America and the Champlain shattered windows, no injuries.

October 27, 1975, 3 a.m.

Bombs exploded at the Continental Bank, the Sears Tower, and the IBM Building shattering windows and causing minor structural damage, no injuries.

A fourth more powerful bomb was discovered at the Standard Oil building but did not detonate. Because of its close proximity to the Continental, Windows were shattered at the Federal Reserve Bank in Chicago.

FALM claimed credit for the bombings. That same night bombs went off in Washington, D.C., New York

June 8, 1976

Four bombs exploded between 10:41 and 11:02 p.m. bombs were placed in garbage cans.

First National Bank Plaza : 4 people injured, 2 seriously by flying shrapnel
John Hancock Center : Damage to door and windows broken
Bank Leumil Israel
Chicago Police Headquarters : eleven plate glass windows shattered

September 10, 1976

Bomb left on the 700 block of North Lasalle, in midtown Chicago exploded breaking windows of buildings alonf the block. Believed that bomb was intended for the Puerto Rico Department of Labor located at 734 N. LaSalle.

A bomb exploded in the womens restroom of the Pinnacle Restaurant on Lakshore Drive. Knocked down heavy door, toppled stalls, shattered mirrors and tiles. The bomb was believed to have been left at the restaurant by mistake; a *Puerto Rican group* was to meet at a restaurant nearby.

November 4, 1976

Bomb factory found at 1117 North Washtenaw. Dynamite, propane tanks and timing devices.

February 18, 1977

Two bombs exploded at the Merchandise Mart and the U.S. Gypsum Building.

The merchandise Mart bomb exploded in a public coin locker, causing $100,000 damage to 6 stores. Broken windows, ruptured waterpipe, smashed cinder blocks.

U.S. Gypsum : over $25,000 damage. Broken windows (15) on 1st, 2nd and 3rd floors, damaged heating plant.

Senator PERCY. Only 5 days ago an Ecuadorian airliner was forced to fly to Cuba. The recent Lufthansa skyjacking endangered the lives of several U.S. citizens and resulted in the brutal murder of the pilot. Only the intervention of West German commandos prevented further disaster.

We all agree that the people of this country have the right to expect their Government to do everything in its power to protect them from criminal acts of terrorism. We must also look to the future and consider the possibility of more serious terrorist threats which are unfortunately made possible by our present advanced state of technology.

I think we should indicate that despite the occasional inconvenience to travelers at airports and the fact that one Senator objected to being searched, our present airport security has had a tremendously beneficial impact.

During the 5 years prior to 1972 there was one successful skyjacking every 20 days in the United States.

Since the introduction of electronic searches of airline passengers and luggage 5 years ago, the FAA reports only one successful skyjacking in the United States.

Still, the threat persists, and the figures are quite startling. Eight hundred and seventy-four firearms were detected in the possession of potential airline passengers during the first half of 1977 alone and there were 370 arrests that occurred in this country in connection with those firearms.

Since January 1, 1974, the Civil Aviation Security Service of the FAA estimates that as many as 72 additional hijackings have been prevented. All of the inconvenience we go through is more than compensated for by those statistics. If we hadn't introduced those security measures, airline hijackings would have continued to be a very serious threat to travelers in this country.

Despite the progress we have made, citizens of the United States continue to be threatened by terrorism when they travel in countries with less thorough security measures.

During the first half of 1977 there were 14 attempted airline hijackings in other parts of the world, seven of which were successful.

I think the whole purpose of these hearings and the extraordinarily fine testimony and spirit of cooperation evidenced by you, Mr. Secretary, and Mr. Isham, indicates that the Congress and the executive branch do intend to do something more about combating terrorism.

My first question pertains to the legislation mentioned by Senator Glenn, reported out of this committee unanimously and by the Foreign Relations Committee and the Energy Committee, S. 897, which is a nuclear nonproliferatioin legislation, passed by the House—H.R. 8638—and now to be scheduled by the Senate.

The President has mentioned the importance of this legislation in his State of the Union message.

Has the State Department placed a high priority on the passage of S. 897 so you can get underway with the provisions of the bill in other countries?

Secretary VANCE. We do indeed. As Senator Glenn knows, we have said this has the highest priority and we have been urging that action be taken to pass that legislation as soon as possible.

We think it is extremely important.

Senator PERCY. In using our persuasive abilities with other countries, and I am thinking of India because of its detonation of the so-called peaceful nuclear explosion and the President's recent conversations there in which you engaged, Mr. Secretary, are countries being made aware by us of the potential threat that Senator Glenn has pointed out? This must terrorize everyone when they recognize the potential that does exist for nuclear blackmail in the hands of terrorists.

Secretary VANCE. The answer is clearly yes.

This has been made crystal clear time and time again to country after country.

Senator PERCY. I would like to ask what role you see the U.N. adopting in the fight against terrorism.

A resolution was adopted by the U.N. General Assembly last November condemning acts of aerial hijacking and calling on member nations to take necessary steps to upgrade their airport security and exchange information on combating terrorism.

Do you envision the U.N. as a viable forum to bring about effective curbs against acts of international terrorism considering the ideological divisions within the U.N. which are quite pervasive and make difficult the passage of very, very strong measures in this regard?

Secretary VANCE. I think we must continue to work within the United Nations and do what we can to try to get further support. further concrete support; and the obvious way to do this would be for the countries who are in favor of the U.N. resolution, which passed by a consensus vote, to sign and ratify the treaties which already exist.

I must be very frank in saying, however, that I think it is going to be difficult to get anything with real teeth in it to finally come out of the United Nations.

Therefore, I think we will have to not only continue to work within the United Nations but to work outside as well and bilaterally with these various countries to try to move forward in a concrete way.

Senator PERCY. Specifically, one approach we have taken, and I think wisely so, is to neither pay ransom or release prisoners in response to terrorist demands, believing that ceding to terrorists' demands would further whet the appetite for terrorist acts.

Other nations have agreed to pay high ransoms. In October, Japan paid $6 million and freed six terrorists in exchange for the release of a Japanese Airlines plane and its passengers.

Has our Government agreed to unite in a front against ceding to terrorist demands?

If so, what success have we had in this regard?

Secretary VANCE. This had been the object of discussion with other countries. Some other countries have a different view with respect to what the policy should be in terms of dealing with demands for blackmail payments.

Our position as you have indicated is very clear, and we have repeated it on many occasions. We have discussed it with other countries. Some, however, do not share our views on this, as I think the staff of this committee knows from their recent trip.

Senator PERCY. Following up on Senator Heinz' questions on what mandatory steps can be taken, here we have a delicate relationship between the executive and the legislative.

We don't want to mandate impractical things. On the other hand, it helps to mandate to strengthen the executive's hand, because they are always under pressure not to do something.

In 1974, we passed the Antihijacking Act authorizing the President to suspend air transportation between the United States and any foreign nation aiding or abetting international terrorists.

Neither President Carter nor his predecessors have explored this right to impose sanctions against nations aiding terrorists.

What questions come up in the President's deciding whether he should use the power that the Congress provided to him? In light of this, would it be well for Congress to pass, under certain circumstances, legislation which would take the question of sanctions out of the discretionary area, or would that tie your hands too much?

Secretary VANCE. I'm opposed to mandatory sanctions. I think to straitjacket the executive branch in the conduct of what is in large part an issue which affects foreign policy would be a mistake.

I do think that the authorizing authority which exists in the Hijacking Act is important. I think it can and could be used, but it has not been. Right now, as I have indicated, there are investigations under way with respect to airport security in certain countries.

My own view is that if discussions indicate after those meetings which will be had with respect to these particular airports, which I do not want to list at this point, then I think we ought to use the authority which exists in the 1974 act with respect to that matter.

Otherwise, I think it may well not get done.

Senator PERCY. Mr. Secretary, I want to thank you for your extraordinarily good testimony and again for the cooperative approach

that you have always taken in working with committees of the Congress.

We intend to work very closely with you on this.

I would also like to say that Mr. Isham has taken on an extraordinarily tough job. Many of us have had the chance to see the measures you have taken around the world to protect our Ambassadors and American citizens, and we commend you on an outstanding job.

[The prepared statement of Senator Percy follows:]

PREPARED STATEMENT OF SENATOR PERCY

Mr. Chairman, I am pleased that the Governmental Affairs Committee is today opening hearings on the Omnibus Anti-terrorism bill which proposes to strengthen our present measures for combatting terrorism.

Terrorist groups continue to flourish and threaten the safety of citizens of all nations. There have been 14 terrorist bombings in the city of Chicago since the beginning of 1975. Only five days ago an Ecuadorian airliner was taken over by armed hijackers and forced to fly to Cuba. The hijacking of a Lufthansa jet last October by terrorists seriously endangered the lives of 87 persons, including several American citizens, and resulted in the brutal murder of the pilot. Only the intervention of well-trained German commandos prevented further disaster.

The people of the United States have a right to expect their government to do all in its power to protect them from the criminal acts of terrorism. The purpose of these hearings is to determine whether current measures being taken by government are adequate, and how we might make them more effective.

Efforts to combat air piracy in this country have so far proven highly effective. During the five years prior to 1972 there was one successful sky-jacking attempt every twenty days. Since the introduction of electronic searches of air passengers and luggage five years ago, the Federal Aviation Administration reports only one successful sky-jacking in the United States.

Still, the threat persists, as evidenced by the detection of 874 firearms in the possession of potential airline passengers during the first half of 1977, resulting in some 370 arrests. Since January 1, 1974, the Civil Aviation Security Service of the FAA estimates that as many as 72 additional domestic hijackings have been prevented.

Despite the progress made in this country, citizens of the United States continue to be threatened by acts of international terrorism when they travel in countries with less thorough security measures. During the first half of 1977 there were 14 attempted airline hijackings in other parts of the world, 7 of which were successful.

In almost all of these cases the international hijackings would have been prevented by our security measures. According to Newsweek magazine even such countries as Italy, Spain, France and Greece have insufficient security requirements at their airports. Certainly a major consideration of these hearings then is for us to determine how we might persuade other nations of the need for tighter airport security.

Hopefully, international cooperation will result in a worldwide tightening of security measures. The International Civil Aviation Organization and several international conventions have served to voice the imperative nature of airport security, and the FAA has provided advice and instruction in security techniques to officials from 63 countries.

However, some nations, such as Algeria, Libya, and South Yeman, which deliberately harbor and aid terrorists, and any other nations who ignore the need for a cooperative international security effort, must face the possibility of strong sanctions being imposed against them. The Anti-hijacking Act of 1974 gave the President authority to impose sanctions, yet the authority has gone unused. We must consider today the possibility of making compulsory the imposition of sanctions against delinquent nations.

Finally, we must consider our preparedness for the future. A highly industrialized society such as ours, which depends so greatly on technology, is vulnerable to catastrophe for that very reason. Terrorist attacks against a natural gas pipeline, an electrical power system, a city's water supply, or a

nuclear power facility would all pose threats to many thousands of lives. The recent New York City blackout provides us with a frightening picture of the chaos which could arise from such a situation. It is our task to determine whether we have ample cooperation between different levels and departments of government to be able to act quickly and effectively in such an event, or whether the threat of mass terrorism warrants a reorganization of our security measures.

With the help of the witnesses here today and throughout the week, we will have the opportunity to explore the state of our preparedness for dealing with terrorism, and to consider the possibility of adopting more stringent measures to ensure the safety of our citizens at home and throughout the world.

Chairman RIBICOFF. Senator Javits?

Senator JAVITS. Thank you.

First, I wish to pay tribute to the Chairman for initiating this legislation, for giving me and others opportunity to join with him in it.

It is now recognized as an absolutely indispensable legislative issue. I believe this is all for the good.

Second, Mr. Secretary, this is the greatest market in the world. That is why we are having our problems with Japan and other countries on protectionism.

Now, the way to, in my judgment, deal with much of the problem we have is to deny this market.

You don't even have to impose sanctions to deny it. All you have to do it tell people that certain airports are unsafe and the American can take a hint or a little instruction.

So, to me, the most practical and immediate application of this measure is in the travel advisory which I see with great satisfaction that you like, too.

I think it is also interesting, Mr. Secretary, that you are taking Somalia off the list, because they have shown a different attitude.

Whether that was because they were first on the list or not, I suppose only the Lord will know.

But, in any case, it worked.

Now, do we want to put anybody else on the list that we have taken Somalia off?

Secretary VANCE. I think there are others one should consider. It is just as well not to discuss it in open session. I would be glad to do it in closed session.

Senator JAVITS. I think that is fine.

Chairman RIBICOFF. There are a number of issues that have been raised.

The Secretary, at the committee's convenience, will arrange for the closed session.

Senator JAVITS. Senator Percy gave a list of figures. It so happens we got the FBI to compile the figures domestically for the country.

And the incidents of terrorism are enormous; 106 in 1977 alone. We have them broken down by States, and I regret to say my State and California stand out, markedly. Forty such incidents in New York and 32 in California.

International terrorism is a very serious problem. I happened to be hit hard personally when Hal Rosenthal, one of my assistants, was killed in a terrorist attack at Istanbul Airport in August of 1976.

In the last 7 years there have been 1,800 major incidents, 512 people killed in bombings and assassinations, 551 wounded, 363 kidnapped, $146 million paid in ransom to obtain the release of kidnapped victims, and $92 million in bomb damage.

That is very, very appreciable.

Lastly, Mr. Secretary, what can we do, if anything, through the ICAO, the International Civil Aviation Organization?

Obviously, the U.N., as has been well pointed out by you and others here, is too diffused to really get into this thing in the right way and, unhappily—I must say this really with grave concern—I don't know where these LDCs get the idea that by countenancing terrorism, maybe not aiding and abetting it, but countenancing it, they are aiding international movements. They are inviting a more oppressive and totalitarian world. That is the worst thing in the world for them.

Secretary VANCE. I agree with you. By countenancing terrorism, this is the worst thing they could be doing.

Senator JAVITS. Would you mind if I interjected there? I would express the hope to you in public that the President of the United States would be as vehement about that as he is about human rights. The biggest human right of all is to hold onto your life. I think it is time for that kind of denunciation outrage, and indignation, and a really combined position by the United States that we simply won't take it.

I think that is why Senator Ribicoff initiated that whole effort.

Secretary VANCE. I think the President and the administration has made it very clear that we do not condone or accept terrorism in any way, that we oppose all of its aspects, and we will do everything we can to see that those who re involved in it are apprehended and are brought to trial and penalized for their action.

So there should be no question about where the administration stands on the whole question of terrorism.

That is one of the reasons that I welcomed the opportunity to come here today and applaud the hearings which are being held here and, indeed, to move forward in taking further concrete and effective steps to deal with this matter.

Senator JAVITS. On the ICAO——

Secretary VANCE. On the ICAO, as you know, Brock Adams in November went to Montreal to the ICAO meeting and there urged that action be taken which would require mandatory preflight inspection of all passengers and accompanying baggage.

I think this would be a terribly important step if this would, indeed, be carried out.

As you and other Senators have indicated, what we have been able to do here in the United States by our inspection procedures has made an immense difference.

If we could get the same thing adopted throughout the rest of the world, it would have a maior positive effect.

Senator JAVITS. Is the ICAO the best channel for that?

Secretary VANCE. I think it is a good channel, yes.

Senator JAVITS. Would you keep us in close touch with progress in that negotiation?

Secretary VANCE. Yes, we will.

Senator JAVITS. Do you think periodically you ought to make public a list of countries aiding and abetting terrorism?

Secretary VANCE. Yes, in my testimony I so indicated.

Senator JAVITS. Finally, as to the organization of the Department. We are lawyers and we have an aphorism. It isn't what the facts are, it's what the judge thinks they are that counts.

Secretary VANCE. Right.

Senator JAVITS. I don't think the American people really believe that we are as up to it as the West Germans, for example, or the Israelis. I deeply believe, Mr. Secretary, and I think you know my deep identity with you and your purposes, your aspirations and good faith, that we have to present a more implemented picture of our readiness to act, including the military and other means, which we propose to make available, including training and other assurances to the public that we are really on the ball on this thing.

Secretary VANCE. Let me comment briefly on that to say that, as you know, we do have a military capability. We do have people who have been trained in this area with special training for this particular purpose. When the Defense Department testifies in these hearings, they will go into the details of the numbers of people, the kinds of training, where it has been conducted, where these teams are located and the like. All I want to say here is—and to say it publicly—that the United States has not neglected this aspect of the problem.

Chairman RIBICOFF. Will Senator Javits yield?

The Department of Defense will be testifying on Wednesday, February 22.

Senator JAVITS. Thank you very much, Mr. Chairman, and Mr. Secretary.

Chairman RIBICOFF. Senator Hodges.

Senator HODGES. Thank you, Mr. Chairman.

Most of the questions which I had have been answered with the exception of looking again at the 55 countries who have yet to ratify any of the three conventions. Have you analyzed those 55 countries and are you able to determine whether there is any common reason or a series of reasons?

Secretary VANCE. There are a series of reasons, Senator Hodges. The bulk of them relate to questions which are either political or economic in nature, and another large segment are concerned with the issue of sovereignty. Some of the countries simply have not got around yet to ratifying. But those are the three main sets of reasons why action has not yet been taken.

Senator HODGES. I made the observation that we get very serious once the horse is out of the barn. Terrorism has occurred. We don't seem so serious about keeping the barn door locked. Is that a fair observation?

Secretary VANCE. We are serious about trying to prevent these acts from occurring and not waiting until after they happen. That's why we have set up mechanisms within the U.S. Government to develop and evaluate all of the information that we can around the world with respect to the possibilities of incidents and to keep in touch with other governments on not only a regular but even a daily basis, to forewarn them with respect to information which we may have received which might prevent incidents occurring.

I think that the cooperation which we are beginning to receive in this field is encouraging.

Senator HODGES. You indicated earlier in your testimony you would be hesitant to favor sanctions against countries who failed to ratify these treaties. Would you favor such sanctions at some point if significant numbers did not do so?

Secretary VANCE. I don't want to deal with it in such broad numbers. I don't think you can take 55 countries and lump them together. I think you have to look at it country by country, see what the reasons are and deal with them in that fashion. It's just in my view a mistake to try to lump a complex set of problems and give one simple answer.

Senator HODGES. Can you foresee circumstances where sanctions would be used against countries that failed to ratify the treaties?

Secretary VANCE. I can conceive of it, yes.

Senator HODGES. That's all I have.

Chairman RIBICOFF. Senator Mathias.

Senator MATHIAS. Thank you.

Mr. Secretary, I certainly think your presence here today after an arduous trip which you returned from only last night speaks for itself in giving evidence of your concern over this problem of terrorism.

We appreciate not only your efforts in the places you have been but your energy in getting here today and being with us to discuss this problem.

Secretary VANCE. Thank you very much, Senator.

Senator MATHIAS. Obviously there have to be priorities in our foreign policy. I don't think any of us here today could think of a priority much higher than suppressing this problem of terrorism, but sitting where you sit there are other considerations that come into account. I'm just wondering if you see another side of this coin. For example, if an airport such as the one in Athens, where there has been severe terrorism, were to be declared an unsafe airport, and closed to U.S. air traffic, can you see overriding considerations that might make this difficult, might make it adversely affect our relationships with the country in which such an airport was located?

Secretary VANCE. The answer is yes, I can, and this is the kind of problem to which I was adverting when I said I did not think you could deal with these problems except really on a case-by-case basis.

There are various types of foreign policy issues and factors which will have to be brought to bear in the decision of whether or not to apply sanctions in a given case, and whether it be sanctions of the type which would be a secondary boycott which is authorized under the 1974 legislation, or cutting off of our flights into that particular country, or indeed even the closing down of access to the airport.

And these have to be weighed very, very carefully and you have to see what the other foreign policy issues are that may hang in the balance upon the making of that particular decision. That's the reason I am opposed to mandatory sanctions which take away from the President and his foreign policy advisors any flexibility with respect to the making of a decision which could have far-reaching effects on the relationships of the United States with that particular country, and indeed with the situation in a given region.

Senator MATHIAS. In this bill we have not attempted to deal with broader aspects of terrorism such as the domestic terrorism they are suffering from time to time in the Federal Republic of Germany and in Italy. Could you tell us what, if anything, we are doing to cooperate with other countries to combat this kind of largely internal terrorism and whether you as Secretary of State or the President should have greater authority, greater help in cooperating in stamping out terrorism of this kind?

Secretary VANCE. We are exchanging information with countries such as Germany and Italy, with respect to the problems of terrorism both in terms of their problems and in the way in which they are coping with their problems. I specifically asked a team of our people, both on the civilian and military side, to discuss these matters with some of these countries and they have done so.

Mr. Isham perhaps may be willing to say something about this in closed session when one gets into the exact techniques and the kind of things we have been discussing. Obviously, this is something we should not discuss in open session. Perhaps you might be willing to say something about the trip which I asked you to take.

Mr. ISHAM. We have had consultations with a number of countries in Western Europe, particularly with respect to the whole question of advanced intelligence, law enforcement, crisis management, the links with other organizations and some of the underlying causes of the terrorist phenomena. This is something which is very much of interest to these governments, and I think we can pursue that.

Senator MATHIAS. In these conversations that you have had, has there been any evidence of links between the various terrorist groups that are operating worldwide in the situation today? Could you reflect a little on these kinds of connections?

Secretary VANCE. Yes. The answer is that there is an increasing linkage between the various groups and this is part of the phenomena that is of increasing concern, I think, to all of us, that one does see increasing cooperation and support at times between these various groups.

This, of course, makes the problem more complicated and even more dangerous than if these were isolated groups dealing on their own.

Senator MATHIAS. How about any sources of material support or training?

Is it clear as to any pattern which may have developed in that respect?

Secretary VANCE. Let me ask Mr. Isham.

Mr. ISHAM. Yes, Senator. For example, some of the Japanese Red Army people and some of the West German radicals have been trained in the Middle East countries, Iraq for one. There has been coordination operationally between certain so-called radical rejectionist Palestinian elements; Wadi Haddad in the Lufthansa hijacking planned the operation as a second strike in hopes of the German Government capitulating as to the prisoners in jail. There's a direct and close tie in those circumstances.

Senator MATHIAS. Is there evidence of the origins of financial support for these training centers?

Mr. ISHAM. Yes, there is.

Secretary VANCE. That's as far as we should go in open session.

Chairman RIBICOFF. Senator Heinz, Senator Glenn, Senator Percy, Senator Javits, Senator Hodges, any more questions?

Senator JAVITS. No one said anything about the IRA. I understand the speeches of Senator Kennedy and Congressman O'Neill and the strong speech by the Governor of New York, Hugh Carey, seem to have diminished U.S. contributions there. I have been for Irish unification all my life. I realize the deep feelings involved. I think there, too, the attitude of our country expressed in the public policy sense can have a considerable effect and again indicates the clout which sheer public statements and public disclosure have in this country. Do you agree with that?

Secretary VANCE. I certainly agree with that. I applaud the initiative which they took. As you know, this initiative was supported by the President and by me. We both made public statements in support of what they did. I have since talked to the Irish about this and they would agree with the conclusion which you have stated that this has resulted in a diminishment of financial support for the IRA.

Senator JAVITS. This would indicate, does it not, that the policy of publicity, more rather than less made public—not that I for a moment challenge you on the need for executive session, as the Chairman has provided—but this is a very potent weapon; is it not?

Secretary VANCE. I agree fully.

Chairman RIBICOFF. Senator Glenn.

Senator GLENN. Yes, thank you.

I would like to ask one last follow-up question.

Do you now feel you lack the money or lack the authority to do anything you think should be done in this field?

Secretary VANCE. No, I don't at this moment.

We are continuing to review the situation, and at any time if I feel I need more I will not hesitate to come back.

Senator GLENN. I'm not foreclosing the proposed legislation because as you indicated, there are parts that would make your program more viable or add to it. But as far as ideas in the Department or Government of things that could be one today to stop terrorism, you don't feel you lack authority or money to move?

Secretary VANCE. I do not feel we lack at this point authority or money.

Chairman RIBICOFF. Senator Heinz.

Senator HEINZ. Mr. Secretary, your testimony has been excellent. I have one last area to explore. I think Senator Percy asked you about the use of your authority under the Antihijacking Act in response to which I think you said that you did not want any mandatory sanctions to be written into any laws.

I think we can all appreciate that. But between the granting of an authority which gives you the ultimate flexibility and the requiring of mandatory actions there are inbetweens. One of those would be to indicate that it is our congressionally expressed desire, if this were our will, that certain nations be placed on certain lists unless you found a reason not to.

Now, the purpose of such a requirement would not be to put a burden on you or on the executive branch, although administratively

we have to recognize it would impose some, but to impose a greater burden on the countries that do aid or abet, or to use Senator Javits' excellent word, countenance terrorism in some form. Without asking you to endorse any specific proposal, would it be helpful to you and to administration efforts to combat terrorism for the Congress to put you in a position where we did require other countries which countenance terrorism in some way to explain to you why we shouldn't take certain kinds of steps against them?

Would that be helpful or would that not be helpful?

Secretary VANCE. It would be helpful in many cases. I can conceive of a case, however, as we sit here right now, where it could give us more difficulties, if in dealing with the situation, one then had in effect to publicly come out and debate the issue on why a particular country was not at a given period of time to be placed on the list.

I would like to think further about it before I give you a final answer.

Senator HEINZ. Thank you, Mr. Secretary.

One last question if I may, Mr. Chairman. Has the State Department given any thought to attempting either unilaterally or through the United Nations to bring about the publication of a list of the internationally most wanted or most dangerous terrorists?

Mr. ISHAM. We have not considered the publication of such a list. The agencies do maintain this kind of information among themselves. As to making it public, we have not considered that. It's a good idea to look at that.

Senator HEINZ. Thank you.

Mr. Glenn.

Senator GLENN. May I ask one last question?

Do you think it would be productive if we passed a law making it illegal to refuel an airplane that had been hijacked or to substitute another aircraft for it?

Secretary VANCE. For the United States to refuel?

Senator GLENN. That would be a domestic law basically. The point of first landing would be as far as a hijacked plane could go. Do you think that would be productive?

Secretary VANCE. I would rather have the flexibility to make the decision.

Chairman RIBICOFF. Senator Percy.

Senator PERCY. Mr. Secretary, just a couple of last points.

Perhaps the key element in any strategy to prevent terrorism rests in our foreign intelligence. Could you comment on how effective our foreign intelligence-gathering capability is in anticipating terrorist attacks on civil aircraft or Americans abroad?

Secretary VANCE. Our foreign intelligence capability is quite good. I am not saying it couldn't be improved, but it's quite good and is improving.

We have had a number of incidents with which I am personally familiar where the information which we obtained through our intelligence capabilities and contacts enabled us in advance to head off incidents which would have been damaging to either our own personnel or to personnel of other countries.

I think the new process which is being set up under the revised Executive Order, with respect to intelligence, will strengthen even further our capabilities in this area, and I look forward in the future to a strengthening of our overall intelligence capabilities.

It's good, but we can make it even better.

Senator PERCY. Very good. Finally, it is our policy to place primary responsibility on the host government when an incident occurs. What are the problems with that policy if you have a foreign government that proves to be acting ineffectively and improperly in handling a terrorist incident? What do we then do? What is our recourse as against that policy?

Secretary VANCE. Really, you have little recourse that can be applied at the moment. We have found that in the cases that we have had to face so far, such as in the Bangladesh situation where one of our personnel is involved, we were able to work closely with the government to advise them on a continuing basis, not only about the kind of steps that we thought they might take, but about the psychological aspects about the people with whom they were dealing.

We were able to take this out of our files, and it helped them in that particular case and led to a satisfactory result as far as our personnel were concerned.

There are undoubtedly going to be situations in the future where we are going to run into problems when we are not going to have such a cooperative kind of situation, and I can't give you any good answer to that right now.

Senator PERCY. Thank you.

Chairman RIBICOFF. Mr. Secretary, we spent all morning, basically, talking about terrorism. But the problem of dangerous airports around the world, to a great extent, is even more important, because the incidents are much more frequent.

It is all right in answer to Senator Mathias to say you would think carefully about putting Athens on the list as a dangerous airport. If Athens or Madrid or Paris is a dangerous airport that doesn't provide the minimum safety standards, then why shouldn't American travelers be made aware of it? Why shouldn't sanctions be put into effect?

I can't imagine why in a country like Athens or Spain or France, the people and the government countenance the continuation of safety standards that are dangerous to Americans, world travelers, and their own people, or why they won't immediately put into effect what is necessary to make it a safe airport. At the minimum we should expect the President of the United States and the Secretary of State to list those airports which are unsafe throughout the world.

Secretary VANCE. I think there is a difference between making aware and applying sanctions, which I thought was the question put to me. As I indicated in my testimony, we are prepared to see in legislation a requirement that we list what we believe to be unsafe airports.

The question of applying sanctions, however, which would cut it off, is a different question.

Senator MATHIAS. That was my question, yes.

Chairman RIBICOFF. Let's say an airport is listed as unsafe and notice is given for so many days to remedy the unsafe feature, and the

nation refuses to do so. Why should the lives of thousands and thousands of Americans be jeopardized year in and year out by the refusal of that nation to take the necessary minimum steps to make that airport safe?

I think we have a basic problem here. I'm not sure we should give absolute discretion to the President to allow American aircraft to land American passengers and to take off for that airport when we know that airport is unsafe.

My feeling is, once you listed an airport like that and showed you meant business, there isn't a major country in the world that won't remedy the unsafe conditions.

Secretary VANCE. My guess is, you are probably right on that. That is why I think you may not have to get to the question of sanctions. If you get to the question of sanctions, I'm saying you have to look at all of the factors.

Chairman RIBICOFF. I know every once in a while you can't be "Mr. Nice Guy." I'm not talking about you personally. I mean the country. I think every once in a while, when you have a situation that jeopardizes the lives and safety of Americans, we have an obligation to say so and to do something about it.

And there are airports in this world that are used by thousands and thousands of Americans who do not realize how unsafe they really are. I think this is a field that we must go into very, very carefully. I know in the opening statement when I listed some of the airports that were unsafe in the world, there was a great hue and cry from the ambassadors of those countries over the fact that their country was listed.

You would find the remedy to that situation by listing deficient airports publicly.

I'm sure the International Airlines Pilot Association would agree.

In subsequent testimony, I expect those people who fly airlines, who have the responsibility for thousands and thousands of passengers of all nationalities, their own lives, and their own families, will feel strongly that we, as a country, have an obligation to call the tune and name names of countries whose airports and facilities are unsafe for international travel.

Secretary VANCE. Let me say one more word. I agree, we should list unsafe airports, and so indicated in my opening statement.

Chairman RIBICOFF. Suppose you list an unsafe airport, give them 60 days to remedy that or 6 months or what is necessary for them to put in the minimum screening devices we use in our airports in this country, and they fail to do so.

Should we then shrug our shoulders and do nothing about it?

Secretary VANCE. The answer is obviously no, Senator. I think that in most cases one would go ahead. All I'm saying is there may be a particular case where there are other factors which come to play that will have to be taken into consideration if it affects such a broader issue that also involves the vital interests of the United States.

Chairman RIBICOFF. Because many of the——

Secretary VANCE. You would have notice to the people by saying it was an unsafe airport.

Chairman RIBICOFF. Because the analysis of terrorism and where the terrorists start from would indicate that many of these terrorists start

from airports in which the security is lacking. That makes it possible for them to board the plane with these nefarious weapons in which the hijackings start.

We can't determine what West Germany will do or France or England or the Scandinavian countries, but we have an obligation to protect the lives of American citizens traveling abroad.

Senator JAVITS. Mr. Chairman, as your cosponsor, I would like to support you in what you have said.

Chairman RIBICOFF. Thank you very much.

I want you to know how much I appreciate your coming here, and it indicates that you too think this is a serious problem.

Secretary VANCE. I do, indeed.

Chairman RIBICOFF. Frankly, if you had called me and said, "I just got back from an onerous week. Could I be excused?", I would have said, "Certainly."

The fact that after all that hard traveling, you came here, indicates your deep concern and your commitment that we do something about it. I'm confident that our committee and staff working with you, Mr. Secretary, can bring forth a good, meaningful bill.

Thanks again for coming.

Secretary VANCE. Thank you.

[Whereupon, at 12:05 p.m. the hearing was adjourned.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

WEDNESDAY, JANUARY 25, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 10 a.m. in room 3302 of the Dirksen Senate Office Building; Hon. Abraham Ribicoff (chairman) presiding.

Present: Senators Ribicoff, Chiles, Glenn, and Percy.

Staff members present: Richard A. Wegman, chief counsel and staff director; Ellen Miller, professional staff member; Brian Conboy, special counsel to the minority; John Childers, chief counsel to the minority; Ken Ackerman, professional staff member, and Robert V. Heffernan, research assistant.

Chairman RIBICOFF. The committee will be in order.

Our first witness is Secretary Brock Adams. We are delighted to have you.

Your department has primary jurisdiction over airplane hijackings. If an airplane is in flight or found aground with its doors closed, DOT has primary responsibility for handling of the incident.

So you have a lot of problems and a lot of authority. We are delighted to have you and are anxious to have your testimony.

Senator PERCY. Secretary Adams, I want to welcome you. I will resist every temptation, I hope, to lobby you on any of the projects we need in our area; a second airport in St. Louis, and so forth.

We welcome you. Air terrorism is a subject of intense interest and we are grateful for your testimony.

TESTIMONY OF BROCK ADAMS, SECRETARY, DEPARTMENT OF TRANSPORTATION; ACCOMPANIED BY RICHARD F. LALLY, DIRECTOR OF CIVIL AVIATION SECURITY, FEDERAL AVIATION ADMINISTRATION

Secretary ADAMS. I have asked Mr. Lally to accompany me to the table so the Members would be aware of who he is and what he does. Mr. Lally heads up FAA's civil aviation security program and is in charge of the FAA complex that handles individual hijackings and maintains liaison with the particular carrier that is involved. I wanted you to know who he is and that there is elaborate machinery in the United States to handle hijackings.

We have had two hijackings since I have been Secretary, Mr. Chairman. Both of these have been solved without loss of life of either passengers or crew.

Senator PERCY. I did, by the way, read the security record of the past 5-year period. We have achieved great progress in this country. It's absolutely remarkable considering the number of hijackings we had before.

We certainly commend you for carrying out this program.

Secretary ADAMS. Senator, that will be the basis of my testimony this morning.

Mr. Chairman and members of the committee, we at the Department of Transportation feel the same concern you do over the alarming increase in terrorist acts throughout the world and the increasing tendency to use terrorism to achieve political objectives. We need to strengthen worldwide measures to condemn, prevent and eliminate terrorism from the political scene.

We endorse the objectives of S. 2236, and we applaud the work of this committee to build on the steps already taken by our Government and governments around the world to free all nations from this threat.

DOT's last report to the Congress on the effectiveness of the U.S. civil aviation security program was submitted less than 3 months ago. It warned that growing cooperation among terrorist groups throughout the world poses an increased threat to civil aviation. There were 30 scheduled airline hijackings worldwide during 1977—almost double the total for 1976 and more than any year since the 1968–'72 peak in worldwide hijackings. This is an alarming increase if the trend should continue.

Within a week after submitting that report, I appeared at a special meeting of the Council of the International Civil Aviation Organization in Montreal to point out the increasing severity of the threat and to state to that group the United States' position that we must adopt more stringent international standards for the security of aviation worldwide.

On behalf of the U.S. Government, I told the ICAO that the most basic action, one which we must have, is an upgrading of the current ICAO security standard dealing with passenger screening. To be effective, that standard must require screening of all passengers and all carry-one items on all flights at all times.

Twenty-one of the 25 foreign air carrier hijackings during 1977 were caused by weakness of the passenger screening procedures. The weapons involved in those incidents should have been detected and intercepted by effective passenger screening measures.

In contrast to the foreign experience, no U.S. hijackings since 1973 resulted from real firearms or explosives passing undetected through passenger screening points. When this strengthened screening requirement is established as an international standard under ICAO Annex 17—that is Annex 17, Mr. Chairman, to the Chicago Convention—then countries which have not adopted it can file differences with ICAO so indicating and this will provide a list of deficient or dangerous situations.

The United States' concerns and proposals presented to ICAO are supported by many other nations of many different ideological viewpoints. These proposals are now under active consideration, and we have stated that there must be positive results in the very near future to protect the very existence of a worldwide aviation system.

In 1968, there were no international aviation security standards. Since then, the United States has worked vigorously providing technical assistance to other nations and using the international cooperation system, particularly ICAO, to make worldwide improvements in the security of civil aviation.

Since 1968, ICAO has established security standards and recommended practices for its 140 member states and has published a technical security manual on how to implement them. The basic international aviation treaty, the Chicago Convention, now incorporates those security standards.

Building on the Tokyo Convention, which came after Chicago, are two new international treaties, the Hague and Montreal Conventions, which are now being ratified. They provide for extradition or prosecution of persons responsible for hijackings and acts of sabotage against aviation facilities.

During this past year the General Assembly of the United Nations adopted a resolution condemning acts of unlawful interference with civil aviation. The International Air Transport Association (IATA) passed a resolution urging states to ratify the Tokyo, Hague, and Montreal Conventions and suggesting that states who do not ratify them should not remain members of ICAO. In December, after my visit, the ICAO Council adopted a resolution which has gone to all member states urging implementation of specific antihijacking measures, including the screening of passengers and cabin baggage on all flights.

Most nations and most airlines of the world now have active civil aviation security programs in place and are making significant improvements in the security of their air transportation systems. The United States has led this movement through technical assistance, guidance and motivation for those countries who have not had experience in this field.

Even with this progress, we are prepared to take whatever additional actions may be required to protect U.S. citizens, crews, and aircraft abroad. We have available the sanction provisions of the Federal Aviation Act to suspend air service or act on airline operating authorities.. I have already instructed the FAA Administrator to proceed to identify those foreign airports which currently present the greatest concern from the standpoint of security. I have requested security inspections of the United States and pertinent foreign air carrier operations at those airports to identify any security weaknesses, so we can obtain the necessary improvements.

Mr. Chairman, I would like to indicate the scope of this problem because I know the concern that the committee has.

The FAA security regulations currently cover 36 U.S. and 73 foreign airlines operating some 15,000 scheduled passenger flights each day to and from 620 U.S. and foreign airports and boarding some 585,000 passengers and 800,000 pieces of carry-on baggage daily. In spite of the vast complexities involved in this system, and the fact that the person or package we are looking for is one among hundreds of millions, the measures currently applied afford air travelers a level of security unmatched in any other type of travel.

We are pursuing an aggressive program of technical assistance with other nations, so that they will have full access to our knowledge and

expertise in security efforts so that air passengers, of whatever nationality, can use the international air system with increased security. FAA technical assistance teams have already visited 20 countries to provide advice and assistance in developing or improving civil aviation security programs. Over 200 foreign officials have attended the aviation security training school in Oklahoma City. We have given in-depth briefings on all aspects of aviation security and provided training materials to foreign government and airline officials.

Mr. Chairman, this is in addition to what we do with our own domestic airlines.

We regularly conduct security inspections of U.S. flag carrier and certain foreign carrier facilities outside the United States. This involves visits to most of the major foreign airports. The purpose of the inspections is to assure that the airlines are in compliance with the Federal Aviation Regulations mandated by the Air Transportation Security Act of 1974. During the course of the inspections, our representatives meet with responsible foreign airport security officials and any airport security weaknesses or deficiencies observed are called to the attention of those authorities.

This inspection activity has produced improvements at many foreign airports, as well as assuring the continuing effectiveness of airline security measures required by Federal aviation regulations.

The security problems facing the international civil aviation system generally are not easy ones. Maintenance or engineering problems are precise, and specific measures normally correct the problem. This is not true in aviation security. We are dealing primarily with human factors. We must cope with the reality that people who are operating the system are subject to human error. Also, matters of basic sovereignty, national traditions, and local habits may complicate a solution that would work in the United States. The task is further complicated by the fact that we are facing trained and dedicated terrorist forces that will attempt again and again to penetrate the system.

Conditions at an airport change continually and are not necessarily uniform throughout the airport. A security deficiency noted one day might not be apparent the next and again might show up the following week. Moreover, a problem may involve only one air carrier or only one screening station while the rest of the airport has excellent security.

The point is that the dynamic nature of the air transportation system requires continuing attention and monitoring of the many facets involved in the total effort necessary for effective security. It is not susceptible to a static remedy.

The best way to achieve immediate improvements in a field as complex as aviation security is through continuation and expansion of our programs of cooperative assistance. But it should be clear, and we have made this clear when I spoke to ICAO in Montreal, through the State Department at the United Nations, and through our direct contact with other nations, that we are prepared to take direct U.S. actions, including the imposition of sanctions against other nations and their airlines, if such actions become necessary to protect U.S. citizens, flight crews, and aircraft.

In enacting the Antihijacking Act of 1974, the Congress gave the President and the Secretary of Transportation the authority to impose different types of sanctions in the interests of civil air commerce. The President can act against any nation that supports terrorist organizations which use hijacking as an instrument of policy. He can suspend direct air service between that country and the United States or between third-party nations serving that country and the United States.

In addition, the Secretary of Transportation, with the approval of the Secretary of State, can withhold, revoke, or impose conditions on the U.S. operating authorities of the airlines of any nation that does not effectively maintain and administer security measures equal to, or above, ICAO minimum standards.

These tools are available to us and we will use them if and when it becomes necessary. I would point out in this regard that our primary objective is to assure the safe and secure international air transportation system that is essential to the economic and social well-being of all nations. If we have to shut down the system, that objective is not achieved. Our goal is thus the balance of adequate security with the primary purpose of the system, which is the reliable, efficient, safe and secure flow of people and property.

Mr. Chairman, the Department strongly endorses the objectives of S. 2236 which protect U.S. citizens traveling abroad using commercial air services. We would particularly urge that the provisions of title IV be enacted at the earliest possible time. They will complete U.S. implementation of the Montreal Sabotage Convention and will also make available additional prosecutive provisions that will strengthen existing deterrents for persons who would commit crimes affecting the security of air transportation. As you know, last November the Attorney General submitted identical legislative proposals to the Congress.

We have some reservations about the United States unilaterally publishing a list of foreign airports, as suggested in the bill. I have discussed this matter with the Secretary of State and I know he testified before this committee earlier in the week on this matter.

Such a list could, by negative implication, suggest that all airports which are not on the list are safe. Because of ever-changing conditions and human factors, or because of sheer lack of U.S. resources to inspect all of the world's airports completely or regularly, the list might give inaccurate information.

Chairman RIBICOFF. Let me ask you, Mr. Secretary, since there is reluctance to publish a list, how is an air traveler to know which is a safe airport or which isn't a safe airport?

Don't you think the American traveling public is entitled to know what airports are unsafe?

Secretary ADAMS. Mr. Chairman, we have now gone to ICAO with our proposals for strengthened security requirements. These proposals, along with those of other nations, are now under active consideration in ICAO. Once adopted as ICAO standards, if a country does not use those standards, they file "differences," as they are called.

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That itself, Mr. Chairman, will create what the committee is searching for, in that there will be a public list that will indicate which airports have differing degrees of security available.

Chairman RIBICOFF. You have a list now, do you not, in which you indicate what airports you consider unsafe?

Secretary ADAMS. I have sent our inspectors to check five airports we are concerned about, Mr. Chairman. I have specifically directed the FAA teams to inspect U.S. and certain foreign air carrier operations at these airports and report back to me by the 15th of February if their security and screening effectiveness has been raised.

Chairman RIBICOFF. Do you have any airports on your list now that you consider unsafe?

Secretary ADAMS. I can say that we have on our list five airports we are concerned about, Mr. Chairman.

I can't say they are unsafe; their security will go up and down as days go by in terms of screening. That is why I have directed our people to go to them and to inform their officials that we wish to have improvements made. The FAA is to report back to me by the 15th of February whether the improvements have been made or whether weaknesses still exist.

Chairman RIBICOFF. Are these five airports heavily used by American travelers?

Secretary ADAMS. Yes, sir, they are.

Chairman RIBICOFF. This is a dilemma. If I wanted to get on a plane tomorrow to travel abroad or to leave from one of those airports that come to the United States, why shouldn't I or my constituents be able to make a choice between a safe airport and an unsafe airport?

Secretary ADAMS. We think you should, Mr. Chairman.

What I am concerned about is that the level of security at some airports varies—up and down—all the time. If we say that these are the airports we are concerned about or these are dangerous, by implication the others are all right. And we can't give that kind of assurance.

Chairman RIBICOFF. I don't follow you at all. If you definitely know an airport is unsafe, why shouldn't the American public know it is unsafe?

Why should they be in jeopardy?

Secretary ADAMS. We can indicate and will to the committee the results of our inspections and what the weaknesses are. I am saying the definition of the word safe or unsafe is not one that I think we can take on as a Government.

We can and will indicate to you what our problems are at particular airports. They involve basically the screening of baggage and passengers.

Chairman RIBICOFF. If you can't do it, who can?

I am not qualified to judge whether an airport is safe or unsafe. You have the organization, you make the inspections. You have to draw the conclusions.

Within the domestic United States, you have the authority to come up with regulations or directives as to what should or should not be done.

When we have millions of Americans traveling abroad, everyone has the right to know whether he is going to and coming from a safe

airport, as judged by inspectors of the FAA or the Department of Transportation.

Secretary ADAMS. I will tell you how we do it now. Currently, we run a worldwide, continuing visiting system to over 600 U.S. and foreign airports. At the present time we are out inspecting air carrier security operations at the following airports: Paris, Madrid, London, Amman, Karachi, Teheran, Brussels, Shannon, Lisbon and the Azores. We are conducting a special inspection at Athens, Rome, Casablanca, Istanbul and Ankara. We have had similar inspections at these airports in the past.

As a result of our inspections, we may recommend that the governments take a particular corrective action. We have had very good cooperation from most governments. In other words, when we say a certain action should be taken, they generally agree. Then we send the team back to see whether it has been done.

I am concerned, as I indicated to you, about security procedures at these five particular airports. When that inspection team comes back we will know whether or not necessary improvements have been made.

But if you were to ask me as of today, whether or not the facilities at those airports were maintaining a day-by-day "safe character" which we would so represent to the American traveling public, I would have reluctance in doing that.

Chairman RIBICOFF. But after February 15 I think you have the obligation to make that known to the committee.

The committee could then go into executive session and make a decision.

My feeling is the one way you will get a safe airport is by stipulating whether Americans may or may not use that airport.

If there is one thing airports and countries want it's the tourist business and the traveler. Once people start boycotting an airport because of safety deficiencies you can rest assured they will be corrected.

It would be a bad investment for those countries not to correct it. An American pilot and his crew who have the responsibility for the life and safety of his passengers, as well as the crew, have a right to know whether American authorities have certified that he is taking his passengers and crew into a safe airport or out of a safe airport.

Secretary ADAMS. Mr. Chairman, we will be most pleased to come before the committee in executive session after the 15th of February and discuss with you precisely what has been done in the inspections, and what we have found, and discuss with you what you feel is the best next step to take at that point.

Chairman RIBICOFF. If you tell the airport authorities you are going to make these recommendations to a committee of the U.S. Senate, it wouldn't be very long before those facilities would be corrected in these airports.

Secretary ADAMS. Mr. Chairman, we are getting people to correct weaknesses. Our problem with most of them is that this is a continuing day-to-day operation with people standing there and inspecting, and on a particular day if somebody is lax—that is what I meant in my testimony about the human factor that appears—with the sheer volume of the people coming through, someone might get through.

We are most happy to appear before the committee and give you everything we have as to what we have done in inspections and what we have found at those points. I think probably the sheer mentioning this morning of our concerns will undoubtedly raise some problems in terms of various sovereign states saying, well, is it being done and is it being done sufficiently.

Senator PERCY. Will you yield?

Chairman RIBICOFF. Certainly.

Senator PERCY. I would like to express the same concern that Chairman Ribicoff has.

I am wondering about your statement which indicates that security conditions at foreign airports change. You did say there are five airports you are concerned about.

How long have you been concerned about the same five airports? What is the longest period of time that any one of them has been on your concerned list?

Secretary ADAMS. Within the past year our inspection teams went through on the grouping I indicated to you. They are constantly traveling and these problems appeared within the last year when our team went through. That is why we are going back to see if the problems we noted have been corrected.

Senator PERCY. What is the longest time, the number of months, that any single airport has been on the concerned list? Has it been as long as 6 months, for instance, that you have been concerned about any one of them?

Secretary ADAMS. Yes. When I said concerned, Senator, we don't just say we are concerned and go away. You then go to the appropriate authorities and you say these are the things that need to be done. They are in the process of doing them, and you come back through to see that they are done.

We expect those things to be corrected. If they aren't, we will appear before the committee and tell you what we have found and take it from there.

Senator PERCY. From my observations in traveling, we have better security at airports in our country than in any other countries I have visited.

Some foreign airports are good and some are lax. Ours are all pretty good.

I would think airports all around the world would welcome this service. It is not only protection for our own carriers and people, but also a service to foreign airports as well. You are willing to help them to solve the problem of insufficient security.

I can understand why you are reluctant to put them on a list right away. If they correct their problems promptly, fine. I understand that if I were a hijacker I would go to the airports on your list.

Then we would be blamed for having flagged an unsafe airport. It is like saying I don't have a burglar system in my house and I have half a million dollars worth of jewelry there.

If you put it in the paper then you are going to have a burglar there.

I have been in private clubs where they have a membership list and it says the following members haven't paid their dues. Believe me, they get paid awfully fast.

My feeling would be that the Chairman is making a good point. When a certain period of time has elapsed after you have given them notice that there are things we have found to be insecure in their airport, and if corrective action has not been taken, then after that certain period of time we would publish a list.

I would think you would want to give them a reasonable period of time to correct the deficiencies in the interest of good relations and also in the interest of security.

Secretary ADAMS. You have put your finger, as the Chairman did, on how the system works. People do not refuse when we come in and make these suggestions. They say, yes, we will do it. We are not encountering resistance from these nations in improving their security. But there are local problems which affect whether or not they can actually make it better and keep it better as compared to what we do in the United States. They do not say to us, no, we are opposed to what you are trying to do. You touched on the point that was the next point of my statement.

I have some problem in publishing a list because it can backfire and say to those who would attack the system, well, this is the system and these are the deficiencies. That is why I would like to discuss that in executive session.

I am not saying that these five airports, at this moment, are dangerous or unsafe. I am saying I am concerned about them, but I would like to report to you in executive session what we found.

Chairman RIBICOFF. Let me make this comment.

Some of the most sophisticated minds in the world are the terrorists. They are highly educated, they are careful and they know what they are going to do.

They have a pretty good idea what airports are safe and unsafe. You have your surveillance and they have their surveillance. This isn't something they do on the spur of the moment.

They have studied. They know what they want. They know what the security at that airport is and what they can get away with. If they know it and you know it, you are not kidding anybody by flagging them.

The point I make is, millions of American travelers, the pilots and their crews are entitled to know, too. Then they have the obligation or the right themselves to make a decision, to choose one airport over another. That is a choice they should make.

Senator PERCY. It should be a weapon you have available so that after you have done everything else you could still get them to move. Identifying their airport as unsafe would really move them. It would cost them revenue, bring a little shame to them. Maybe there would be nothing else you could do.

I could see some reasons why you would want to give notice ahead of time, giving them an opportunity to correct the deficiencies.

If after 6 months they haven't done it, there still might be a problem with publishing a list. My concern is that other potential hijackers, maybe not terrorists, but unstable persons, could see the list as an incentive. They might learn of insufficient security at an airport and that might cause you to think twice about publishing a list.

Secretary ADAMS. I think it would be helpful to the committee when our team returns if we meet with you again and indicate precisely what is occurring. Then a judgment can be made as to whether you think cooperation has taken place.

Chairman RIBICOFF. Will you notify the committee when you have finished your February 15 report?

Secretary ADAMS. Yes, Mr. Chairman, we will notify the committee and be happy to appear before you.

One of the provisions of S. 2236 addresses security and safety provisions for charter operations, commuter airlines, supplemental carriers, and additional U.S. airports. Under existing law the FAA Administrator is responsible for issuing the security and safety regulations dealing with all these aspects of air transportation. The flexibility that present law gives should be retained.

ICAO is moving ahead. I want the committee to know that if additional United States actions become necessary in the public or national interest, including the imposition of sanctions, you can be assured we will take them.

The Secretary of State, Mr. Vance, and I are part of the Special Coordination Committee of the National Security Council and we have worldwide communication systems in the State Department and the FAA which are available to assist in these efforts.

Mr. Chairman, that completes my prepared statement. I would be happy to answer further questions the committee may have.

Senator PERCY. The Chairman is thoughtfully letting me proceed, because I have to go to Foreign Relations to question a witness there.

The 1976 Airports and Airways Development Act authorizes you, Secretary Adams, to pay compensation to American air carriers for the cost of installing security measures in airports above and beyond the cost passed on to the consumer.

As of this point, no appropriations have been made or requested by your Department for this program. I couldn't find in President Carter's budget proposal released on Monday, any request for appropriations under this act. I understand that some airlines have made such requests. Does this fact represent a decision on your part not to implement this foreign airport security program, a program enacted by Congress, or are you intending to ask for appropriations at a later date?

Secretary ADAMS. We will ask at a later date, as soon as our information of the amount of requests can be documented, so we can present it.

Senator PERCY. Is there any reason why when carriers have made requests, the appropriations were not requested in this year's budget?

Secretary ADAMS. We have to resolve the question of whether the reimbursement has already been collected in the fare structure.

Senator PERCY. The Antihijacking Act of 1974 authorizes you to withhold, revoke or condition the operating authority of foreign airlines from countries which do not maintain effective airline security measures above minimum standards established by the Convention on International Aviation.

The purpose was to arm this Government with sanctionary discretions to encourage other nations to upgrade security at airports.

Since passage of the act, neither you nor your predecessor have used the authority to impose sanctions against unsafe foreign airports. Could you tell us why you have never utilized this authority and why, in the light of this past failure, Congress should not act to make these sanctions mandatory in certain situations?

Secretary ADAMS. Because in each case, Senator, when we have asked foreign officials to do a particular thing, they have done it. We have received cooperation to date from the various people with whom we have been working for improvements.

As I indicated in my statement, if we have somebody that says, "We will not do this," then we are prepared to move with these sanctions.

Senator PERCY. How about the five airports that are on your list, at least one of which you indicated could have been on there for 6 months? When they don't act in that period of time, and maybe there are others that have been on the list longer, what do you do to get them to move?

Secretary ADAMS. We would then notify their authorities that we are prepared to move with those sanctions, unless they make those corrections. At that point, after we have notified their government, a time limit would be set within which they are to comply, and if they don't comply in that period of time, then I would consult with the Secretary of State and determine whether a sanction will be imposed against a particular air carrier by limiting its rights.

If it goes to the other section that you are referring to, the sanctions that are available to the President, then we make recommendations to the President and the President makes determinations as to whether or not he wishes to, in effect, apply primary or secondary boycott sanctions against a particular country for aiding terrorists.

Senator PERCY. I would like to get from you some comments on the degree of compliance U.S. carriers have and what their attitude has been.

In 1976 the FAA issued 271 warnings, 110 letters of correction, 108 nonenforcement actions, and collected 84 civil noncompliance penalties against air carriers for violations of air carrier regulations. There were 572 closed investigations in all.

In the first 6 months of 1977 there were 276 closed investigations against U.S. carriers for security regulations violation with 60 investigations still pending.

Despite the fact that our overall record, as I have indicated at the outset, was quite good, these figures seem quite high.

Do they reflect in any way a reluctance on the part of U.S. carriers to adhere to U.S. airline regulations established by the FAA?

Secretary ADAMS. No, we simply have a continuing enforcement program, Senator. When we discover that something is wrong, we continue to follow up on it. But the air carriers have been cooperative.

It is just that you have to keep reminding them, and you have to keep at the job. That is what we do. We have literally millions of people and individual items of luggage that go through the screening process.

For example, we will fine people for knowingly using a malfunctioning X-ray machine. The X-ray machine would go out, and they let people through anyway. We fine them. Sometimes they failed to detect a gun. We find out later they didn't detect it, try to find out why, and we find that an error occurred in their system.

Generally, the airlines are cooperative, but we keep at them.

Senator PERCY. The cooperation has been good. Airlines are cognizant of the need for it. On the part of American travelers and others using our systems, is there now full public understanding of the need for this?

Secretary ADAMS. Yes. It was very difficult at first, and I happen to know that from a different experience from when I was a U.S. district attorney——

Senator PERCY. I think we had a fellow Senator that resisted a little bit. For the most part I detect complete compliance, full understanding, and very little annoyance even in a crowded peak period, when the line is long.

Secretary ADAMS. Our complaints have been about weaknesses, not about failure to cooperate.

Senator PERCY. One can consider the present record against the previous one of an attempted skyjacking every 12 days, before we had these security measures.

The safety and convenience it offers give a favorable statement for our program. As long as you are getting full cooperation and the end results are good, that is fine.

Finally, on page 7 of your statement, at the bottom of the page, you state:

> We are prepared to take direct U.S. actions, including the imposition of sanctions against other nations and their airlines, if such actions become necessary to protect U.S. citizens, flight crews, and aircraft.

In light of this statement and the fact that sanctions in the past have not been imposed, do I understand you to say that you are essentially satisfied with security conditions around the world, that in no cases are the situations bad enough to impose sanctions?

There is no case today that, in your judgment, would be sufficient to warrant a sanction against that airport?

Secretary ADAMS. Not as of this day. As I say, we have teams out in the world. We are constantly reassessing how the system is working.

Senator, it is plain day-to-day hard work. If we come back and are concerned about a situation, we will not only reveal it to the committee at that point, but we will discuss whether there should be a sanction.

Senator PERCY. There is no reluctance to use it, if you have to use it, or to use the other weapon, public notification, if all else fails?

Secretary ADAMS. That is correct.

Senator GLENN. Most of the discussion this morning relates to efforts of screening people at the airport. That is only part of the problem. I fully support all of those efforts. But it seems to me we have to assume that somebody is going to get aboard some way. There is no 100-percent security.

The machines fail or something happens. They are not set right.

It seems to me very little has been done in the way of action that might discourage the terrorist or the hijacker from thinking that his mission will be completed. So far, we have given in completely to these people. It seems to me had we started earlier saying something like we absolutely will make it illegal in this Nation and hopefully other nations, too, to refuel a hijacked airplane or to transfer to another airplane, the man knows when that plane comes down someplace, it is coming down, he is there, and he is surrounded, and that is it. Once they get aboard, even with a plastic weapon which won't trigger the screening devices at the airport, I can have a plastic weapon in my pocket and walk all day through the screening machines. Once I am on the airplane, they don't know whether it is real or not. We hopscotch over the world, refueling the airplanes and it encourages others to go through the same procedure later on.

While the screening process is good, you can walk around the end of the fence, come out, and I look at this as a discouraging mechanism for the terrorist, but I don't look at it as being the end answer.

Until the terrorist feels he has little chance of succeeding in his mission, which is multiple flights and getting to an alternative foreign destination that will be receptive to his cause, until we discourage that, we will continue having this.

I don't think we have approached this problem. The only way of discouraging his mission is that when he knows when that airplane comes down, at whatever spot that is his point of landing, from then on, he is ground-bound. Have you thought of this, worked on this and what are your objections to it?

As I said the other day, if my family was aboard that airplane, I wouldn't have this hard-nosed attitude.

But if we had started a long time ago being hard-nosed like this, we would not have had the proliferation of this around the world.

If they knew their mission would end in failure when they started out—now they can fly all over the world, give them ransom, refuel them, it is extortion of the worst possible kind.

What would be your comments on a procedure like that? If we passed a law that made it illegal to refuel or substitute another aircraft in case of a hijacking?

Secretary ADAMS. We have worked each hijacking within the United States, where we have control, on a case-by-case basis. We have not paid people off, and we have gotten those hijackers off of the airplanes in the last several years. In both cases that we have had this year, we saved the aircraft and the people on it, but in one case the hijacker committed suicide, so that was a death. On the other one, we got the hijacker off.

There is an effective and cooperative system with crew training, backup, the FBI, and the FAA. The Defense Department will testify on our worldwide capabilities for dealing with the problem on levels other than screening and protection.

Frequently, the hijacker is somebody who is mentally unbalanced. That is a different problem than a highly organized group, and the response is different.

Worldwide, one of the problems we have is that the airliners that have been hijacked have been foreign airlines landing in other na-

tions' airports. There are only a certain limited number of things that we, as a sovereign Nation, can do with somebody else's carrier taking off from another airport and landing in another nation's airport. Those nations make that decision. We have an elaborate system for U.S. carriers and U.S. passengers.

Senator GLENN. What would you think of a law that would make it illegal to refuel a hijacked plane or to substitute one hijacked plane for another?

Secretary ADAMS. If we get international agreement on it, that's a good standard. That is why we are asking that the Montreal and Hague Conventions be confirmed, which remove safe havens. These conventions require that once the plane lands, the person be extradited or prosecuted at that point. Those objectives can be achieved by the signing of those agreements. They have been signed by well over half the nations of the world.

This approach covers all ideologies. For example, the Soviet Union supported our position vigorously in Montreal. But there are certain dedicated groups not attached to any nation that strike, and at that point the nation has to decide what gives the greatest safety for their carrier's people, the passengers, and the equipment.

Senator GLENN. Let me shift to a different direction.

I follow closely our nuclear program. We are now working on a bill to create nuclear proliferation controls.

I am concerned that we have not yet seen the worst days of the terrorism. So far we have had people aboard airlines with pistols, guns, shotguns, bombs, and grenades. But we haven't seen anything until we have hijacking with plutonium, nuclear weapons, and things like that, which I'm sure will happen.

What's the Department of Transportation's role in protecting nuclear material in transit?

We ship most nuclear material by air. What role do you play in that? What kind of security arrangements are there? Much of this material is carried on commercial flights, commercial air freight, any way.

In what special way does the DOT handle that?

Secretary ADAMS. We coordinate that with the Nuclear Regulatory Commission, which will testify on how we handle those hazardous materials as they move in air transportation. It's done on an individual case-by-case basis because we do not have a large traffic in these, as you might well imagine.

As I'm sure the Secretary of State testified, we have established the Special Coordination Committee of the National Security Council, on which the Department of Transportation sits, the Department of Defense, Department of State, and so on, that deals with crisis situations.

Senator GLENN. Do you have primary responsibility in that area or does NRC or does the coordinating council?

Secretary ADAMS. NRC has primary responsibility with respect to the nuclear material. You are referring to the nuclear material?

Senator GLENN. Yes.

Chairman RIBICOFF. The NRC chairman will be the next witness.

Senator GLENN. That's all I have.

Chairman RIBICOFF. Senator Chiles?

Senator CHILES. Mr. Secretary, I note that you took issue with some of the provisions of the act that would require the listing of unsafe airports or those considered to be unsafe. Are there sanctions in the act which you don't support or which you have reservations about?

Secretary ADAMS. We believe that we need the flexibility to apply differing types of sanctions in differing kinds of situations. We are concerned about there being an automatic or a mandatory sanction for each case.

Senator CHILES. You said that well over half the nations have joined in the provisions to amend the agreements of the Hague and the other necessary conventions in order to allow extradition and to allow prosecution.

How do we put leverage on those nations that are not going to see fit, or haven't yet seen fit to comply with the provisions of the Hague Convention?

Secretary ADAMS. Senator, the State Department, representing the United States, is dealing directly with those nations. As the Secretary of State testified, we already have applied certain nonaviation-type sanctions to particular countries that have said they will not participate.

I think we should have a positive note at this point. The number of countries that have not cooperated, have said we will give sanctuary, is now down to four.

Senator CHILES. For the record, what are those nations?

Secretary ADAMS. They are Algeria, Libya and Iraq. There's a question about South Yemen.

Somalia at one time did give sanctuary and they have said they will not do that any more.

We are trying to keep this in a technical area, protecting the whole system, rather than to make it a political, ideological thing. All countries are joining in saying we should not have safe havens or sanctuaries.

Those are the four with which we have problems now. That's a national problem. It has to be dealt with by the Congress or the President.

Senator CHILES. I would think that one of the things this bill is trying to do is to have Congress assume a direct responsibility in moving this hijacking problem to a solution. By passing this bill, the United States will be signalling that it is going to assert pressure towards resolution of the problem. The United States believes that a policy allowing for any havens for hijackers, even if its only four countries, will only lead to move problems in the future.

Secretary ADAMS. It's far more than just negotiations. We have a firm position that has been established in the international community, covering broad differences of political and ideological thought, which has said we are trying to build total international pressure and not just U.S. pressure.

We want this to happen. We have been joined by the Japanese, by the West Germans, and by many of the other nations. And as I said, the representatives of the Soviet Union supported us in Montreal before ICAO, when we proposed strengthened screening standards.

Ratification of the Montreal and the Hague Conventions is most important.

Chairman RIBICOFF. Among the countries you gave Senator Chiles, are the United States carriers flying into any of them?

Secretary ADAMS. No.

Chairman RIBICOFF. No U.S. carriers go into these countries?

Secretary ADAMS. No.

Chairman RIBICOFF. Are there any countries which you refer to which allow you to inspect their airport facilities?

Secretary ADAMS. No. We inspect the airports where U.S. flag carriers go, about 170 separate foreign airports.

Senator CHILES. Do you have an estimate of what the cost is for the security arrangements, let's say first in the United States to protect against hijacking, screening devices?

Secretary ADAMS. United States cost is estimated to be 41 cents per passenger. That's in the fare structure. The carriers have been allowed to raise their fares to cover that.

Chairman RIBICOFF. What's the total?

Secretary ADAMS. There are 225 million passengers a year, approximately. The cost would be approximately $75 to $80 million. It will vary with the number of passengers.

Senator HODGES. Mr. Secretary, is there any authority or stance not in this bill that you feel should be added to the bill to aid you in accomplishing your objectives in this area?

Secretary ADAMS. No, sir. I think we have adequate authority.

Chairman RIBICOFF. In what areas do you feel we can improve domestic security at our airports?

Secretary ADAMS. Senator, we have a very comprehensive system and it covers all of the airports and airlines. Our basic problem now is making it work. As I told Senator Percy, we have to continually monitor and police the system to see that people are maintaining security standards. And one of the biggest problems, Senator, is that if nothing happens for a sustained period of time, people get complacent and somebody will penetrate the system.

That is our problem. But the system itself is functioning and it's functioning well at this point.

Chairman RIBICOFF. The British use actual hand search of baggage as opposed to X-ray techniques.

Is their system better than ours?

Secretary ADAMS. We use both, Senator. I don't think their system is better than ours. And the results do not indicate that it is better.

I don't want to give the impression that we think either the system or the personnel are perfect in any way. We constantly talk with all of the other countries doing different things. If I thought that their system had any improvements over ours, we would recommend it and install it. But I don't think it has.

Chairman RIBICOFF. What are we doing about safeguarding airport perimeters?

Secretary ADAMS. We have required fencing, lighting, and we have tried to deal with the whole problem of baggage lockers and the terminal itself.

We also have for each airport in the United States a security plan, which has to be approved by the FAA. At each one we try to tailor the plan to make it work at that airport.

Chairman RIBICOFF. What do you do about security of airport personnel? How do you check that out?

Secretary ADAMS. In the airports themselves, each one has to have an I.D. system. The system has to be in place and operable.

Chairman RIBICOFF. Do you check the background or security questions of people employed in the airports?

Secretary ADAMS. The Federal Government does not, but each local airport operator may do so consistent with its airport personnel hiring procedures.

Chairman RIBICOFF. Thank you.

Any other questions?

Senator GLENN. May I follow up on the Chairman's statement?

It surprises me that people try to get through your machines. They can walk around the fench easier. If a man has a gun there, he could hijack it on the ground or wherever. He doesn't have to wait for it to take off.

Secretary ADAMS. The system may not be perfect, but it's designed to prevent that, to challenge people when they come on to the runway.

Senator GLENN. In 90 percent of the airports in the country, you could get onto the ramp if you wanted to.

I'm not talking down the system. I think there are other things we should be doing that would make it less likely that a person would try to hijack a plane.

Secretary ADAMS. We are prepared to keep trying to improve the system. It's not perfect, but it is the best we have been able to develop at this point. As we receive additional suggestions from people as to how to make it better, we will implement them.

Chairman RIBICOFF. Thank you very much, Mr. Secretary.

Secretary ADAMS. Thank you, Mr. Chairman.

[The prepared statement of Mr. Adams follows:]

STATEMENT OF BROCK ADAMS, SECRETARY OF TRANSPORTATION, BEFORE THE SENATE GOVERNMENT AFFAIRS COMMITTEE ON S. 2236, OMNIBUS ANTITERRORISM ACT OF 1977, JANUARY 25, 1978.

Mr. Chairman and Members of the Committee:

We at the Department of Transportation feel the same concern you do over the alarming increase in terrorist acts throughout the world and the increasing tendency to use terrorism to achieve political objectives. We need to strengthen worldwide measures to condemn, prevent and eliminate terrorism from the political scene. We endorse the objectives of S.2236, and we applaud the work of this Committee to build on the steps already taken by our government and governments around the world to free all nations from this threat.

DOT's last report to the Congress on the effectiveness of the U.S. Civil Aviation Security Program was submitted less than three months ago. It warned that growing cooperation among terrorist groups throughout the world poses an increased threat to civil aviation. There were 30 scheduled airline hijackings worldwide during 1977--almost double the total for 1976 and more than any year since the 1968-72 peak in worldwide hijackings. This is an alarming increase if the trend should continue.

Within a week after submitting that report, I appeared at a special meeting of the Council of the International Civil Aviation Organization in Montreal to point out the increasing severity of the threat and to state to that group the United States' position that we must adopt more stringent international standards for the security of aviation worldwide.

On behalf of the U.S. government I told the ICAO that the most basic action, one which we must have, is an upgrading of the current ICAO security standard dealing with passenger screening. To be effective, that standard must require screening of all passengers and all carry-on items on all flights at all times. Twenty-one of the twenty-five foreign air carrier hijackings during 1977 were caused by weakness of the passenger screening procedures. The weapons involved in those incidents should have been detected and intercepted by effective passenger screening measures. In contrast to the foreign experience, no U.S. hijackings since 1973 resulted from real firearms or explosives passing undetected through passenger screening points. When this strengthened screening requirement is established as an international standard under ICAO Annex 17, then countries which have not adopted it can file differences with ICAO so indicating and this will provide a list of deficient or dangerous situations.

The United States concerns and proposals presented to ICAO are supported by many other nations of many different ideological view points. These proposals are now under active consideration, and we have stated that there must be positive results in the very near future to protect the very existence of a worldwide aviation system.

In 1968, there were no international aviation security standards. Since then the U.S. has worked vigorously providing technical assistance to other nations and using the international cooperation system, particularly ICAO, to make worldwide improvements in the security of civil aviation.

Since 1968, ICAO has established Security Standards and Recommended Practices for its 140 Member States and has published a technical security manual on how to implement them. The basic international aviation treaty, the Chicago Convention, now incorporates those security standards. Building on the Tokyo Convention are two new international treaties, the Hague and Montreal Conventions, which are now being ratified. They provide for extradition or prosecution of persons responsible for hijackings and acts of sabotage against aviation facilities.

During this past year, the United Nations General Assembly adopted a Resolution condemning acts of unlawful interference with civil aviation. The International Air Transport Association (IATA) passed a Resolution urging States to ratify the Tokyo, Hague and Montreal Conventions and suggesting that States who do not ratify them should not remain Members of ICAO. In December, after my visit, the ICAO Council adopted a Resolution which has gone to all Member States urging implementation of specific antijacking measures including the screening of passengers and cabin baggage on all flights.

Most nations and most airlines of the world now have active civil aviation security programs in place and are making significant improvements in the security of their air transportation systems. The U.S. has led this movement through technical assistance, guidance and motivation for those countries who have not had experience in this field.

Even with this progress, we are prepared to take whatever additional actions may be required to protect U.S. citizens, crews and aircraft abroad. We have available the sanction provisions of the Federal Aviation Act to suspend air service or act on airline operating authorities. I have already instructed the FAA Administrator

to proceed to identify those foreign airports which currently present the greatest concern from the standpoint of security. I have requested security inspections of the U.S. and pertinent foreign air carrier operations at those airports to identify any security weaknesses, so we can obtain the necessary improvements.

FAA security regulations currently cover 36 U.S. and 73 foreign airlines operating some 15,000 scheduled passenger flights each day to and from 620 U.S. and foreign airports and boarding some 585,000 passengers and 800,000 pieces of carry-on baggage daily. In spite of the vast complexities involved in this system, and the fact that the person or package we are looking for is one among hundreds of millions, the measures currently applied afford air travelers a level of security unmatched in any other type of travel.

We are pursuing an aggressive program of technical assistance with other nations, so that they will have full access to our knowledge and expertise in security efforts so that air passengers, of whatever nationality, can use the international air system with increased security. FAA technical assistance teams have already visited 20 countries to provide advice and assistance in developing or improving civil aviation security programs. Over 200

foreign officials have attended the aviation security training school in Oklahoma City. We have given indepth briefings on all aspects of aviation security and provided training materials to foreign government and airline officials.

We regularly conduct security inspections of U.S. flag carrier and certain foreign carrier facilities outside the U.S. This involves visits to most of the major foreign airports. The purpose of the inspections is to assure that the airlines are in compliance with the Federal Aviation Regulations mandated by the Air Transportation Security Act of 1974. During the course of the inspections, our representatives meet with responsible foreign airport security officials and any airport security weaknesses or deficiencies observed are called to the attention of those authorities. This inspection activity has produced improvements at many foreign airports as well as assuring the continuing effectiveness of airline security measures required by Federal Aviation Regulations.

The security problems facing the international civil aviation system generally are not easy ones. Maintenance or engineering problems are precise, and specific measures normally correct the problem. This is not true in aviation security. We are dealing

primarily with human factors. We must cope with the reality that people who are operating the system are subject to human error. Also, matters of basic sovereignty, national traditions and local habits may complicate a solution that would work in the U.S. The task is further complicated by the fact that we are facing trained and dedicated terrorist forces that will attempt again and again to penetrate the system.

Conditions at an airport change continually and are not necessarily uniform throughout the airport. A security deficiency noted one day might not be apparent the next and again might show up the following week. Moreover, a problem may involve only one air carrier or only one screening station while the rest of the airport has excellent security. The point is that the dynamic nature of the air transportation system requires continuing attention and monitoring of the many facets involved in the total effort necessary for effective security. It is not susceptible to a static remedy.

The best way to achieve immediate improvements in a field as complex as aviation security is through continuation and expansion of our programs of cooperative assistance. But it should be clear that we are prepared to take direct U.S. actions, including the imposition of sanctions against other nations and their

airlines, if such actions become necessary to protect U.S. citizens, flight crews and aircraft.

In enacting the Antihijacking Act of 1974, the Congress gave the President and the Secretary of Transportation the authority to impose different types of sanctions in the interests of civil air commerce. The President can act against any nation that supports terrorist organizations which use hijacking as an instrument of policy. He can suspend direct air service between that country and the U.S. or between third party nations serving that country and the U.S.

In addition, the Secretary of Transportation, with the approval of the Secretary of State, can withhold, revoke, or impose conditions on the U.S. operating authorities of the airlines of any nation that does not effectively maintain and administer security measures equal to, or above, ICAO minimum standards.

These tools are available to us and we will use them if and when it becomes necessary. I would point out in this regard, that our primary objective is to assure the safe and secure international air transportation system that is essential to the economic and social well-being of all nations. If we have to shut down the system, that objective is not achieved. Our goal is thus the balance of adequate

security with the primary purpose of the system, which is the reliable, efficient, safe and secure flow of people and property.

Mr. Chairman, the Department strongly endorses those objectives of S.2236 which protect U.S. citizens traveling abroad using commercial air services. We would particularly urge that the provisions of Title IV be enacted at the earliest possible time. They will complete U.S. implementation of the Montreal Sabotage Convention and will also make available additional prosecutive provisions that will strengthen existing deterrents for persons who would commit crimes affecting the security of air transportation. As you know, last November the Attorney General submitted identical legislative proposals to the Congress.

We have some reservations about the U.S. unilaterally publishing a list of foreign airports as suggested in the bill. Such a list could, by negative implication, suggest that all airports which are not on the list are safe. Because of ever-changing conditions and human factors, or because of sheer lack of U.S. resources to inspect all of the world's airports completely or regularly, the list might give inaccurate information. A list of dangerous airports made available to the public also might backfire by providing terrorists with information about security deficiencies of those airports. Obviously it is important that we know about those

airports and that we act to improve their conditions. The actions which I have directed the FAA to take--to identify airports of particular security concern and to move to correct the problems--address this.

One of the provisions of S.2236 addresses security and safety provisions for charter operations, commuter airlines, supplemental carriers and additional U.S. airports. Under existing law, the FAA Administrator is responsible for issuing security and safety regulations dealing with all these aspects of air transportation. Expansion of FAA safety requirements raises a number of issues which really are outside of this bill's focus on security, and I would urge that the two not be combined. In strengthening security, we must continually be aware that the problem is extremely complex. For example, the security requirements for a small airport serving commuter airlines which board fewer than half a dozen passengers per flight need not be the same as those required at larger airports. On the other hand, given the changing nature of charter travel, the FAA is already proceeding with rulemaking to propose security procedures for charter operations.

We want highly effective international security standards. During the last six months, we have made available to almost 40 nations the standards and procedures used by the U.S. to assure effective performance and operation of screening equipment. We expect material results from this effort. We also expect results through ICAO toward the adoption of improved international standards for security in aviation. As I previously indicated, specific U.S. proposals, together with the proposals of other Member States, are currently being moved ahead through ICAO. We have strongly stated to that body that the security functions and capabilities of ICAO can be strengthened to better enable ICAO to ensure that minimum standards are being applied by all nations. This should produce the strengthened international security measures necessary to combat the increase in crimes against civil aviation.

Nevertheless, if additional U.S. actions become necessary, in the public or national interest, including the imposition of sanctions, you can be assured that we will take them. The Secretary of State, Mr. Vance, and I are part of the Special Coordination Committee of the NSC and the worldwide communications of the State Department and the FAA are both available to assist in these efforts.

Mr. Chairman, this concludes my prepared statement. I will be pleased to respond to any questions or comments the Committee may have.

Chairman RIBICOFF. You may proceed.

TESTIMONY OF JOSEPH M. HENDRIE, CHAIRMAN, U.S. NUCLEAR REGULATORY COMMISSION; ACCOMPANIED BY CLIFFORD SMITH, DIRECTOR OF NRC OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS, AND CARLTON STOIBER, ASSISTANT GENERAL COUNSEL

Dr. HENDRIE. I have asked to accompany me up here this morning, on my right, Clifford Smith, the Director of the Commission's Office of Nuclear Materials Safety and Safeguards. On my left is Carlton Stoiber, the Assistant General Counsel of the Commission. I thought it would be useful to have them ready at hand so they can answer, in some detail, your questions.

Chairman RIBICOFF. You may proceed, sir.

Dr. HENDRIE. Thank you.

Mr. Chairman, members of the committee, I am pleased to appear before you today to support this committee's efforts in formulating national policies to combat terrorism. Let me say at the outset that the Nuclear Regulatory Commission endorses the underlying concept of S. 2236 to establish an organizational framework for coordinating Federal activities to deal with the threat of international and domestic terrorism.

As the committee knows, NRC safeguards activities and responsibilities arise from the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974. Under these statutory regimes, NRC licenses and regulates atomic energy activities including construction and operation of nuclear power plants, the possession, transfer and use of special nuclear materials and imports and exports of nuclear facilities and materials. Before issuing a license, the Commission must find, as appropriate, that the issuance would not present undue risk to the U.S. public health and safety or be inimical to the common defense and security of the United States. These findings directly involve the Commission in questions of potential nuclear terrorism in efforts to reduce its risks. Congress unmistakeably underscored these Commission responsibilities in the Energy Reorganization Act of 1974 when it created the new Office of Nuclear Material Safety and Safeguards and directed it, through its licensing and regulatory function, to provide and maintain "safeguards against threats, thefts, and sabotage of such licensed facilities, and materials."

The NRC safeguards responsibilities require our attention and response to potential terrorism in both our domestic and international licensing activities. Domestically, terrorists could threaten or attempt to sabotage nuclear facilities, including power plants, or to steal nuclear materials that might be used in a clandestine nuclear explosive or a dispersal device. As to our international responsibilities, that is, licensing of nuclear exports, we are concerned both with preventing the proliferation of nuclear weapons capability, and with assuring that physical security programs are adequately designed to protect nuclear materials.

Our thinking has led NRC to conclude that the possibility of terrorist interest in a nuclear capability cannot be discounted. Our investigations have not disclosed a demonstrated interest in such a

capability. However, we must and do recognize that we may not have advance warning of terrorist intentions and must frame our safeguards policy accordingly. The only responsible course is to prepare for the possibility that terrorists may seek a nuclear capability or attack nuclear targets. In our own regulatory activities, this is what we have done and are continuing to do.

With regard to domestic nuclear activities, individuals or companies licensed by NRC to possess or use strategic special nuclear materials—that is, nuclear materials that could be used in a clandestine fission explosive—are required to protect the materials against theft or diversion by terrorists or other groups or individuals with malevolent intentions. There are 12 licensees who currently possess sufficient amounts of special nuclear materials to be subject to full NRC safeguards requirements. Their activities are predominantly defense-related. Safeguards measures that they are required to employ include, for example, armed guards and barriers and access controls for the physical protection of nuclear facilities; vaults and alarms for the containment of nuclear materials and for the detection of unauthorized persons or activities where the materials are stored; and a material control and accounting program to assist in the detection of theft or diversion of nuclear materials.

In July 1977, NRC published in the Federal Register, 42 F.R. 38395, proposed rules for additional safeguards requirements for NRC licensees that would strengthen the protection of strategic quantities of special nuclear materials. These rules, if adopted, would make detailed and specific changes in the safeguards regimes required of licensees. There is wide public debate on the need for, and sufficiency of, the requirements we have proposed. We plan a final decision on the proposal later this year.

Domestic nuclear power plants, as well as other major industrial installations, are also conceivable targets for terrorist action. To protect against the sabotage of a plant, licensees are required to use safeguards measures similar to the measures described above for the protection of special nuclear materials. The potential theft of nuclear power plant fuel by terrorists is not a central concern because such fuel is not suitable for use by terrorists in a nuclear explosive. We are currently working with power plant licensees to implement strengthened security plans and procedures against sabotage which we required by rulemaking last year.

Supplementing these NRC safeguards requirements are other NRC activities concerning advance detection of threats to nuclear licensees, a system to evaluate the credibility of threats against nuclear facilities, and a program covering contingency planning for and response to actions by terrorists.

On the international side, NRC's licensing activities relating to the exports of significant quantities of special nuclear materials require our attention to possible terrorism in other countries. Stolen strategic special nuclear material in the hands of terrorists anywhere would present a threat to all the world, including the people of the United States. Consequently, strategic special nuclear material requires a high level of protection against theft or diversion by terrorists anywhere.

International physical security standards have been formulated under sponsorship of the International Atomic Energy Agency, INFCIRC 225, and, if uniformly adopted, would provide a level of protection comparable to that currently provided by U.S. domestic licensees possessing significant quantities of special nuclear materials.

Also, the IAEA is currently in the process of developing an international physical security convention which would commit nations adhering to that instrument to take certain measures for the protection of their nuclear activities. The United States has played a major role in this initiative, and should continue its efforts to insure that the convention is as strong and effective as possible.

Quite apart from the level of international safeguards standards, our licensing responsibilities over nuclear materials exports impose on NRC an obligation to assess the adequacy of the physicatl security measures of other nations. In my opinion, S. 2236 underscores the singular importance of this NRC responsibility. Before the Commission licenses any export of strategic special nuclear material, we inquire as to the physical protection which will be applied by the recipient nation. We participate in physical security visits to foreign countries with the Department of Energy and other concerned agencies to evaluate the adequacy of physical security measures applied by our nuclear trading partners.

In addition, we require specific physical security evaluations from the executive branch in their review of specific license applications for nuclear exports. In pending nonproliferation legislation, we have actively supported, as an export licensing criterion, that physical security arrangements of recipient nations be adequate, and we will continue to assist in this general effort.

Finally, S. 2236 provides for an automatic ban on new export licenses for the sale or transfer of any nuclear equipment, materials or technology to any country on the list of countries aiding terrorist enterprises. On balance, I believe the Commission should defer to the Congress and the foreign policy and national security agencies on the desirability of such a provision in the legislation as a general sanction against harboring or aiding terrorists. NRC will, of course, implement this provision if it becomes law and it would be quite a simple and straightforward procedure for us to do so. However, I should note tha it may not be so straightforward for exports licensed by the Commerce Department that may be considered "nuclear-related."

This point was made in a letter from the NRC staff to the State Department commenting on S. 2236—letter R. F. Burnett, Director of NRC's Division of Safeguards, to Ambassador Heyward Isham, Director of the State Department's Office for Combatting Terrorism, November 18, 1977. In that letter Mr. Burnett stated:

> Deletion of Section 106(a)(9) is recommended. The ban on nuclear exports is artificially grafted onto the list of sanctions. It would be just as appropriate to impose a ban on all Commerce licensed exports since many Commerce exports are of equal or greater national security concern than NRC's exports. Also, the ban on nuclear exports would be difficult to administer since Commerce licenses a broad range of "nuclear-related" equipment and material and the dividing line between banned and approved exports would be difficult to define. We believe that the remaining sanctions addressed will be adequate to implement the legislation.

Mr. Chairman, this concludes my prepared remarks. I would be pleased to answer any questions which members of the committee may have.

Chairman RIBICOFF. What is your plan to combat nuclear theft, should a real nuclear theft take place?

Dr. HENDRIE. To combat the theft?

Chairman RIBICOFF. What do you do about it, if one takes place?

Dr. HENDRIE. If one takes place. We have established a group whose purpose is evaluation and assessment and then have authority to move with other agencies of the Government, if such a theft occurs.

Mr. SMITH. I would add, in addition to that, Dr. Hendrie, that each licensee will be required to have an approved contingency plan which, in effect, gives them instructions, detailed instructions as to what to do in the event of such an occurrence. It is rather elaborate. We would be glad to submit one. One of the first things is notifying us and notifying the FBI.

In addition to each of the licensees' contingency plans, as to what role each plant would play, we are working on a national licensee contingency plan which would involve not only the NRC, but the FBI and the Department of Energy.

So, I think we are well prepared.

Chairman RIBICOFF. Could you provide us with a list, or have any nuclear thefts taken place up to now?

Dr. HENDRIE. I don't believe so, sir.[1]

Chairman RIBICOFF. Do you know, or don't you know? You say you don't believe so. Do you know whether any nuclear thefts have taken place to date?

Dr. HENDRIE. The obvious case that comes to mind, Mr. Chairman, is the Apollo incident of the mid 1960s. In those days, I was working on research reactors in Brookhaven, and most of the present NRC staff was in other places, so I have no personal knowledge of this.

I notice people in my Agency and others seem to create a good deal of turmoil and difficulty by statements they make on the matter, and I approach it with the utmost caution. I don't know that material was removed in that case. If I can set that Apollo case aside for you, I don't know of nuclear thefts of any significant amount of material.

Senator GLENN. Mr. Chairman, may I interject something at that point?

The subcommittee I chair is looking into the NUMEC incident. We are 10th in line in investigations over the last 10 years or so in that area. We are still trying to get to the bottom of what happened. It has been up to the Presidential level through past several presidencies, as the Chairman is aware. We are still looking at it.

Chairman RIBICOFF. Do terrorist groups operating in the world today have the ability to develop a nuclear weapon device?

Dr. HENDRIE. That is a hard question to answer, Mr. Chairman. We don't have, in terms of the information that comes into the Commission from the intelligence community—and we do have good

[1] See p. 021.

liaison and information flow there—we don't have any indications that such is the case.

I'm glad to see that, but I must say that it does not relieve my concerns on the matter.

Chairman RIBICOFF. Do you think there is a chance that one will be developed in the future?

Dr. HENDRIE. I think it is possible.

Chairman RIBICOFF. Are there any countries which aid and abet terrorism that are the beneficiaries of nuclear export licenses?

Dr. HENDRIE. I certainly hope not, Mr. Chairman.

Chairman RIBICOFF. Do you know?

Dr. HENDRIE. I don't think so. I guess the doubt that I am expressing here has to do with how do you define "aid and abet terrorists."

Certainly, countries to whom we do export nuclear materials have under the duress of specific incidents done things like refuel a hijacked airplane or supplied an additional airplane or substitute airplane. That is certainly the case. But in the sense of an active aiding and abetting, providing training sites, sanctuary, and so on, I don't believe so.

Chairman RIBICOFF. Senator Glenn?

Senator GLENN. Thank you, Mr. Chairman.

Mr. Hendrie, I'm deeply concerned about the issue of nuclear terrorism. It is not a hypothetical or abstract problem. Even though we may not have identified at this time any groups with a demonstrative interst in nuclear terrorism, we need only to look to the history of the past decade to see that nuclear materials and facilities are objects of many groups with terrorist intentions. I have obtained from the NRC and Department of Energy a compilation of threats and other incidents involving nuclear materials and facilities which I would like to enter into the record of these proceedings.[1]

I might say, Mr. Chairman and Mrs. Hendrie, that NRC has a listing of 94 incidents involving threats of violence and acts of violence to licensed nuclear facilities going back to 1969. We received from ERDA another listing of 91 incidents going back to 1969 of threats of violence and acts of violence to unlicensed nuclear facilities. Most of these were bomb threats, pipe bombs found near reactors. These have not been idle threats. Some have involved explosives, break-ins and breaching, at least of the outer periphery of security at some facilities.

It is not just idle speculation that terrorist groups will make every effort to get into these facilities and get whatever material they can.

This is not limited to crank calls. Since 1969 there have been 14 attempted or actual unauthorized intrusions at facilities licensed by the Nuclear Regulatory Commission, and at least two bombings.

Fortunately, none of these activities appear to have resulted in any release of radioactivity or injury to the public.

We have been fortunate so far. This record of past events makes it clear that the security of nuclear materials and facilities must continue to receive the highest level of attention.

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[1] See p. 640.

Therefore, I was greatly troubled by a recent report of an interview you gave to the Washington Post, in which you displayed a surprisingly indifferent attitude toward nuclear terrorism. According to the article, you would not consider a nuclear terrorist bombing of Washington or Chicago to be an event of catastrophic proportion, since in contrast to nuclear Soviet exchange, only a fraction of U.S. population would be affected, leaving the society, as a whole, intact.

This attitude on the part of the Agency required to protect the public from terrorism would make me fearful. I read your letter to the editor defending your statements or your views. I would like these entered into the record, both of these articles.[1]

I'm concerned because NRC is now considering an upgrade of its domestic safeguard rules covering strategic nuclear materials. I want to be confident, and I am sure the American public wants to be confident that the starting point for NRC consideration is a sober respect for the dangers of terrorism. Because of these articles, the publicity they have received, and the aspersions that have been cast on you by their contents, I would like to have a clear and precise statement from you, and I would presume you would welcome the opportunity to make such a statement, perhaps without comparisons to all-out nuclear war, of the gravity you would attach to terrorists threatening to detonate a nuclear device in this country.

These were most disturbing articles.

I would think you would welcome a chance in this forum before the committee to set straight your views on this.

I would welcome any comments you could make at this time.

Dr. HENDRIE. Thank you, Senator.

I do welcome the chance to comment first on the article and then more generally on the issue you have raised.

The article you cite is one that does not represent my views and feelings and attention to these matters. You have noted the publication of my response to that article in the Washington Post this past Monday.

I attempted in that letter, without running on at enormous length on these difficult and sobering matters, to make clear that I am, in fact, deeply concerned about these matters, about the possibilities of terrorism, proliferation of nuclear war, and that they are matters in which I have some professional expertise which, I may say, only leads me to more concern, rather than less.

I feel deeply about these things, about the need for the utmost caution in the handling of these things and, in effect, what I have said in this letter, and what I affirm here is that I bring to my decisions the most careful consideration I can, and all the depth of feeling and seriousness which attaches to these matters.

They will always have careful consideration from me. I made the point in that letter that that on the other hand does not mean that I think it appropriate to approach these decisions or discussions in a highly emotional state.

Senator GLENN. The article, I believe, stated that you felt perhaps the Nuclear Regulatory Commission should not have a role in establishing what was safe with regard to foreign shipments.

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[1] See pp. 665 and 666.

Now, the Nuclear Regulatory Commission was set up as an independent agency making recommendations both to the Congress and to the President, of course.

The functions of this organization are unique. We have depended on the Agency for guidance in foreign as well as domestic, policy.

Now, what are your views on this? Are your views correctly stated that you do not propose to carry out your mandate on the international scene, as well as on the domestic scene?

Dr. HENDRIE. That certainly is not the case. I took an oath of office coming here to uphold the laws of the United States, and I am doing and intend to do that to the best of my ability. What I did note in that discussion was that in passing upon nuclear export applications, the Commission, which is required to make a finding that the export would not be inimical to the common defense and security of the United States, seeks the advice of the executive branch. What we receive then, where the executive branch favors an export, is a finding on behalf of the President, State Department, Department of Energy and other agencies concerned, that the proposed export would, in fact, not be inimical to the common defense and security of the United States.

I simply noted that, in my view, that finding has very deep and serious foreign policy and national security connotations, that there are probably other agencies of the Government who have more of a lead in those roles than the NRC. And that was the context in which that discussion went forward.

Any suggestion that I would propose that we not fulfill our responsibilities under the law just isn't so.

Senator GLENN. We ought to clarify what we are loking to NRC to give us guidance on, it seems to me. We are not looking to NRC for guidance on general foreign policy. We are looking to it as the Agency of expertise on whether safeguards are adequate. Is security there or not? In the past, we have invited the ERDA people to go with you on some of those trips. We have looked to NRC as the guiding light in that area.

As I read your remarks, and what you just said, I wonder whether you really see your job as including that or not. If you are not to perform that function, then who should? We are relying on you to do that now.

Dr. HENDRIE. We certainly carry out those visits and evaluations, particularly in the physical security area and there, I think, the staff is able to do a good and sound job on making an independent evaluation. We have somewhat more difficulty on the side of material accounting procedures in foreign nations where these are being done and are being inspected under the IAEA. The difference in the two situations is primarily that the physical security, our ability to inspect physical security measures in other sovereign nations, is based on bilateral agreements, the understanding with the particular nation. On the material accounting side of safeguards, it works through the international agency.

We are signers of the treaty that establishes the IAEA. The other nation we are interested in is also, and there is that additional international body involved in inspecting and verifying the safeguards measures. In that case——

Mr. GLENN. If you were relieved of the responsibility for assessing IAEA safeguards and whether they are adequate, who do you think would be the appropriate representative to do it? If you statement in the Arlington paper was correct, that you feel you should be relieved of the responsibility, and should not pass judgement on whether these exports should be made, that would leave no one to back up IAEA and to say whether they have incorrect instrumentation to make the judgment. You are our expert in that area. It disturbs me to hear you say you shouldn't be in that loop someplace and have approval or disapproval capacity in it.

I don't think you should be setting foreign policy or have the power of sole determination. I sure think it is important that you be able to say "No, because there is not adequate safeguards" or "No instrumentation may be adequate to protect what we are shipping abroad." You should be able to toot the whistle and say "Hey, State Department, there is a dangerous situation. Terrorists may be able to get this. It is not adequately taken care of." I have depended on you and your office to be our watchdog in that area. Now I read you as feeling you should be taken out of that loop. That disturbs me. I don't see anybody else in that capacity.

Dr. HENDRIE. The point I was making, Senator, was not to remove us in total from this process but the matters indicated by the finding that a given export would not be inimical to the common defense and security of the United States, leaving those matters finally in the hands of the regulators may not be the best place in terms of the technical things you are talking about.

I think we have a role, particularly on the physical security side.

Senator GLENN. If the security is not adequate, the terrorists can get the nuclear material. If they can get it, our safety and security, and that of a lot of other people, is being stretched, it seems to me. I look to that as coming under your inimical clause.

Dr. HENDRIE. I would like to add that the executive branch, State Department people, Arms Control and Disarmament people, and the Department of Energy people, in fact, are very concerned and they look closely at the IAEA safeguards matters. It is not quite as if NRC were the only arm of the Government concerned and watching in these matters.

Senator GLENN. Mr. Chairman, I don't know how we are doing on time.

Chairman RIBICOFF. Go ahead.

Senator GLENN. There is another aspect of this which is very, very important. That is the area of how we transport not the low enriched uranium, but the highly enriched uranium which would be susceptible to weapons use if it fell into the hands of terrorists. It is an attractive target for terrorist groups. I am concerned about whether the security arrangements covering the shipment of the material, which are the responsibility of the NRC, are adequate. As an example, I understand that because of his concern on this score, Mayor Bilandic, from Chicago, has halted further shipments of highly enriched uranium from O'Hare Airport, pending a full study of the security measures.

I have also recently learned, as an added security measure, we have, in a few cases, requested that foreign nations purchasing large quan-

tities of this material fly it back to their countries in their own military cargo aircraft. Some of these shipments have originated where I live in Columbus, Ohio, and then gone out of Dulles in Washington.

Also, at least one import of highly enriched uranium will be made to our Columbus Airport in Ohio by a foreign military cargo plane. However, most shipments are still made by commercial jet, as I understand it. Could you describe the security arrangements for these exports and the status in Chicago? Does NRC intend to recommend further use of military aircraft or what is the view of other agencies? Do we still use civilian aircraft for the transport of highly enriched uranium—major shipments? What is the status of our shipping practices and what happens in the event of a crash?

Dr. HENDRIE. Let me start at the top of the list and work my way down and I will ask you to prompt me if I forget things, Senator.

On December 1, Mayor Bilandic released a public statement expressing concern about the transportation of enriched uranium through O'Hare and sought the cooperation of the President to insure the safety of the citizens of Chicago. We responded along with other agencies of the Government. We have agreed with the mayor to review with him the measures to cover these shipments and the environmental effects. In the meantime, shipments of highly enriched uranium are not being made through O'Hare. We have just completed a comprehensive study of the environmental impact of transportation of these materials by air and other modes and copies of this study are being presented to the mayor and a briefing will be laid down for later this week, as a matter of fact.

Following on then, to the question of shipment from other airports, you mentioned Columbus and the fact that military aircraft seem to have been used at some time in the past. There was a time about a half year ago, June of 1977, where we had a number of licenses for the export of highly enriched uranium which were cleared by the executive branch and passed over to NRC in a group. The Commission looked at those and for the ones which it granted, these constituted, all of a sudden, a lot of activity in the shipment area. There were, in particular, 12 licenses for highly enriched uranium, with 10 of the shipments to the Federal Republic of Germany, and 2 to France. In view of the number of them and the publicity attendant on the final approval of the licenses, it was thought wise to attempt to consolidate the exports and, in effect, reduce the number of movements that were being made and the vulnerability of these movements.

At the suggestion of the Arms Control and Disarmament Agency, the Federal Republic of Germany was queried about the possible use of German military aircraft. They agreed to that use for this single consolidated shipment with the agreement that it was not to set a precedent for subsequent activities. The NRC had no objection to the use of military aircraft. Our view is that either commercial cargo aircraft or military aircraft would have provided a satisfactory level of protection. That flight went out of Dulles because it was centrally located to the three points of origin of the material making up this consolidated shipment. Ten of the licensed packages went that way. Two others went from Columbus, Ohio because the French, who had

at first agreed to put their shipment in with the Germans, decided later to utilize a French military aircraft.

Senator GLENN. These are highly enriched?

Dr. HENDRIE. These are all highly enriched uranium shipments.

Senator GLENN. On highly enriched uranium, is it transported by special aircraft or commercial air freight aircraft?

Dr. HENDRIE. Typically, they do go by commercial cargo aircraft. They do not typically go on passenger aircraft.

Senator GLENN. What kind of studies do we have on the containers for these shipments?

Dr. HENDRIE. It is a Department of Transportation packaging for highly enriched material, for special nuclear material. I don't believe they are an impact-resistant package.

Senator GLENN. I was told by one of your predecessors that you had under development a container for shipment of this material that would take an impact into a solid rock wall at 600 miles an hour. Has that been developed, and is it now being used?

Dr. HENDRIE. Yes, it has been in development. I would point out that the development of that container was specifically in response to concerns about air shipment of plutonium, to provide for any plutonium shipments and a really impact-proof container. Cliff, would you amplify on the status of that?

Dr. SMITH. The answer is, we have developed a package that has been approved by the National Academy of Sciences and other review groups and at present, the Advisory Committee on Reactor Safeguards is making its review of it. We should be in a position in a month to certify to the Senate that we have a crash-proof package.

Senator GLENN. What would be the dangers now to a community or area or how debilitating would it be to what size area if an HEU package was impacted and broken open in an area after a crash?

Dr. HENDRIE. We would move in rapidly, clear the area, and establish contamination levels. I think the toxic aspects are considerably less than in the case of plutonium, which was the basis for the difference in going ahead with the crashproof shipping container development for plutonium.

Senator GLENN. If there was a crash now, you feel there would be a serious radioactive problem around that fuel or what would be the situation?

Dr. HENDRIE. I am inclined, Senator, on balance, to think that there probably would not be, but I would certainly take the attitude that one would regard it as serious unless proven otherwise in the particular case in the field. We and other radiation emergency response groups would be moving very rapidly and aggressively if that happened.

Senator GLENN. You have pending proposed rule changes to upgrade further our domestic safeguards. Once these rules are made final, U.S. safeguards will almost certainly be tougher than those required under international security standards of IAEA.

Does NRC intend to continue to make transports, exports to countries where standards are less stringent than our own when these rules are completed?

Dr. HENDRIE. I think that will have to depend on the circumstances in the particular countries, as is generally the case in con-

sidering an export application, Senator. If we go ahead and upgrade the safeguards provisions at these fuel cycle facilities as we proposed in this rule, then that will immediately open the question of working with IAEA and other nations to upgrade on an international basis. Where we find an agreement with the executive branch that, on balance, a given export now is an acceptable proposition from the standpoint of United States interests, I would not think that 3 months from now, if we had implemented the upgrade rule for ourselves in the meantime, that that would necessarily rule out further exports until there had been an upgrading in the country in question.

Senator GLENN. I am concerned that we set high standards and we hope we can attract other nations into following along these much increased standards. I don't see this as a single nationality problem. We know from past experience that hijacking an airplane has not been a big problem. Once we find any major terrorist group in the world with these supplies, plutonium or HEU, it won't make any difference what nation it came from, but it will be a concern for all of us around the world.

Dr. HENDRIE. You are right This is of worldwide concern.

Senator GLENN. I am concerned that we make every effort to upgrade foreign standards as best we can, after we upgrade our own. Do we have efforts under way to get foreign nations to upgrade their own standards to our levels?

Dr. HENDRIE. We do, and have strong efforts in working with the agency to increase the stringency and vigor of the agency's safeguards.

Senator GLENN. Have they been cooperating in this regard? What results have you had with your efforts to get them to upgrade their own standards and those of foreign nations?

Dr. HENDRIE. I will make a brief comment, and ask Dr. Smith to add to this.

I think they are very cooperative. I was in Vienna recently and had opportunity to talk there to the inspector general. I had, more importantly, it seemed to me, a chance to talk to a number of U.S. citizens, some of them NRC employees on special assignment, and so on, who were on the safeguard staff.

My impression from talking to our people there is that the morale of that staff is good. They feel considerably encouraged by the steps that have been taken in tightening things up. They are anxious to get on with more.

Senator GLENN. With our technology we may have to take the lead.

As I am sure you are aware, there is a special IAEA staff report that shows that agency's own inadequacies. They are not happy with their own methods of monitoring. We have to take the technological lead in the world. I hope we are doing that.

That is the reason I was concerned about the remarks in the paper that indicated maybe you are feeling that your role was primarily a domestic role, and not a foreign role, and that your role in the international realm was not as great as maybe some of us thought it was going to be.

That was another reason for my concern about the Rosenfeld article in the paper.

Dr. HENDRIE. My reluctance was to be in a prominent role in foreign policy. The question we are talking about here is the implementa-

tion of the safeguard measures, and the physical security measures. We understand these, and are working hard on them.

Senator GLENN. You indicated in your testimony you are not ready to embrace the idea of cutting off nuclear exports to countries which harbor terrorists.

Would you favor a provision to cut off nuclear exports to countries which aided or abetted nuclear terrorists?

Dr. HENDRIE. The question of whether the sanction list was the way to optimize resistance to terrorists, in discouraging terrorists, was a question I would rather leave to people more expert in the area than myself or this Agency.

I think about the sanctions list, that it might be useful if there were some degree of flexibility in it so that the punishment could fit the crime, so to speak. And in that regard, you might want to cut off exports, if there had been any sort of a connection with a nuclear-related matter involved in the incident.

Senator GLENN. Has NRC prepared a list of countries where the safeguard of nuclear materials is not adequate?

Dr. HENDRIE. I don't believe so.

Let me ask Dr. Smith to answer.

Dr. SMITH. From the standpoint of physical security, Senator, we have not had any difficulty in terms of getting the recipient country to upgrade the physical security to the level we have required.

When it comes to material accounting and control, that gets into international safeguards in IAEA. We really don't have any information from the IAEA that would enable us to determine how well the various IAEA countries are implementing the IAEA safeguards.

Senator GLENN. As far as physical security of those plants, and resistance to terrorist groups coming in, or resistance to that material getting out by that method, you are satisfied wherever we ship material around the world, you have no qualms about it being adequately safeguarded in that respect.

Dr. SMITH. In terms of physical security, that is correct. That is on the basis of visitations our own people make to those particular countries, and then we might stipulate certain other additional requirements if we don't feel it is adequate.

Generally, we are using the IAEA INFCIRC 225. We don't have qualms in that area.

When we get into the other area, as the Chairman has alluded, we have problems.

Senator GLENN. With regard to air shipment of plutonium, or highly enriched uranium, are these crews specially screened and selected and trained? Do we run an FBI check on the crews? Do we know there will not be a crew diversion of shipment to a foreign country as occurred with a mysterious ship which wound up at an unknown destination with the uranium and so on on board? This is another factor in the Apollo NUMEC deal? It is not all that classified; it has been in the papers.

Is there possibility of a diversion of an aircraft with highly enriched uranium or plutonium? Does plutonium get shipped by air now?

Dr. SMITH. It has been banned by air until we can certify to you a crash-proof container.

Senator GLENN. What screening or protection do we have against an air crew diverting that HEU?

Dr. HENDRIE. We don't screen test crews. They are regular crews, employees of the major aircraft carriers that are used.

Crew reliability statistics we look at, because the question you raise is a matter of concern. But the crew reliability statistics, as far as we know, are really very good.

I think our feeling is that the possibility you mentioned exists. We guard the material carefully at the terminals on the ground transfer points, during the ground transportation. The cargo aircraft has regular crews; we use national flag lines in countries who have national flag lines.

Senator GLENN. Is the NRC able to say now that the IAEA safeguards are adequate?

Dr. HENDRIE. On balance, I think our feeling, Senator, is that they are.

I think it is fair to say that there is considerable upgrading and improvement that is needed, that this ought to go forward as fast as it possibly can, and we will be pushing that hard.

The Commission staff is not able to go itself and examine on a country-by-country basis the specific measures. The staff, therefore, is not in the same position with regard to these material accounting safeguards of the agency, to offer the same degree of independent evaluation and assurance of adequacy that it is in the physical security area, or in the normal conduct of our business, in regulating domestically.

Senator GLENN. Mr. Hendrie, I appreciate very much your answers to these questions. I think it is important to bring up these issues for discussion.

Some of my questioning is directed to you. You can appreciate the importance to the American people and to all of us is of bringing these matters out. When we question NRC operation or your administration of that Agency, I think it behooves us to bring these things out so we can clarify them.

My questioning here this morning is meant to bring these issues out in the open as completely as we can.

Mr. Chairman, I appreciate your indulgence in letting me continue as long as I have. We have gone over our usual time limit.

I think these things are of such importance that I think it was important.

Chairman RIBICOFF. They are important, and, Senator Glenn you have devoted so much time, and are so knowledgeable in these fields, that under no circumstances would I cut you off, directly or indirectly.

Senator HODGES. I have no questions.

Chairman RIBICOFF. Senator Percy?

Senator PERCY. We appreciate very much you and your colleagues being here this morning. Certainly the thrust of Senator Glenn's questions have indicated that we are dealing with a mind-boggling problem.

Certainly the prospect of a terrorist constructing a nuclear weapon with stolen nuclear material, as Senator Glenn mentioned yesterday,

is a prospect that is there; and it is frightening, indeed, when we have a young college undergraduate who is reported to have put a bomb together. We know it is not that complicated, particularly when a destructive element can be carried in a knapsack.

Our concern about adequate security is probably well warranted. This is why we feel that your Agency has such an important role in this.

To put it a different way than Senator Glenn has, what degree of satisfaction do you have that security at nuclear facilities in this country and around the world are adequate to prevent the theft of significant quantities of nuclear fuel, and what is your view of security measures for transporting such materials?

What degree of assurance do you have inside your own conscience that we are in reasonably good shape here and around the world to protect ourselves against nuclear theft, and to protect ourselves against the diversion of transporters of nuclear materials?

Dr. HENDRIE. Senator, it is a good question, and a fair one.

My feeling is that where one is attempting to protect against things of this kind, it is very difficult to say that additional measures, no matter what one is doing at the present time, to say that additional measures would not help. Clearly, they would.

I think on balance, as best I can assess the situation, domestically and internationally, there is a reasonable balance of protection against the risk levels. I think it is not a matter to be cheerful or complacent about, by any means.

I think it needs considerable upgrading, but I don't find it to be a situation where we ought to say, "stop everything—we will need 10 years to make this good enough to be endurable."

I don't feel it is that way. On the other hand, I am not——

Chairman RIBICOFF. Would you yield for a second?

It seems we are running much beyond our schedule. I think it is unfair to keep Mr. Civiletti, Mr. McGiffert, and Ms. Godley here. We will not be able to hear them today.

My apologies to you for being here all morning. We will find another day for our mutual convenience.

Under the circumstances, I thank all of you for coming here, and I apologize for taking your morning. We will try to get together on a day that we know you can be reached in due time.

Thank you for coming.

Senator PERCY. The Nuclear Regulatory Commission reviews the level of physical security in other nations when considering requests for nuclear export licenses. Have any countries been reluctant to allow American inspectors to view their facilities for this purpose?

Dr. HENDRIE. I don't think so, but I will let Dr. Smith answer for us. His office does the job.

Dr. SMITH. We have not had any difficulty in terms of our visitations, if I can call it that. The word "inspection" conjures up a lot of problems with sovereignty, and so forth.

In terms of the visitations, no, we have had opportunity to sit down with them, review their national approach to physical security, and, indeed, make site-specific inspections.

Dr. HENDRIE. I should have noted for the committee that Mr. Robert Burnett, the Director of our Division of Safeguards, one of the divisions under Dr. Smith, has joined us at the table.

Senator PERCY. Would you want to make any comment on this particular point?

Mr. BURNETT. No, sir. I came up so that in the event the discussion gets into sufficient detail, I can respond.

Senator PERCY. Are you satisfied with the current procedure for determining the adequacy of physical security measures overseas?

Dr. HENDRIE. Yes, I think so.

Senator PERCY. Is there any way that procedure could be strengthened, improved, or should be modified, that you can think of?

Dr. HENDRIE. Our visitations and evaluations and so on?

Senator PERCY. For determining the adequacy of physical security measures.

Dr. SMITH. What would help is if we had international agreement as to the degree of physical security that each nation that has received material would apply. We are trying to do that now through an IAEA-sponsored international security convention.

What we find is the level of physical protection in each nation varies. There is nothing wrong with the variations. There are certain fundamental things, certain baselines that we like to see across the board, and that is what we are working for through the international community.

Senator PERCY. Would you care to comment on the desirability or necessity of negotiating an international convention to ensure that other countries attach a high priority to physical security at nuclear facilities?

Could you update us as to what has been done in other countries in this field?

Dr. HENDRIE. There is an effort under way in conjunction with the International Atomic Energy Agency to do just that. We have been very active in that, and Dr. Smith and Mr. Burnett can respond.

Dr. SMITH. Mr. Burnett, my director of the Division of Safeguards, returned from Vienna not too long ago, where he represented the USNRC on that. He might speak to you about that.

Mr. BURNETT. At that meeting, Senator, we attempted to establish a minimum level of physical security during transport of SNM. We are using as a basis the INFCIRC 225 which is a document circulated by the IAEA. It has not been enforced by the IAEA yet, and that was suggested also at this conference. I am told they are going to prepare a convention to establish that as a minimum level.

There is another meeting scheduled in April to go back and, hopefully, come up with a final draft of the physical security requirements. I believe with that, we will be vastly ahead of where we are now.

Senator PERCY. Very good. I have no further questions. Thank you very much.

Chairman RIBICOFF. Thank you very much.

The committee stands adjourned until Friday morning at 9:30.

[Whereupon, the hearing was adjourned, to reconvene at 9:30 a.m. on Friday, January 27, 1978.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

FRIDAY, JANUARY 27, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 9:30 a.m. in room 3302 of the Dirksen Senate Office Bulding; Hon. Abraham Ribicoff, chairman, presiding.

Present: Senators Ribicoff and Javits.

Staff members present: Richard A. Wegman, chief counsel and staff director; Ellen Miller, professional staff member; Brian Conboy, special counsel to the minority; John Childers, chief counsel to the minority; Ken Ackerman, professional staff member, and Robert V. Heffernan, research assistant.

Chairman RIBICOFF. The Committee will be in order.

I want you to know how much I appreciate the three of you being with us. Without question, the world is in a new phase in the whole field of terrorism. It is against individuals, groups, nations, society as a whole.

And we better learn something about it and see what we can do about it. All of you come here with the highest recommendations, Mr. Hassel, Dr. Ochberg, and Dr. Russell.

We are most appreciative for giving us your time and sharing your knowledge with us.

Gentlemen, will you proceed, the three of you as you will.

TESTIMONY OF FRANK M. OCHBERG, M.D., ACTING DIRECTOR, OFFICE OF PROGRAM DEVELOPMENT AND ANALYSIS, NATIONAL INSTITUTE OF MENTAL HEALTH; CHARLES RUSSELL, OFFICE OF SPECIAL INVESTIGATIONS, U.S. AIR FORCE; AND CONRAD HASSEL, SUPERVISORY SPECIAL AGENT, FBI ACADEMY

Dr. OCHBERG. Thank you, Mr. Chairman.

We are part of a briefing team that has just returned from Europe where we have met with the major commanders of the Air Force. We have been in Japan before this.

The other members of our team are Special Agent Thomas Strentz, Special Agent Thomas Reilly of the FBI, and Major Peter Colangelo of the security police of the U.S. Air Force.

We have been on this briefing mission because the Air Force wants a balanced picture of transnational terrorism, of experience of the various law enforcement agencies and others who have paid attention to the problem.

Your staff met with us in Germany and asked for a distillation of our briefing for you and we were quite pleased to arrange this. What we intend is the description of the problem of transnational groups, some illustrative incidents, some of the law enforcement approaches and some of the medical and psychiatric issues, especially those affecting the victims of the hostage-taking situation.

We will be brief. Additional material has been provided for the record.[1]

Dr. Russell of the OSI will lead off. He will describe the foreign groups, the growing sophistication of these groups, the linkages among each group and some examples of their tactics.

Dr. RUSSELL. What I would like to do today is to examine, statistically, the problem of terrorism on an international scale and then look at what these statistics may mean to the United States and other countries in the Western World.

I would also like to evaluate the common ties and linkages between various terrorist groups as well as the increasing sophistication and capabilities of some of these organizations.

My background has been essentially in the Office of Special Investigations, U.S. Air Force for the past 27 years. I have been involved in the study of terrorism for the last 17 years. The statistics I will be using are from a private data base which a number of my associates and myself compiled. We have focused on major terrorist incidents throughout the world, but specifically in the European area, Middle East, Latin America and Far East.

At present, the data base contains 1,775 major incidents, covering the period January 1, 1970 to November 1, 1977. For our purposes and your benefit, we describe a terrorist incident as an offensive act by an identified terrorist group.

Within the data base, we are concerned primarily with kidnappings, assassinations, bombings involving major targets, attacks against facilities, and hijackings.

Sources of information used in compiling the data base were, basically, the foreign press, U.S. press, various chronologies, and police reports, when these were available.

The data base does not include the United States, Israel, Northern Ireland, or Africa south of the Sahara.

In looking at the problem of terrorism, with these data base caveats in mind, we find there have been 1,775 major terrorist incidents since January 1, 1970.

Chairman RIBICOFF. That's worldwide?

Dr. RUSSELL. Yes, sir, with the exclusions I have mentioned. The figure does not include Northern Ireland, Israel, United States and most of Africa south of the Sahara.

Chairman RIBICOFF. Why do you exclude those countries?

Dr. RUSSELL. In the case of Northern Ireland, much of the activity has been the bombing category. It is difficult to keep pace with these activities. This is a private effort on our own part, after working hours. To be honest, we couldn't keep up with the bombings.

Chairman RIBICOFF. This is something that the three of you are doing on your own?

[1] See pp. 667 and 726.

Dr. RUSSELL. Yes.

Chairman RIBICOFF. Do you coordinate this with terrorism experts in other sections of the world?

Dr. RUSSELL. We have. Initially, building the data base was for the purpose of working with Dr. Yonah Alexander in regard to the preparation of various articles for his journal. We continued the effort to try to establish where the terrorist problem was greatest; to determine if there are common patterns or trends in terrorist operations; if there are new methods of operation; if they are significant; if there are changes in weaponry; and where most terrorist acts take place.

Chairman RIBICOFF. It would seem to me that the Israeli experience could be very valuable here. That is why I am curious why you did not coordinate with some of their research information, intelligence.

Dr. RUSSELL. We have, in the unclassified area. Last summer the three of us attended a conference in Evian, France, and talked with Israeli representatives who were there. In regard to our own data base, it's a totally unclassified one and not classified. Continuing, it contains 1,775 incidents with 1,032 persons killed during the January 1, 1970–November 1, 1977 time span.

Total dollar damage in one-half of the incidents amounts to $283 million.

While I'm not going to deluge you with statistics, I would like to pick out some of the major types of terrorist acts and discuss these.

First of all, assassinations. In regard to assassinations during the time period January 1, 1970 to November 1, 1977, we have had 257 such incidents with 390 victims. The target normally was one person, and the average size of the attack team, three persons. Most of the assassinations occurred in Western Europe and Latin America.

The primary targets for assassination have been police officers. Twenty percent of those assassinated have been rival terrorist group members, 17 percent businessmen and 15 percent diplomats. Over 78 percent of all assassinations attempted were successful. About 69 percent of these assassinations, which is a rather high figure, occurred in the last 3 years.

This would seem to indicate, at least to me personally, there is an upward trend of this type of activity. In the area of kidnapping, we have had 232 incidents with 363 victims during the same time period. The average victim per incident was 1.5. The average size of the attack team, larger than in the case of assassinations, was 4.2 persons.

Most of the kidnapings took place in Latin America and Western Europe. The major occupation of most kidnap victims was businessman. Forty-three percent of all persons kidnaped were businessmen. Of this figure, one out of five was an American businessman.

Chairman RIBICOFF. In your study, is the primary purpose of kidnappings and assassinations of businessmen to get money or is it ideological?

Dr. RUSSELL. In most cases, in my experience, it has been for the purpose of deriving money to continue terrorist operations and, second, where possible, as in the case of Dr. Schleyer, to force the release of political prisoners. Ninety percent of all the kidnaps took place between the victim's home and place of work.

CONTINUED

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Chairman RIBICOFF. Is it because the kidnapers don't like businessmen or industrialists? That isn't the basic reason?

Dr. RUSSELL. No, the basic thrust in at least present-day kidnappings by terrorist groups appears to be for the purpose of obtaining funds. Businessmen, as you know, are a lucrative target in this regard. Eighty percent of all attempted kidnapings were successful. As I stated, 90 percent of these took place while the victim was en route between his home and place of work or vice versa.

In the case of kidnapings, they have been used to force the release of 267 terrorist prisoners by pressure on various governments. The trend in kidnapings appears to be up; over 77 percent of the total number have occurred within the last 3 years.

The other two categories of terrorist incidents I would like to mention briefly, are bombings and attacks against facilities. During the January 1, 1970–November 1, 1977 period there were 924 significant bombing incidents. This figure does not include those in Israel or Northern Ireland.

We define a significant bombing as one where the target was an important facility, where a great amount of damage was done or where there was a unique technique employed.

Dollar losses in the case of bombings amounted to over $92.5 million. These figures are based on data available in slightly over 50 percent of the cases.

The bombing trend seems to have peaked in approximately 1974. Since that time it has dropped off gradually, statistically speaking.

In looking at attacks against facilities, and we define these as an effort to take over, let us say, a bank or business firm, there have been 290 incidents wherein 358 persons were killed. These figures are based on data available in only 90 of the 290 cases.

An additional 332 persons were wounded in 90 of these 290 cases and 664 hostages were taken in only 37 of the total of 290 incidents.

The average size of the attack team was 4.2 persons. Most of the attacks against facilities took place in Latin America and Western Europe.

The largest individual targets for facility attacks were nonmilitary government facilities, 17 percent; 17 percent for domestic and foreign banks; 14½ percent for military installations and 13 percent for other corporate entities.

Total dollar losses exceeded $31,300,000. This is based upon information available in 92 percent of all of the 290 incidents.

I recognize these are a lot of statistics. Do they mean anything—what do they mean? In my personal view, they reflect an increasing sophistication in the terrorist groups operating today.

If we may, I will turn on the slide projector. This slide attempts to show that the unsophisticated terrorist group normally begins with a bombing type of operation.

The reasons are simple. Bombs are easy to manufacture; the knowledge to construct them is simple to obtain. The equipment, in the sense of explosives, not difficult to acquire. In short, you do not require a sophisticated terrorist organization to conduct bombing operations. Accordingly, as terrorist organizations become more sophisticated, they normally progress up the line to such activities as facility attacks, assassinations, hijackings, and kidnapings.

In these operations, they need a large infrastructure. They require automatic weapons and safehouses for their kidnap victims. In the case of hijackings, they need safe locations to bring aircraft down. They require a great deal of complex support in these types of operations. If the statistics I have mentioned show one thing, they show a rise, for example, in assassinations, a rise in kidnapping and at least a constant figure for facility attacks and a drop in bombings, statistically speaking.

Thus, in speaking of overseas areas, the data reflects increasing sophistication for most of the groups operating there.

Chairman RIBICOFF. When you say "sophistication," does your study show that most of the groups involved in terrorist gangs are educated, middle class, and knowledgeable?

Dr. RUSSELL. Yes. I will move to that point rather quickly. Some of the sophistication and the links between the groups result from the points you just made. We are not dealing, in this sense, with uneducated persons. The links between terrorist groups generally seem to be based on a common sociological background of the members, a common ideology which often is anarchism, common training, common operational techniques and joint operations.

As you pointed out, Mr. Chairman, these people are basically similar in background. In research we did 2 years ago, covering the period January 1, 1968 through the early part of 1976, we examined 350 persons who had been involved in major terrorist operations worldwide. In looking at these people from a sociological standpoint, the slide shows what they look like.

If one were to redo this research currently, there would be a dropoff in age figure. It's somewhat lower; I would guess, personally, about 21 or 20.

The other major change would be in the increased use of females for terrorist operations, not only in the Federal Republic of Germany where there has been a tradition in this direction but also throughout the rest of the world.

The other factors shown on the slide would remain as they are. In the sense of ideology, many of these people are anarchists. Marxism is a gloss used to justify their operations.

Chairman RIBICOFF. From your experiences, are they acquainted with one another across national lines? Do they know each other?

Dr. RUSSELL. Yes, they do. Many of them do.

Chairman RIBICOFF. Where do they get the knowledge and understanding of one another and the friendship?

Dr. RUSSELL. Based on the research we have done, it comes initially from common training. Many of these people train together.

I will move on to that slide, if I may.

The ideology of these individuals, as I say, is basically anarchism. However, if we look at the slide under training, we are talking about Palestinian training of the Irish Republican Army, Japanese Red Army, Baader-Meinhof and Movement 2 June, Carlos, Turkish groups, Iranian groups, and Dutch.

If one views all but the Dutch groups, the training took place in basically the same time span. It began, essentially, in 1970 in the camps in Lebanon. It was continued in Syria. Many of these people,

as you mentioned, Mr. Chairman, do know each other and did train together.

They are personally acquainted with one another. They read one another's literature fully.

I should also say that the training continues to go on; not in Lebanon but essentially in the People's Democratic Republic of Yemen.

These slides illustrate two concrete examples of this training for two individuals recently involved in terrorist operations.

This woman is Gabriele Kroecher-Tiedemann. She was one of the individuals freed in the kidnaping of the West Berlin mayoral candidate, Peter Lorenz, in February 1975.

You may recall this incident wherein the kidnapers demanded the release of six terrorists. Three of the six were females. This is one of them.

After release, Kroecher-Tiedemann proceded directly to the People's Democratic Republic of Yemen, underwent terrorist training there, returned to Austria and participated with "Carlos," Ilich Ramirez Sanchez, in the December 1975 OPEC operation.

Chairman RIBICOFF. Who runs the training institute in Yemen?

Dr. RUSSELL. I would guess the Palestinian groups.

Chairman RIBICOFF. So would the Palestinian radical groups be in the forefront of most of this training?

Dr. RUSSELL. Yes, in the sense of training. It's known that Germans also have participated in the training. Siegfried Haag, a German terrorist was arrested in November 1976 in Birtzbach, Federal Republic of Germany, shortly after returning from the People's Democratic Republic of Yemen wheer he had instructed terrorist trainees.

Senator JAVITS. I would like to remind the witness that four countries were named by our country for aiding and abetting terrorism. They were Somalia, Iraq, the People's Democratic Republic of Yemen, and Libya. And the Secretary of State took Somalia, in effect, off the list. But we have actually named publicly as countries aiding and abetting terrorism the People's Republic of Yemen.

Senator JAVITS. Your research has indicated that that is the hot spot. Do you want to say anything to us about Libya or Iraq?

Dr. RUSSELL. I think to the best of my knowledge, most of the training is now done in the People's Democratic Republic of Yemen.

Unquestionably, as the Chairman and you are aware, assistance also has been provided by Libya in the sense of the incident which took place at Yesilkoy, the International Airport in Istanbul, Turkey in which terrorists embarked on the operation from Libya, transited Rome, went to Yesilkoy, and attacked an El Al flight about to depart from Tel Aviv.

From a personal basis, one could add Libya.

Chairman RIBICOFF. How is a person like Tiedemann recruited?

Dr. RUSSELL. Many individuals similar to Kroecher-Tiedemann, particularly in the case of the German groups, came out of the student movement of the 1960's. And moved into radical commune groups during the early 1970's. Most are anarchist in outlook. Their philosophy can best be summarized simply as follows: "Society is

corrupt; it must be destroyed. That which comes later will be better." In many ways, these views are similar to those of the Russian anarchists of the 1900's. Coming from middle-class or upper-class groups, these individuals seem to be totally disenchanted with the existing social-political-economic system.

In that sense, normally, there was a long period of time during which they gradually evolved from radical groups and moved into the terroist movement, particularly in Germany.

Another leader who meets the same criteria is Verena Becker. She also was freed in the Lorenz kidnaping. Subsequently she went to the People's Democratic Republic of Yemen, came back and is probably the one responsible for the execution of Siegfried Buback, the Federal prosecutor in Karlsruhe, Federal Republic of Germany on the 7th of April, 1977. As is obvious, the training did not discontinue when the base was moved from Lebanon, but it continues now, at the present time, in the People's Democratic Republic of Yemen.

The common ideology and background of the groups as well as the people involved often lead to a large number of nationalities involved as terrorists for groups such as the Popular Front for the Liberation of Palestine.

The Chairman mentioned Israeli sources earlier. The Israelis have reported that in September 1976, they arrested a Dutch woman, Ludvina Janssen, in Lod Airport. According to the Israelis, was trained in the Peoples Democratic Republic of Yemen and was in Israel surveilling airline routes.

Germans also have been involved in the Popular Front for the liberation of Palestine over a long period of time. Wilfrid Boese, for example, was connected with Carlos in Paris during the 1975 attacks on El Al facilities at Orly Airport. He was killed at Entebbe.

Brigitte Kuhlmann, another German, also was killed at Entebbe. Still another German, Bernard Hausmann, entered Lod Airport in May of 1976 carrying an explosive device. The device exploded when he removed it from the baggage carousel.

Hans Klein, also German, was involved with the Popular Front for the liberation of Palestine in the OPEC operation. One can track down other nationalities in this group although time prohibits it at this point.

The common background, ideology, and training of these people tends to lead them, in some cases, to collaborate in operations. This slide reflects some joint operations: The Lod operation. There you had Japanese Red Army involvement, with the operation being conducted for the Popular Front for the Liberation of Palestine with German assistance, in the area of false documentation: the Hague operation also involved Japanese Red Army participation.

This operation focused on obtaining the release of Japanese Red Army personnel held in French prisons.

Orly involved a mixed group of individuals as did the OPEC operation.

As I'm sure the committee is well aware, Entebbe also included mixed nationalities—Germans, Palestinians and possibly Latin Americans.

When one considers all of these factors the complex operations the people are involved in, the close ties between them in background, ideology, and training and their study of one another, one tends to see an increase in professionalism within most present-day terrorist groups.

To illustrate this, I would like to use two examples. One, the assassination of Dr. Hanns-Martin Schleyer; and secondly, the attempted assassination of Kurt Rebman, the federal prosecutor in Karlsruhe who replaced Siegfried Buback, the previous prosecutor killed by terrorists on April 7, 1977.

On the left of this slide you see Dr. Hanns-Martin Schleyer, age 62, president of the Federal Association of Businessmen in Germany. He was kidnaped on the fifth anniversary of the Munich massacre, September 5, 1977, at 17:30 hours en route from his office to his home.

Caught at the intersection of two streets in Cologne, the following slides depict some of the terrorist professionalism involved in this operation.

This slide shows Schleyer as a terrorist prisoner. RAF stands for Red Army Faction, a follow-on group to the German terrorists of the early 1970's.

That's an overhead view of the incident itself. These slides were provided by various sources in Germany. The vehicle in which Dr. Schleyer was riding is the blue-colored Mercedes. The one behind is a police escort vehicle. The yellow Mercedes was used by terrorists to block a portion of the street. As Schleyer's driver approached the intersection, a woman with a baby buggy began to cross the streets. Since the yellow Mercedes was blocking Dr. Schleyer's vehicle, and driver chose not to hit the woman with the baby buggy, he halted the car.

As he did so, five terrorists opened fire, firing at Schleyer's vehicle and the police escort vehicle.

This is a photograph of the baby buggy used, pushed by the female terrorist. It contained an automatic weapon rather than a child and she participated in the attack.

This is Schleyer's vehicle, again.

In the sense of professionalism, please note there are no bullet holes in the right-rear door. Dr. Schleyer was sitting in the right rear of the vehicle.

The white marks seen here represent bullet holes in other portions of the vehicle, but none where Schleyer was sitting.

This is the police escort vehicle, which suffered a good bit more damage, as you can see. The marks represent the entry of a bullet.

This is the rear of the vehicle. As you can see, some of the terrorists fired through the rear window which assured killing the police officers in the vehicle.

Again, we are talking about professionalism, and capability and training. If one looks at a pattern such as this, one sees automatic weapons fire, fully automatic, in a very tight group. This reflects highly professional weapons discipline.

Dr. Schleyer was taken away in this van after the shooting took place. There were 5 terrorists engaged in the actual shooting, 15 involved overall in the operation.

Again, professionalism. The terrorists needed automatic weapons; firing discipline; a method to block the intersection; and an escape vehicle; all of which were available.

As you know, Dr. Schleyer was killed and the body recovered on the 19th of October 1977, in Mulhouse, France. This additional series of slides reflects some of the further increase in sophistication among modern terrorists.

This device is referred to as a "Stalin organ." Actually, it is a set of mortar tubes. It was to be used to kill Dr. Kurt Rebman, the successor to Siegfried Buback, the federal prosecutor in Karlsruhe who was killed on the 7th of April 1977.

This device was installed in an apartment across the street from the prosecutor's office, 100 meters away. Sophistication is evident here. This is rather complex electrical circuitry. The tubes were designed to be fired sequentially, not all at once. The electrical firing mechanism was located in this box and the timing device was set for slightly after 4 p.m. In this instance, an apartment had been taken over by the terrorists. The individuals in the apartment were tied up. Fortunately, the captives managed to slip their bonds, go out and notify the police. The police responded and aborted the operation before it could take place.

This is the side of the box, again. As you are looking down, the clock would be on the other side. The circuitry is complicated. This slide shows one of the 40 firing tubes. Each of these tubes is 1¼ inch in diameter.

The so-called rockets, and one might better say mortars, were to be fired electrically. However, the striker mechanism for each "rocket" was primitive, simply a nail.

This slide illustrates the shrapnel under the wrapping you saw as well as the device itself. The purpose would be to scatter shrapnel throughout the vicinity of the target office.

Again, from my personal standpoint, terrorist groups have become much more sophisticated in recent years. We have seen an increase in sophistication in the sense of operational complexity and in the professionalism of those terrorists involved. How much more this sophistication can progress I cannot state.

Thank you very much, Mr. Chairman.

Chairman RIBICOFF. Thank you.

Dr. OCHBERG. Dr. Russell has emphasized the professional groups who have been operating, fortunately for us, outside the United States. We have had limited experience here with anything like this, but there are imitators. There are many criminal and disturbed individuals who have given our law enforcement agencies quite a bit of experience and precipitated the development of negotiations and expertise in special weapons and tactics groups.

To discuss the law enforcement approach within the United States, Special Agent Conrad Hassel of the FBI.[1]

Mr. HASSEL. I have been with the FBI for 17 years. My background is as a lawyer, background work in criminology. I'm the unit chief of a small unit within the training division of the FBI known as Special Operations and Research Staff. Among our functions is

[1] See p. 726.

the study of terrorism as it affects the United States and particularly training of law enforcement officers, military, support, and our own people in dealing with the problems that the terrorist causes.

I would like to pick up a little bit on what Mr. Russell said. In looking at our terrorists here in the United States and our groups, we find that there are some very strong similarities to those overseas. First of all, the social status of the leadership in the terrorist movement tends to be upper middle class. They tend to be, in fact, middle class. They tend to be, in fact, some of the brighter people coming out of the dissident student groups, movements, small number, minute number out of the 1960's.

The tactics, however, although the philosophy is similar, their tactics have been unsophisticated. They have not been able to reach the level of sophistication that the European groups have.

GENERAL LINKAGES

We see over and over again indications that people within European groups with similar philosophies have been contacted—or these people have been in meeting there in Europe to study their types.

Chairman RIDICOFF. How does someone from the United States get together with a German or a South American or a Palestinian?

Mr. HASSEL. Under the guise of an international meeting of cooperation and goodwill, or a students' group, something to this effect. They usually do get together. We see no organized conspiracy here. These groups, as we had unsophisticated groups in the 1960's, the Klan, leadership is a difficult thing, to let someone take over a leadership position and direct the entire realm of terrorism.

THEY DO COOPERATE

Their initial phase is destruction of Government and society, but they can't get together on what is to follow. Conspiracy, yes; but central conspiracy, no.

I would like to discuss my particular area in this whole realm and where we get involved in training and discussing the problems that American law enforcement, including the FBI, face in regard to the hostage situation, which, as Mr. Russell indicated, is the most sophisticated of the terrorist devices.

We have had good luck so far in the United States. It is more than luck; it is training and intelligence on the part of the local law enforcement that has caused our success, a high degree of success in in this area. These are some of the priorities we use to discuss in hostage negotiation techniques.

We do this not only in terrorism but any hostage situation that occurs. We believe the most important thing is the preservation of life. A, B, C: whose life is more important? You can argue about and change the priority. One we sometimes overlook and we like to emphasize is the life of the hostage-taker himself. We think that all human life has value and this is the difficulty for a command decision.

Here is a situation that happens over and over again, whether a terrorism scenario or criminal scenario. A bank, for example. The commander says, "you can take out the hostage-taker." That commander has to make the decision to shoot or not shoot.

"How long should we negotiate before taking the ultimate step?" We want commanders and future commanders to think about that. We are taking an irreplaceable thing, the human life, and we will go to great lengths within the American law enforcement community to save everyone's life. The last thing anybody wants in a hostage situation, whether or not it involves terrorism, is the assault. The assault is the worst way of handling it. Statistically almost 80 percent of hostages worldwide are killed during the assault phase.

If we cannot use that phase, get them to surrender before that stage, we hopefully can use those. We have to be prepared to use assaults.

There are varying views of opinion as to how to treat these cases. Some departments have taken a very hard stand in the past, saying that, "We will surround the area and we will demand surrender and we will communicate, however, with the hostage-taker but we will not, in fact, negotiate." When you say "negotiate," you imply a bargain and sale. You imply that you are going to give up something to get something back.

We encourage negotiation to a certain degree. To what degree things should be negotiated, of course, is a policy decision of the department, or in this case, of the Federal Government.

Some of the things that have been negotiated—and the interesting one on this chart is 2 under "d." One department I am aware of, even the hostage-taker is allowed to leave the scene if he is willing to give the hostages back alive. That is quite a far cry from others where it says no, it only encourages them if you allow that to happen. I can't criticize either view. But the New York Police Department does want it known that they will, in fact, allow that hostage-taker to leave the scene. That does not offer him immunity but it allows him to get out of there if he will give back the lives of the hostages.

Weapons have been universally negotiable. Money, yes, we have negotiated money; the FBI has, on airline hijackings and things like that. That has been a matter of negotiation. That money is generally not paid by the Federal Government or police department but rather by the corporation that is being extorted.

EXCHANGE OF HOSTAGES

Someone is being held as hostage and the law enforcement officer says, "Take me instead of the hostage" in that particular situation. We suggest it is probably not psychologically the best idea; however, we cannot criticize people who believe that this is the job of a law enforcement officer. The FBI has used this tactic most recently 3 months ago to get hostages released. They have exchanged themselves for those being held hostage.

MEDIA COVERAGE

Here we have a delicate area. I personally feel that the media has had a fairly decent record in regard to our domestic situation. I can't speak for overseas. There have been mistakes made on both sides, of course. But I think that the first amendment is sacred dogma. We must use everything we can to accommodate that press.

We can have, certainly, if we wanted to, a nation free of any kind of terrorism but the cost would be so great in limiting civil liberties that we would not want to make that step at all. I think the press has been responsible. In the recent Hanafi situation that was shown. What we attempted to do was to allow the leader of that group to ventilate, get this frustration that he had out; a very excellent tactic because he finally wound down. It is true to say, as the terrorist today and most of the experts will agree, 80 percent of what they want is publicity. That seems to be one of their major goals. And perhaps without the electronic media, without worldwide media communication that exists with the press today, we wouldn't have so many terrorist attacks.

Who ever heard of Croatia? How many had heard of the Black September organization prior to Munich? If one of the major objectives is publicity, then he certainly has been successful in that regard.

This is not to say it is the press' fault, certainly. The press has sophisticated tools to cover these various happenings and there is no way you can limit those tools. Our suggestion to our people to whom we give the message and training is that they look carefully to the media and that they not try to control them but at least meet the people in their communities in the media. The same percentage of the media are honest, hardworking people as are law enforcement officials. The press never wants to be responsible for taking of human life.

Some rapport should be made between local law enforcement communities and the press so that this is known, first-name basis, perhaps not that any control should be put on or any sweetheart agreements should be made. The press feels, and I think properly so, that it is the watchdog of the establishment and that position, the fourth establishment position should be maintained and they should remain to some degree at arm's length.

As to the problems within the United States, they seem to, as Mr. Hassel was stating, start with bombing and they escalate higher and higher. We have seen this type of thing start in several groups. We have seen the SLA, for example, and if you listen to the political rhetoric of DeFreeze or any of the people involved in that, it was less than sophmoric as far as any type of real thought or feeling that had gone into it. But they started with assassinations, very sophisticated assassinations using poison on impregnated bullets, and they finally went on with the famous Patty Hearst kidnaping, really the only terrorist kidnaping we have had, not counting the hijacking situations.

It appears that the American terrorist group, for whatever reason, cannot gain a constituency within the United States. This has caused many of the groups to backtrack, to explain to other groups, aboveground groups of similar feelings, what they are doing. Because they don't seem to understand.

Chairman RIBICOFF. Mr. Hassel, how broad is the constituency supporting terrorists in other countries?

Mr. HASSEL. They seem to have a support group, sir, that supports their operations a lot better than, say, the FLAN within the United States. They have professional people, ways of getting sophisticated automatic weapons, and we don't see that here. If they do that here,

it has to be through burglary of an armory, theft of weapons from a military post. We don't see that type of weaponry getting into the hands of those groups within the United States. I think the American law enforcement agencies have handled that problem within the United States extremely well.

This is not due in any way to the efforts of the FBI. Many police departments, including New York, Los Angeles, have been in this field, working in this field, have done groundbreaking work before we even got into it.

As far as our domestic groups are concerned, American law enforcement has had a high degree of success under sometimes very trying circumstances. If you bring in the specter of the possible operations, which have been minimal today, of foreign groups operating within this country, then you have a new dimension added.

"Will foreign groups eventually operate within the United States?" That has been asked us many times, since we are supposed to be a research group. And this is a geopolitical question, sir. What are the Palestinian feelings toward the United States as an honest broker in the Israeli negotiations, so to speak? Suppose they perceive us in the future as a dire enemy. Certainly they could operate here. We are an open society; extremely lush target.

"Will they operate here?" I don't know and I don't know anybody who can answer that question for you. One of the things we have been extremely interested in within the FBI—and I met Dr. Frank Ochberg as a member of the National Task Force on Terrorism and Disorder and we recruited him into our group—is the victims, which probably have not been given too much attention as to terror in the United States and overseas.

Dr. Ochberg had a unique experiance in this regard. We have drawn upon that experience for our training programs as well as for our own expertise to know what is happening to the victim on the inside of, say, the Moluccan train or in the Hanafi situation at B'nai B'rith.

"Is there an optimum time for law enforcement to strike?" This is one of the primary interests that the FBI has in this whole area, at least our unit has, the victim and can you trust him. In that case I would like to turn this over to Dr. Frank Ochberg.

Dr. OCHBERG. Mr. Chairman, as you know, I'm a psychiatrist with the National Institute of Mental Health.[1] Our Director testified 2 years ago before the Senate Internal Security Committee about the limited role of the NIMH with respect to the topics we are covering now. I'm not speaking on behalf of the Institute. As Mr. Hassel mentioned, I did serve on the National Task Force on Terrorism and Disorder and after that had an opportunity to spend a year in Europe at the behest of the Public Health Service looking at the forensic psychiatry programs and spending time at Scotland yard. There we held exercises in negotiations and we interviewed victims who had endured sieges in Britain

I went on to review the situation in Italy and Ireland and did rather extensive work with the Dutch and was in the Command center there during the last siege.

[1] See p. 667.

I'm interested in the general impact of the terror method on Western democracies. We might ask, "Why focus on the victim at all?" One of the reasons is that the victim stands as a surrogate for all of us in this crime, which is an attempt to coerce government to make decisions in a circumstance of duress and distress.

The public identifies with the victim. The victim has some moments where a world audience is provided. If that victim copes reasonably well and expresses his feelings in a way that relates to the people at large, there can be a sense across the general public that we are all doing reasonably well in facing irrational circumstances.

If the victim portrays some "overidentity" with the terrorist cause or a sense of outrage at how an incident has been bungled by unprepared authorities, the public feels that.

Chairman RIBICOFF. When you talk about funding, suppose a terrorist incident takes place in *x* city, which had no prior experiences like this. How are you gentlemen brought into this? Do you volunteer, are you asked, how do you coordinate the national knowledge and national experience with the local problem?

Dr. OCHBERG. That is a question for Mr. Hassel. We are at the earliest stages of developing a capability to help the local groups. I'm sure that is what you're interested in, how a Federal cadre can assist in local preparedness.

Mr. HASSEL. Let me explain that briefly.

My unit includes five agents, and four clerical employees, special agents plus all of the people we have as consultants. It's funded through the enlightenment of LEAA in this regard. They have funded us, and our commission is this: to travel onsite nationally or internationally where we are invited to observe, and bring back knowledge and put it in a comprehensive form for our own purpose.

If its' an FBI situation, where the FBI is involved and it has happened we have been asked to give advice, and we'll give advice. We're not an operational unit. We'll not take charge of the situation. That is not our function.

But we'll try to be available to give advice where appropriate on the situation within our jurisdiction, and we'll try to observe in other situations. We have experts in many fields: tactics, weapons, sociology, psychology, criminology, and law; to get that group of experts looking at the problem and advising where possible.

We're not an operational unit where we can take over the siege management or anything like that, and probably it's not appropriate for us to do so.

Chairman RIBICOFF. In your experience, when an incident occurs, do local authorities call on you for help, or do they go on their own?

Dr. OCHBERG. We hoped this hearing would promote tapping the full range of experience in our country. The answer is, we have not yet done that.

We're getting a sense that it should occur, and that the groundwork should be laid by having groups such as the one Mr. Hassel is assembling made available.

Chairman RIBICOFF. What do you think ought to be done? It's a national problem. We have a big country, a large population. How should we exercise our responsibility as a nation?

Mr. HASSEL. In two ways, we are now proceeding in this area. Starting in March we're bringing back selected local police officers around the country, in small classes, to teach them the basic hostage methods and philosopsy.

Second, in July of this year we intend to have an international conference at the FBI Academy, where we will bring in leaders of group, the group in Germany, Karl Wagner and people in Japan who had dealt with the Japanese Red Army, into a symposium situation, inviting the best in local law enforcement throughout the United States to join us and discuss these problems with experts in this area.

Chairman RIBICOFF. I see that on an international basis you have cooperation. The countries and agencies responsible are working closely together to be helpful to one another.

Mr. HASSEL. Yes. The cooperation is close. Karl Wagner has trained to some degree in 1974 at our FBI Academy. We have close links with Scotland Yard and the sieges they have met. We are bringing in members of Scotland Yard in March to help us set up our program so it can be relevant to their experience as well as our own.

This is a training and education function, not an operational function.

Dr. OCHBERG. It's easier through the training route. Mr. Hassel is based in and represents this group at Quantico, so that in the area of training law enforcement and ancillary personnel, and in discussing operational approaches, this can be done.

It becomes a bit more sensitive when dealing onsite with the management of an explosive incident. What I would like to do is to illustrate for you what the victim goes through, to take you through an actual incident and discuss it in some depth.

What I will be talking to you about occurred 2 years ago. [Slide 1 shown: Railroad route in Holland.] This is a stretch of rail between Assen and Groningen in a flat, desolate, and at this time of year quite cold stretch of northeast Holland. This was the first Molluccan train hijacking. Approximately 1 year ago I was in Holland going through the events with a rather unique observer, Mr. Vaders. He is the editor of the largest newspaper in the north of Holland, and was held on that train for the duration. I kept up with him, and I will bring you up to date with the latest that has gone on, because as you might suspect, the victim from the first hijacking becomes involved in a way with the second, and these things come up again and again for this person, his family, and the whole community that has been affected.

[Slide 2: Summary of the event.] The event we are going to talk about began at 10 a.m., December 2, 1975. It lasted 12 days, occurred out of the little city of Beilen. The captors were seven South Molluccans. The hostages numbered over 50 at first and 23 at the end.

Now, it has been stated that the Molluccans learned from experience that they needed to have a larger target group. So the second time they kept 58 hostages and they also included 105 school children at the little town of Bovensmilde. The goal was to establish a free and independent South Molucca. The demands were policy change, prisoner release, and publicity. Their weapons included sten guns

and sham explosives. As far as the passengers were concerned, the doors were wired to explode at any moment. Casualties in this case were three hostages killed, one captor injured. The outcome: major publicity; public antipathy, but also some Dutch Moluccan support. There were 14-to-17-year prison terms for the seven who engineered this incident. The fact they were in prison became an inducement for the second event, the more recent hijacking of last May and June. [Slide 3: The Train.] Now, that is a schematic of the two-car train. I want to point out that there is a passageway about two thirds of the way back in this first compartment which separates the area that the Moluccans used as their command center from the rest of the train occupied by the victims.

This ends up being an important piece in Mr. Vaders' narrative. He assured me he has no objection to me putting this before you. He closed the door to his newsroom, and said, "It's complicated. I know I have to get back into this life and out of the train. But there are many on that train still waiting.

He said,

From the beginning it was difficult for me. I recognized the situation; the moment the Moluccans came in I felt back in the war. I was thinking, keep your head cool, face the crisis. I knew there would be choices, times to take risks; for instance, it was risky to take notes. That destroys your anonymity. I made the choice and took notes.

That was a critical event for this man, a journalist, to decide that in the face of Moluccans carrying automatic weapons, he was going to take notes and demonstrate he was different from the crowd.

I asked him early on if this experience reminded him of others in his life. He thought back and he said,

Yes, there was an early experience, I must have been 17. I was sleeping in the room with my brother and all of a sudden the SS were standing there with pistols. They were on a reprisal raid, because the resistance had murdered a Dutch collaborator.

We were sent to a concentration camp in Holland. I was young looking, had fair hair, and came to the attention of the SS officer in charge. He asked my age. I lied: 16. I remember him saying, My God, are we fighting children, and I was released the next day.

In a second incident which he recalled, he was serving with the Dutch Army in Indonesia, 1949, and he said,

I felt we had no business in that war. Two hand grenades were thrown at me; I saw them there, and neither one exploded.

Two close calls. He has a certain amount of guilt left over from those survivals. And he, in thinking about the war, said,

I still am very guilty over the war. I did nothing bad, but not enough good; not enough for the Jews. My sister did more and was in Dachau. Then I made the choice not to take too many risks. On the train, I did risk writing, and did it openly. The Moluccans came in, saw me writing, and didn't say anything but tied me up with my hands behind my back, and tied me by my arms to the doorway. I faced away from the passengers and toward the pool of blood from the driver.

The Moluccans had killed the driver on their entry into the train.

People could walk past me under my arms. I knew they were going to execute some people. On the first day, while I was hanging there, they killed a soldier. The first Moluccan demand said hostages would be shot every 30 min-

utes until requests for bus, plane, political recognition of their cause, was granted.

I could see them shooting, and hear a howl like a dog.

They let him down in the afternoon. A fellow hostage whose name was Mr. Prins had been carrying blood samples, and people thought he was a doctor. Prins massaged Mr. Vaders arms for about an hour. Throughout much of the day Vaders described being cool, calm and collected. He said, "the first night I was shivering, and the next morning I was full of fear, sweating, cramps in the stomach, and now I was taking notes."

"On the third day," he said, "they had me sit in a certain place. The one who was most psychopathic kept saying, your time has come, say your prayers. They had selected me for the third execution. They had me tied up all night." I had no idea when I went to interview him that he was targeted as the third one to be executed in this ordeal. It was shocking to me. He described: "I had different impulses. One was to reason with them. I suppressed that. I thought that would strengthen their resolve. The second impulse was to flee." But he would have had to untie both hands and feet and he thought the doorway was tied to explosives.

He said, "basically, I was preparing for execution, making up a balance. My life philosophy is that there is some plus and some minus and it all ends close to zero. I was 50. It wasn't a bad life. I was happy with my life, satisfied, and I had everything that makes life human."

I said: "but you weren't executed. How did you feel?" He said, "Disappointed. I had the impulse to say, let me go in their place, but the words stuck. I felt, I feel now, guilty." Let me tell you what happened. In the morning, when he knew he was going to be executed, he asked to talk to this Mr. Prins, to give him a message for his family. The family situation was complicated. Mr. Vaders was having marital difficulty. He had a 15-year-old adopted daughter in addition to other daughters. This daughter was not getting along well with the wife. Vaders was afraid with his death the family would disintegrate, because the wife would ask the daughter to leave. He went into a long, detailed explanation to Mr. Prins, including everything he was embarrassed about. The Moluccans insisted on listening.

After this was finished, they simply couldn't execute him. He wasn't a hero. He was no longer this human curtain. He was a human being with all of his flaws showing, and they said, we have others to kill. They walked over to the man next to him, 33-years-old, father of two, took him out and shot him.

When you consider Vaders' previous survivals, the feeling around this one has to be excruciating. He dealt with it. He continued to write his journal, and he described a few other elements of the siege which I want to bring to your attention.

It became clear there would be no more hostage killing. After the third day, things calmed down, as often happens, and a certain amount of order prevailed within this strange new society. They've even developed a certain amount of affection between the terrorists and the terrorized. The way Mr. Vaders put it, "You had to fight a certain feeling of compassion for the Moluccans. I know it's not

natural to people outside. In some way, they come over human. I'm a heavy smoker; they gave me cigarettes. I also realized that they were killers. You try to suppress that in your consciousness. I knew I was suppressing that. I also knew they were victims as we, even more." I'm going to come back to that. We have been calling this the Stockholm syndrome. It was first noticed in a bank vault incident in Stockholm where one of the victims had intimate exchanges with the captor. It has important implications.

Then he described the last days, and this is rather telling. "You experienced the disintegration of their personalities, the growing of despair, things dripping through their fingers, and you couldn't help but feel a certain pity. People in the beginning with egos like gods, ending up small and desperate, feeling all that was in vain."

In siege management you hope that occurs. If this end can come where the terrorist feels it is all in vain, you can have a bloodless resolution and nothing has been given up.

[Slide.] This is a picture of Mr. Vaders. He is in the train. He hadn't finished taking his notes. Everyone else was out, rescued and he was doing his last day's entry. There he is emerging, further along and back with his wife.

Now, I have talked on several occasions with him and his wife. Interestingly enough, they are doing very well together. This is not that uncommon. The crisis situation can have positive or negative effects. They have made decisions to spend time together and they are doing well. His eldest daughter suffered quite a bit.

She had to drop out of an advanced training program in psychiatric social work. She had some physical and emotional disturbances that needed help. It is not uncommon for the family members in this kind of stress situation to suffer as much as the victim, perhaps more, because they don't have the social network around identifying them as the one who was targeted, and they don't have the same repertoire, the physiological reserve which might be raised within someone who had been targeted.

Mr. Vaders himself had a period of nightmares beginning one week after the siege and lasting for 1 week. He lost 40 pounds. He went through a bout of drinking more, smoking more, and then cutting it out precipitately. He had 9 months of fairly severe abdominal pain and that was resolved when he had a gall bladder operation. These physical after-effects are also quite common.

Finally, his feelings about the Moluccans, positive feelings about them, diminished. He had negative feelings about the authorities and they diminished also. He now sits on a national task force that is looking at the Government's responsibility for the victims of these incidents and, as well, is paying some attention to the whole problem, community problem, between the Moluccans and the rest of the Dutch.

The point of talking about Mr. Vaders is not that he represents what happens with every victim. If you have a case, I think you can look at the generalities with a bit more compassion and insight.

Mr. Vader encountered tremendous stress, and then he went through a range of stress responses: cool, then aroused, then a dormant period, and then the physical after-effects.

He coped with his stress, and he coped by putting himself in a familiar role, the role of a journalist. For him, it might have been

more important to undo some of the guilt from the past and to be a person of whom he could be proud, than to avoid any risk to himself.

Let's look more closely at stress in general. Professor Hans Selye has described three stages of the individual stress response. The first one is alarm. The autonomic nervous system is working, cardiac output is improved, muscle tone is improved, because the blood is shunted away from the gastrointestinal tract and out to the heavy muscles. This alarm reaction moves into a countershock phase, and the adrenal glands are in their peak output.

Next there is a middle stage of resistance, where we are maximally adapted to handle the stress; and finally, a state of exhaustion, when the adaptive mechanisms collapse.

The adrenal glands can't handle it anymore.

The siege can go through some of these stages. The Dutch used a psychiatrist as their principal negotiator. He has described in managing the siege, the opening phase, which is chaotic, emotional, irrational. When this is going on, you try to use whatever mechanisms are probable to move to the second stage, a more rational, calm one where bargains can be struck, where deals could be made or partial fulfillment, perhaps, of terrorist demands in exchange for release of hostages.

If the talking strategy work, you hope for a final stage which is similar to the stage of exhaustion. Perhaps by putting our heads together, those who understand the physiology of stress and those who understand siege management can find points of commonality.

Chairman RIBICOFF. Will you all be participating in these seminars you are conducting?

Mr. HASSEL. Yes, sir, this is a brief description of what has been happening in briefing over the last 6 to 8 months.

Chairman RIBICOFF. How many people will attend the sessions in March and July?

Mr. HASSEL. We will do them on a continuing basis. We will use a small group of 12 people, actual people in the police department who want to be negotiators; repeat that training once every month for a year.

Chairman RIBICOFF. Is there much interest displayed by police departments across the country?

Mr. HASSEL. Extremely high interest, yes.

Dr. OCHBERG. Let me conclude this. Have you heard about the Stockholm syndrome? Is that something new to you?

Chairman RIBICOFF. Vaguely, I think I know what you are talking about.

Dr. OCHBERG. People have talked about identifying with the aggressor. This seems to be somewhat different. And the victims have described that from the opening hours, not all of the victims, but some of the victims, described from the opening hours they sense a certain affection for one or more of the terrorists. This affection could last 2 or 3 years. We have been trying to determine which kind of victims do develop this, why they develop it, what the implications of it all are.

Of course, consequent to their developing this, they have negative feelings about all of the rest of us on the outside, the authorities trying to bring this to a close.

Implications: On the one hand, if the police or the negotiators are trying to send a message through a victim, for information, or to say we are going to enter the scene in a period of time, or we want you to duck down, sometimes you can't trust the victim: the victim is in a close bind with the terrorist.

Second, after the successful resolution of the siege, the victim is a prosecution witness, but there may be a period of irrational affection for the terrorist, and this doesn't help the prosecution.

Third, the victim has this world audience for a period of time, particularly in a notorious siege, and the victim can use that platform to express an irrational attachment to the terrorist.

Finally, and this undoes all of the others, this particular mechanism is in the service of survival for all concerned.

We want it to happen. We are hoping that the Stockholm syndrome will occur. There was a time, the second night in Assen when, at 2 a.m., I was the only medical person in the command center. The negotiator was a psychologist, going back and forth from the hotline to the school, and the hotline to the train. We had what appeared to be a heart attack on the train. It turned out it was hyperventilaion. One of the elderly men was breathing too rapidly because of anxiety and had fainted and they thought it was a heart attack.

We had little contact with the terrorists up to this time. It was that early emotional phase, and we were hoping something would happen to settle it down.

What I was discussing with the people in command was the tactic of getting the terrorist to take the pulse, respiration, lay hands on, in order to give us medical reports. That would have promoted the Stockholm syndrome and we wanted that to occur. It turned out there was a medical student on the train, and she took over, and we lost that opportunity.

That is an example.

Chairman RIBICOFF. How many psychiatrists are deeply involved in this? Are there many of you?

Dr. OCHBERG. There are a few. I do not recommend psychiatrists to be deeply involved or principally involved in this. I served as chairman of the American Psychiatric Association Task Force on Intervention in Crisis. We reviewed this type of training, and so forth.

There are some attracted to it, but our training does not necessarily equip us for this.

Certain psychiatrists are particularly endowed, like people from other walks of life, endowed with talent for this kind of activity. This Dr. Mulder, who worked with the Dutch, is extraordinary in that regard.

The police will frequently attempt to get a liaison with a prison psychiatrist, because they have jurisdiction together. I'm not sure that is the best approach necessarily.

I would caution the police agencies to be quite careful in developing relationships with outside experts and be sure they have the right person.

I wanted to summarize some of this now. In doing it, let me move to a diagram which has brought a lot of these issues together for this whole team.

I'm going to delete discussing the negative effects.

I think we have talked about that and, if you are interested, we could handle that on another occasion.

But we have been talking about a particular crime. This crime has not affected so many people. There aren't that many victims of terrorism that we need to have special hearings and special international approaches to it, were it not for some of these intricate interrelationships.

Let's look at what happens. [Slide: Diagram of hostage incident.] On the left is the incident. In a hostage-taking terrorist incident, the terrorist threatens the victim. What the terrorist is doing is sending demands up into the political arena. That is what it is all about.

In that political area, the Government in a democracy is linked to the public through a bond of trust and the media is reporting on the incident.

And the Government is making decisions in a way, hopefully, that will maintain trust between Government and governed.

The Government has various policy options, and it puts them out through the bureaucracy.

Various options are delegated to police forces or other groups who then can exercise tactics.

These tactics have an impact on an incident. If they work well, if the incident is managed effectively and in a way that the public deems appropriate, the trust is maintained.

If it is mismanaged or if the Government finds that it is pushed to respond in an authoritarian or chaotic way, that trust is endangered.

Insofar as this cycle remains a positive one, the important thing is that democratic institutions are maintained.

If not, they are jeopardized and that is what the political terrorist is attempting to do, make the Government look overly punitive or chaotic in the eyes of the people.

In sum, we are concerned about a rise of incidents.

We hope that the overall response is not a hysterical one.

We are not interested in promoting draconian answers.

But we do think that we are exploring a new field. It requires considerable patience and understanding.

We don't think there are many true experts, but there are many whose expertise in closely related areas will advance our knowledge and improve our capacity to act.

Those who have the responsibility to develop Government policy or implement authorized strategy are of necessity developing their own expertise.

Obviously, each of us brings a different viewpoint, different idiom and set of circumstances to the topic.

The victim of terrorism represents our own vulnerability in this age.

As he copes, we cope, and as we reconcile our differences and pool our abilities, we survive.

Chairman RIBICOFF. This has been valuable and interesting.

But as I understand, there are international and transnational terrorist organizations, but few transnational negotiations develop between the U.S. terrorists and terrorists around the world.

Dr. RUSSELL. No. At least in my experience, no. As Mr. Hassel indicated, the close links which have been common throughout

Europe among the various terrorist groups, the linkages that have even existed between the groups in Europe and those in Latin America, the links between the Japanese groups and the Palestinian groups, do not appear to have been duplicated at least in that strength in the United States.

My focus has been outside the United States totally. The links have developed there.

Chairman RIBICOFF. What does that say about world society and American society in comparison? You find these linkages between these diverse groups—Japanese, South Americans, Germans, Arabs, Yemenites, Iraqis—from all over, yet you don't find linkages within the United States?

I am fascinated by that.

Dr. RUSSELL. I am, too, frankly. I have expected to see American individuals turn up in some of the these operations and they have not.

Chairman RIBICOFF. As I looked at the list, I didn't see any.

Dr. RUSSELL. No, sir, you did not. This has always been something of particular interest to me. I don't have explanation for it. Whether it is a different culture, greater severity of the student movement in Europe in the 1960's vis-a-vis the United States, I don't know.

I don't have an answer for that.

Chairman RIBICOFF. Everybody talks about the weaknesses in American society. Would this indicate our society is a lot stronger than we give ourselves credit for?

Dr. RUSSELL. I think so, personally. This is my personal opinion.

Chairman RIBICOFF. What do you gentlemen see are the problems or biggest problems we face in the United States in terms of the threat of terrorist actions?

Mr. HASSEL. Sir, the preesnt level threat of terrorist action in the United States is not a significant one criminologically, when you look at other crimes committed in this country. Dr. Jenkins made the point that more people are injured in this country by dog bite than they are by terrorism. As a significant criminological phenomenon, so far it's not one. It's certainly one we have to stay close to. We have to monitor this movement. Is it going to increase significantly? So far it has not. It has been unsophisticated. Certainly if we get indications that the linkages you were discussing are enforced to a certain extent or if the sophisticated foreign groups operating in Europe and the Far East operate in this country, then we have a whole different ballgame.

Now it's not a significant threat and it's well handled by our law enforcement agencies.

Chairman RIBICOFF. You're keeping your channels open with other governments?

Mr. HASSEL. Yes, sir.

Chairman RIBICOFF. Is the cooperation close and strong between governments in dealing with terrorism?

Mr. HASSEL. Yes, sir.

Chairman RIBICOFF. Do other governments make the information on terrorists available?

Mr. HASSEL. It flows freely between us and the Western European enforcement agencies and military agencies.

Dr. OCHBERG. I would like to add a little bit. There are two major things to be concerned about. One is a level of violence perpetrated by these terrorists. So far, it has not been mass destruction and has not involved mass sabotage of vital industries.

Dr. Robert Kupperman has joined the group and will be testifying. We need people like Dr. Kupperman examining the ways in which such groups could strike at large masses of people who are at vulnerable points in our interconnected society. That has not been their tactic so far, but it could be.

That's one expansion of things to be concerned about. The second thing to be concerned about relates to that chart we put up. It's the responsiveness of our own police forces, our own Government. If we are not prepared to handle even a minor incident in a way that the people feel has been as effective and efficient as possible, then we could have this spiral which brought down Uruguay.

Chairman RIBICOFF. What should our policy and organization be to be prepared? Is there something we should be doing as a nation that we are not?

Dr. OCHBERG. That's the $64,000 question; isn't it? That's what the hearings are about. I do think from my own perspective really as an outsider to law enforcement or to State Departmnet operations, that we need to give the law enforcement community a better crack at this.

As far as any violence which would occur domestically, it's the police who are charged with peacekeeping and it's they who have the experience of balancing concern for the victim, the populace, the perpetrator, balancing that against the demands made and the need to use force. I am not sure at the highest levels of Government domestically enforcement has been put in the lead in thinking about this and getting us prepared for it.

Chairman RIBICOFF. The question of the National Security Council and the State Department having the lead responsibility internationally, if you're hijacking an American plane in a foreign country is a logical one.

But if you have the problem of domestic terrorism it would seem to me that the lead responsibility should be in the Justice Department or the police, and I think that's very valuable.

I hope our staff can be in touch with you gentlemen in the days ahead as we try to prepare this. I am most appreciative. There is a vote on, so we will recess for seven or 8 minutes.

I do appreciate your coming here and we will take the next series of witnesses as soon as I return from the vote.

Thank you very, very much.

Dr. OCHBERG. Thank you, sir.

Dr. RUSSELL. Thank you.

Mr. HASSEL. Thank you.

[Recess.]

Chairman RIBICOFF. Mr. Jenkins, your statement is a valuable one. I would like to be able to ask you a few questions and also have an opportunity to listen to Mr. Kupperman.

I wonder if we could ask you to summarize your statement. The entire statement will go into the record at the conclusion of your testimony.

TESTIMONY OF BRIAN M. JENKINS, RAND CORP.

Mr. JENKINS. I have already submitted my written testimony. I will try to briefly summarize it.

The point I have made in my prepared testimony is whether the U.S. Government is adequately prepared to deal with terrorism depends on one's perception of future trends, which in turn depends on one's view of the historical origins of the problems.

Some see today's terrorism as exclusively a result of the political circumstances prevailing in the late 1960's:

The Israelis defeat of the Arabs, which caused the Palestinians to abandon their dependence on Arab military power and turn to terrorism tactics; increasing emphasis on urban guerrilla warfare in Latin America, and with it, the resort to terrorist tactics; and the anti-Vietnam war demonstrations in Western Europe, Japan, and the United States, which ultimately spawned terrorism groups such as the Japanese Red Army and the Baader-Meinhof gang.

According to this view, terrorism will decline as circumstances change, as the original conflicts are resolved. Present organizational arrangements are considered therefore adequate.

If, on the other hand, the current wave of terrorism is seen as a result not only of unique political circumstances, but also of recent technological developments to include international travel giving terrorists worldwide mobility, improved mass communications providing them access to a worldwide audience, increasing availability of weapons and explosives, and new vulnerabilities in a society increasingly dependent on fragil technology, or if terrorism is seen as a new set of tactics, then terrorism will continue.

Those who see terrorism continuing criticize the lack of preparedness.

My own view is terrorism will persist as a mode of political expression, of gaining international attention and of attaining limited political goals. Our research would confirm some of the trends described previously by Dr. Russell. Terrorists are mobile, they can strike targets anywhere in the world, they appear to be more sophisticated, and they are strengthening their links with each other.

It is possible that some nations in the future may employ terrorist groups as a means of surrogate warfare.

Although we may look forward to an era of formal peace, at least between nations, we may be entering an era of increased political violence at lower levels.

I pointed out in my testimony that combating terrorism poses unique problems. Terrorists do not operate according to any established rules of warfare or diplomacy. Terrorists operate in the cracks, between organizational boundaries and missions, making coordination difficult.

Each terrorist incident is unique; there are no fixed solutions. Terrorism is sporadic. It may be regarded as a relative nuisance, but suddenly it may become an issue of national importance. Terrorism receives spasmodic attention; attempts to formalize efforts to combat it have been hampered.

Terrorism can no more easily be eradicated than murder or war. Improved security can prevent certain kinds of terrorist attacks. We

can try to anticipate, however, terrorist attacks through intelligence and information systems. Such techniques as crisis management might improve the Government's ability to respond effectively to those terrorist incidents that occur. We must not dismiss military action dealing with terrorism as a measure of last resort.

It will be difficult, in my view, to fully develop capabilities and coordinate activities in all of these areas without an organizational structure to provide some impetus. A common organizational solution to problems that cut across the responsibilities of several agencies has been to create interagency committees. All such groups tend to share the same weaknesses. The chairman often has no real power between dissuasion over the other representatives who report to their own bosses. They may meet infrequently. They often lack staff backup. Given the lack of lateral incentives, the vertical parochialism of the line agencies and departments dominates.

The Council to Combat Terrorism proposed in the bill might generate a higher level of concern in the executive branch, although I'm not sure to what extent concern can be legislated. But without staff backup. I'm not sure it can do more than the now defunct Cabinet Committees to Combat Terrorism or the present interagency working group.

I have suggested in my testimony providing the Council with its own small permanent staff within the Executive Office of the President. As a permanent body with a White House perspective, such a staff could moniter and coordinate activities of the line agency and departments; identify needed capabilities; identify special resources that might be mobilized if an international incident occurs; pull together current intelligence and ongoing analysis and research efforts; identify terrorist incidents; develop scenarios and formulate plans. It would see to it that the necessary resources and capabilities are there when they are needed. In an actual crisis, it could function as a small battle staff for decisionmakers.

The staff would not duplicate work of offices in the Cabinet Departments. Its task should be to encourage the development of needed capabilities within the line agencies and departments with the staff in the Executive Office playing a catalytic and coordinating role.

With regard to the proposed sanctions against countries aiding terrorists, caution should be exercised so that the issue of terrorism itself does not become the sole determinant of American foreign policy. Neither should requirement to impose sanctions which would foreclose options that might be utilized to conclude a terrorist incident. Sanctions should be imposed but ought not to be mandatory.

Publication of a list of countries that aid terrorists and dangerous foreign airports may have some effect. It could discourage tourists from visiting them, and businesses from operating in them.

None of these measures will solve the problem of terrorism. Terrorism is not a problem that can be solved. We ought not to think of it that way. There will be no ultimate victory in the war against terrorism. In dealing with this enduring and often emotional problem, governments must above all demonstrate competence. Governments must show that they, and not the terrorists, are in charge. If governments appear helpless or incompetent in dealing with

terrorism, public alarm will increase and so will the clamor for draconian measures. Therein lies the real threat of terrorism.

I would be happy to answer any questions you may have.

Chairman RIBICOFF. You state that the U.S. handling of terrorist incidents has been deficient. Could you detail these deficiencies, for example, in coordination, communication, response capability and media relationships of which you are aware? What was the cause of these deficiencies? How do you think we ought to eliminate them in the future?

Mr. JENKINS. Let me say first that the shortcomings that I mentioned in my testimony refer specifically to some of the more serious incidents of terrorism that have occurred, those, which for reasons of multiple jurisdiction and foreign involvement, were by their very nature complex episodes. Problems have arisen in the area of organization, often matters relating to the jurisdictional disputes, discussions during an incident as to who has the action, who will be in charge, and so on.

Chairman RIBICOFF. Could you give us some examples of this shared crisis management. which has caused problems?

Any specific problems of any incidents?

Mr. JENKINS. A recent example of these sorts of problems, would be the hijacking of the TWA airliner by Croatioan extremists in September 1976, when according to one Government official who was involved in the handling of the episode, the responsibility for the action "bounced around the Government like a floating crap game." It was not certain who would maintain full jurisdiction over the episode. The FAA claimed jurisdiction. Because it was an American airliner hijacked in the United States, the FBI became involved. Once the airline crossed the national frontiers and flew to Canada and ultimately France, there was a definite State Department involvement. There was, I understand some difficulty in deciding at the moment who precisely was making the decisions that had to be made.

A further shortcoming that would show up in many of these incidents would be the lack of an institutional memory which could provide the basis for contingency planning. Although, again I emphasize that each episode tends to be unique. The only thing you can predict with certainty is that the next episode would not be quite like previous episodes. When I say "contingency planning," therefore, I mean it in the broadest sense, something more along the lines of "contingency thinking."

Chairman RIBICOFF. Were you here when Dr. Ochberg and Mr. Russell and Mr. Hassel testified?

Mr. JENKINS. Yes, sir.

Chairman RIBICOFF. It's obvious they are as concerned as you are. They are reaching for an operational way of handling this. They are trying to get more education, more knowledge, more involvement. Do you think we are ready to have a permanent staff? I question just having the bureaucracy. Or do you think they are just feeling their way toward a solution? How do you think it ought to be handled?

Mr. JENKINS. I must say I share your concerns about creating even the embryo of some minibureaucratic empire in the Office of the

President, which seems to be another traditional approach of dealing with these problems. Therefore, I have tried to emphasize in the testimony that I would consider such an effort to be small. There are efforts going on through the Department of Justice and the Federal Bureau of Investigation which Dr. Ochberg and Mr. Hassel spoke to you about. There are related but separate efforts going on in Department of State, and also within the intelligence community.

The single overdiding problem that I see is one of really getting the act together. There are the capabilities; there are these individual efforts; there are people within Government, three of them who were testifying here this morning, who have considerable expertise and experience in handling these episodes. There are resources that can be brought together to deal effectively with those more serious episodes.

Chairman RIBICOFF. Do we have our act together in the United States?

Mr. JENKINS. We don't have the machinery, the focal point for bringing these capabilities together on a continuing basis. In a crisis, the Government has the ability, of course, to call in people within and outside of Government. However, in my view, there needs to be continuing attention devoted to the problem between the episodes.

I am always amazed to discover in the course of discussions with Government officials, some of whom have testified and some who will testify here, how many of these efforts have been the result of individual initiative, people with a personal interest in the problem, people who see from their own vantage point some peculiar deficiency in this area and address that issue, not because somebody told them to, not because there was any requirement to do so. But they have done so, as I say, largely at their own initiative.

There is an informal network among thees people in Government and outside of Government who all know each other, and who informally exchange views. I would see the utility of is finding some more organized way to efficiently and effectively exploit that expertise and experience, some way of bringing it together, at least for the decisionmakers in these serious episodes.

Chairman RIBICOFF. In your experience and your study, would you say there is one nation over another that seems to be doing a better job than the others? Do they understand this problem better? Are they coordinated better? Is there one country you would single out?

Mr. JENKINS. There is no single country that is doing better. It's a problem that tends to pose the same problems in all democratic systems of government. It falls within the cracks of the various agencies of the government, whether they are called cabinet departments or ministries. It's a unique problem that all governments are finding themselves compelled to cope with.

I would not select any single Government as being a mentor or a model to be duplicated. Even if there was such, its approaches, its organizational solutions might not be applicable to our own system of government.

However, I do believe that there are other governments who have had, unfortunately for them, trying experiences in dealing with these episodes and have developed various organizational approaches,

which we might profitably study. For example, both the problems faced by the West German Government and the solutions arrived at in dealing with the recent series of episodes in West Germany might be examined. The approaches to siege management, management of these episodes developed by the Dutch Government. The approaches taken by the British Government and perhaps the Israeli Government might also be studied.

I mention countries that have had a vast amount of experience in having to deal with thees problems. We may learn from these. This is being done informally through individual contacts. It's not being done systematically.

Chairman RIBICOFF. Do you have any thought whether the State Department, National Security Council, or the Justice Department should be the lead agency?

Mr. JENKINS. I don't think you can determine in advance who will be the single lead agency in dealing with these episodes. I think the circumstances of the episode itself may determine a different lead agency for different types of episodes. In an episode that might take place here in the United States, clearly one would see the greater role being played by the Department of Justice, although if it were to say, involve foreign nationals or internationally-protected persons, diplomats for example, it certainly would have a heavy State Department involvement. In an episode taking place overseas, involving relationships with other governments, one certainly sees the Department of State, with its machinery for dealing with other governments being the appropriate lead agency.

The thing I have tried to keep in mind in thinking about this, and reflect in my own proposal for a permanent staff backup for this Council on Terrorism as proposed in the bill, is that the staff would function under whatever lead agency or official who took charge of the episode, or was placed in charge of the episode.

Chairman RIBICOFF. I wonder whether a permanent staff attached to the Council, or a loose arrangement where key men like we had here today would have the responsibility and coordinate their efforts, would be better than having any bureaucratic organization? I don't know, because we have to consider the diversity involved here with all of the problems, abilities and experiences we are going to have. You can't anticipate what form any of these acts are going to take.

Mr. JENKINS. You can't anticipate the form. At the same time, in making the point that each episode is unique, I don't want to totally dismiss the possibility of identifying the kinds of incidents that might take place, the kinds of problems that would arise in dealing with these episodes, and formulating some contingency plans to deal with these specific problems. In other words, I don't want to dismiss advance preparations on the grounds that we will have to perform ad hoc, when an incident actually occurs.

That still may be the case. It may have to be approached ad hoc. But it can be approached ad hoc with advanced preparation or without advanced preparation.

Whether or not one can create a means by which the persons, the offices with the special tasks in these areas, all the capabilities, can be exploited, brought together, their activities coordinated without creating some single focal point in government, I'm not sure.

As you, sir, I really do resist the creation of special units, wherever they may be located in Government. There is a natural resistance to this. But having looked at it again and again, having looked at the previous organizational arrangements, the interagency working groups, the Cabinet Committee to Combat Terrorism, these, as I see them, tend to suffer the same weaknesses. They don't quite do it, in my view. And, therefore, something more is needed. Its precise form, how it would be staffed; whether by representatives from other agencies on an attached basis. These are things I haven't yet fully addressed. But I'm persuaded that such a capability is needed. Other people have realized the problem of creating a special organization to deal only with this narrow problem, given all of the other problems of Government and, therefore, have suggested that it be incorporated in some larger crisis management capability within the Government, perhaps some form of new Office of Emergency Preparedness, that would deal with not only serious terrorist incidents, but could also deal with other forms of crises that may emerge.

Another approach would be to merge the functions of a group concerned with terrorism with those of a larger group concerned with broader problems dealing with political crises, short of war, an episode such as the *Mayaguez* affair, which although not a terrorist incident, had some of the same attributes. I am thinking of something along the lines of the old Washington Special Action Group, the WSAG, which was abolished, I believe, in 1976, but different from the WSAG, in that it would be a permanent entity, examining potential problems in this area, identifying resources in advance as opposed to a group of high-level officials who would be called upon only after the crisis has begun.

Chairman RIBICOFF. Let me ask you, as I understand it, you were called in to give some postmortem critiques of terrorist incidents handled by the State Department.

Did the State Department learn anything from the critiques?

Mr. JENKINS. The Rand Corp. was contracted to conduct case studies of a series of terrorist incidents. We did produce a series of reports, many of them still classified, that were delivered to the Department of State and the Working Group of the Cabinet Committee to Combat Terrorism.

I am never really sure what ultimately happens to Rand Corp. reports after they are delivered to the client.

Chairman RIBICOFF. I'm curious about that. When you get a report like that, do you send the report and then forget about it, or are you called in for a discussion about what was in the report? Is there a give-and-take with the people involved? How does that work?

Mr. JENKINS. Among the case studies, there were several that were issues of some discussion and debate within the Government. In that case, a working note, that is, an earlier version, a draft version of the report, was distributed widely to officers within the Government who had some participation in this episode for their comments, critiques, objections, corrections; and that resulted in some feedback, which we took into account in the preparation of the final report.

Chairman RIBICOFF. I don't mean feedback. Say the Rand Corp. conducts a critique. You send it up to whoever asks for it. Are you

then called into Washington, where everybody involved sits around a table and says, "Let's discuss this back and forth"?

Mr. JENKINS. In the case studies, no, sir.

Chairman RIBICOFF. Wouldn't it be more valuable if the study authors got together with the people who were the subject of the critique for a general discussion?

Mr. JENKINS. I think it might be useful. I should say that occasionally we have had the opportunity to discuss some things informally.

I think that there could be a more systematic exploitation of the knowledge, and research done by the Rand Corporation and that done by other research institutions, that already exists. There is a considerable amount of knowledge in this area. I'm not persuaded that it is being systematically exploited.

Chairman RIBICOFF. If the staff gets a report, what happens? Is there a give-and-take with the people involved, or if the Rand Corp. makes a critique, what happens to the critique? Does it get tossed into a file cabinet and then forgotten?

What happens with the case study, with the principals involved, after the study is there? Is it forgotten, or is there general discussion to find out how it can be improved?

Maybe I am giving you additional work in the future that you do not want. The person or group that was responsible for the critique should be meeting with the people involved for a general, overall discussion and not try to do it on paper.

Mr. JENKINS. This is something that I have been urging. Indeed, it is being contemplated.

Chairman RIBICOFF. Let's take that contemplation and make it a reality. Mr. Jenkins, thank you very much.

There is another vote, and I have to go to that vote.

I appreciate your statement and your testimony. And Dr. Kupperman, if you will be patient, I will be back as soon as I vote, and then we will have your testimony.

Thank you very much.

[Additional information subsequently supplied for the record by Mr. Jenkins, and his prepared statement follows:]

Rand
SANTA MONICA, CA. 90406

2 March 1978

The Honorable Abraham A. Ribicoff
United States Senate
Washington, D.C. 20510

Dear Senator Ribicoff:

In going over the transcript of my testimony before the Governmental Affairs Committee, I have thought further about two questions you raised during our discussion. The first dealt with the problem of creating a permanent staff (to coordinate all government efforts in combatting terrorism and to assist decisionmakers in responding to terrorist incidents) as proposed in my testimony without at the same time burdening the Executive Office of the President with yet another bureaucracy. The second dealt with the appropriate role of Rand researchers in critiques of the performance of U.S. government officials involved in responding to past terrorist incidents.

I have discussed both issues with members of your staff and suggested that the following additional comments be added to the record of my testimony.

Sincerely,

Brian Jenkins

Brian M. Jenkins

BMJ:ar

Enclosure: Additional comments to be added to "Testimony Before the Senate Governmental Affairs Committee, January 27, 1978."

Additions to "Testimony Before the Senate Governmental Affairs Committee, January 27, 1978," by Brian M. Jenkins.

2 March 1978

A PART-TIME PERMANENT STAFF

We might think of another way of creating a permanent staff without at the same time creating a new bureaucracy. An informal network of officials concerned with, or personally interested in terrorism already exists within the government. Some of these persons are, or were, members of the Cabinet Committee to Combat Terrorism Working Group, its successor, the Interagency Working Group, or have worked in special offices in agencies that dealt with the problem. Others have been more indirectly involved because of a personal interest. Together, the informal network may represent more experience and expertise than the current formal structures.

Because of the change of administration and lack of a serious terrorist incident directly involving the U.S. Government in the past year, few officials likely to have responsibility in the event of an incident will have had a firsthand recollection of previous terrorist incidents, except, perhaps, the Hanafi episode.

Selected members of this informal network could provide the core of the proposed permanent staff, giving them an official standing within the government. As it stands now, about the only way they meet is circumstantially at occasional meetings or conferences outside of the government. That is neither adequate nor sufficient.

There would be no need to reassign people to a new office. The members could serve on a part-time basis, that is, they could be detailed one or two days a week to carry out the functions of the proposed permanent staff. Their only requirement would be some office space and a few secretaries. No new bureaucracy would be created.

THE ROLE OF RAND RESEARCHERS IN FACE-TO-FACE CRITIQUES

Thinking further about this portion of our discussion, I want to make sure that my endorsement of a more effective use of the lessons learned in past incidents is not misunderstood. The case studies completed by The Rand Corporation under contract to the Department of State should provide the basis for useful discussions by those government officials who were in some way involved in the incidents, with the objective of improving future responses. Beyond conducting the case study and issuing reports, Rand Corporation personnel should not participate directly in a critique of government officials. It would be inappropriate and would imperil Rand's ability to conduct further case studies.

We were able to do these case studies successfully, in my view, because we were given access to the written material, including the classified cable traffic, and because we were able to interview U.S. and, in some cases, foreign government officials involved in the episode. A prerequisite to candid discussions about these emotionally-charged episodes is our promise of confidentiality. The fact that The Rand Corporation is an independent organization outside of government was an important factor here. I doubt that government officials would be quite so cooperative if the case studies were conducted by another government office. To have the authors of our case studies participate in a subsequent face-to-face meeting with the officials involved in an incident would place the authors in an extremely awkward situation, and could undermine the position of neutrality and discretion that makes it possible to successfully do the case study in the first place.

Rand can appropriately and usefully participate in the process of distilling lessons learned from past incidents and present them in a format that can be utilized in handling future episodes. A proposal to do this is under consideration within the government.

TESTIMONY BEFORE THE SENATE GOVERNMENTAL AFFAIRS COMMITTEE

January 27, 1978

Brian Michael Jenkins

This is my second opportunity to address a Senate Committee regarding defense against terrorism, and I thank the members of this committee for inviting me to testify in consideration of Senate Bill 2236.

I would like to preface my comments by stating that, although the research carried out by The Rand Corporation in this area has been funded by various agencies of the Federal Government, the views expressed here are entirely my own and are not necessarily shared by Rand or any of its research sponsors.

Let me begin with a brief historical survey that will give us some insights into what the future of terrorism holds, and what measures may be required to defend against it. As you know, views on that subject are divided: Some think more needs to be done, others do not.

Some observers perceive today's terrorism as the outgrowth of unique political circumstances prevailing in the late 1960s: the Israeli defeat of the Arabs in the Six Day War of 1967, which caused Palestinians to abandon their dependence on Arab military power and turn to terrorism; increasing emphasis on urban guerrilla warfare in Latin America, and with it, the resort to terrorist tactics; and the widespread anti-Vietnam War and anti-government demonstrations in Western Europe, Japan, and the United States which led to bloody confrontations with police. These confrontations resulted in injuries, arrests, and further violence, a radicalizing process that ultimately spawned terrorist groups such as the Baader-Meinhof Gang in West Germany and the United Red Army of Japan.

According to this view, terrorism will decline as political circumstances change, as original problems such as the Middle East conflict are solved, as governments effectively combat terrorism, and as remaining terrorist groups are destroyed.

There is some cause for such optimism. Many urban guerrillas

responsible for past terrorist incidents have been wiped out. Since the civil war in Lebanon, the number of serious incidents that can be traced to the conflict in the Middle East have declined. Terrorist groups operating in Europe are under increasing police pressure. And historically, terrorism has tended to be episodic. Those who subscribe to this view, then, feel present organizational arrangements are adequate.

If, on the other hand, the current wave of international terrorism is seen as the result, not only of unique political circumstances, but also of recent technological developments -- international travel giving terrorists worldwide mobility; improved mass communications providing them with almost instantaneous access to a worldwide audience; the increasing availability of weapons, explosives, and other munitions; and new vulnerabilities in a society increasingly dependent on complex systems and other fragile technology -- or if terrorism is believed to be the latest step in the evolution of political violence, a new set of tactics whose use inspires and instructs other groups, then terrorism is likely to continue. Those who believe terrorism will continue criticize the current lack of preparedness to deal with really serious incidents, or even to competently handle the same kind of incidents that have occurred in the past. I want to emphasize that this second view does not depend on a forecast that terrorism will necessarily get worse, or that terrorists will ultimately escalate to acts of greater violence.

My own view is that the use of terrorist tactics will persist as a mode of political expression, of gaining international attention, and of achieving limited political goals. Although few terrorists have reached their stated long-range goals -- and in that respect terrorism may be considered a failure -- the use of terrorist tactics has won them publicity and occasionally some political concessions. Their actions have also had considerable subsidiary effects, such as the diversion of manpower and money into security functions, and the effects that terrorist violence has had on political life and society in many nations of the world. To terrorists, who tend to be politically shortsighted anyway, these limited tactical successes may suffice to preclude the abandonment of terrorist tactics.

Terrorists will remain mobile, able to strike targets anywhere in the world. They appear to be getting more sophisticated in their tactics, their weapons, and their exploitation of the media. They will continue to emulate each other's tactics, especially those that win international publicity. Terrorist groups appear to be strengthening their links with each other, forming alliances, and providing mutual assistance. One result is the possible emergence of multinational freelance terrorist groups that are willing to carry out attacks on behalf of causes they sympathize with, or to undertake specific campaigns of terrorism

on commission from client groups or governments. Nations or groups unable or unwilling to mount a serious challenge on the battlefield may employ such groups or adopt terrorist tactics as a means of surrogate warfare against their opponents.

Even though we may foresee an era of formal peace between nations (at least insofar as the major powers are concerned), free of open warfare except for brief periods, at the same time we may be entering an era of increased political violence at lower levels as intermittent "nonwars" rage between nations, subnational entities, national liberation fronts, guerrilla groups, and terrorist organizations, some of which are linked together in vague alliances, some perhaps the proteges of foreign states.

Is the U.S. government adequately prepared to deal with the threat? Whether or not the U.S. government is in fact adequately prepared to deal with one or more serious terrorist incidents is a bit like arguing whether or not its arsenal is sufficient to successfully wage a nuclear war. You will never really know without a nuclear war. Until that time, if ever, U.S. capabilities may be judged adequate or inadequate depending on one's point of view. It can be argued, of course, that the world has never seen a nuclear war, but we have witnessed incidents of terror. True, elsewhere. The United States has not yet been tested by a sustained campaign of terrorism or by a major incident in which the lives of American citizens hang in the balance, demands are made on the U.S. government, and terrorists have demonstrated their resolve to kill. The seizure of hostages by Hanafi Muslim extremists at three locations in Washington, D.C., last year is about the closest we have come to a serious domestic incident. Other incidents include the multiple hijacking of three airliners to a desert field in Jordan in August 1970. In that incident, terrorists held over 300 passengers hostage, many of them Americans. The seizure of the Saudi Arabian Embassy in Khartoum in 1973 was another serious incident. In that instance, the terrorists demanded the release of Sirhan Sirhan, the convicted assassin of Senator Robert Kennedy. When their demands were not met, they murdered three of their hostages including two American diplomats. Another serious incident was the hijacking of a TWA airliner in September 1976 by Croatian extremists who demanded the publication of their communique in several newspapers.

Fortunately, with the exception of the tragic outcome at Khartoum and the deaths of a newsman in Washington and of a policeman who was attempting to defuse a bomb planted by the Croatians, the incidents ended without disaster or major concessions, which may be equally important. At the same time, the handling of these incidents revealed certain deficiencies in coordination, communications, response capabilities, and media relationships. If we all agreed that either a sustained campaign of terrorism waged in the United States or against the United States abroad,

or a serious incident of terrorism here, was imminent, we could probably agree that some further organizational steps would be necessary.

Combatting terrorism poses a number of unique problems. The terrorist adversary does not act according to any established rules of warfare or diplomacy. Diplomats and generals know -- at least they think they know -- what to expect from other governments and how to deal with them. But coming to grips with a band of terrorists is an altogether different matter. Because terrorists do not limit their attacks to any particular class of targets or to any specific locale, or to any period of time, defense is difficult and costly to provide. Terrorists have fewer compunctions about killing or injuring persons who have nothing at all to do with their struggle. Because they have no borders, no cities, no populations to protect, terrorists have fewer vulnerabilities. Retaliation in kind is a meaningless threat. Deterrence requires apprehension and punishment; with regard to international terrorism, the record is not good.

Another problem is that terrorists operate in the cracks, between organizational boundaries and missions. There is no single department, agency, or office in the U.S. government with responsibility for combatting terrorism that has the authority and means to do so. Everybody seems to share some part of the responsibility. A single episode may cut across several bureaucratic domains, making coordination difficult. Individual satrapies are jealously guarded, and there is no clear line of authority. Each incident may be handled by different lead departments. Circumstances may determine who takes charge initially. Changes in the situation can bring in new departments and agencies who then compete for leadership.

Each terrorist incident is unique. The location and political circumstances in which the incident occurs, the identity, ideology, and objectives of the terrorist group, the nature of the target, the identity of the victim or victims, all vary. Lessons can (and should) be learned, contingency plans formulated, but there can be no prescribed course of action based solely upon precedents established in previous episodes. There are no fixed solutions or requirements. Customary modes of operation may not work, a fact that drives bureaucrats up the wall. Each incident must be dealt with ad hoc. To do so successfully requires a flexible policy, good communications, total cooperation between jurisdictions, retrievable information that can be assembled rapidly, and earlier development of special expertise.

The unique character of each episode, however, should not preclude efforts to accurately reconstruct how each one "went down." Each episode should be carefully examined for any lessons that might be learned. The lack of an institutional memory is

one of the major problems. Given the normal rotation of personnel, any new incident will involve a new set of players who have no personal recollection of the problems that arose in past incidents. They will have instead a vague memory, often secondhand and incorrect, of how solutions were reached in past incidents,and the specific steps necessary to deal effectively with an incident. In this regard, I see a continuing need for detailed case studies of major terrorist incidents, whether or not they involve the U.S. government, as a means of better preparing ourselves to handle any future incidents.

The intermittent nature of terrorism itself poses another problem. Except for places like Belfast or Buenos Aires where terrorist activity is almost constant, most countries experience only sporadic terrorist problems. The amount of terrorist violence in the world compared to the world volume of violence is miniscule. The world's terrorists have killed fewer persons in the last decade than are murdered every year in the United States; annual losses from shoplifting in the United States alone exceed the total amount of property damage caused by terrorists worldwide. Faced with other pressing international problems, it is easy to see why government officials may consider terrorism a relative nuisance.

However, as we have seen in The Netherlands, Japan, and most recently in West Germany, a single incident of terrorism may suddenly become an issue of considerable national importance and one that commands the attention of officials at the highest level of government. Terrorist incidents have virtually paralyzed governments for days or even weeks. While everyone's attention is riveted to the event, normal business halts. National leaders may perceive their political survival or stature determined by decisions they are compelled to make on very short notice. There is little time to sound out the views of others, little time to build a consensus within the government or among the public. How the decisions will be received by the public cannot be predicted. The risk of tragic outcome is great.

Characteristically, every serious incident is followed by an enormous amount of media attention, denunciations, debate, and verbal retributions which usually wane rapidly. Between spectacular episodes, the problem of terrorism usually reverts to a remote and nonpressing issue. (Although attention to it in the United States has increased in recent weeks despite the lack of major incidents.) Committees set up to deal with the problem seem to have no function. Special military units seems a waste of money. For example, before the successful rescue of hostages at Mogadishu, some in West Germany questioned the utility of the special commando unit that the German government established in 1972 to deal with terrorist incidents. I imagine there is little argument in West Germany now concerning its worth. (But there may be again a year from now.) Because terrorism receives only

spasmodic attention, attempts aimed at more formally organizing efforts to combat it have been hampered. Terrorism is simply not regarded as an issue of major importance within the U.S. government. The United States has not suffered the kind of terrorism that has recently erupted in West Germany or Italy. With a few exceptions, foreign terrorists have not operated in the United States. American government officials and executives of American firms abroad have often been targets of terrorist attacks, but the kidnapping or assassination of a diplomat or businessman in South America or North Africa, although shocking and tragic, does not directly touch the American public, or elevate the problem to a level of concern within the American government.

A further obstacle to efforts aimed at better organizing the U.S. government to combat terrorism is the idea that combatting terrorism is an unavoidably unsavory business. To those who hold this view, governmental efforts aimed at combatting terrorism, and organizations created to deal with the problem, recall the counterinsurgency programs of the 1960s, the USAID Public Safety Program which, as alleged by its critics, involved U.S. advisors in the questionable terrorist suppression activities of foreign police, illegal intelligence gathering by the Department of the Army, and by the White House during the Nixon Administration. Although not widespread, this attitude does exist in government and plays a role in keeping the effort minimal.

Terrorism provokes overreaction. I think we can detect some of that in the results of a recent Harris Survey. According to the survey, 90 percent of Americans view terrorism as a very serious world problem. Seventy-six percent of those questioned about the causes that have stimulated the growth of terrorism in recent years feel that "terrorism is growing in the world because the countries of the world have been too soft in dealing with terrorists." By 55 to 29 percent, Americans would support the organization of a "special world police force which would operate in any country of the world and which would investigate terrorist groups, arrest them, and put their leaders and members to death; 55 to 31 percent favor the death penalty for those caught committing acts of terror. Terrorism creates an atmosphere of alarm and fear that causes people to exaggerate the strength of the terrorists and the importance of their cause. That perhaps is the greatest threat posed by terrorists. If a government appears helpless or incompetent in dealing with a terrorist incident, public alarm will increase and so will the clamor for draconian measures. And so, perhaps, will terrorist acts increase. Frightened people seem inclined to accept, and may even demand that government take measures ordinarily regarded as repressive.

Given its ability to create highly visible crises and public emotion, terrorism itself may bcome a political issue that can

easily be exploited. Some may see it as easy political capital. Who would not go on record against terrorism? There are also those with less benign motives who would exploit public alarm and trade on fear to advance their own ideologies or political agendas.

Terrorism can no more easily be eradicated than murder or war. However, certain types of terrorist attacks can be prevented by improved security, and certain categories of targets can be put beyond demonstrated terrorist capabilities. That will not solve the entire problem for, as we have seen, to terrorists everything and anything represents a potential target. If diplomats are effectively protected, businessmen may be kidnapped. If businessmen improve their own physical security, terrorists may abduct school children as they did in Djibouti and Holland, or nuns as happened recently in Argentina. It is impossible to protect everything and everyone.

We can try to anticipate terrorist campaigns and attacks through better intelligence and information systems. But intellience about terrorist groups is hard to obtain. Knowing what is going on inside a terrorist group is mainly a matter of human intellience work -- infiltrators and paid informants -- but most terrorist groups are small, tightly knit, and difficult to penetrate. Such efforts require months or years of patient work. In some cases, the chances of preventive action may be so low that the costs and risks are not worth the effort, or, on the domestic scene, the invasion of privacy that may result.

However, to what extent might recent legislation and directives impose unintended and unwarranted restrictions on intelligence gathering regarding terrorist dangers, and on the sharing of intelligence information by government agencies? Without reversing the intent of these restrictions, to what extent can and should exceptions be made?

Perhaps more can be done with respect to an analysis of the available information. How the relevant information can be rapidly assembled and communicated to decisionmakers in an actual crisis situation should be explored. When a terrorist incident occurs, there is little time to comb through files or read several hundred pages of reports. Too much unprocessed information stuffs up decisionmaking.

The government can try "crisis management" to improve its ability to respond effectively to incidents of terror that may occur. This function has been the subject of considerable government-sponsored research recently, for it pertains not only to terrorist incidents but to a broad range of political and economic problems that arise. The "management" of serious terrorist incidents is a complicated affair that, depending on the incident, may involve the formation of special task forces

within government; the mobilization of relevant information and of legal experts; area specialists, psychologists or psychiatrists, intermediaries, or other human resources. In some cases, special equipment will be needed as well as the mobilization of military assets. The need to consult with leaders or representatives of the political opposition, communication and negotiation with other governments and possible communication with terrorists will be required. Relations with the news media may be difficult.

We must not peremptorily dismiss military action in dealing with terrorism as a measure of last resort. An incident may occur at any time in which a band of political extremists seizes a large number of American hostages on foreign territory, negotiations fail, the captors appear at the point of killing the hostages, and the local government is unwilling or unable to protect the potential victims.

Public pressure would not permit political leaders to stand by while Americans are shot. The government would either have to yield to the terrorists' demands or risk the use of military force. At stake will be the lives of the hostages as well as the standing of the U.S. government.

At a State Department conference in March 1976, I offered the forecast that "confronted with terrorist violence emanating from abroad, and frustrated by the lack of international cooperation, national governments are more likely to take direct military action. . . ." In fact, of 29 international hijackings, and barricade and hostage incidents that occurred in 1976 and 1977, 13 were forcefully concluded by specially-trained police or commando units.

As in the case of the U.S. government's capabilities to manage a terrorist-caused crisis, it is a matter of some debate whether the capability of a military rescue operation with some reasonable expectation of success exists. Certainly that option should exist. However, details of the nature and state of readiness of such U.S. military capabilities should probably not be discussed at a public hearing.

It will be difficult to fully develop capabilities and coordinate activities in these four functional areas -- security, intelligence, the management of government response to incidents, and military action -- without an organizational structure that will provide some impetus. The Interagency Working Group does not do this. I will come to the reasons for that belief in a moment.

As I read it, the proposed legislation is intended to generate a higher level of concern and impart a greater sense of urgency in the Executive Branch by creating organizations within the

Executive Office of the President, the Department of State, and the Department of Justice, and by mandating specific sanctions against countries that aid terrorists.

Terrorism is but one of several problems that cut across responsibilities and functions of many agencies and departments. A common solution has been to create a cabinet committee or interagency working group representing all concerned agencies. However, all such groups tend to share the same weaknesses. The chairman is often viewed as little more than a representative of his own agency, and has no real power beyond persuasion over the other representatives who report to their own bosses. And, neither the chairman nor the group as a whole has the authority to back up any decision reached by the group. The meetings, which may take place once a week, or once a month as in the case of the Interagency Working Group on Terrorism, or once in five years of its existence (as was the case of the Cabinet Committee to Combat Terrorism), merely provide a means of keeping in touch with one another, a useful but inadequate exercise. Real decisions, if any, are made back in the individual department or agency.

I do not want to portray a picture of quarreling bureaucrats. This certainly is not the case with the Interagency Working Group. The representatives to this group are, for the most part, genuinely concerned with the problem, and get along well with one another. It is simply that, given the lack of lateral incentives, the vertical parochialism of line agencies and departments dominates. As a result, the individual representatives themselves may swing little weight within their own department or agency and the group itself has very little power. A related problem is lack of staff backup, some group to continuously monitor developments and activities.

The Council to Combat Terrorism called for in the Bill is, in its membership, and in most of its functions, a re-creation of the Cabinet Committee to Combat Terrorism that was abolished last year. I am not certain what more the new Council will do than the present Interagency Working Group on Terrorism does, or its smaller executive committee established by Presidential Review Memorandum 30, other than prepare the list of countries aiding terrorists that is called for in sections 105 and 107 of the Bill.

The proposed Council to Combat Terrorism may not meet frequently. Between meetings, no continuing attention will be devoted to the problem except that provided by the present Interagency Working Group on Terrorism, the Department of State's Office to Combat Terrorism, and similar offices or ad hoc committees in other departments, or that which may be provided by the proposed new Bureau for Combatting Terrorism in the Department of State and the new Office for Combatting Terrorism in the Department of

Justice.

I suggest you consider providing the Council with its own small permanent staff. The creation of such a staff within the Executive Office of the President might even obviate the need for creating new offices in the Department of State and Department of Justice. A permanent staff could give its full-time attention to developing and maintaining U.S. capabilities for anticipating, preventing, and combatting terrorism, and increase government effectiveness in dealing with serious incdents of terrorism that may require the attention of the Federal Government.

As a permanent body with a White House perspective, the staff will be able to identify and promote needed capabilities. It will be able to monitor and coordinate the activities of the line agencies and departments. It will be able to identify potential problem areas such as jurisdictional conflict and bring them to the attention of the Council. It will be able to identify special resources inside and outside of government that may be mobilized in an actual incident. This would include persons with specialized skills, or individuals with unique contacts or relationships. It would pull together current intelligence and ongoing analyses and research efforts. It would monitor trends in world terrorism and examine potentialities for more serious incidents. It could identify potential kinds of terrorist incidents, develop core scenarios, formulate contingency plans, and engage in gaming and simulation exercises (hopefully involving the same senior officials who would have decisionmaking responsibilities in an actual crisis). It would, in sum, see to it that the necessary resources and capabilities are there when they are needed. And, in an actual crisis, it could function as a small "battle staff," assembling relevant information, assisting decisionmakers by providing them with alternate courses of action, and monitoring the implementation of their instructions. These functions of such an expert, up-to-the-minute staff are particularly important, as a serious terrorist incident may bring in a set of officials unfamiliar with the problems of terrorism.

The staff would not replace the Interagency Working Group on Terrorism or duplicate the work of special offices in the cabinet departments. The staff's relationship with these other offices would have to be worked out. There would be a clear division of responsibility. Its principal task should be to encourage the development of needed capabilities in the line agencies and departments, with the staff in the Executive Office playing a catalytic and coordinating role, as well as doing the necessary overall planning.

The creation of even a small permanent staff, perhaps something between 6 and 12 members, and its location in the Executive Office of the President poses certain problems. In recent years,

it has become common practice to solve all problems that require coordination among several cabinet departments and agencies by creating new offices in the Executive Office of the President. As a result, there has been a growth of both the power and the size of the Executive Office. Periodic reorganizations of the Executive Office result in such entities being dismantled or pushed out. A staff dedicated to the problems of combatting terrorism, no matter what its size, would be particularly vulnerable to elimination in the absence of any major terrorist incident to justify its existence. If that happened, the expertise and capabilities that had been developed would be wiped out.

Recognizing this problem, some advocates of a permanent government entity to deal with terrorism have proposed placing it within a larger office with broader responsibilities for crisis management, for example, making it a component of a new Office of Emergency Preparedness. Another possible approach would be to merge the functions of the staff dealing with terrorism with those of a staff that would be concerned with handling low-level conflicts and crises just short of war, such as the Mayaguez incident. This would be something roughly equivalent to the Washington Special Action Group (WSAG) that was abolished in 1976. It would differ from the WSAG in that it would be a permanent staff able to do some advance thinking as opposed to a high-level group called upon only after a crisis had developed.

The possibility of learning from foreign experience should not be overlooked. The government of Canada has a special unit within its Solicitor General's office to deal with major incidents of terrorism in Canada. Its staff consists of approximately a dozen professionals with backgrounds in law enforcement, military operations, and the social sciences. West Germany's recent trying experience with terrorism produced some interesting organizational solutions from which the United States might profit.

A further problem with both the Council proposed in the Bill, and the addition of a permanent staff suggested in my testimony, is that concern cannot be legislated. Congress cannot impose any organizational arrangement upon an unwilling Executive Branch and realistically expect it to work as intended. Critics of the organizational arrangements created by PRM-30 call it a "bureaucratic paper shuffle" that does nothing to consolidate anti-terrorist activities, solve jurisdictional problems, or impart a sufficient sense of urgency. However, some of those involved in the preparation of PRM-30 argue that the present arrangement was the most that could be achieved. It reflects the current level of concern about the issue in the White House and is compatible with the President's own style of decisionmaking.

Presidential involvement in terrorist incidents is certainly not

desirable. Political extremists ought not (in a figurative sense) be able get into to get into the Oval Office through kidnapping and bombing. Some have d objected to the creation of any machinery in the Executive Office of the President as tantamount to involving the President too visibly in terrorism. Others have argued that given the lack of adequate coordinating machinery in government, and given the jurisdictional disputes that may arise in an actual incident, the President will inevitably be drawn in to resolve conflicts. The fact is, whether or not the President gets involved will not be determined by the existence or absence of any organizational structures. In some instances, presidential involvement is inevitable. Only he will be able to make certain decisions. In some cases, the President may simply choose to become involved, as have other heads of governments in such incidents. He will want to be seen as being in charge. This depends on presidential personality and style. It cannot be legislated or necessarily controlled.

An unfortunate feature about the existing as well as the proposed organizations charged with combatting terrorism is their name. Clearly some machinery is necessary to coalesce and coordinate government efforts in this area, but the word "terrorism" in their title elevates and may even exaggerate the problem. I do not know if it makes sense to try to substitute some white-washed platitude or a cryptic acronym for the task of combatting terrorism, but it troubles me to see terrorism so visibly institutionalized at high levels of government. Terrorists seek this kind of attention. And they ought not to receive it.

With regard to the proposed sanctions against countries aiding terrorists, caution should be exercised so that the issue of terrorism itself does not inadvertently determine American foreign policy. At times, foreign policy objectives may be judged more important than the question of whether a particular nation supports a certain terrorist group. Neither should any requirement to impose sanctions foreclose options that may be used to conclude a terrorist incident. To give you an example, in the recent Lufthansa hijacking the government of Somalia permitted West German commandos to land at Mogadishu and rescue the hostages. It has since been reported that in return for Somalia's cooperation, West Germany provided a no-strings loan to the Somali government; that loan is currently being used to buy arms. Without questioning the accuracy of these reports or the merits of such an arrangement, note that if West Germany, before this incident, had passed legislation such as that proposed here, would this option have been open? While we share the desire that nations actively supporting terrorists be punished, the very nature of terrorism requires that maximum flexibility be preserved in dealing with terrorist incidents, terrorist campaigns, terrorist groups, and even the countries that support them. Sanctions should be imposed but they ought not to be mandatory.

Even the compilation and widespread publication of lists of countries that aid terrorists and dangerous foreign airports in my opinion will be useful, and by itself may have some effect. It could well discourage American business from operating in these countries, and American tourists from visiting them. It could also increase airline, business, and travel insurance premiums, which may act as a further deterrent to commerce and travel. The lists could also be considered in renewals of landing rights and used to persuade countries to improve their security. A combination of threatened U.S. government sanctions, economic pressure through loss of tourist dollars, and possibly plain embarrassment at being publicly identified as a nation with inadequate airport security, may bring about some improvements.

None of these will solve the problem of terrorism. Terrorism is not a problem that can be solved, and we ought not to think of it that way. Government can try to ameliorate the conditions that may lead to terrorist violence. It can attempt to contain terrorism within tolerable limits. It can try to deter or prevent the more heinous terrorism actions. It can equip itself to respond effectively to terrorist incidents that do occur. I have chosen these verbs carefully. None of them imply a final solution, but rather reflect an enduring problem and suggest a continuing task. There will be no ultimate victory in the war against terrorism.

By design of the adversary, terrorism is a highly theatrical, visible and emotional mode of conflict. In this contest, governments must above all demonstrate competence. If governments can't always win, they must at least show that they, and not the terrorist, are in charge.

[Recess.]

Chairman RIBICOFF. Dr. Kupperman, please.

TESTIMONY OF DR. ROBERT H. KUPPERMAN, CHIEF SCIENTIST, U.S. ARMS CONTROL AND DISARMAMENT AGENCY

Dr. KUPPERMAN. Mr. Chairman, thank you very much for inviting me here.

For 3 years I have been concerned with the problem of terrorism—particularly the potential for higher order acts. I have led classified studies for the former Committee to Combat Terrorism on Mass Destruction Terrorism and intermediate-level terrorism. I have also led a Governmentwide study of counterterrorism technology. Since that time, under the Law Enforcement Assistance Administration sponsorship, I have done additional research on the question of managing incidents of terrorism.

There's no question that the U.S. Government, the executive branch of the Government, is taking the problem very seriously. Since the formation of the new National Security Council-SCC group, many of the problems—internecine rivalries and coordination issues—that have existed in the past have been worked out.

Although I feel that we are developing honed tools—military rescue operations, negotiating techniques, et cetera—I'm not as convinced about any nation's ability to deal with higher order episodes.

In 1973, there was an attempt at Rome to shoot down an El Al airplane. Good intelligence saved us. There was a similar attempt last year in Kenya. In Paris in 1975, at Orly, an attempt was made on a Yugoslav airplane by Palestinian terrorists. They weren't bright. They hit the wrong airplane.

One has to look at terrorism as a changing, mutating organism. Terrorist incidents are theatrical events, promoted, if you will, by the media. We cannot guarantee that the United States will remain forever immune from serious acts; that the world, including the United States, may not suffer far more serious consequences.

Obviously, if an airplane or airliner—a jumbo jet lifting off from Dulles or Kennedy—were shot down by Palestinians, the tragedy would be obvious. Over 300 people would die. But we may suffer even more: the airline pilots may refuse to fly until the Government can protect them.

If terrorists were to attack power systems—New York witnessed a recent blackout—the derivative effects from an extended blackout, say, in New York City, could be monumental.

I'm not going to belabor horror stories, although they are all too feasible. Let me come to what I think needs to be done.

The U.S. Government executive branch has come a long way. But there is a contradiction in terms.

In one sense, we don't wish to create specialty units to solve the terrorism problem simply on the ground that you inflate the importance of terrorism. In the military sense, no matter how you wish to measure, terrorists are far weaker than the smallest imaginable army. Yet they prey on the institutional and physical networks of an open society.

My greatest fear is the problem of knee-jerk reaction of a democratic society attempting to counter a frightening incident with draconian means. Certainly, many countries, including this one, have histories of vigilante justice and McCarthyism.

There are three defenses against terrorism. First, obviously, is good intelligence, including penetrating organizations and subverting their goals. Within the framework of the Constitution and the guidelines that are set down both by statute and the executive branch, we need to obtain as much information as we can. Thwaring an event before attack is preferable to living through one.

The second line of defense is creating what the engineer would term "high pass filters," barriers which increase the costs of inflicting serious acts of terrorism. In the case of airlines, we do this now with magnetometers and X-ray devices as you check in to board an airplane. You ought to keep the amateurs out of the business as much as possible. You have to make the costs high. Therefore, I urge that we do cost-benefit and vulnerability analyses to ascertain how much it will cost and what degree of protection we can expect to obtain. The key nodes of society must be hardened.

Finally, there's the issue of incident management. We must not fibrillate at a time of crisis. One does not want to express the feeling to a very, very upset public that its Government doesn't know what it's doing, that it has not planned for such events.

I think what is needed is political-military gaming, simulating events as best one can for training and research purposes. We need to find the right experts on a timely basis, and not be hung up for the silliest of logistical reasons. We must find the experts who know about a specific insecticide contaminating a water supply, such as happened recently in North Miami.

We should absorb our planning and operational procedures within the routine disaster, law enforcement, diplomatic, et cetera mechanisms of Government.

I think this should be done by every government. To use the example of an electrical power failure, we would be dealing with a disaster of significant proportions. Such incidents are not that different from other disasters. Yet there are difficult coordination and policy questions to face; and there would be a high state of public anxiety as well.

The best statement I can make is that we should develop a viable civil emergency preparedness program which should include terrorism as one of its components.

I do not wish to suggest that the emergency preparedness agency take over the functions of the FBI, State Department, et cetera. Coordination will be needed. Lead agency concepts will have to prevail. Government is on the right road; the executive branch is doing a reasonable job. I'm rather encouraged, but there is a lot more to be done.

Chairman RIBICOFF. This basically isn't your field. You are a Chief Scientist for the U.S. Arms Control Disarmament Agency.

Dr. KUPPERMAN. Yes.

Chairman RIBICOFF. How did you get involved in this?

Dr. KUPPERMAN. Terrorism is nobody's particular field, especially if you look at the higher order problems.

Chairman RIBICOFF. Is this something you got interested in or did someone ask you? How did you get involved?

Dr. KUPPERMAN. The Cabinet Committee to Combat Terrorism became interested in mass destruction issues. I had the right background, and I was asked to conduct a Governmentwide study. I went on from there.

Chairman RIBICOFF. Have you sat down with Dr. Ochberg, Mr. Russell, or Mr. Hassel? Do you ever meet with them?

Dr. KUPPERMAN. Quite often.

Chairman RIBICOFF. Is this an informal group of men in various fields who are interested, and who get together in their spare time, or is this something you do regularly?

Dr. KUPPERMAN. I think the answer is that there are two mechanisms. One is the formal mechanism. There is an informal mechanism as well. We get together regularly to discuss ideas. I have spoken before symposia at the FBI Academy. There is no formal terrorism agency, and in this sense, one may have to improvise at times of crisis.

Chairman RIBICOFF. Why do you feel a central crisis management structure would be more effective in handling a terrorist incident?

Dr. KUPPERMAN. I think what I'm saying is that the big problem we're going to face at the time of a major incident is to try to come up with policy options as well as that physical data. I don't feel that a civil emergency preparedness operation is intended to run the entire Government. I feel, by contrast, that if one has a strong civil emergency preparedness component, whether it's the National Security Council running it or another White House board, the coordination job needs to be done and the planning should be accomplished ahead of time.

Chairman RIBICOFF. You feel there ought to be a paramilitary ability to perform rescue operations. Should this be in the Defense Department or in the FBI?

Dr. KUPPERMAN. I think it's now in both. I think it should be in both areas. The FBI has SWAT teams. They are very good. Mr. Hassel knows a great deal about them. In the case of the Department of Defense, we are no pushovers. We have done our homework in that area.

Chairman RIBICOFF. Well, the Department of Defense and Justice will be testifying some other day. I do appreciate your coming before us. I know you by reputation and the outstanding work you have done. I would hope that before we put this in place on a committee level, that you would be available to the staff together with those of you who have worked in this field, formally and informally, to see what we could do to get a good bill.

I would like a vehicle that could be effective and bring us some results.

Dr. KUPPERMAN. I would be delighted to help in any way I can.

Chairman RIBICOFF. Thank you for your courtesy. We appreciate it.

[The prepared statement of Mr. Kupperman follows:]

PREPARED STATEMENT OF ROBERT H. KUPPERMAN, CHIEF SCIENTIST
U.S ARMS CONTROL AND DISARMAMENT AGENCY

Introduction

As you may appreciate, I am both pleased and honored to appear before you. I have been studying counterterrorism for nearly three years -- especially its crisis management and technological aspects. On behalf of the former Cabinet Committee to Combat Terrorism, I have directed three government-wide, classified studies of terrorism: the Mass Destruction Terrorism study, The Near-Term Potential for Serious Acts of Terrorism, and An Overview of Counter-Terrorism Technology. In addition, I have examined the crisis management needs of a large nation coping with a sizable terrorist incident. This effort, as well as the three interagency studies, were supported by the Law Enforcement Assistance Administration. My final report to LEAA, Facing Tomorrow's Terrorist Incident Today, was recently published by the Government Printing Office. Having both a scientific and a national security policy background, I am concerned about the complexities of higher-order acts of terrorism.

Possibly the most striking feature of terrorism is its great public significance. However measured, the strongest band of terrorists is far weaker than the tiniest national military force. Yet the terrorist does not fight in a conventional way. Even more elusive than the guerrilla, he preys upon open societies, gaining his leverage from their physical and institutional vulnerabilities and dramatizing his cause through massive media coverage.

A good illustration of the erosive effects of terrorism can be found in the Harris Survey of December 5, 1977. The Survey states that, "Terrorism is viewed as a very serious world problem by 90 percent of the American people and a very serious domestic problem by 60 percent."

The Survey goes on to state, "By 55 to 29 percent, Americans would also support the organization of a 'special world police force which would operate in any country of the world and which would investigate terrorist groups, arrest them, and put their leaders and members to death.'"

Thus far America has been spared, for the great majority of terrorist assaults have occurred abroad, especially in the Mideast, South America and Europe. Spectacular airline hijackings, hostage episodes such as Munich in 1972 and OPEC in 1975, a myriad of bombings and

assassinations -- these have set the tone of world opinion. On a tactical level, terrorism is a success. On the strategic front, however, the score in the game of nation-state vs. terrorist group is not clear.

However, one maxim is self-evident: if terrorism is to abate, our preeminent goal must be to make terrorism a strategic failure. This can happen only if there is international cooperation and the tough-mindedness of the international community makes significant political gains for terrorists unlikely.

A mature, sober atmosphere must prevail. Governments need to convince their publics that they can knowledgeably and efficiently manage terrorist incidents without suspending civil liberties. A government-imposed news blackout and widespread invasions of privacy are unmistakable invitations to disaster.

Terrorism has become a spectator sport, a theatrical event. But we become bored easily. The next airline hijacking -- or the next hostage episode -- is no longer spellbinding news. We are "media-saturated." As a consequence, the terror-organism may mutate, changing its

targets and awaiting its press reviews. Among government's most important jobs, therefore, is to "out-invent" terrorists, assessing as yet unexploited tactical possibilities and devising countermeasures.

The Omnibus Antiterrorism Act of 1977

Turning to the main business of this hearing, the Omnibus Antiterrorism Act of 1977 (S. 2236), I feel that the bill could go a long way toward combating international and domestic terrorism. While I agree with the spirit of the bill, I disagree with its form.

Although the Administration and the Congress have begun to take the terrorism matter seriously, I believe that we are all groping, especially for the case of the higher-order act. For example, I fear the bill may unduly constrain the flexibility of the Executive Branch and inflate the importance of terrorists by having created a White House office to combat terrorism and corresponding sub-cabinet positions within the State and Justice Departments. I seek a vigorous program, but I am concerned that the present bill would create bureaucratic machinery which would quickly grow stale.

As an alternative, I support the formation of a White House crisis management mechanism such as the former Office of Emergency Preparedness, one which would deal effectively with a broad spectrum of nationally disruptive crises: rail strikes, natural disasters, fuel shortages, terrorism, etc. Further, I support a "lead agency" concept, assigning the primary coordinative responsibilities for incident management to the cognizant agencies: for law enforcement, clearly the Justice Department; and for international matters, the State Department.

If terrorism were to continue at the same level of sophistication and violence, I feel that the needed defenses are presently being created. Tougher policies, including trade sanctions and the termination of commercial air service to countries that harbor terrorists, as well as the development of special rescue teams will emerge as honed tools. But what if terrorists were to black out a major metropolitan area, such as New York City. What if the airline pilots were to go on strike because a surface-to-air rocket were used to shoot down a jumbo jet lifting off from Dulles or Kennedy. We would face great problems. The derivative socio-economic effects of the terrorist attack could well outweigh the primary physical damage.

It would be no longer clear that law enforcement should take the lead, nor is it clear that we could find the appropriate target abroad to attack in retaliation. Broad-gauged, but well-tuned crisis management machinery must be developed. Above all, we should not rely upon ad hoc solutions. Contingency planning, serious efforts at "gaming" the improbable event -- all these should be pursued vigorously but they should be absorbed inconspicuously within the national security and civil emergency preparedness apparati designed to deal with the broader array of domestic and international crises we will undoubtedly face.

The Lines of Defense

If a nation could know beforehand "where, when and how," a terrorist assault might be thwarted; however, there are gaps to be bridged between an intelligence coup and operational victory. The value of intelligence is neither uniform nor easily predictable. Knowing for example that a certain terrorist group has a high propensity for violence may suggest a greater allocation of collection (warning) resources rather than of substantial operational (reactive) assets. Yet, during a delicate hostage-barricade matter even such "soft" assessments of cultural and behavioral traits are valuable. We need to know if the captors are likely to murder the hostages, what behavioral patterns delimit rescue attempts,

and so forth. In other words, damage limitation -- may depend upon intelligence data, but the needed precision of these data depends on their applications.

The perennial dilemma of an aggressive intelligence apparatus is how to match its activities to the needs of its clients. Although there is often close collaboration between the users of intelligence and its collectors, little analysis of the relative worth of various types of collection activities may have been done. For this and other related reasons, our understanding of terrorism may suffer from stunted thought. It is easy to raise doubts about the effectiveness of intelligence efforts, but having advance information about an impending terrorist assault is surely preferable to being caught totally unprepared. Intelligence is the first line of defense.

Hardening the Target

The second line of defense is contained in an idea that is simple but often expensive to implement: to harden the target, building "high-pass filters" which block the admission of the amateurish terrorists and increase the costs to the more talented as well. Limitation of access through physical means and controlling the accessibility of dangerous devices and materials is necessary. Fences, guards, various sensors, closed-circuit television, metal detectors, tags for explosives, secure communications means, etc. are

elements of a growing counterterrorism technology. While vulnerability is reduced, and the costs for both sides are increased, the "cost-benefit ratios" are not usually obvious. Deterrence of future terrorist acts, though a subjective matter, is undoubtedly enhanced by reducing target vulnerability.

Whether on threat assessment or actuarial bases, it is important for industry and government to do penetrating cost-benefit analyses of the vulnerability of key nodes of our society. If a portion of the electrical power grid were to fail for an extended period, it would not be just the problem of the power industry; it would be a national catastrophe having widespread economic and human inplications.

We must look at the full costs of failure. The economics of physical security should not be limited to lost business and the (discounted) replacement value of damaged equipment. Analyses must include the sizable costs to be borne throughout the private and governmental sectors. (This is an interesting area for speculation about the eventual liability of public utilities which have been negligent in the face of what litigants may claim to have been a "clear and present danger.")

International Relations

International cooperation is imperative. We need to exchange intelligence, forensic data about terrorist incidents,

provide technical assistance to each other, face the indemnification problems due to nations taking substantial risks on behalf of others; enter into agreements for extradition, no safe havens, etc. But we may need to take unilateral actions as well. Even if we were to stand alone, economic and trade sanctions against countries that harbor terrorists -- or worse yet, foster them -- must be available tools. In this sense S. 2236 sets an appropriate tone; but once again I express my concern about the bill's "form." As written, the mandatory use of LOCATE could deprive the Executive Branch of needed leverage by limiting its flexibility in dealing with a terrorist-harboring nation.

Incident Management

Finally, even the best intelligence and physical security efforts will sometimes fail, and governments will be forced to manage crises produced by terrorism. To minimize the trauma resulting from such acts, governments must behave efficiently. Organizational arrangements, management information and communications systems, sources of expert help, specialized military assets, emergency medical, food and power generation supplies; and clear delineation of legal and administrative authorities must be developed ahead of time. Policy-level officials should

have practice in making the sorts of decisions they may face.

Severe risks to civil liberties are ever present -- if nothing is done to prepare and an incident does occur, governments may resort to repression on a broad scale. If governments overreact prior to a major incident, they may become subject to ridicule and charged with alarmism. Finally, if a major incident does take place, it is crucial that government meet the crisis squarely, and in a way to assure the public that reasonable and thoughtful action has been taken. Preparedness measures to meet terrorism must be neither isolated nor unexercisable; rather, they should fit within routine activities of government, ensuring an ability to mobilize resources at time of strain.

A Program for Action

I have tried to convey the need for prudence and planning in combating terrorism. The terrorism syndrome is inherently unstable. A slight quantitative change, even a terrorist's miscalculation, may have profound ramifications. In my view, a crisis team is needed to coordinate the federal government's activities at a time of a major incident. The team, which is the interface between the policy and operational levels of government, should be a part of a well-conceived civil emergency preparedness program. The opportunities for doing studies of the effects of resource

interruptions, and actually gaining experience in emergency management, are plentiful under the aegis of civil emergency preparedness. Railroad strikes, fuel shortages, earthquakes and terrorist attacks -- at root they are identical. Their physical character may differ greatly but to the crisis manager, who must allocate resources and who is constrained by time, logistics and politics, the problem is the same. If we are to realize the "last line of defense," a viable umbrella must be created, one which would be used frequently.

In addition to strengthening our crisis management capacity, we need to increase the contribution the international community can make as well as develop a program of research on terrorist behavior, target hardening and the problem of restoration after attack.

Among the actions which I believe should be taken are the following:

° Develop a national incident management system.

-- A crisis management team must be formed, preferably one which is a part of a viable civil emergency preparedness program, has immediate access to the highest level of government, and whose management role is set by pre-established authority.

-- The team must do contingency planning in order to refine negotiating strategies, determine resource and management information needs, and coordinate the operations of government at times of crises.

-- The necessary standby arrangements for aircraft, communications, personnel and other resources must be made before the crisis. Further, a roster of experts and the means to summon them quickly is fundamental.

-- Consistent with the law, remotely accessible data bases concerning terrorist groups should be constructed for planning and operational purposes. (For predictive and incident management purposes, we need to maintain data bases on their tactics and operations, their weapons, and their organization and training.)

° International arrangements. A vigorous international relations program to combat terrorism must be pursued: no safe havens and extradition agreements, multilateral controls on the transfer of antitank and antiaircraft weapons, agreements for technical assistance and the exchange of intelligence; and retaliation, including economic sanctions, which could be directed against countries fostering terrorism.

° Military option. Whether developed on a national level, or through cooperative international arrangements, large nations must have the specialized paramilitary ability to perform rescue operations such as those at Entebbe and Somalia.

° Technology. Countering terrorism can only be accomplished by funding a vigorous research and development program. There are rich opportunities for behavioral and technological research. Even limited efforts could make dramatic contributions.

Final Comment

I thank you for the opportunity of expressing my views. S. 2236, the Omnibus Antiterrorism Act of 1977, tends in the right direction. But I feel it could be substantially improved by incorporating counterterrorism management within the framework of a "lead agency" concept and a viable program of civil emergency preparedness.

There are those who feel that if terrorism is never discussed, it will not occur. They also feel that the development of counterterrorism tools would result in the suspension of some of our civil liberties. If our history is a guide, workable responses to terrorism will emerge. Obviously, however, we must anticipate some painful "trial and error."

As with many other complex problems, we are forced to live in a murky world -- a world of partial truths. I, for one, believe we should avoid the psychiatric problem of "denial." Terrorism is real. It may be with us for a long time to come.

Chairman RIBICOFF. The committee will stand adjourned until Monday at 10 o'clock. Thank you very much.

[Whereupon, at 12:15 p.m., the hearing was adjourned, to reconvene at 10 a.m. on Monday, January 30, 1978.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

MONDAY, JANUARY 30, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 10 a.m. in room 3302 of the Dirksen Senate Office Building; Hon. Abraham Ribicoff, chairman of the committee, presiding.

Present: Senator Ribicoff and Representative Don Clausen.

Staff members present: Richard A. Wegman, chief counsel and staff director; Ellen Miller, professional staff member; Brian Conboy, special counsel to the minority; John Childers, chief counsel to the minority; Ken Ackerman, professional staff member, and Robert V. Heffernan, research assistant.

Chairman RIBICOFF. The committee will be in order.

We are delighted to have Congressman Clausen who has introduced the companion bill to S. 2236 in the House. I do appreciate your cooperation and I hope together we can make this work.

TESTIMONY OF CONGRESSMAN DON H. CLAUSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Representative CLAUSEN. Thank you, Senator.

I want to congratulate you for the work you have done on this committee in this matter. I ask that my statement be placed in the record as if read in full.

Chairman RIBICOFF. Without objection, so ordered.

Representative CLAUSEN. I think it is more important that you hear from the airline witnesses. I'm proud to be a part of this effort to bring about a minimizing of some of these senseless acts. We all know that the matter of terrorism is one that will have to be managed and safety first as a key factor.

At some time in the future we can discuss this more in-depth. Thank you very much.

Chairman RIBICOFF. Thank you very much, Congressman Clausen. I appreciate your remarks and I look forward to working with you.

[The prepared statement of Congressman Clausen follows:]

PREPARED STATEMENT BY CONGRESSMAN DON H. CLAUSEN

Mr. Chairman, and members of the Committee, I am pleased to be here this morning to testify in support of Senator Ribicoff's bill, S. 2236, a bill designed to help the United States combat air piracy on a world-wide scale.

As you know, I have introduced similar legislation in the House, H.R. 10295.

As a pilot myself, and one who has worked in the field of aviation over half of my life, I am pleased to be a part of this effort to discourage terrorism and minimize these senseless acts. The innocent have suffered long enough.

The FAA's Civil Aviation Security Service compiles facts and figures on the number of hijackings and terrorist activities which take place and recently published these figures in its semi-annual report to the Congress. I am sure that many of you are aware of these figures but a number of them are worth repeating here.

For example, in 1977, alone, there were 31 aerial hijackings worldwide. Twenty-six of them occurred overseas. Sixteen of these hijackings were described as successful—where an aircraft has been seized, and where a political propaganda or other mission has been completed although the final result was the capture of the terrorists.

The previous year, 1976, there were only 16 hijackings of which 7 were described as successful. Two U.S. hijackings were rated successful that year.

It is clear from these figures that aerial piracy has been on the increase despite attempts here and abroad to control it.

As a matter of fact, in the three months since Senator Ribicoff and I have introduced our companion bills, there have been two major international air disasters in which 316 persons have died. Both are believed to have involved a terrorist attack.

The United States has been fortunate in that since November 10, 1972 there has been only one hijacking deemed successful by the FAA involving an American carrier. This excellent record is the result of stringent measures to protect our U.S. air carriers. However, we Americans have become inveterate travlers, and by no means is this travel limited to U.S. carriers. Americans using foreign carriers are not protected by the safeguards used by our own lines, and are thus being constantly threatened by terrorist attacks.

We must move ahead. The legislation you have before you can move us closer to our goal of eradicating all air terrorism once and for all.

We face a difficult job, the magnitude of which is great. Each day, 36 U.S. and 69 foreign airlines operate 15,000 flights to or from 620 American and overseas airports. They serve 585,000 passengers daily who carry with them 800,000 pieces of luggage.

The U.S. method of pre-boarding security has been largely successful. In the first six months of last year, 243 million U.S. domestic passengers were screened through the now familiar magnetometers at boarding gates. An astounding 874 firearms of all types were turned up, resulting in 370 arrests. Yet, with all these precautions, there were still five hijacking incidents in the same period, although none were considered successful by FAA standards.

It is imperative that we guard against maniacs who would continue to terrorize innocent citizens. In my own judgment as a pilot, any incident where a captain's full attention to his duties is interrupted at gunpoint must be considered a hijacking. In addition, I feel very strongly that once the doors are closed in the aircraft and it starts its takeoff, full authority must be in the hands of the pilot and that the chain of command and delegation of authority must be under his control.

Our bill requires that sanctions be imposed against countries that harbor hijackers. It is true that current laws provide for some sanctions. However, these sanctions are discretionary only. It is time for more definitive action.

The Administration has testified before this Committee praising the establishment of a Special Coordination Committee to coordinate the activities of the various Federal agencies dealing with terrorism. But coordination alone is not enough. We need the means with which to discourage other nations from aiding air pirates and international murderers.

Our bill will give us an adequate structure from which to handle terrorist problems and provides for swift and direct action against any country which aids terrorists.

Our bill places the U.S. in a leadership role for the benegt of all air travelers throughout the entire world.

I urge my colleagues to support this legislation and proceed with the mark-up of it as quickly as possible.

Thank you.

Senator RIBICOFF. Mr. J. J. O'Donnell.

Captain O'Donnell, I want to welcome you again, and your associates, and express my appreciation for your help and cooperation.

When all is said and done, the men you represent are on the front line. These are the men and women who have the responsibility for the passengers, their lives, their safety, their own lives and safety and their families. You know what it means. I think it is inexcusable, as I indicated to the Secretary of Transportation the other day, that somewhere there are unsafe foreign airports where we allow thousands upon thousands of Americans to fly in or out, fully knowing that they are unsafe.

The question of what do we do with countries that give aid and comfort and training to terrorists is a problem. As far as I am concerned, the airline pilots are about as important in this equation as any other factor and your thinking means very much to me, to this committee, the Congress and to the whole country.

So I welcome you here today, Captain O'Donnell.

TESTIMONY OF CAPT. JOHN J. O'DONNELL, PRESIDENT, AIR LINE PILOTS ASSOCIATION; ACCOMPANIED BY CAPT. TOM ASHWOOD, SECRETARY OF THE AIR LINE PILOTS ASSOCIATION AND CHAIRMAN OF THE INTERNATIONAL FLIGHT SECURITY COMMITTEES OF ALPA AND THE INTERNATIONAL FEDERATION OF AIR LINE PILOTS ASSOCIATIONS

Mr. O'DONNELL. I'm Capt. John O'Donnell, president of the Air Line Pilots Association International representing the interests of 50,000 professional pilots and flight attendants.

Accompanying me today is Capt. Tom Ashwood, secretary of the Air Line Pilots Association and chairman of the International Flight Security Committees for both ALPA and the International Federation of Air Line Pilots Associations.

I am grateful for this opportunity to appear before this committee and I am even more grateful that this committee is undertaking an examination of the urgent and frightening subject of international terrorism with a view toward enacting legislation to combat it.

There is not a government in the world which does not face the real possibility of extortion or even overthrow by terrorism. Terrorism spreads far beyond the bounds of a particular incident to threaten the very structure and authority of Government in its ability to govern and to institute both foreign and domestic policies. Terrorism evokes a real image of anarchy and rule by threat.

This creates a problem of international magnitude, for while incidents or campaigns of terrorism are often parochial in intent, they can and do cause repercussions far beyond the target nation's borders.

Mr. Chairman, with your permission I would like to ask permission to insert our written statement into the record, but I will attempt to summarize it.

Chairman RIBICOFF. Without objection, the entire statement will be placed in the record at the conclusion of your testimony.

Mr. O'DONNELL. In addition to the purely political ramifications of such acts, one must also examine the quantum escalation in the destructive power of weapons now freely available on the world's arms markets. Weapons currently in use by terrorist groups make battalions out of a handful of fanatics. The large amounts of nuclear

material unaccounted for and the basic knowledge of physics required to build a crude nuclear bomb could combine to make an army of one individual, who could plunge this world into the unspeakable horrors of nuclear holocaust.

The question may be asked, what has all this to do with commercial aviation? To take the United States, for example, we can refer to the efficacy of the security measures now in force. Our aircraft and airports are protected by security so they are less vulnerable to attack. Those aircraft, however, are obliged to fly into areas which can be classified as insecure, if not classified as outright dangerous.

But then, it may be asked, what is the purpose of attacking a U.S. air carrier aircraft?

The reason is simple: It is one of the most attractive targets for terrorism for it has the following features:

One, it is highly identifiable with its country of registration. For example, TWA and PAN AM are considered to represent the United States.

Two, the place for attack can be chosen from a wide selection of countries with an eye to the convenience of those countries in terms of the existing security arrangements, geographical proximity, political sympathy, et cetera.

Three, aircraft cost up to $50 million. Holding such a prize for ransom can be very effective.

Four, aircraft are relatively fragile and are easily destroyed with a few dollars worth of readily obtainable materials.

Five, aircraft can carry over 400 passengers which on any given day probably have 7 or 8 nationalities represented among them. They make great hostages.

Six, the aircraft, as a target, can also provide the terrorist with a means of escape to virtually any part of the world.

Seven, terrorists seek wide publicity for their cause: aircraft crashes and related events are proven headline-grabbers.

It is paradoxical that the more successful nations are in preventing hijacking, the more susceptible they are to sabotage attempts on aircraft. If terrorists cannot hijack, they will destroy.

The bill before this committee, S. 2236, clearly recognizes that terrorism is international in its scope and threat, and there are those who would suggest that the United Nations is the properly constituted body to deal with it. Based on the written charter of the United Nations and the grand principles it was formed to employ, we would be obliged to agree.

However, our Association has labored for more than 8 years in our attempts to find solutions to this terrible problem. Much of our time, energy and resources were expended in the arena of the United Nations and I regret to say, expended without meaningful success. We are totally convinced that the United Nations has neither the will nor the means to effect any meaningful solution. We have consequently arrived at the inescapable conclusion that strong, unilateral and bilateral action by a few powerful nations is the only practical path to follow.

We respectfully commend you, Senator Ribicoff, for your recognition of this fact and your leadership in presenting meaningful legislation to effect a solution. We feel, most strongly, that this legislation

will have a salutary effect far beyond this Nation's borders and could serve as a model and a source of courage for the other nations of the world to follow.

We are aware that there are some who are concerned by some of the provisions of this bill. Some even question the right of this Congress to act in this fashion. As international airline pilots, we are historic victims of terrorism. As Americans, we feel proud of our historic role as world leaders. We, therefore, say to the faint-hearted, "offer us some realistic alternatives." S. 2236 is the foundation for landmark legislation which will become the keystone for an international effort to combat the evils of terrorism.

We recognize that under existing statutes, the President already has the power to effect some of this bill's provisions. The power to do so is, however, descretionary and in fact has never been used. We have some understanding of the President's reluctance to utilize his constituted powers in these cases, but we cannot accept this reluctance.

Mr. Chairman, for too many years my association has been pleading for a diplomatic solution. For too many years the International Federation of Air Line Pilots Association has been asking for an end to international hijackings. For too many years the United States has engaged in rhetoric and debate on the subject. And still, we are faced with the escalatory problem of international terrorism. To paraphrase the great Mark Twain's comment on the weather, "Everyone talks about terrorism but nobody does anything about it." S. 2236 is doing something about it.

Your bill, Mr. Chairman, was introduced October 25, 1977, just 12 weeks ago. Since that time there have been eight air terrorist incidents or attempts. The Singapore Air Lines crash in Malaysia with the resultant deaths of 100 innncent people has all the earmarks of being the result of a terrorist attack.

The recent Air India 747 crash also has strong inclinations that sabotage may have been the cause of 216 people dying. One cannot help but ask if the world has a definitive number of deaths as a target before action is taken.

Legitimate armed conflict between nations is, unfortunately, an acceptable practice. There are few among us who have not personally experienced the scourge of war. There are, however, international limits set on such legal carnage. They are referred to as the Rules of War. Terrorist attacks on innocent people, citizens of noninvolved nations and international air commerce should not be targets for military action.

American citizens flying in U.S.-registered aircraft are not legitimate targets. Those who consider them such are outlaws and should be branded as such. They should not enjoy the benefits of friendship and trade with decent nations. We believe that the stigma of being labeled an offending nation, an outlaw, may have a salutary effect upon the decent people within such nations who may be motivated to expunge such a slur.

The mere identification of offending nations is obviously not enough. In our society we not only identify criminals, we also provide appropriate punishments for their crimes. Mr. Chairman, this matter before you is no different and the sanctions proposed in this bill pro-

vide appropriate punishment which in our view is neither "cruel or unusual."

We are cognizant though that the application of sanctions is a serious and sometimes awesome act, an act which must be authorized and carried out with great deliberation and care. There are concerns being expressed that "automatically imposed sanctions" might prove to be precipitous, and not in the best interests of the United States.

We would hope that this concern which we have heard expressed will be thoughtfully considered by this committee and that you will diligently seek some middle ground between "automatic" sanctions and "no" sanctions.

I would like to touch on one part of the statement which calls for establishing the taking of hostages as an international crime. It is the briefest part of the bill.

It only requires 10 words to state it. Those 10 words may be the heart of the proposed legislation, for international agreement on this point would delete the greatest weapon from the arsenal of terrorists. Obviously, there are a few who are prepared to sacrifice themselves, but experience has shown that most seek sanctuary to escape the lawful consequences of their crimes.

Although this is the simplest part of the bill, we do fear that it will be the most difficult to accomplish. This should not deter us, however, from striving to attain that objective.

Finally, Mr. Chairman, we would like to add our strong endorsement to the provision of S. 2236 designed to extend existing safety and security requirements to supplemental carriers and charter operations. We have repeatedly pressed for one level of security for all commercial flights within the United States. Charters, inter- and intrastate passenger operations should all be subject to the same rules, for not only are they equally vulnerable to attack, they can also introduce uncleared passengers into "sterile" flight operations areas in which scheduled airline operations are conducted.

We are aware of the vehement protests made by many charter and commuter operations who argue they cannot afford security. It is an unhappy fact of life that if one operates almost any kind of business, security has become another cost of doing business. We must not permit feeble economic arguments to jeopardize and contaminate the carefully constructed security system we have in place at our airports. Too many people labored too long to achieve this proven effective system to permit this to happen.

Mr. Chairman, by now you no doubt recognize that we are in favor of the kinds of tough provisions proposed in this bill. As airline pilots, we are pleased with the positive effect it will have upon the security of our passengers, crews and aircraft. We are also pleased because it goes further into the broader and even more dangerous area of rule by terror. We are fortunate to live in a great and free country, something we will fight to maintain. We would like to fly throughout the world in the same great, free environment. That's something we will fight to obtain.

We thank you sincerely for your initiatives in presenting this bill and for giving us the opportunity to speak to it. We are available for any questions you may wish to ask.

Mr. Chairman, the passengers who support our aircraft look to us to bring them back safely. Whatever has detered this in the immediate past is behind us.

The 240 million U.S. travelers, 50,000 U.S. flight crews and the pilots of 64 nations around the world pray for your success, Mr. Chairman. We sincerely thank you for the initiatives taken in presenting this bill and for giving us the opportunity to comment. We would be glad to respond to any questions you may have.

Chairman RIBICOFF. Is there any question in your mind that the United States is the leading country because of the large number of planes, pilots, passengers to and from the United States, and that whatever action taken by the United States will be the determining factor with other countries?

Mr. O'DONNELL. There is no question in my mind, Mr. Chairman, that that is a fact.

Chairman RIBICOFF. Every country in the world wants access to American airports and wants American airlines and American passengers coming into their countries; isn't that correct?

Mr. O'DONNELL. It seems to be the administration's purpose also to not stop them from coming into this country. We in the United States represent over 50 percent of the pilots in the free world and over 50 percent of the aircraft used in commercial aviation. A large number of people look to air transportation.

We have been dealing with the problem since 1968, seeing terrorism escalate. In 1972 we ended up in the courts. I think the traveling public is entitled to a better, safer system.

Mr. ASHWOOD. If I may comment.

As a chairman of the international federation, I have security as one of my goals. People look to the United States. They look to us and our legislation as a model. I took the liberty of sending copies of your proposed legislation some weeks ago to members all over the world and received good comment about it. They are pressing hard to attempt to get the same kind of legislation enacted in their own countries.

It has provided a source, a model upon which they can base their attempts in their countries.

Chairman RIBICOFF. There should not be timidity on the part of either Congress or the executive branch. Once we take the lead, undoubtedly other nations in the world will follow suit.

Mr. ASHWOOD. That is my impression, sir; at least among those who have some sense of responsibility toward the international aviation community.

Chairman RIBICOFF. I know in West Germany, once they put their foot down concerning Lufthansa—they wouldn't fly into or out of unsafe airports—certain countries remedied conditions Lufthansa was concerned with.

Mr. O'DONNELL. Lufthansa wanted to bring their own security forces into a foreign country to screen passengers, for their aircraft security; namely, Algeria. Algeria reviewed their stoppage and allowed them to put up security systems.

Several nations around the world and large nations, important nations such as France, Italy and Greece, have little if any security

within their own countries. I have traveled to France just recently to visit with the aircraft manufacturers and I was appalled when the French pilots took me to Air Inter, which is a domestic airline, to show me the lack of security.

The pilots in France are not as effective because they are not as large a body as we are. They are asking us to help them get better security in their country.

Chairman RIBICOFF. Let us say you had a situation which we knew was unsafe or our investigation revealed was unsafe and we just labeled those airports or countries as unsafe. Would this have an impact on the number of people going into those countries, and prompt those countries to put safety systems into effect?

Mr. ASHWOOD. If I may respond. Yes, I'm sure ultimately it would. I sometimes feel, though, if you are dealing with a country such as France which I consider to be a responsible nation, the mere fact you have discovered a deficiency in their security system and if it is conveyed officially between their Government and your Government perhaps that would be the incentive required to put security in place there. If they refused to do so, it would require further steps.

Chairman RIBICOFF. Especially if they were told they had 30, 45, 60 days to remedy it and if they didn't remedy it, first they would be listed publically and then there would be sanctions prohibiting our planes from going in or out. I would guess they would be remedied immediately. There isn't a country in the world that would want to be isolated from international travel.

Mr. O'DONNELL. Working with the International Federation of Pilots for the last 7 years, I know that the world's pilots couldn't live with being put on a list as being a nation that has unsafe airports. The minute France's name—or that of any other nation—appears on a list that their domestic aircraft system is unsafe for U.S. travelers to travel to, they couldn't live with such a stigma. I expect they are aware of what is in your legislation already.

Our State Department does not want to be put in the embarrassing position of pointing the finger at France or any other nation. I believe that most nations would take those steps because they cannot suffer the embarrassment that would come if their name appeared on such a list.

Mr. ASHWOOD. We seem to be picking on France. I want to make it clear, when we are referring to the lack of security, we are referring to the domestic airline of France. The security at their international airports such as Charles DeGaulle is at a high level in France. We are using only the domestic portion as an example.

Chairman RIBICOFF. You assume that threats are received against airlines. Are pilots informed of threats on a routine basis?

Mr. O'DONNELL. It is required that the pilot be informed of a threat. If there is a device on the aircraft, if there is somebody on the aircraft or if there was a telephone call into the airline or airport or right after it has been boarded; it is required that that crew be notified.

Chairman RIBICOFF. With no exceptions, pilots are informed if there is a threat?

Mr. ASHWOOD. There are occasions where there are exceptions to the case. The security departments of various airlines interpret

threats being specific, nonspecific, vague or whatever you will, and they selectively inform the pilots when they think that a threat is specific in nature. You can get a general threat and you would have to alert every aircraft you have airborne.

The airlines try, based upon the experiences they have, to be selective so as not to cause alarm and also the possibility of danger from an emergency landing which may not be required because it is a nonspecific threat.

"One of your aircraft has a bomb on it." That type of telephone call is considered to be nonspecific.

Chairman RIBICOFF. What criteria would you suggest to evaluate the safety of a foreign airport? Should the standards used by the United States be sufficient? Should there be other criteria?

Mr. ASHWOOD. The security system we have in place in the United States is a very good criteria. The basic premise of having passengers screened, hand baggage screened prior to boarding, having protected sterile areas for that aircraft so that they are not the subject of forceful attack; those are the basic elements of security we have in place here in the United States. They would be most adequate, in our minds; if I were able to institute them throughout the world, that is what I would institute.

In terms of practicability and cost, I think that the type of security system in the United States gives the best return on the dollar and gives us the highest level of security available.

Chairman RIBICOFF. Are there other countries that you think have a better system than the United States?

Mr. O'DONNELL. There is no question one country does, and that is Israel. If you live in that volatile environment, it becomes necessary. We have 530 airports in this country. They have one. As you recall in late 1971, or early 1972, the hijackers in this country were leaving the hub airports and going to small regional airports to get on board aircraft. We have to have the security system in every airport in this country. I would suggest that the FAA require that in all new airports built in this country that security be a prime criteria in its design.

For example, at the Kansas City Airport, it is difficult for the airlines to develop a sterile area. Their airport tries to get the passenger out of their automobile and into the aircraft as quickly as possible. There is not enough distance, as a result of that, between the aircraft and sterile area. Dulles is an excellent example where you have good security. You can't get to an aircraft without boarding a bus to take you to the aircraft.

Another thing we would like to see is a program to develop a monitoring, screening or sensing system for baggage being placed in the aircraft.

The screening of baggage is still a problem. I know it is expensive, but something must be done. I would suggest that funds in the airport airways trust fund might be used to provide the equipment to the Nation's airports for that type of security.

Chairman RIBICOFF. That is the one element in which there is a vacuum.

Mr. O'DONNELL. The sick people in this world, when we prevent them from getting on airplanes, will come up with alternatives. They

are aware of many techniques and we are aware of them. The hijackers in 1971 had looseleaf notebooks and they had graphs for building devices that would be used for that purpose.

Chairman RIBICOFF. Do you have reason to believe that the terrorist threat against airlines will decrease or increase? How do you look at this?

Mr. O'DONNELL. A lot of it has to do with what is going on in the Mideast right now, what comes out of the peace efforts now in progress. For a period of time you are going to find the true militants backing away to see what happens between Israel and Egypt. If that isn't successful, you will find a substantial escalation in terrorist acts, particularly by the PLO, and they present major problems, there is no question about it.

Beyond that, the Japanese Red Army and the Baader-Meinhof group are still a major threat. When those problems are solved, we will have others. We don't know where they will come from but they will come.

Chairman RIBICOFF. As long as there is the PLO problem, as you indicate, it would seem that terrorism and anarchy will be widespread. You mentioned the Red Army group in Japan, South America, West Germany, Holland, France.

Mr. O'Donnell. Who knows what will come out of Canada's separatist movement. You recall it wasn't too long ago, in South America we had a lot of that type of activity going on there. Who knows what type of militant groups will rise up because of the separatism issue in Canada.

Chairman RIBICOFF. Are pilots given special training, and crewmembers, to cope with possible hijacking?

Mr. ASHWOOD. There is some available. It hasn't been standardized. Various air carriers do it in various forms and it has resulted in various degrees of effectiveness.

We are working toward a standardized method of training for crews which have to cope with terrorist or hijacking situations.

If I can comment on the anticipated increase or decrease in aerial piracy, I would say it is directly proportional to the political terrorist activities throughout the world. We are and always will be the most attractive target for terrorism. When you have situations such as the Middle East, international strife such as you have with the South Moluccans, Baader-Meinhof group, and other anarchist groups, you will see a high degree of air piracy and sabotage.

Mr. CLAUSEN. I wanted to state, Senator, that I believe you touched on a key point, and that is whether or not there is adequacy of training, not only of the captain but also the entire crew. As I view this situation, when we talk in terms of enforcement, it is as much a management question. To minimize these types of problems, we have to get a training program that will be specific and positive, taking into consideration the kinds of problems and the lack of being able to communicate with some of these elements.

Would you like to comment on that, Captain O'Donnell?

Mr. O'DONNELL. Yes, Congressman. I have talked and we have talked for a great period of time with different airline management, and ATA representatives on the training problem. What most of the airlines have done, is to restructure the training of flight attendants.

The flight attendants are in the front line when a terrorist stands up in an aircraft. I have nothing but the highest respect and regard for the quality of people that the airlines have hired and put in that job. That is where the training has to be done.

You have to have a person whose head is screwed on right and they must know how to handle that type of major confrontation.

Witness what happened this weekend, on Piedmont Airlines. A man stood up and said he was going to take the aircraft to Cuba. The flight attendant threw a drink in the man's face. That was a judgment of the flight attendant, looking at the circumstances. He was in the trenches and he made the right decision.

Based on the quality of the hiring they are doing, and the training they are providing, the airlines are being responsive. I know they cover that deeply in the training of their flight attendants.

I think our role is substantially different unless the aircraft is taken over. Then our role becomes more important. I would say, Senator, today, 1978, is different than it was in 1971. As soon as an incident of that nature occurs, ourselves and the FAA command center, airlines command center, and the airport where the situation is going on, work together in absolute cooperation.

That was not the case in 1971 but today I have nothing to say except for the highest praise for the people involved, the airlines and Government agencies involved.

Chairman RIBICOFF. When we finish these hearings and have the benefit of everyone's testimony, my staff and Congressman Clausen's staff will be talking with you and your staffs about some of the problems to make sure we develop the best possible legislation. There is an interest. The Secretary of State came here. We weren't able, because of the time restrictions to let Defense, Justice and Commerce testify but we will. I agree with you. We are the key country. We have the key responsibility. I'm positive once we act, other nations will act. I agree with you, we can't anticipate or expect anything from the United Nations. That is a debating society. But once sanctions are imposed by the United States, in self-defense or out of selfishness, other big air carrier countries will have to take the same steps.

My feeling is that the pilots and crews as well as the passengers will insist upon it. As a person who travels often, both domestically and internationally, I have the highest respect and regard for the pilots and the crews of airliners. They are men and women of the highest character and ability and I think that their responsibility deserves backup support.

I agree we have Government responsibility. Again, I want to publicly thank you and the Airline Pilots Association for all you have done.

Mr. O'DONNELL. We appreciate that and we look forward to working with you and Congressman Clausen to come up with a bill that reflects our Nation's responsibility.

[The prepared statement of Mr. O'Donnell follows:]

STATEMENT OF

JOHN J. O'DONNELL, PRESIDENT

AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

BEFORE THE

GOVERNMENTAL AFFAIRS COMMITTEE

UNITED STATES SENATE

JANUARY 30, 1978

OMNIBUS ANTI-TERRORISM ACT OF 1977

Mr. Chairman, I am Captain John O'Donnell, President of the Air Line Pilots Association (ALPA) representing the interests of 50,000 professional pilots and flight attendants.

Accompanying me is Captain Tom Ashwood, Secretary of the Air Line Pilots Association (ALPA) and Chairman of the International Flight Security Committees for both ALPA and the International Federation of Air Line Pilots Associations (IFALPA).

I am grateful for this opportunity to appear before this committee and I am even more grateful that this committee is undertaking an examination of the urgent and frightening subject of International Terrorism with a view toward enacting legislation to combat it.

There is not a government in the world which does not face the real possibility of extortion or even overthrow by terrorism. Terrorism spreads far beyond the bounds of a particular incident to threaten the very structure and authority of government in its ability to govern and to institute both foreign and domestic policies. Terrorism evokes a real image of anarchy and rule by threat.

This creates a problem of international magnitude, for while incidents or campaigns of terrorism are often parochial in intent, they can and do cause repercussions far beyond the target nation's borders.

In addition to the purely political ramifications of such acts, one must also examine the quantum escalation in the destructive power of weapons now freely available on the world's arms markets. Weapons currently in use by terrorist groups make battalions out of a handful of fanatics. The large amounts of nuclear material unaccounted for and the basic knowledge of physics required to build a crude nuclear bomb could combine to make an army of one individual, who could plunge this world into the unspeakable horrors of nuclear destruction.

The question may be asked, what has all this to do with commercial aviation? To take the United States, for example, we can refer to the efficacy of the security measures now in force. Our aircraft and airports are protected by security so they are less vulnerable to attack. Those aircraft, however, are obliged to fly into areas which can be classified as insecure. But then, it may be asked, what is the purpose of attacking a U.S. air carrier aircraft?

The reason is simple: it is one of the most attractive targets for terrorism for it has the following features:

1) It is highly identifiable with its country of registration. For example, TWA and PAN AM are considered to represent the U.S.A.
2) The place for attack can be chosen from a wide selection of countries with an eye to the convenience of those countries in terms of the existing security arrangements, geographical proximity, political sympathy, etc.
3) Aircraft cost up to 50 million dollars. Holding such a prize for ransom can be very effective.

4) Aircraft are relatively fragile and are easily destroyed with a few dollars worth of readily obtainable materials.

5) Aircraft can carry over 400 passengers which on any given day probably have seven or eight nationalities represented among them. They make great hostages.

6) The aircraft, as a target, can also provide the terrorist with a means of escape to virtually any part of the world.

7) Terrorists seek wide publicity for their cause: aircraft crashes and related events are proven headline-grabbers.

It is paradoxical that the more successful nations are in preventing hijacking, the more susceptible they are to sabotage attempts on aircraft. If terrorists cannot hijack, they will destroy.

The bill before this Committee, S. 2236, clearly recognizes that terrorism is international in its scope and threat, and there are those who would suggest that the United Nations is the properly constituted body to deal with it. Based on the written charter of the United Nations and the grand principles it was formed to employ, we would be obliged to agree. However, our Association has labored for more than eight years in our attempts to find solutions to this terrible problem. Much of our time, energy and resources were expended in the arena of the United Nations and I regret to say, expended without success. We are totally convinced that the United Nations has neither the will nor the means to effect any meaningful solution. We have consequently arrived at the inescapable conclusion that strong, unilateral and bilateral action by a few powerful nations is the only practical path to follow. We respectfully commend Senator Ribicoff for his recognition of this fact and his leadership in presenting meaningful legislation to effect a solution. We feel, most strongly, that this legislation will have a salutary effect far beyond this nation's borders and could serve as a model and a

source of courage for the other nations of the world.

We are aware that there are some who are concerned by some of the provisions of this bill. Some even question the right of this Congress to act in this fashion. As international airline pilots, we are historic victims of terrorism. As Americans, we feel proud of our historic role as world leaders. We, therefore, say to the fainthearted, "offer us some realistic alternatives." S. 2236 is the foundation for landmark legislation which will become the keystone for an international effort to combat the evils of terrorism.

We recognize that under existing statutes, the President already has the power to effect some of this bill's provisions. The power to do so is, however, discretionary and in fact has never been used. We have some understanding of the President's reluctance to utilize his constituted powers in these cases. We understand the political implications, both international and domestic, of any such action for it could be viewed from a partisan position or in relation to an otherwise unrelated diplomatic effort.

While we have patiently understood the "foreign policy sensitivity" of the United States acting in a unilateral fashion, we believe the time has now come to show other nations that we are serious about combatting the menace of air piracy.

Mr. Chairman, for too many years my Association has been pleading for a diplomatic solution. For too many years the International Federation of Air Line Pilots Associations has been asking for an end to international hijackings. For too many years the United States has engaged in rhetoric and debate on the subject. And still, we are faced with the escalatory problem of international terrorism. To paraphrase the great Mark Twain's comment on the weather, "everyone talks about terrorism but nobody does anything about it." S. 2236 is doing something about it.

Your bill, Mr. Chairman, was introduced on October 25, 1977, just twelve weeks ago. Since that time there have been 5 air terrorist incidents or attempts. The Singapore Air Lines crash in Malaysia with the resultant deaths of 100 innocent people has all the earmarks of being the result of a terrorist attack. The recent Air India 747 crash also has strong indications that sabotage may have been the cause of 216 people dying. One cannot help but ask if the world has a definitive number of deaths as a target before action is taken. Is it 500, 1,000 or maybe 10,000? I do not know what the world expects, but I do know that I consider one death to be too many.

To address the specifics of the bill, we are pleased that it calls for an upgrading of the Office for Combatting Terroism presently constituted within the State Department. We would hope that this new Bureau for Combatting International Terrorism would act in an innovative manner and not as a defense force for the State Department's actions and internal policies. It should be staffed by experts from both the diplomatic and intelligence communities and their recommendations should be known outside of their parent department, specifically to those other bodies called for in the bill.

We are also pleased that there would be a corresponding office created within the Department of Justice headed by an Assistant Attorney General. These two actions will provide the optimum blend of international diplomacy, terrorist intelligence and domestic enforcement.

Combine these actions with the proposal to upgrade the present interagency working group, relocating it in the Executive Office of the President and chairing it with the Director of the National Security Council and you have the elements for getting the matter of International Terrorism appropriate importance, recognition and priority.

These primary functional and administrative steps will provide the necessary impetus for action on the enforcement and sanctions portion of the bill and we, therefore, consider them to be an important, integral part of the whole. We are hopeful that the administrative requirements of such a tripartite anti-terrorist group are structured so as to avoid interdepartmental difficulties. Congress may deem it appropriate to provide some oversight to the operation.

The provision which requires the President to compile a list of Dangerous Foreign Airports is also a necessary step in solving the terrorism problem, recognizing that the method and parameters for identifying these airports will require some definitive language before a meaningful listing can be compiled. Due to the subjectivity of such assessments and the known fluidity of levels of security existing at any given airport, it is vital that the information and intelligence used to establish a standard or criteria for airport security be up-to-date, literally to the final day of decision, and that the best available data be obtained such as, from the security personnel and airline pilots of carriers using the facility. In addition, the FAA's Department of Technical Security can provide expert input. Experience has shown that the state of security at given airports can range from non-existent to very good within a matter of hours. The change occurs with local political situations, possibilities of attack or being a host airport for a hijacked aircraft. It will be extremely difficult to establish a constant level of conformity over any period of time exceeding a few weeks.

To address the problem of identifying nations who aid, abet or assist terrorists is, we believe, a somewhat less complex task. Those who harbor and train terrorists tend to do so on a continuing basis which makes their identification more objective.

The identification of those nations will be a refreshing shot of honesty in the mendacious world of international politics. Is there any one in this room who could not identify at least a couple of such nations right now? There is no question that they do exist; the odor they produce is, however, tastefully ignored. Legitimate armed conflict between nations is, unfortunately, an acceptable practice. There are few among us who have not personally experienced the scourge of war. There are, however, international limits set on such legal carnage. They are referred to as the Rules of War. Terrorist attacks on innocent people, citizens of non-involved nations and international air commerce should not be targets for military action. American citizens flying in U.S. registered aircraft are not legitimate targets. Those who consider them such are outlaws and should be branded as such. They should not enjoy the benefits of friendship and trade with decent nations. We believe that the stigma of being labeled an offending nation, an outlaw, may have a salutary effect upon the decent people within such nations who may be motivated to expunge such a slur.

The mere identification of offending nations is obviously not enough. In our society we not only identify criminals, we also provide appropriate punishments for their crimes. Mr. Chairman, this matter before you is no different and the sanctions proposed in the bill provide appropriate punishment which in our view is neither "cruel or unusual."

We are cognizant though that the application of sanctions is a serious and sometimes awesome act, an act which must be authorized and carried out with great deliberation and care. There are concerns being expressed that "automatically-imposed sanctions" might prove to be precipitous, and not in the best interests of the United States.

We would hope that this concern which we have heard expressed will be thoughtfully considered by this Committee and that you will diligently seek some middle ground between "automatic" sanctions and "no" sanctions.

In dealing with other provisions of S. 2236, I would offer the following comments:

1) We welcome the provision which establishes a high priority for negotiating international agreements on the control of terrorism. As we stated earlier, bilateral action is perhaps the most effective manner to combat terrorism. Such bilateral agreements have the effect of obliging a nation to declare its position publicly.

2) The creation of a permanent international working group to combat terrorism is a very practical and useful step. We suggest, however, that were this group formed under the auspices of the United Nations, it would become yet another forum for political banditry and thus, be doomed from the outset. Instead, we would hope that such a working group be initiated by the State Department, inviting participation from those nations known to be responsibly concerned with the subject.

3) While we applaud the emphasis placed on obtaining compliance with existing international conventions, we suggest that serious attempts to obtain compliance through the process of diplomatic persuasion and bilateral agreements may accelerate the attainment of the goals stated in this bill.

4) The establishment of safety standards for U.S. nuclear exports, supplies, technology, and fuel, and the establishment of a formal mechanism to deal with physical safety and protection of nuclear facilities and materials is long overdue. The safety and security of nuclear supplies and technology has long been of deep concern to our Association. Our members have had first

hand experience of how poorly this has been accomplished in the past. We have seen more attention given to the security of valuable cargo, such as bullion or paintings, the value and importance of which pales into insignificance when compared to the mass destruction one small package of plutonium in the wrong hands represents.

5) The provision which calls for establishing the taking of hostages as an international crime is the briefest part of the bill. It only requires ten words to state it. Those ten words may be the heart of this proposed legislation, for international agreement on this point would delete the greatest weapon from the arsenal of terrorists. Obviously, there are a few who are prepared to sacrifice themselves, but experience has shown that most seek sanctuary to escape the lawful consequences of their crimes. Although this is the simplest part of the bill, we do fear that it will be the most difficult to accomplish. This should not deter us, however, from striving to attain that objective.

6) The requirement for restrictions on the sale and transfer of arms or munitions and the tagging of explosives during manufacture are sound practical steps, long overdue. Were such tags in existence on all explosives right now, we would be much closer to solving the problem of aircraft sabotage.

Finally, Mr. Chairman, we would like to add our strong endorsement to the provision of S. 2236 designed to extend existing safety and security requirements to supplemental carriers and charter operations. We have repeatedly pressed for one level of security for all commercial

s within the United States. Charters, inter- and intrastate enger operations should all be subject to the same rules, for ɔt only are they equally vulnerable to attack, they can also introduce uncleared passengers into "sterile" flight operations areas in which scheduled airline operations are conducted. We are aware of the vehement protests made by many charter and commuter operations who argue that they cannot afford security. It is an unhappy fact of life that if one operates almost any kind of business, security has become another cost of doing business. We must not permit feeble economic arguments to jeopardize and contaminate the carefully constructed security system we have in place at our airports. Too many people labored too long to achieve this proven effective system to permit this to happen.

Mr. Chairman, by now you no doubt recognize that we are in favor of the kinds of tough provisions proposed in this bill. As airline pilots, we are pleased with the positive effect it will have upon the security of our passengers, crews and aircraft. We are also pleased, because it goes further into the broader and even more dangerous area of rule by terror. We are fortunate to live in a great and free country, something we will fight to maintain. We would like to fly throughout the world in the same great, free environment. That's something we will fight to obtain.

We thank you sincerely for your initatives in presenting this bill and for giving us the opportunity to speak to it. We are available for any questions you may wish to ask.

Chairman RIBICOFF. Mr. James Landry, accompanied by Harry J. Murphy and John Steele, please.

TESTIMONY OF JAMES E. LANDRY, VICE PRESIDENT AND GENERAL COUNSEL, AIR TRANSPORT ASSOCIATION OF AMERICA; ACCOMPANIED BY HARRY J. MURPHY, DIRECTOR OF SECURITY AND JOHN H. STEELE, CORPORATE DIRECTOR OF SECURITY, TRANSWORLD AIRLINES

Mr. LANDRY. Mr. Chairman, Congressman Clausen, I will attempt to summarize my statement. I would appreciate it very much if the full statement is put in the record.

Chairman RIBICOFF. Without objection, the entire statement will go in the record at the conclusion of your testimony.

Mr. LANDRY. I'm James Landry and I'm vice president and general counsel of the Air Transport Association of America, a trade association representing virtually all of the scheduled airlines of the United States. I'm accompanied here this morning by Mr. Harry J. Murphy, the association's director of security, and Mr. John Steele, director of security at TWA.

I should mention, Mr. Chairman, that Mr. John Willis, the director of security of Pan American is here in the hearing room and should the committee have any questions directed to Pan American security procedures, he will be happy to respond.

These airline officials, and their counterparts throughout the scheduled airline industry, have dedicated their efforts over the last several years to achieving the highest possible level of security for U.S. airline operations worldwide. Most importantly, they have not been alone in striving toward that goal; they have worked side by side with equally dedicated security experts in our Government, with the strong encouragement of the Congress and every administration, in what has been described as one of the finest examples of Government-industry cooperation in many years.

This common task, unfortunately, appears destined to be an unending one in today's society. That is why we are pleased to have this opportunity to comment on the Omnibus Antiterrorism Act of 1977, and we commend the Committee on Governmental Affairs for calling these hearings and focusing on legislative changes "to strengthen Federal programs and policies for combating international and domestic terrorism."

The member carriers of ATA have consistently supported several of the measures embodied in provisions of S. 2236 and we are grateful to see their proposed enactment into law.

In my statement, we dwell at some length on the scope of the problem that is before you and express our continuing determination to see these acts brought to an end. For that reason we appreciate this particular hearing. I think it would be desirable for the record also to focus on what has been done to date.

The aviation-related aspects of terrorism represent a matter of serious concern to the airline industry as well as governments. The deterrent programs in place today were developed by the aviation industry in conjunction with governments. All U.S. carriers operate

under a standard security program approved by the Federal Aviation Administration.

Each year the member carriers of ATA spend more than $100 million on screening of international flights—both to and from the United States—and domestic flights. The FAA regulatory role includes inspection of the security operations of all U.S. carriers as well as the foreign carriers flying to, from or within the United States.

This activity is supplemented by the inspection program of the Security Advisory Committee of the International Air Transport Association—IATA—whose membership includes over 100 of the world's major international airlines. IATA has developed and promulgated its own security standards for international airports. At the invitation of the governments involved, in-depth security surveys under IATA sponsorship have been conducted at airports throughout the world, including nine within the past year. Recommendations made are either being implemented or are under active consideration.

Another significant act by the world's airlines was the passage of a resolution at IATA's annual general meeting held in Madrid last November, calling upon the International Civil Aviation Organization—ICAO—to amend the Chicago Convention by incorporating the Tokyo—crimes aboard aircraft—Hague—hijacking—and Montreal—sabotage—Convention therein and applying the provisions requiring expulsion of member states failing to ratify the amendments so incorporated.

The airline industry strongly supported the recent proposal by Secretary of Transportation Adams, as presented to a special meeting of the ICAO Council, urging that the highest priority be given to the October 1977 ICAO Assembly resolutions on security, that a variety of security measures formulated by ICAO be upgraded from recommended practices to worldwide standards, and that the promising program of regional aviation security seminars be increased and expanded.

I might mention that when a procedure is adopted as a standard by ICAO, then the member nations of ICAO have an obligation to file differences from those standards if they are unwilling to adopt those standards. That gives us an opportunity, and a useful one if this is adopted by ICAO, to pinpoint where the problems are.

Our industry also wholeheartedly applauds the U.N. resolution condemning aerial hijackings, and other acts of violence against civil aviation, and calling upon all states to improve security arrangements at airports and ratify or accede to the Tokyo, Hague, and Montreal Conventions.

As can be seen, much has been done by the carriers, by the U.S. Government, by IATA, by ICAO, and by the United Nations to insure recognition of the universal need for quality deterrent programs.

In addition, there is increased carrier recognition that they must provide security for their flights, whether or not governments participate. Fortunately, a willingness of foreign authorities to grapple with the security problem is the general experience. However, in situations where the performance of airport authorities has ap-

peared inadequate, our carriers as well as those of other flags have taken it upon themselves to provide the necessary personnel and equipment to insure safe and speedy transportation for our passengers and cargo.

At times, these are individual carrier undertakings; at other times, joint efforts. Should an ultimate confrontation ever arise in which a host government or its airport authorities refuse to allow carrier screening, our carriers would consider not boarding passengers at those airports until adequate screening is in force.

We believe this approach should be fully exploited.

We discuss in our statement your proposals for a LOCATE and a list of dangerous foreign airports. To summarize on that, our belief is that the views of the Secretary of State and the Secretary of Transportation should be the ones that are reflected in the committee's conclusions. In that regard we feel that it would be desirable to leave some flexibility with the executive branch as to exercising sanctions against these countries, and also to give them the flexibility of considering a fuller range of economic sanctions in these situations.

Chairman RIBICOFF. What bothers me is the Secretary of State made the same statement. Suppose there is due warning and they have not remedied the safety situation. What responsibility do you have, representing a carrier, for thousands and thousands of Americans if you know an airport is unsafe and the Government knows it is unsafe but the people don't know it is unsafe? Don't you think there is a responsibility to inform the traveling public there is an unsafe airport?

Mr. LANDRY. Yes, Mr. Chairman. When we have found that the security precautions at a foreign airport are inadequate, we have generally prevailed upon that host government to allow us to bring in our own security personnel, own security equipment and to introduce the kind of security standards that we have in this country, in these foreign airports. I think the pressures that mount as we pinpoint those airports as having inadequate security have been effective in getting those foreign host governments to allow us to introduce our security standards.

Chairman RIBICOFF. Suppose you reach the stage where you know an airport is unsafe, you request corrective action and they fail to do it. Suppose the Secretary of State doesn't want to embarrass the other country, for diplomatic reasons. But if you have the safety of thousands of Americans, when is there an obligation to notify the traveling public that X country's airport is unsafe?

Mr. LANDRY. By and large, after the pressures of the individual carriers and the pressure of our Government on those countries and on those host governments, you will find them coming around, but I do agree in the final analysis that we place the safety and security of the passengers as our highest priority as well. I think the pressures of the airlines and the Governments, intergovernmental organizations, will minimize those situations and we are suggesting merely that some flexibility be left with the executive branch as to when and how to invoke sanctions and which sanctions might be appropriate in a given situation.

Senator RIBICOFF. Let me ask you, how regularly do your member airlines receive threats?

Mr. LANDRY. I will like to, if I could, ask Mr. Murphy, our director of security, to respond to that question.

Mr. MURPHY. The threats come in quite regularly. I would say that the average number of threats is about 80 to 100 a month.

Senator RIBICOFF. About 80 to 100 a month?

Mr. MURPHY. Yes and I'm speaking of all threats. As Captain O'Donnell and Mr. Ashwood said, the threats vary. They may be hoaxes, they may be very general and they may be specific. If they are specific, action is taken to search whatever the object of the threat is.

Senator RIBICOFF. Do the threats usually come in direct to the carrier or do they come in through intelligence networks or police?

Mr. MURPHY. Normally a threat to bomb an aircraft would come into the reservation office of the carrier. They do come into other places. They come into newspapers, airports, to police agencies. They come from many sources.

Senator RIBICOFF. What is the general policy, when the threat is received. How do you notify the pilots or crews, security?

Mr. MURPHY. You are speaking of threat information received from an intelligence agency?

Senator RIBICOFF. Information received from an intelligence agency or directly that you think is a specific threat.

Mr. MURPHY. If it is received from one of the agencies within the intelligence community that information is forwarded to the FAA liaison staff, the intelligence staff. There they evaluate in connection with other information of the same nature and then they send the information to me and I disseminate it to appropriate member carriers of ATA.

Senator RIBICOFF. How fast does that information move through the various network of your own security?

Mr. MURPHY. Once it gets to me, it goes out immediately. I don't know how long it takes for the collection, evaluation and dissemination within the Government, but it is usually very quick.

Senator RIBICOFF. When you have the information what do you do? Do you take extra security precautions?

Mr. MURPHY. Depending on the nature of the threat extra security precautions would be taken. If it is a threat against a specific aircraft, that aircraft is searched, baggage is search, passengers are matched with their baggage, dogs are used, and these dogs are very effective.

Senator RIBICOFF. At what stage do you notify the passengers? Let's say flight planning has been affected. When do you notify the passengers who are supposed to be on that plane?

Mr. MURPHY. If it is a specific threat and the passengers are on board they are told that they have to have their baggage matched up with them prior to reboarding. They move everybody at least 100 yards away from the aircraft, search the aircraft and usually bring in the dogs. The dogs are now in some 30 airports in the United States. They are within less than 1 hour of any point.

Senator RIBICOFF. On what basis should an airport be judged safe or unsafe?

What should the standards be? Should they be American standards, international standards? How do you gentlemen involved in this internationally make your judgments?

Mr. LANDRY. As I indicated a moment ago, Mr. Chairman, the concept that Secretary Adams advanced when he suggested that the security procedures be upgraded in ICAO to standards, so that we could pinpoint the places, the countries that are unwilling to adopt those procedures as their own, that would be the kind of standards. Those ICAO standards are similar to the U.S. standards. They are thorough standards.

Senator RIBICOFF. Do you think the basic standards we have in the U.S. airports are the safest standards, best standards, model standards? How do you feel about it since you are all over the world?

Mr. LANDRY. I think, Mr. Chairman, that they ought to be a model for the world. I think they have been proven to be extremely effective in this country. They allow for an upgrading of the security precautions in the case of a dangerous risk situation. On those occasions when a high risk flight occurs or a high risk location is evident, then the precautions are considerably upgraded. That kind of flexibility that is in the U.S. standard is a very prudent flexibility.

Senator RIBICOFF. What do you do if you find out that X airport in Y country is unsafe? Who do you go to to tell them that in the opinion of the management of TWA, Pan American or Braniff or National, that an airport is unsafe? Who do you lodge that complaint with?

Mr. LANDRY. I would like Mr. Steele of TWA to address that question since they have had several instances of that sort.

Mr. STEELE. We would go to the FAA. We will go to the U.S. Embassy in the country involved to seek support from a variety of bureaucratic sources, and we have had a great deal of success.

Senator RIBICOFF. You would go to the FAA here.

But let's say the situation arises where your pilots and your manager say they don't like what is happening in X airport in Y country. You are flying every day. The question is, do we go to the FAA, or do they return to a safer airport?

This becomes a problem today. What do you do today? Do you call up the Ambassador? Who do you go to, in other words?

I don't want to name any country. Suppose the manager of your airport makes a determination that he doesn't like the way things are run. How do you move fast? You have two or three flights coming into that airport that day. What do you do on the spot?

Mr. STEELE. I don't think I understand the thrust of your question.

We have never been confronted with a situation where I can recall where we weren't able to get the support of the airport authority to improve security where they thought it was demanded.

Senator RIBICOFF. I'm sure Captain O'Donnell could write on a slip of paper some airports he might consider unsafe and which haven't taken the proper security arrangements. What do you do to correct it immediately? How do you try to get them moving fast to remedy the situation?

If you go the bureaucratic route it will take a week, maybe 2 weeks. But suppose you have three flights a day coming in there.

Mr. LANDRY. They have left no stone unturned in that regard. They approach the aeronautical authorities directly, with the aid of the FAA, with the aid of the IATA machinery and with the aid

of our U.S. Embassies abroad. As Mr. Steele says, thus far, by and large, it has been a successful approach to hit them with all of those varied pressures.

Senator RIBICOFF. Have you ever cancelled flights into an airport you felt it was unsafe?

Mr. STEELE. No.

Senator RIBICOFF. You have never done that?

Mr. STEELE. No.

Senator RIBICOFF. Do you fly into Algeria?

Mr. STEELE. No.

Senator RIBICOFF. Lufthansa was faced with the Algeria situation. When they got tough, Algeria backed down.

Are there other airports like that?

Mr. STEELE. I would like to—I would be happy to discuss any airport that TWA serves and their security measures, but not in public hearing. We are getting a tremendous amount of response from the governments and airports we serve. If there is progress needed we are achieving that, in my judgment. Anything I would say publicly would only serve to detract from that effort. I would be happy to discuss it with your staff if you would prefer that.

Senator RIBICOFF. You talk about flexibility and I understand what you are saying. Somewhere along the line flexibility runs into the safety of thousands of Americans. Where does flexibility end and safety begin? This is a dilemma that you pose for us.

Mr. LANDRY. In the final analysis, Mr. Chairman, the safety of the passengers and the aircraft and the crews is the highest priority. Should we come to a point where intergovernmental, interairline and all of the other efforts still prove unavailing, then we come to the limitation of services as a final choice. We feel thus far from our experience that the pressures that tend to be built up have had enormous effect with regard to the safety and security of the U.S. carrier operations and U.S. citizen travel.

Senator RIBICOFF. Mr. O'Donnell, is there any comment you would like to make on the carrier position?

Mr. ASHWOOD. If I may respond, we have had some experience——

Senator RIBICOFF. Come up please.

Mr. ASHWOOD. We have had many experiences in the past where there has been deficiencies found at a foreign airport throughout the world. It has been our position in dealing with U.S. carriers that all it requires is a telephone call to the carrier. Within a matter of hours the deficiency is corrected. It is usually a human deficiency.

The air carriers in the United States operating overseas, operating into areas which don't provide formal national security at their airports as a matter of policy, the security level provided privately, if you will, by the carriers, this is at least as high as the security standards in the United States. I'm not sure how the carriers effect this, whether they do it formally through the U.S. Embassy or through their contacts with the foreign airport operators, but I know it works and works well.

Senator RIBICOFF. As a U.S. pilot, do you find that structurally the American carriers have undertaken the proper safety precautions in the foreign airports they use?

Mr. ASHWOOD. Absolutely yes.

Senator RIBICOFF. If there is some deficiency, do they upgrade the standards concerning passengers and baggage coming in and out of their own aircraft?

Mr. ASHWOOD. Yes, sir, I constantly fly in and out of foreign airports as a crewmember of a U.S. carrier and I find their level of security to be satisfactory.

Senator RIBICOFF. That is good. It is a good advertisement for American carriers. If it were duplicated with all foreign carriers, and I hope they all have high standards, it is comforting to have that reassurance.

Any other comment, Mr. Murphy, Mr. Landry, Mr. Steele?

Mr. LANDRY. I would like to thank Captain Ashwood for his comments. I know our industry appreciates that the pilots recognize the efforts and accomplishments of our security experts worldwide.

Other than that, Mr. Chairman, as the remainder of my statement indicates, this industry wholeheartedly endorses the provisions set forth in sections 203 and 204 of your bill and sections 304, 401, and 402.

We suggest that with regard to the application of security procedures to charter flights, that it would be well to do that in the fine tuning of a rulemaking proceedings. We understand the FAA is about to undertake that.

We made an additional suggestion at the close of our statement. We very much appreciate the recent improvement in the Federal Government collection, evaluation and dissemination of intelligence information and we hope the committee will support and urge that that improvement be continued.

We would also hope somehow the committee could seek the cooperation of the new media in order to avoid reporting of terrorist actions in such a manner as to aid or abet terrorists during an ongoing incident or to encourage future actions of terrorisms.

We hope the committee will urge Interpol with its membership of more than 100 nations will give high priority to the investigation, apprehension and prosecution of criminal terrorists, as well as improvement of security at international airports.

We think Interpol would be a useful organization in that regard.

We appreciate the opportunity to be here and we believe you are performing an admirable public service in holding these hearings.

We pledge a continuation of the utmost cooperation of our member airlines in bringing these heinous crimes to an end.

Senator RIBICOFF. Thank you, Mr. Landry. We are certainly concerned about the problem. After all, your companies, your pilots and crews have the prime responsibility not only for your property but for the lives of all of the people you carry on your aircraft.

It is going to take cooperation of all airlines, internationally.

If the United States doesn't take the lead nothing is going to happen. We are the bellwether. Whatever the United States does, I think that every airline in every country in the world will follow. There is no greater sanction that you could impose on any civilized country than to cut off their air service. Today a nation cannot exist in the international community, economically or politically, if they don't have access to international flights. Therefore, if we are serious.

other countries will be serious—those who have international airlines and those whose airports welcome and need international air service.

So I am appreciative of the testimony both from the pilots and the industry. You both are in the front line and it is very important for this country and I think for the entire world that we do everything we can to combat terrorism to the greatest extent possible.

I want to express my gratitude to all of you gentlemen for being with us today.

[The prepared statement of Mr. Landry follows:]

STATEMENT OF JAMES E. LANDRY
VICE PRESIDENT AND GENERAL COUNSEL
AIR TRANSPORT ASSOCIATION OF AMERICA
BEFORE THE GOVERNMENTAL AFFAIRS COMMITTEE
OF THE UNITED STATES SENATE

January 30, 1978

My name is James E. Landry and I am Vice President and General Counsel of the Air Transport Association of America, a trade association representing virtually all of the scheduled airlines of the United States. I am accompanied here this morning by Mr. Harry J. Murphy, the Association's Director of Security, and Mr. John H. Steele, Director of Security of TWA.

These airline officials, and their counterparts throughout the scheduled airline industry, have dedicated their efforts over the last several years to achieving the highest possible level of security for U.S. airline operations world-wide. Most importantly, they have not been alone in striving toward that goal; they have worked side-by-side with equally dedicated security experts in our government, with the strong encouragement of the Congress and every Administration, in what has been described as one of the finest examples of government/industry cooperation in many years.

This common task, unfortunately, appears destined to be an unending one in today's society. That is why we are pleased to have this opportunity to comment on the Omnibus Antiterrorism Act of 1977, and we commend the Committee on Governmental Affairs for calling these hearings and focusing on legislative changes "to strengthen Federal programs and policies for combating international and domestic terrorism." The member carriers of ATA have consistently supported several of the measures embodied in provisions of S.2236 and we are grateful to see their proposed enactment into law. I will comment on those provisions in the latter part of my statement.

Scope of the Problem

While the number of hard core international terrorists is actually quite small (perhaps only a few hundred) their despicable actions, fed by instant global publicity, have seriously affected many elements of government, business and the general public. Ambassadors and military attaches, a Prime Minister and other public officials, as well as private citizens, have been slain, banks robbed, planes, ships and trains hijacked, and public, commercial and residential buildings and automobiles bombed.

Aircraft hijackings by terrorists and other criminals have received massive publicity, yet they constitute

a small percentage of the problem. For instance, of the 151 hijackings of U.S. aircraft since 1968, four could be ascribed to terrorists. In the last seven years there has been only one terrorist hijacking of a U.S. aircraft. Fortunately, and due in substantial measure to the achievements of government/industry aviation teams around the world -- with the U.S. among the acknowledged leaders -- aircraft hijackings by international terrorists declined dramatically after the peak year of 1970. The trend was away from the formidable barriers erected by most of the world community against aviation terrorism and toward what have become relatively simpler, more easily accomplished forms of terrorism, such as bombing, incendiary attacks and armed assault.

We recognize the fact that there has been an increase in the number of foreign hijackings in the past year. And, as long as we face the dreadful experience of one aircraft sabotage, or one successful hijacking, or any other mindless act against the users and operators of civil aviation, we face the challenge of enhancing the unified effort to thwart these vicious crimes against mankind. We understand that to be the focus of this Committee's deliberations.

Current Aviation Programs to Counter Terrorism

In exploring ways to meet the challenge, it is useful to consider what has been done to date. The aviation-

related aspects of terrorism represent a matter of serious concern to the airline industry as well as governments. The deterrent programs in place today were developed by the aviation industry in conjunction with governments. All U.S. carriers operate under a standard security program approved by the Federal Aviation Administration. Each year the member carriers of ATA spend more than one hundred million dollars on screening of international flights (both to and from the United States) and domestic flights. The FAA regulatory role includes inspection of the security operations of all U.S. carriers as well as the foreign carriers flying to, from or within the U.S.

International Airport Inspection Program

This activity is supplemented by the inspection program of the Security Advisory Committee of the International Air Transport Association (IATA) whose membership includes over 100 of the world's major international airlines. IATA has developed and promulgated its own airport security standards for international airports. At the invitation of the governments involved, in-depth security surveys under IATA sponsorship have been conducted at airports throughout the world, including nine within the past year. Recommendations made are either being implemented or are under active consideration.

IATA Resolution

Another significant act by the world's airlines was the passage of a resolution at IATA's Annual General Meeting held in Madrid last November, calling upon the International Civil Aviation Organization (ICAO) to amend the Chicago Convention by incorporating the Tokyo (Crimes Aboard Aircraft), Hague (Hijacking) and Montreal (Sabotage) Conventions therein and applying the provisions requiring expulsion of member states failing to ratify the amendments so incorporated.

ICAO Actions

The airline industry strongly supported the recent proposal by Secretary of Transportation Adams, as presented to a special meeting of the ICAO Council, urging that the highest priority be given to the October 1977 ICAO Assembly resolutions on security, that a variety of security measures formulated by ICAO be upgraded from recommended practices to world-wide standards, and that the promising program of regional aviation security seminars be increased and expanded. Our industry also wholeheartedly applauds the United Nations Resolution condemning aerial hijackings, and other acts of violence against civil aviation, and

calling upon all states to improve security arrangements at airports and ratify or accede to the Tokyo, Hague and Montreal Conventions.

Carrier Screening

As can be seen, much has been done by the carriers, by the U.S. Government, by IATA, by ICAO, and by the UN to insure recognition of the universal need for quality deterrent programs. In addition, there is increased carrier recognition that they must provide security for their flights, whether or not governments participate. Fortunately, a willingness of foreign authorities to grapple with the security problem is the general experience. However, in situations where the performance of airport authorities has appeared inadequate, our carriers as well as those of other flags have taken it upon themselves to provide the necessary personnel and equipment to insure safe and speedy transportation for our passengers and cargo. At times, these are individual carrier undertakings; at other times, joint efforts. Should an ultimate confrontation ever arise in which a host government or its airport authorities refuse to allow carrier screening, our carriers would consider not boarding passengers at those airports until adequate screening is in force.

CONTINUED

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We believe this approach should be fully exploited before establishing a List of Countries Aiding Terrorist Enterprises (LOCATE) or a List of Dangerous Foreign Airports, as called for by Title I of S.2236. The airline industry's security experts are firm believers in the principle that up-front prevention programs are the most effective means of dealing with, and neutralizing, problems in crime. Airline security departments have been in the forefront in espousing Crime Prevention and Crime Resistance. In short, we sincerely believe that good security is what stops hijacking and terrorism.

We also believe that, once the United States starts a LOCATE or a List of Dangerous Foreign Airports, and implements the sanctions proposed in S.2236, it may prompt other nations to take unilateral actions and develop their own lists or take retaliatory steps, resulting in a pattern of confrontation instead of cooperation. We therefore urge that establishment of such lists be as a last resort only, and suggest that there be no initial lists, as required by proposed Sections 105 and 107, but rather that the President issue a "from this day forward" announcement of intention to prepare the lists in the event that international, governmental or airline efforts prove inadequate.

Section 107

With specific regard to the proposed List of Dangerous Foreign Airports, Section 107 calls for inclusion of those which do not meet minimum U.S. safety criteria, as established by Title 49 of the U.S. Code. Literally, this would include all FAA airport certification regulations as well as security regulations. The required list would include a description of safety and security deficiencies of each airport on the list.

We believe that the proposed provision is overly broad, going well beyond the requirements of aviation security. Moreover, unilateral action by any government in finding an airport of another nation "dangerous" could cause serious international repercussions. While consideration of the development of such a list might help improve airport security in general, such consideration should be undertaken by an international body rather than by any single government.

Section 108

We also note that Section 108 imposes sanctions against specific foreign dangerous airports whether or not such airports are situated in a LOCATE country. Since these sanctions could be applied to a specific airport in

a friendly country not aiding terrorism, the provisions could be considered interference in the internal affairs of such a country and thus encourage whatever retaliatory action that country deems appropriate.

The sanctions to be applied to a country on the LOCATE or an airport named on the List of Dangerous Foreign Airports are set forth in Sections 106 and 108, respectively. As we have stressed, we believe such lists should be established only as a last resort and we believe international, governmental and airline initiatives will minimize the need.

For that reason, we believe existing law, which authorizes the President to impose sanctions on a discretionary basis is preferable to an absolute non-discretionary requirement. At such times, the President may well wish to consider a fuller range of economic sanctions rather than confining his options to the suspension of aircraft flights, be they direct or -- in a term which is unclear to us -- "indirect," or to imposition of arbitrary reroutings which may be unnecessarily disruptive of airline operations.

Let me now turn to a brief discussion of other aspects of S.2236.

Governmental Organization Proposals

First, there is the important question of governmental organization. It is our understanding that the

current government structure to counter terrorism, as recently revamped by the President, consists of an Executive Committee from key departments which reports to a Special Coordinating Committee of the National Security Council. A Working Group composed of representatives of more than 20 departments and agencies functions under the Executive Committee. We believe that this Presidential restructuring of the antiterrorism effort is quite similar to the Council to Combat Terrorism which is described in Sections 101, 102 and 103 of S.2236 and works efficiently and effectively on the problem.

While we thus endorse an interdepartmental structure under the leadership of the Assistant to the President for National Security Affairs, we seriously question the need for establishing new Bureaus such as those provided for in Sections 201 and 301 of this bill. Experience demonstrates that the problems faced in aviation security lie not with our own government, but elsewhere. Moreover, a proliferation of concerned government organizations often leads to friction rather than teamwork, to say nothing of unnecessarily added expense.

As to the provisions of the remaining titles of S.2236, we would like to offer the following comments.

Section 203

Section 203 urges the President to seek international agreement to assure more effective international cooperation in combating terrorism and suggests measures that could be taken. The airline industry has consistently supported such actions. The President of ATA, on behalf of all our member airlines, has urged the President, the Secretaries of State and Transportation, and the Ambassador to the UN to support all initiatives toward international cooperation to eliminate safe havens.

Section 204

Section 204 calls for full U.S. implementation of the Montreal Convention. I had the privilege of serving as an advisor to the U.S. delegation in the development of the Montreal Convention and am particularly conscious of the wisdom and dedication which went into its formulation. The airline industry wholeheartedly endorses this provision.

Section 303

Section 303 extends existing safety and security requirements to charter operations and commuter services. We have already commented upon the inclusion of references

to "safety requirements" in legislation which is intended to focus upon aviation security.

With specific regard to the security requirements for charter operations, carrier and FAA security experts have been reassessing the ground rules in light of the changing nature of charter flights. Historically, the level of charter security has been good. The proof of that fact is that we have not had a single hijacking of a charter flight.

If CAB rule changes affect the future security of charter operations, any specific problems should be dealt with through the detailed exploration afforded by the rulemaking process. In this connection, we understand that the FAA is presently preparing a Notice of Proposed Rule Making on Screening of Charter Flights.

Section 304

Section 304 would require mandatory use of identification and detection taggants in the manufacture of explosives. The airline industry has always supported such a program and strongly endorses the proposed provision.

Sections 401 & 402

Sections 401 and 402 set forth the penalties, including civil penalties, for aircraft sabotage, damage or

interference with the operation of an aircraft, acts of violence against crew members or passengers, aircraft piracy, conveying threats and imparting false information concerning attempts to commit crimes such as sabotage, and piracy and damage to aircraft.

The airline industry has long supported the Departments of Justice and Transportation in efforts to obtain such penalty provisions, and we therefore endorse these provisions as well.

Additional Suggestions

Member carriers of our association have also asked that we relay to the committee three suggestions to enhance the efforts to combat terrorism:

(1) Continue the recent improvement in the Federal Government's collection, evaluation and dissemination of intelligence information.

(2) Seek the cooperation of the news media in order to avoid the reporting of terrorist actions in such a manner as to aid or abet terrorists during an ongoing incident or to encourage future acts of terrorism.

(3) Urge that Interpol, with its membership of more than 100 nations, give high priority to the investigation, apprehension and prosecution of criminal terrorists as well as the improvement of security at the world's airports.

In conclusion, Mr. Chairman, we appreciate the opportunity to be here. We believe that you are performing an admirable public service in holding these hearings and bringing to the attention of the American public the true facts about terrorism. We pledge a continuation of the utmost cooperation of our member airlines in bringing these heinous crimes to an end.

We will be pleased to respond to any questions the Committee may have.

Senator RIBICOFF. The committee will stand adjourned until further call by the Chair.

[Whereupon, at 11 a.m., the hearing was adjourned, subject to the call of the Chair.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

WEDNESDAY, FEBRUARY 22, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 9:55 a.m., in room 3302, of the Dirksen Senate Office Building; the Hon. John Glenn presiding.

Present: Senators Glenn, Percy, Heinz, and Javits.

Staff members present: Ellen Miller, professional staff member; Robert V. Heffernan, research assistant; Brian Conboy, special counsel to the minority; Ken Ackerman, minority professional staff member. Energy Subcommittee staff: Len Weiss, staff director; Walker Nolan, professional staff memebr; and Sandy Spector, professional staff member.

Senator GLENN. Good morning. This is the fifth day of hearings the committee has called on the Omnibus Antiterrorism Act of 1977.

Our first witness this morning will be Mr. David E. McGiffert, Assistant Secretary of Defense for International Security Affairs.

Mr. McGiffert you may present your statement at this time.

TESTIMONY OF DAVID E. McGIFFERT, ASSISTANT SECRETARY OF DEFENSE FOR INTERNATIONAL SECURITY AFFAIRS

Mr. MCGIFFERT. Senator Glenn and members of the committee, we are here today because of our common interest in finding effective ways of dealing with terrorism. We believe that terrorism poses a worldwide threat to our citizens and to our national interest. Moreover, the Department of Defense, with its people and facilities scattered worldwide, must be specially concerned by terrorist activity. We support legislation that will help deal with the problem.

The Department of Defense is represented on the interagency executive committee and the Working Group of the Special Coordination Committee under the aegis of the National Security Council. We believe this is an effective organizational structure which brings together the key agencies and departments of the executive branch.

The Department of Defense itself has taken several steps. Within DOD, the Secretary of Defense has established a high-level Department of Defense Counter-Terrorism Steering Committee to better focus on the problem and to make recommendations to the Secretary on policies and procedures designed to counter terrorist threats. Also, as you know, at the direction of the President the resources of the Department of Defense are available as may be appropriate in a ter-

rorist situation. Specially trained military forces are among those resources. They can be moved to a distant operating area to accomplish missions against terrorist activities.

Additionally, the Department of Defense has taken steps to protect its own people and property. Over the past year, we have assembled and widely distributed information in protection against terrorism for use by our personnel worldwide. We will soon be producing a training film for use within the Armed Forces on how to guard against terrorists. And, of course, we are constantly working on ways to improve the protection of our nuclear weapon sites; more specifically, we have a nuclear weapon site security upgrade program in progress which is designed to significantly increase the security of our storage sites.

As I indicated earlier, the Department of Defense supports legislation to help counter terrorism. We believe that S. 2236, if modified in light of the considerations which Secretary Vance and others have outlined to you earlier, would be useful legislation.

The problem of terrorism is a serious one. We are pleased by the congressional initiatives responding to this problem. These initiatives complement the planning of the executive branch and its efforts to focus international attention on the problem and to gain multilateral agreement on policies and procedures which will inhibit the ability of terrorists groups to operate by denying them support and safe haven. Together, these efforts should greatly increase deterrence of terrorism and enable us better to cope with terrorism if it occurs.

Senator GLENN. Thank you very much, Mr. McGiffert. Does the United States possess a capability like that of Israel, Egypt, and West Germany for dealing with terrorist hijackings of aircraft and similar incidents?

Mr. MCGIFFERT. Yes, we do. We have the Army with its Ranger Battalions, the Navy Seals and other units that have been trained in counterterrorism.

Senator GLENN. Have these specialized teams ever been activated for a particular mission?

Mr. MCGIFFERT. No. The forces are primarily designed for operations abroad. To use them domestically would require waiver of the Posse Comitatus Act.

Senator GLENN. They have never been activated for a mission either here or abroad?

Mr. MCGIFFERT. That is correct. I should point out that the team is primarily designed for operations abroad. To use Army personnel of this type domestically would require waiver by the President of the Posse Commitatus Act.

Senator GLENN. Now if nuclear materials or explosives were involved and we had a terrorist threat involving these materials, would the Department of Energy's Nuclear Emergency Search Team—I think they call it a "NEST" team—be called? How would they work with the Army force you have just described?

Mr. MCGIFFERT. The NEST or Nuclear Emergency Search Team is a Department of Energy organization which can operate independently as it did in Canada for purely public health and safety reasons. In this instance, DOD provided airlift for the team and its

equipment. The team certainly could be used in association with a counterterrorist force as may be the case for a terrorist nuclear threat.

Senator GLENN. With respect to our military bases overseas, and in particular to those which store our nuclear weapons, what have been the most common threats?

Mr. MCGIFFERT. The most common ones have been bomb threats. There have also been occasional bombings that have actually taken place although these have been few in number. We have also had episodes of small arms fire being directed at U.S. bases. There has never been any kind of organized terrorist attacks on a U.S. base however.

Senator GLENN. Have there ever been any nuclear threats against these bases?

Mr. MCGIFFERT. There has never been any organized threat of this kind.

Senator GLENN. I presume there is a list kept in the Defense Department of all threats against U.S. military bases. Would you supply one for the record, please?

Mr. MCGIFFERT. Yes, I would be most happy to.[1]

Senator GLENN. The record will be kept open so that this material can be provided. I have the idea that terrorists may be able to obtain nuclear materials—uranium could be used to give credibility to the threat of nuclear devices being used. I would like to turn your attention to a recent article in the Washington Star which I would like to place in the record. It indicates that there may be serious deficiencies in the security arrangements for guarding U.S. nuclear weapons in this country. The article cites problems of unreliable personnel, inadequate perimeter barriers, and lax inventory accounting methods.

You mentioned in your testimony that the Department of Defense has a significant upgrade of its nuclear weapons security program underway. Without going into classified details, could you explain to the committee the reasons why the Department of Defense is undertaking this upgrade and what is being done to improve security in the areas mentioned in the Washington Star article?

Mr. MCGIFFERT. The present site security upgrade program was initially stimulated by the terrorist attack at the 1972 Olympic games. Up to that point, the security arrangements had been based on an assumed threat of either penetration by an individual or efforts by small not very well organized groups to penetrate. But that 1972 incident led us to change the definition of what we might be faced with to include a relatively small well organized, well-equipped terrorist force capable of doing such a thing. That meant the security arrangements needed to be made more sophisticated and that led to this program which is underway now which is a program roughly $330 to $340 million in scope which will be completed in 1979 or 1980 and which affects all aspects of security at weapons sites. We would provide greater hardening of the storage facility itself; for improved sensors in it and at its access point, we will have more and improved lighting so that we are sure we have 24-hour surveillance capability. In addition we will be hardening the guard facilities and have somewhat tougher requirements for the reaction force to provide

[1] See p. 203.

a minimum of 15 men to reach any place at a maximum of 5 minutes. These men are kept ready at something like a fire station. It is that kind of thing which is going on; we are half way through that program.

Senator JAVITS. I am very interested in what you say about your experience. What about a necessary task force dealing with terrorist emergencies. You just mentioned that we have such a force. It does seem to me that by arrangements with us we ought to know in detail exactly what we have. Is it on the same kind of alert basis as is the Strategic Air Command? This becomes critical. I would like to know our policy with respect to the utilization of this force where terrorist attacks take place.

In other words, are we that deeply interested that we've got to discourage terrorism. Now, those are at least two questions that I would like answers to either in closed session or by submitting whatever you would like to submit.

Mr. MCGIFFERT. I appreciate your recognition that putting on a public record with respect to communications can have adverse effects. I'm perfectly willing to deal with it any way that suits the committee by submitting a message or piece of paper.

Senator JAVITS. My suggestion is that we put it in writing. Also, I think the Department should give us its advice as to what could be made public. I think that becomes a very serious question. I think the Department should also tell us its view as to what we could offer as an inducement for them adopting a tough anti-terrorist posture. It may very well be that an independent nation would be very interested in some form of linkage to us to join our expertise in developing a strike force analogous to us. We want to be a party cooperating with others to obtain better airport safety. I would personally like to have the Department's thinking. I ask unanimous consent that this material be included in the record.

[Reports submitted for the record follow:]

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US MILITARY FORCES WITH COUNTERTERRORIST CAPABILITIES

1. US Army Ranger Battalions

   - 588 men.
   - Located at Fort Stewart, GA and Fort Lewis, WA.

2. USMC Battalion Landing Teams

   - 1200 men.
   - Located at Camp Lejeune, NC, Camp Pendleton, CA, and on Okinawa.
   - Can be airlanded.

3. USMC Marine Amphibious Unit

   - 1800 men.
   - Located in WESTPAC and Mediterranean (afloat).
   - Immediately available but location varies.
   - Can be landed by helicopters.

4. US Army Special Forces

   - Nine battalions of 242 men.
   - Located at Fort Bragg, NC (5), Fort Devens, MA (2), Canal Zone (1), and FRG (1).
   - Response time varies depending on current operations/ training missions underway.
   - Parachute qualified.
   - Language qualified for many areas.

5. US Marine Force Reconnaissance Company

   - One company of 180 men.
   - Located at Camp Lejeune, NC
   - Parachute, SCUBA qualified.
   - Extensive training suitable for counterterrorist operations.

6. US Navy Sea, Air, Land, (SEAL) Platoons

   - Nineteen platoons of 14 men.
   - Located at Little Creek, VA (7), Coronado, CA (10), and Subic Bay, PH (2).
   - Capable of infiltration/exfiltration by submarine, boat, ship, aircraft, and parachute.

UNCLASSIFIED TAB

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7. Air Force Support

- Special Mission Aircraft

-- Combat Talon-Nap-of-the-Earth penetration methods. Located in Florida, FRG, and Okinawa.
-- Combat Spectre gunships located in Florida.
-- C-5 and C-141 aircraft with specially trained crews stationed worldwide.

UNCLASSIFIED

FACT SHEET

SUBJECT: US Military Capabilities for Conducting Counter-terrorist Operations

CAPABILITIES

- Selected US military units maintain a capability to conduct counterterrorist operations.

  -- Two US Army Ranger battalions.

  -- US Forces with specialized training, such as Army Special Forces, Navy SEALS, and Marine Reconnaissance Teams, may be used.

  -- US Air Force Special Operations Forces and military air lift command units have trained personnel and specialized equipment.

- See TAB for listing of US Forces with counterterrorist capabilities.

- Depending on the nature of the mission, the size of US military forces may range from a small element to a larger task force.

- Force size is scenario-dependent and the division of labor between units is tailored to specific circumstances and technical requirements.

- Counterterrorist exercises have been conducted.

PLANNING

- The JCS have developed plans to provide for US military operations to counter terrorist activities overseas.

- There are a number of terrorist acts that might trigger a US military response. Possible military missions range from the rescue of hostages from a hijacked US aircraft to recovery/neutralization/destruction of stolen nuclear weapons.

- Each terrorist incident involving the US overseas must be analyzed to determine if a military response would be appropriate and effective.

CURRENT ACTIONS

- While we have a credible DOD capability to conduct counter-terrorist operations, our current goal is to improve that capability. New organizations, procedures, and equipment are being looked at, and, where changes are necessary, they will be made. Counterterrorist forces of other countries and prior operations are being studied. Lessons learned will be incorporated in review of current US organization.

Senator HEINZ. Just to follow up on the last question by Senator Javits. Are you in a position to tell us whether any other nation comes to the United States for training in counterterrorism or other such resources?

Mr. MCGIFFERT. I think the answer is no in the sense in which you ask the question. We are a vast organization, perhaps I should better follow that up and report back to you.

Senator HEINZ. I would appreciate that. It would be helpful to us.

Mr. MCGIFFERT. You do recognize that under the international military training program we have the supply to perform training functions?

Senator HEINZ. I am aware of that.

Mr. MCGIFFERT. I will submit for the record whether any of that has been pinpointed to address terrorism.

As of now, we have not received any formal requests for counterterrorism training nor has any such training been requested or conducted under IMET.

Senator HEINZ. Under the present arrangement with the working group and the interagency executive committee, is it fairly clear when your services are needed or would be needed?

Mr. MCGIFFERT. Yes.

Senator HEINZ. Are there a set of criteria existing in the Defense Department which would trigger your involvement? What determines whether your counterterrorist resources, as opposed to the FBI's, would be employed? Perhaps this is done informally, but to the extent that these criteria exist—and I can appreciate that this might be sensitive material—I would request, as Senator Javits has, that you submit to us in writing on a confidential basis, the criteria that are in existence or under development at DOD.

Mr. MCGIFFERT. May I say that I agree to that, but subject to whatever the group or its chairman may feel about that. The group itself ought to be entitled to decide.

Senator HEINZ. I believe, Mr. Chairman, if he has any objections, he should so state so we can recall him either in public or executive session. Mr. Chairman, that is all the questions I have.

Mr. MCGIFFERT. A draft set of criteria has been developed by an interagency subcommittee of the SCC Executive Committee on Counterterrorism. The draft criteria are still undergoing review within the executive branch and are not yet in finalized form for approval. When the criteria are approved, a copy will be provided on a confidential basis to the committee.

Senator GLENN. Terrorism has many forms, with many teams being organized. I tossed an idea out at a previous hearing that I would like to get comments on.

Since then the more I have thought about it, the more I have thought it should get serious consideration. What would your comments be, if we made it unlawful for anyone to refuel a hijacked airplane or to provide another airplane, so that the point of first landing after a hijacked airplane came down, that is where it would stay. What effect might this have?

Mr. MCGIFFERT. Would this rule apply overseas?

Senator GLENN. We would only be able to apply it domestically, obviously. I would hope if this was picked up as an idea that might work, that other nations would follow our lead in this, maybe.

Mr. McGIFFERT. I guess I would like to think about it, Mr. Chairman. I wonder whether if the hijackers are threatening the lives of the hostages, that kind of a rule would, in fact, be very effective?

Senator GLENN. As I said at our previous hearings, I'm sure if my family were aboard that airplane, I would probably not be for this proposal.

One of the reasons we have had so many hijackings is because they have gotten away with it, because they have a good chance of success.

They go all over the world looking for immunity and, knowing they would not be extradited to where the plane was hijacked from to begin with.

Had we taken action like this early, when the first hijackings occurred, we would not have had all of the these hijackings through the years.

I think they have gotten away with it, and their chance of success now is excellent, when they hijack an airplane and want to go someplace.

That is the reason it is an attractive option for them to take up. It seems to me, if a man is considering hijacking an airplane, and he knows the first point of landing is where he is going to be, that would be a discouraging factor to him.

Mr. McGIFFERT. It seems to me, like so many aspects of this problem, that that is a course of action that is likely to, as you indicate, significantly increase deterrence. If, nevertheless, the hijacking takes place, deterrence fails, then it seems to me it may make somewhat more awkward dealing with the actual situation.

So I'm not personally sure where I come out on your suggestion. I can see pluses, and I can see minuses.

Senator GLENN. Let me get back to my remaining questions to the nuclear aspect of this, again.

There is another aspect of that I would like to take up. It involves the security surrounding the transportation of nuclear materials, materials readily usable for nuclear explosives. I understand transportation of materials, such as these, is under the supervision of three different agencies, depending on the use to which the material is being put.

For civilian purposes, it is the NRC. If it is intended for military use, but not in a military device, DOE handles it. If it is an actual nuclear weapon, the Department of Defense handles it. Is that the lineup of responsibilities?

Mr. McGIFFERT. Yes.

Senator GLENN. Dr. Hendrie testified recently before the committee with regard to the security arrangements covering highly enriched uranium in the civilian sector. He indicated when this is transported by air, commercial airliners are used. However, on several occasions, foreign military cargo jets have been used to transport this material to France and West Germany. The use of these military aircraft suggests a need to improve security in the flight of highly enriched uranium.

Indeed, the NRC is now considering requiring those who transport the material to have security clearances.

Our nuclear weapons are transported on military aircraft. Have you considered doing all nuclear shipments abroad with military aircraft?

Mr. McGIFFERT. That proposition has been put forward within the executive branch. It has not been adopted.

The Department of Defense, of course, traditionally has not engaged in the transportation of commercial cargo. Our position has been that we should not do so, unless we are so directed and that direction should be based on the finding adequate security cannot otherwise be provided, and we think it can be provided by appropriate security measures for commercial aircraft.

Senator GLENN. What appropriate security measures do you suggest would make it more secure? Do you think security measures are adequate for civilian and commercial shipments?

Mr. McGIFFERT. If I understand the security measures correctly, I do, yes. Armed guards are required for shipments containing a specified amount of special nuclear materials.

Senator GLENN. Since these go on commercial aircraft, what is to prevent a regular commercial aircraft hijacking on a plane that is carrying this type of shipment?

Mr. McGIFFERT. That is what the guards are to prevent, if I am correct.

Senator GLENN. I think a well-organized attempt could overcome any guards on board, if that is what you mean. You mean onboard guards?

Mr. McGIFFERT. Yes.

Senator GLENN. How many armed guards are on a plane for highly enriched shipments of uranium on a commercial airliner?

Mr. McGIFFERT. The new rules will call for three, I understand.

Senator GLENN. I think this is an area we have to consider for any shipments that might have sufficient size to be used for a nuclear weapon or for certain grades of material. Obviously, low enriched uranium that would have to be reprocessed or further enriched and usable in a weapon would be a different category.

Where we have material that is of sufficient quality and quantity that could be used in a nuclear weapon, I think perhaps we might wish to reconsider the mode of shipment.

Mr. McGIFFERT. I think it is an important question, Mr. Chairman. My understanding is that security arrangements with which I'm generally familiar are being upgraded and, if there is a substantial body of opinion that even as upgraded, they are insufficient, then the executive branch needs to take another look at the problem.

Senator GLENN. Does the Department of Defense have adequate statutory authority now to undertake such shipments and, if not, what type of legislation do you feel is needed to do so?

Mr. McGIFFERT. If they are shipments in ordinary course, rather than shipments involving some kind of emergency, we don't have any specific statutory authorization.

[The testimony was later amplified as follows:]

The highly enriched uranium is not owned by the DOD, and therefore it is considered to be "non-DOD traffic." As stated in DOD Directive 4500.9, DOD

transportation resources may be used to move "non-DOD traffic" only when the DOD mission will not be impaired thereby and movement of such traffic is: (a) Of an emergency, lifesaving nature; (b) specifically authorized by statute; (c) in direct support of the Defense mission; or (d) certified by the head of an Executive department or independent establishment of the Government to be in the national interest. These criteria concerning use of military resources for non-DOD traffic reflect existing law. Thus, section 628 of Title 31, United States Code, states that appropriated funds "shall be applied solely to the objects for which they are respectively made . . ." Funds have not been appropriated to the Department of Defense for the purpose of transporting highly enriched uranium for private industry, unless to do so is determined to be in the Defense mission, as discussed below. Further, as to our transportation resources, section 638a of Title 31, United States Code, limits the use of Government-owned vehicles and aircraft to official purposes. It states, in pertinent part, that:

"(U)nless otherwise specifically provided, no appropriation available for any department shall be expended—. . . (2) for the maintenance, operation and repair of any Government-owned passenger motor vehicle or aircraft not used exclusively for official purposes."

Criterion (a) does not apply to the proposed movement of highly enriched uranium, and we have identified no specific statutory authority as required by (b).

Applying the criteria set out in the DOD Directive, if it were to be determined that movement of highly enriched uranium is in the direct support of the Defense mission (criterion (c)), then the highly enriched uranium could be transported on DOD aircraft. This movement, however, must be on a nonreimbursable basis since the required determination would constitute a finding that the transportation was for an official DOD purpose. It would not matter, in this case, that the material is privately owned.

Senator GLENN. I'm sorry.

Mr. MCGIFFERT. We cannot, on our own account, now, except in an emergency, perform the function you were talking about with respect to commercial cargo.

It would take a direction from outside the Defense Department by the President, as I understand it, to permit us to do so.

Senator GLENN. Could the President, in normal course of events outside of a national emergency—does the President have that authority, in your opinion?

Mr. MCGIFFERT. [His response was subsequently revised as follows:]

The last criterion ((d)) is an implementation of the Economy Act (31 U.S.C. 686), which authorizes agencies to furnish goods and services to other agencies. The DOD Directive requires a certification that the use of the DOD aircraft is in the national interest. The Directive further requires that the certification include a statement that commercial transportation is not available or, for reasons which must be specified, is not capable of satisfying the movement requirements. It may be, for example, that the nonavailability of commercial aircraft could be based on a conclusion that adequate security could not be provided in commercial aircraft. In addition to the certification requirement, the transportation under these circumstances, in accordance with the Economy Act, must be on a fully reimbursable basis. If payment is to be made from other than appropriated funds (such as payment to the using agency by a priyate entity), then reimbursement must be computed to recover total cost, including unfunded costs such as military personnel and depreciation expenses. The major difficulty with this approach is that the Energy Research and Development Administration (ERDA) would have to develop a legally supportable basis to furnish the transportation to the private entity. ERDA so far has not identified such a legal basis, and it may be difficult to do so. If title to the highly enriched uranium were transferred to ERDA, however, the DOD transportation might be utilized by ERDA in fulfilling that agency's mission.

Senator GLENN. I think with the possibility of hijacking and the thought of nuclear terrorism and all that will entail, and it will come someday, as sure as anything. I know I would feel better about shipments like that if I thought they were being well protected onto a military base in this country with good security. Military air transport, well secured, is far less hijackable than a commercial airplane (if there is such a word as that) landing at a military base abroad and then under good security to its final destination.

It seems we are particularly vulnerable in this area of commercial aviation for shipments of this type, even though we may have extra security guards on board.

We have all flown enough on commercial airliners to know, even if you have guards on board, it does not mean an airplane cannot be hijacked, if there is a shipment on board.

We brought up, in a previous hearing, a diversion made intentionally by a pilot or crews. We have Air France and West Germany supplying some of their own planes to come in here on a contract basis and take some of these shipments back. We know nothing about those crews whatsoever.

It seems we are vulnerable in this particular area, and we might want to take further action.

I have no further questions at this time.

We will keep the record open for 10 days, and other committee members, after reviewing the record this morning, may wish to ask additional questions.

We appreciate your being here very much this morning.

I believe you have a report to be submitted to us, is that correct, on the number of incidents we have had abroad? Is that classified?

Mr. MCGIFFERT. I don't believe it is. If it is, we will see what we can do to declassify as much as we can.

I assume you would like as much as you can.

Senator GLENN. We would like as much declassified as possible, yes, so the hearing record is open to everyone.

I think this is of concern to a great number of people in the country. We would like this as unclassified as possible.

Thank you very much.

[Report submitted for the record follows:]

A threat to a site is defined as that substantiated information which indicates that a planned or actual attempt to violate the security of a specific site or the resources within it. Intelligence information which alleges a threat is not considered valid if the event did not occur or through further inquiry the allegation is not substantiated. An event occurring on or adjacent to a site where the security of the site or resources within are not affected is not considered a valid threat. To date there have been no valid threats to DOD nuclear weapon storage facilities.

The extreme importance of adequate security for nuclear weapons requires reporting and response to any inident that may potentially jeopardize the security of our sites. This has created, over the years, a number of initial reports and responses that have proven to be no threat or attempted intrusion of the site. These include guards firing at shadows, hunters, harassing actions or pranks by various individuals and responses to incidents involving the nonnuclear portion of the base or activity.

June 1972. Several shots were fired near site. Unidentified vehicle seen departing the area. No damage sustained by personnel nor equipment. Investigation revealed firecracker shreds.

October 1972. An automobile with three occupants was observed parked on the access road 300 meters from the storage site. One individual was observed near the clear zone; that individual fled the area when guards fired warning shots. The automobile also departed the area. No evidence was developed to identify the perpetrators or their motives.

December 1972. A sentry sighted two unknown persons as they rose from prone positions approximately 150 meters from the site. The sentry fired a warning shot. An investigation produced negative results.

February 1973. An unidentified individual approached the outer fence of the site; he turned and ran when challenged by the guards. Subsequent investigation revealed no further evidence of identity or motive of the individual.

August 1973. During a search of the surrounding area resulting from a K–9 alert three shots were fired at two guards. The guards returned fire. No one was injured. Investigation showed the intruders were poaching for wild boar near the installation area.

September 1973. A bomb threat was telephoned to the site. A subsequent search of the area revealed no bomb. Investigation determined the threat to be a prank call.

November 1974. Person outside fence fired pistol and ran. Not apprehended, no penetration.

December 1974. Two persons outside fence fired at sentry. Not apprehended, no penetration.

March 1975. Unidentified individual was spotted clinging to the top of limited area fense. Guard fired warning shot and individual fled.

March 1975. A student parachutist, a member of a legitimate parachutist club, missed his drop zone 500 meters from the site limited area fence and landed instead in the exclusion area. He was apprehended but later released after appropriate local inquiry.

June 1975. K–9 patrol spotted an unidentified intruder in the vicinity of the perimeter fence. Backup patrols were called. Unidentified intruder fired a shot and escaped. Local police authorities investigated with negative results.

September 1975. Caller warned of threat to steal weapon. Security was increased—determined to be a hoax.

December 1975. In response to outer zone alarm, security alert team found a box wrapped with electrical tape near the primary intrusion antenna. EOD team found that box only contained a piece of concrete.

June 1976. Guards heard noises in woods surrounding site; two persons were observed. Security forces deployed. No apprehension; no penetration.

June 1976. Source related information he heard in a bar to the effect that a "radical group" (NFI) intended to gain access to the base armory, steal weapons, and then attack nuclear weapons storage sites in the area. This information was not substantiated.

August 1976. A single shot was fired by a civilian hunter. Three civilians (1 adult and 2 children) were apprehended. Adult was armed with one sporting shotgun. No penetration attempt or degradation of security.

October 1976. Guard observed two individuals near fence and gave three warning yells. Individuals ignored, or did not hear. Guards fired warning shots. Both individuals fled. Search was negative.

December 1976. Guard spotted three persons apparently armed. Two subjects were attempting to come through concertina wire beyond outer fence. Guard yelled halt and fired warning shot. Subjects fled to woods. Search was negative. Later individuals again tried to enter; another warning shot was fired and the individuals fled.

March 1977. A source reported he was informed a group called the "commandos" planned to blow up an aircraft. Information could not be substantiated.

April 1977. Guard reported seeing an individual dressed in dark clothes, with glasses and a beard, carrying a flashlight. The intruder was located in the clear zone outside the area fence. Upon challenge from the guard, the intruder fled.

June 1977. Executive Officer received a letter stating that one of two military installations were to be attacked by a group. Turned out to be a hoax.

September 1977. Caller to radio talk show alleged he had taken or switched a nuclear device from storage. Turned out to be a hoax.

September 1977. Two persons apprehended in the clear zone of area. Individuals indicated they were after firearms, which they could in turn sell.

February 1978. Caller stated a group of seven were going to assault storage area. Turned out to be a hoax.

Gal Cutler Policy Plan - AF

United States Senate

COMMITTEE ON
GOVERNMENTAL AFFAIRS
WASHINGTON, D.C. 20510

March 2, 1978

The Honorable David E. McGiffert
Assistant Secretary of Defense
for International Security Affairs
Department of Defense
Washington, D.C. 20301

Dear Mr. McGiffert:

Unfortunately I was unable to attend the first part of the hearings on February 22, and I did not have the opportunity to ask you these few questions I had prepared.

So that these questions and your responses may be included in the hearing record, would you please return your answers in writing to me at your earliest convenience.

Thank you very much.

Sincerely,

Charles H. Percy

Charles H. Percy
Ranking Minority Member

CHP:fbh

Enclosure

Questions for David E. McGiffert
Assistant Secretary of Defense
for International Security Affairs

The threat of terrorist activities becomes more severe as terrorist groups around the world become better trained in technological warfare and come into the possession of more advanced weapons and explosives.

1) A report published in January 1977 by the Rand Corporation states that even by conservative estimates, highly destructive portable weapons will be available to potential terrorists by the hundreds by 1980.

   a) Is this startling figure a reflection of insufficient military security both domestically and internationally?

   b) What additional measures has the Department of Defense taken domestically and around the world to ensure that military supplies do not fall into the hands of potential terrorist groups?

   c) How effective are our present efforts to control the undesirable proliferation of hand-held anti-tank and surface-to-air missiles?

   d) Would a tightening of security around these weapons serve to prevent the proliferation, or does the availability of foreign-made weapons put the proliferation beyond our control?

2) On January 8, the New York Times reported that, although you oversee the Pentagon's anti-terrorist operations, you had never witnessed a demonstration of the capabilities of the Defense Department's anti-terrorist commando squad. The same article reported that the State Department's Office to Combat Terrorism has no military liaison officer assigned to it by the Defense Department. Both of these facts seem to indicate serious deficiencies in the Defense Department's ability to contribute to the government's reaction to a terrorist incident. Has anything been done to remedy these deficiencies?

The following correspond to the questions asked by Senator Percy in his letter dated March 2, 1978, to Assistant Secretary McGiffert.

1.a. No to the contrary, there has been a steady decline in the number of weapon losses by the military services both domestically and internationally during the period 1970 through 1977, exclusive of combat related losses.

1.b. The Department of Defense has approved recently a manual applicable to all DoD components for the protection of arms, ammunition, and explosives. Among other provisions, the manual includes standards for storage, accountability, and transportation. Those items which have the greatest potential for destruction require intrusion detection systems which provide for a response within a specified time for an activated alarm, periodic complete inventories, and armed surveillance while being transported.

1c. The DoD has an established program to control and safeguard hand-held antitank and surface-to-air missiles. Recently, the DoD developed new uniform procedures to improve the life-cycle control and safeguarding of these munitions in our custody. Certain types of weapons have been made available to other nations on a selective basis. The technology for these weapons, however, is not exclusive to the United States.

1.d. The DoD is devoting a great deal of management attention and resources to protecting its portable munitions from theft or loss. Moreover, additional steps have been taken to strengthen the security afforded the DoD weapons. While the DoD has tight security around these weapons, it must be recognized that a number of weapons were lost in Southeast Asia and, therefore, it must be concluded that such weapons are available to any group desiring them. Dr. Robert H. Kupperman, Chairman, Counter-Terrorism Technology Committee of the Cabinet Committee to Combat Terrorism, in his study "An Overview of Counter-Terrorism Technology," expressed views regarding the proliferation of portable missiles. In commenting on modern man-portable missiles, Dr. Kupperman noted that some of these weapons were used extensively in Southeast Asia and the Middle East and are therefore out of control of both superpowers who created them. With regard to theft, Dr. Kupperman expressed the view that purposeful terrorists could obtain such a weapon by importing it from a foreign source or by purchase from private arms merchants.

2. Since January 8th, I have had an opportunity to witness first-hand a demonstration of our military capabilities against terrorism. I have also been thoroughly briefed on all aspects of our capability. In regard to having a military liaison officer assigned to the State Department office to combat terrorism, both Ambassador Isham and I believe that since the DoD and JCS are represented on the SCC Executive Committee and the Working Group, there is enough coordination and interaction to make unnecessary the assignment of a military liaison officer.

Senator GLENN. Our next witness will be Mary Lawton, Deputy Assistant Attorney General, Office of Legal Counsel, U.S. Department of Justice.

We appreciate your being with us this morning and look forward to your testimony in an abridged version or full version, whichever you prefer.

TESTIMONY OF MARY C. LAWTON, DEPUTY ASSISTANT ATTORNEY GENERAL, OFFICE OF LEGAL COUNSEL, U.S. DEPARTMENT OF JUSTICE; ACCOMPANIED BY SEBASTIAN S. MIGNOSA, TERRORISM SECTION CHIEF, FBI; AND LARRY S. GIBSON, ASSOCIATE DEPUTY ATTORNEY GENERAL

In any event, the full statement will be placed in the record.

Ms. LAWTON. With me are Larry Gibson and Sebastian Mignosa.

I think it would be more convenient for your time to summarize the points made in the statement which, of course, was submitted to the Committee.

Basically, the Department is, of course, very concerned about the threat of terrorism and about the measures we can take to deal with it and to encourage other countries to deal with it.

For that reason, we are particularly pleased to see title IV of S. 2236, which would fulfill the final remaining obligations of the United States to comply with the Montreal Convention on Aircraft Hijacking.

I won't go into the legal technicalities of it, but this provision found in title IV of the bill is one of our international obligations and one we are overdue in fulfilling .

The remainder of the bill does not concern matters related to the Department of Justice, except for the provision in title III that would create a new office in the Department, an Assistant Attorney General for Terrorism Matters.

We are opposed to this provision, largely because we think it downgrades, rather than upgrades, this responsibility in the Department.

Terrorism is presently the responsibility of the Deputy Attorney General. It is his Office that serves with the Working Group on Terrorism.

He has general oversight responsibilities of all elements of the Department that deal with matters of terrorism or that have an interest.

And, as such, he is in a better position to coordinate, we think, than a separate and specialized office would be.

There are some other technical provisions of the bill which I don't think we need to go into. They are minor matters.

We have discussed them with staff and would be happy in the future to discuss them with staff.

There is one issue that is of extreme importance to us, and that is the provision in section 105 of the bill which provides for a one-House veto to the names of countries added to or taken from the locate list. We have consistently opposed such a provision as being a violation of the Constitution.

Aside from that, Mr. Chairman, I think it would be easier if we went to questions.

Senator GLENN. On that last question, there was a recent Supreme Court ruling, was there not, on a test case in another matter involving the congressional veto, as to one-House, two-House law?

Ms. LAWTON. No, there was a recent newspaper report that suggested such a court decision. In fact, there was no such decision. The Court merely declined to hear a case which we urged it not to hear, because the issue was moot. It did not take the case, did not make a decision, based upon the issues.

Senator GLENN. This idea, I thought, had come to the Supreme Court and they had ruled on it.

Ms. LAWTON. That was the purport of the newspaper account, but that is not what, in fact, occurred, and that has been corrected by the newspaper.

Senator GLENN. This will come by the Supreme Court one of these days, in one way or another. It has been a bone of contention between Congress and the executive branch for some time. It will be settled in the courts. We seem to be going along in the Congress with a one-House veto, two-House veto in the acts we pass. I think there are areas we need to follow up on.

But perhaps we are overdoing our efforts in this and putting so many things under a congressional override of some kind, particularly, the one-House override. It can be a split judgment within the Congress itself, and it still binds the hands of the executive branch.

I have concerns about that particular part of this and other legislation, too.

Ms. Lawton, in handling a domestic crisis which involves an airplane, your agency shares responsibility with the FAA. Can you explain to the committee the way coordination is achieved between the agencies concerning a hijacking?

Ms. LAWTON. I will give you the general description. We have a working agreement between the Department of Justice and the Federal Aviation Administration on the handling of such incidents, acknowledging the Federal Aviation Administration's responsibility, while the aircraft is in flight, as the lead agency, the agency which calls the shots. "In flight" is from the time the doors are closed to the time they are opened.

This is not a mutually exclusive operation. When such an event occurs, the Federal Bureau of Investigation is in the command center with FAA in consultation and agreement, working together.

The ultimate call on any given decision would be with FAA, while in flight and with the FBI while on the ground.

The work is, in fact, and in practice, joint work. It has worked, I believe, with no difficulty at all.

Senator GLENN. How about where the National Security Council gets into the act? What relationship would be developed between Justice and this special coordinating committee on NSC?

Ms. LAWTON. The Justice Department is a full-fledged member of the Special Coordinating Committee and the Executive Committee on Terrorism and the Working Group on Terrorism. And the Department would keep the NSC, through the Special Coordinating

Committee, advised of such incidents, would use it as a vehicle in some respects for obtaining advice and counsel from other agencies.

If a hijacking were to occur of a foreign plane, particularly a government-owned plane of another nation, the State Department would want, of course, to be consulted on these matters.

The Working Group is one vehicle, but direct consultation takes place, as well.

We have worked with those committees, are full-fledged members of those committees and help in the general planning.

Senator GLENN. Is your own authority in that case subrogated to the Special Coordinating Committee of the NSC?

Ms. LAWTON. No, the Special Coordinating Committee is designed to make general plans and policies in the abstract and also to assist in coordinating particular events that occur.

It does not override the specific authority of the FBI to enforce the law in this country.

Senator GLENN. Who would take overall control in an event? Run us through a scenario of an event. Let's say there is a hijacking underway. What goes into operation?

Ms. LAWTON. What goes into operation——

Senator GLENN. Say the word comes down from the pilot that he is being hijacked.

Ms. LAWTON. If the word came in from a pilot in the air, it would come to the FAA, who would immediately notify the FBI. They would work together. The FBI would arrive at the command center of the FAA and, if a known destination were clear, also at that destination. It is not always clear in the course of a hijacking where the plane would come down.

The Attorney General would be advised and the Special Coordinating Committee might be advised, if there were an unusual problem.

I'm not sure they would be advised of each and every hijacking that occurred.

Senator GLENN. They would not be? I'm surprised.

Ms. LAWTON. At that moment. They would not be called into session. Member agencies would be advised, but it would not call the NSC automatically into session.

Senator GLENN. The members would be advised?

Ms. LAWTON. The Working Group on Terrorism encompasses a number of agencies that might or might not have a particular interest in hijacking.

Senator GLENN. In an individual situation, how do you insure crises are handled by local agents, rather than out of Washington headquarters? Do you try to handle each incident, coordinating the activity out of Washington, giving directions out of Washington? Or, do you leave control to the field?

Ms. LAWTON. It is a bit of a combination. Mr. Mignosa will answer that.

Mr. MIGNOSA. Basically, the operations people are the special agent in charge and his people in the field. If there were a hijacking and the plane was going to land in Denver, the special agent, his agents, the local police department, and everybody else involved, would be on the scene. The coordination on the scene is through the

special agent in charge of a particular office. The coordination at headquarters is done out of the FBI Headquarters, and it is necessary back here, because we have the contacts with the FAA, with the Justice Department and the members of the National Security Council and State Department.

The actual operation is handled by the special agent in charge in the field, overall coordination back at headquarters is done out of the FBI–FAA command center.

Senator GLENN. If control is left to the agent on the spot, I presume there is special training given to them in how to handle terrorist cases. What special training is given to agents in the field to handle this?

Mr. MIGNOSA. There is a lot of training, Senator. It is not only for hijackings. We have contingency plans regarding terrorism throughout our 59 field offices. Each of our field offices, starting in 1972, were directed to look at their particular areas and to prepare contingency plans, because 1972 was the beginning of what we call "terrorism" today, the political terrorism we are faced with. Each of the offices were instructed to look at their particular area. For example, the Washington field office looked at what might happen here and that would be the takeover of an embassy.

Albuquerque looked at what might happen at Albuquerque, for example, if a nuclear device were stolen. We then looked at their plans. They have been modified, changed. We have prepared the memoranda of understanding with the various agencies involved.

Then we begin a training program. We have hijack plans in all of our field offices. We have looked at the airports, made arrangements with the local people, so we know where the support that is necessary would come from.

In addition, we have developed hostage negotiators in our field offices. We have also developed a special weapons and assault team capability in our field offices.

In addition to that, back at headquarters we have developed a special operations and resource team, consisting of psychologists and behavioral scientists that can go to the scene of an incident, any kind of incident that the FBI has to put up with, and go to the scene and assist our special-agent-in-charge.

This has been ongoing since 1972. Nothing is perfect, but at least we have been preparing since 1972 for terrorist-type incidents.

Senator GLENN. One of the things that has concerned me in a crisis management-type situation, the authorities and responsibilities have been too divided up to know that we had a lot of people taking individual actions and perhaps less overall coordination of all of the activities involved.

The FBI has one responsibility, NEST teams have another, Special Coordinating Committee might or might not be called into the situation, as you indicate, and it appears there is quite a lot of divided responsibility here.

Let's take an example. Say there is a nuclear threat. What would the FBI do? Could they alert NEST—could they call NEST out? Is it their authority?

Does DOD have to call that out? Does the President have to authorize it? Who does what in a situation like that?

You mention Denver. Let's say in Denver, we have a threat, someone says, "I have nuclear material, planted a bomb. It's within two square blocks of downtown Denver."

Mr. MIGNOSA. Let's take an actual incident. Los Angeles. We will go back a couple of years where that happened.

Senator GLENN. Some previous testimony indicated it was a mass of confusion in Los Angeles, because authorities differed as to what should be done.

Mr. MIGNOSA. We are ready to talk about that, because things have happened since that time.

Basically, you receive an extortion threat, "Pay me $1 million, or I will put this nuclear device in Los Angeles." They told us where. We are set up with a threat assessment team. The note comes into Washington, flown in, or whatever. We look at the note, We have our behavioral scientists look at it. We have our laboratory examine it. We have a psycholinguistic look at it and, of course, we have this memorandum of understanding with the Department of Energy, formerly ERDA, and the note also goes there, and their scientific people look at the note. What we are doing at this intial stage is trying to determine whether or not the threat is viable. That is the first important step.

In Los Angeles, after we had taken all of these preliminary steps, we could not determine the threat was not viable. Therefore, we have to presume there is a possibility a nuclear device does exist.

Senator GLENN. Do you also have time to go through that analysis of notes and things. What if somebody says it is going off at 2 o'clock this afternoon you can't fly a note to Washington.

Mr. MIGNOSA. We can teletype it, talk on the phone, we have a line to our psycholinguistic expert. It doesn't take that much time. We get to the point where the threat might be viable like in Los Angeles. At that point, utilizing the terms of the memorandum of understanding, we, in consultation with ERDA headquarters, now DOE headquarters, we, FBI, say to ERDA we want you to fly in NEST—we feel this is necessary.

They get together and it is noted ERDA has a couple of locations for NEST. In the Los Angeles situation they flew out of Las Vegas. Their NEST scientists arrived in Los Angeles.

At that point, the memorandum of understanding states that the FBI is in overall charge of the particular situation. The senior scientific advisor of the Department of Energy NEST team does his thing with his people because they are the scientists. We in the FBI are not. We provide the protection for the NEST operators. We go to the scene, help them with their transportation, do the searching, and then NEST does their scientific operation. They fly their airplanes.

Senator GLENN. What do the local authorities do during that? The local authorities had a different view of what was going on at that time than NEST and the FBI did.

Mr. MIGNOSA. That is sometimes the problem in our country where we have the local police as our first line of defense. That is the price we pay for a democracy, and the price I think we should be willing to pay. Regardless of that, the local police are the first line

of defense. They are on the scene, and there is no way you can tell the police to leave.

You shouldn't tell the police to leave. I hope that has been resolved so that when the FBI and NEST get there, they work in cooperation with the police department.

Senator GLENN. What if they don't. Who has authority?

Mr. MIGNOSA. There is overlapping authority.

Senator GLENN. That was one of the problems.

Mr. MIGNOSA. That was one of the problems we had in Los Angeles, and hopefully, we have worked it out by good liaison between our special agent in charge and the chief of police.

In Los Angeles, you have a strong police chief which is a situation we face in many places. It all can be worked out, and it does work.

Senator GLENN. Is there a doubt about who has authority? Let's say there is a nuclear threat. There might be diverted material, and some local authority who doesn't know all of these background things as you do. If some local authority says get off my ground, this is my job, can you still move in?

Mr. MIGNOSA. Yes, because we have the Atomic Energy Act and other legislation that gives us authority in these instances.

The Federal Government would say the FBI would be the lead agency.

Senator GLENN. If you are the lead agency in calling NEST in do you feel you need additional training, manpower, laboratories or additional facilities to assume that responsibility?

Mr. MIGNOSA. We have been working pretty hard on this, Senator. In fact, we have just recently gamed a situation in conjunction with the Department of Energy, and with the Department of Defense, and the FBI, in Idaho Falls.

We don't get involved in ERDA's budget. Department of Energy, that is. They have provided this nuclear emergency search team capability, and they are the ones who decide how much money they need. We in the FBI are an investigative organization.

Do we have enough money? That is another topic for a budget session. We feel we have been able to cope with what we have seen today, Senator, yes.

Ms. LAWTON. If I could add to that, we have some experience using this new structure under the special coordinating committee of the National Security Council, in this type of situation. While it was not a terrorist incident, the satellite breakup and landing involved coordination of a great many agencies. That was handled from the White House situation room through the Special Coordinating Committee involving all of the members with their different aspects, and expertise.

We used that central umbrella there in the situation where you had a number of different agencies. The problem with coordinating the State and local police is one that only training, liaison, support, assistance, and persuasion can handle. As a matter of law, we cannot keep them out. But we have run conferences with State and local police on this sort of thing, trying to be sure of their cooperation, their knowledgeability, and their awareness of the intricacies of a nuclear incident.

Senator GLENN. Some States have individual nuclear disaster plans. What coordinating do you do to direct State agencies like that? Are they plugged into this special coordinating committee?

Ms. LAWTON. They would only be plugged through ERDA, I believe. We do not deal with their planning agencies directly in this situation, with the planning agency for nuclear problems. It would come primarily through the Department of Energy personnel, but there is, of course, continuing law enforcement liaison on our part.

Senator GLENN. There have been three other major nuclear threats. One in Boston, one in Orlando, and one in Spokane, Washington.

How did the coordination work in those areas as opposed to the Los Angeles situation?

Mr. MIGNOSA. Senator, basically we had no problem in those situations. All of them turned out to be nonviable, and they resolved themselves pretty well.

Senator GLENN. Do we view or does Justice view an act of terrorism as something different from any other criminal act, or are all terrorist acts treated as being under our criminal codes?

Ms. LAWTON. On our domestic scene, they would fall within the Federal criminal code. They are, of course, a different type of crime in that they involve more planning normally, they involve generally more than one person, just as organized crime involves a continuing enterprise of specific acts each of which is an individual crime. But you have a continuing body with a series of crimes involved.

So you do in terrorism. And to that extent, it differs from your individual single crime such as bank robbery. On the other hand, terrorists may engage in any number of crimes, some of which are terroristic crimes, violent crimes directed at the person, bombing, assassination, but they may engage in bank robbery to support their operations, or in extortion, a typical weapon of the terrorist.

For matters of Federal law, they are essentially straight violations of the Federal criminal code. As a matter of investigation, the techniques may be different because they are continuing bodies.

Senator GLENN. In many countries in Western Europe, the Ministers of Justice have primary responsibility for all matters related to terrorism whether it is a hijacking or whatever.

We have taken a different approach in this country. If you could start over with a fresh page, and design our system for combating terrorism of whatever form, what would be the ideal situation. That is a big order for you.

Ms. LAWTON. Yes, it is, and it is a tradeoff. This country never wanted a national police force. So they set up a provision of limited jurisdiction and investigative authority, divided the authority among a variety of agencies just in straight law enforcement.

There are a number of agencies that have responsibility for enforcing particular criminal laws. The division was designed in part to prevent a concentration of power, in part it is purely historic. In some cases it depends on expertise. It can be duplicative to put expertise in two different agencies.

If we have nuclear scientists in ERDA who are needed for other purposes, should their work for law enforcement purposes be duplicated in the FBI or some other enforcement agency? It would be

in strict management terms more efficient to put everything in one agency, but I am not sure it would serve the values of this country better.

Senator GLENN. Does the Special Coordinating Committee function as that single agency in a way?

Ms. LAWTON. In a way, but they are not the tactical operating personnel, only the coordinators, and I think that is important.

Senator GLENN. How does Justice define terrorism or terrorist activities?

Ms. LAWTON. Well, we have tried in several contexts. Generally we would define it as an organized pattern of violent behavior designed to influence Government policy, or intimidate the population for the purpose of influencing Government policy. That is a general working definition we have used in the FBI guidelines, and some of the proposed legislation.

That is largely geared to domestic terrorism. Obviously, you have multinational terrorism where you have a group of individuals coming from different countries who work as a loosely formed unit, and whose offenses may occur in a variety of countries.

Then you have foreign terrorists who leave one single base of operation to operate in another target country.

So there are variations on the definition. But it is that use of violence by a group to influence Government either directly though assassination or by intimidating the population through sporadic guerrilla warfare attacks.

Senator GLENN. Senator Percy went to vote and will be back in a couple of minutes. I have to run to the floor and vote. If you can bear with us for a few moments, Senator Percy will be back and I will be back as soon as I vote. I have a couple of questions that Senator Heinz left. Please bear with us.

I am sorry for the interruptions, but that is what happens here occasionally.

[Recess.]

Senatory PERCY. We will just resume our hearings in the interest of saving you time.

I am sorry I was not here at the outset of the hearing, but certainly we welcome you today.

I would like to ask you about some definitions, or try to clarify a few hypothetical situations. It is sometimes said that one man's terrorist is another man's freedom fighter. While we have taken a very strong, unequivocal position against international terrorism, and I think we have been leaders in the world in this, the concept of who is a terrorist is what is confusing.

Let's take a hypothetical situation with a Soviet dissident intellectual defecting to the United States to gain his freedom of expression. He commandeers a Soviet aircraft to Alaska. Would the Government see this man as a dissident or treat him as a terrorist and return him to Soviet authorities? That is not an easy question. But it is conceivable that it could come up.

Ms. LAWTON. Certainly it could come up. The hijacking in this country even, so many were pure fugitive in flight and their hijacking was not to influence Government policy, intimidate anyone or to extort for a cause, but merely to flee.

One might be considered as a defector. The crimes involved in terrorism are not always synonymous with terrorism. You could have the killing of a political leader that was because of a personal grudge and has nothing to do with his official position. That would not be an act of terrorism.

Because assassination is a terrorist weapon does not make every killing of an international leader an assassination.

Then we have hijackings. We have taken the lead with respect to urging other countries to crack down on hijacking. We have to be careful in analyzing each of these situations. One thing that characterizes the terrorist is his motivation. And seeking political asylum is a different motivation than terrorizing, extorting funds, or seeking revenge on political enemies.

The same is true, as I said, of flight to avoid prosecution so that analyzing the motive of the individual is important and we have to be very careful in characterizing any given incident as a terrorist incident.

Senator PERCY. Could we be specific about a case that did occur? Suppose, instead of an advanced aircraft being taken by a Chinese pilot to Taiwan, it had been taken to Anchorage. Under this bill, S. 2236, how would we have treated this case, if he had seized the aircraft? In the actual incident he was the pilot, and he flew it. There was no terrorism involved. But what if he had commandeered the plane with a machinegun, and it was a military plane, and he had forced the pilots to fly it to Alaska. How would we deal with that kind of case?

Ms. LAWTON. I'm concerned that under the bill, as presently written, it would be encompassed in the definition of terrorism. But I believe we could work out refinements, in order to address in the definition of terrorism, not so much the nature of the crime as in the motivation of the criminal, because I think that is what characterizes terrorism.

But I'm afraid that in the present drafting of the bill, that problem does, indeed, exist.

Senator PERCY. Let's say the motivation is quite clear, that all he wants is freedom. He is fed up with living under totalitarianism. He wants freedom, so he flies to the land of freedom, to the closest point in the United States, where he would assume he could have protection. However, he uses arms, commandeers an aircraft and forces the crew by threats to fly him there. You would feel he would be considered a terrorist under the terms of this bill, and he would have to be returned then? Is that correct?

Ms. LAWTON. The bill does not address extradition that directly. But it would characterize him, I believe, at least it is ambiguous enough in that area that he might be characterized as a terrorist.

By and large, our extradition treaties with other nations do make exception for what we consider the granting of political asylum. And long before there were aircraft, this was still a problem for us to analyze. What is asylum? Where is asylum different from harboring a terrorist, harboring a hijacker? That is one of my concerns for the word "harboring" in this bill. Is that giving "safe haven," which is the actual term in the bill? Could it, indeed, encompass the grant of

asylum to persons who are subject to persecution in their home country.

Our immigration laws make exception for such persons. If they are deportable they will not be deported, if they are subject to persecution at home.

There are those that claim they are seeking political asylum, when our view of their conduct is otherwise.

Senator PERCY. We are trying to find places where we need to tighten the bill, clarify it and remove any possibility of misunderstanding later.

In that same kind of situation, when the action originates abroad, but terminates in the United States, who would be the lead agency under the terms of the bill, in your interpretation? The State Department or the Department of Justice?

Ms. LAWTON. In terms of the apprehension of the individual, it would be the Department of Justice. In terms of deciding on requests for extradition, handling those requests, Justice and State work together and the State Department would handle the negotiations and the communications with the foreign government. Notes exchanged by the foreign government would always be handled by the Department of State.

But the individual would be handled or at least picked up by the FBI.

That is part of the Department of Justice.

Senator PERCY. You feel there is a problem of coordination between the two Departments?

Ms. LAWTON. No, I don't believe there is a problem.

Senator PERCY. In President Carter's proposed budget for fiscal 1979, the President eliminates 500 positions from the FBI staff. Do you believe this cutback will have an impact on the ability of the FBI to investigate terrorist incidents?

Ms. LAWTON. Well, any cutback, of course, has an impact, Senator. To what extent the cutback in that particular area will affect terrorism is difficult to assess, because it is difficult to assess how big a problem it will be. This is the problem always in budgets being prepared long before the year to which they are addressed.

The number of cases in the domestic security area that the FBI is investigating is greatly reduced which, no doubt, played a factor in the budget decision. The assignment of resources within the FBI is a matter that is consistently subject to adjustment, and you know budget amounts can be allocated among programs; they are not enacted as a line item proposition. I say almost any cutback is bound to have some impact.

Senator PERCY. I ask that question in light of the step up in the instances of political bombings and terrorism.

One of the major efforts of the FBI terrorism section is the investigation of domestic bombing incidents, political incidents.

In Chicago alone we have had 14 incidents over the past 2 years. How successful has the FBI been in investigating and prosecuting the domestic bombings?

Ms. LAWTON. Mr. Mignosa is the chief of the section in charge of that. I will ask him to answer.

Mr. MIGNOSA. We have had success, quite a bit of success since April of last year against the bombings. We have had some success against the FALN, which is part of your incidents in Chicago. We have had success with the Weather underground in Houston and California. We have had success in California, the George Jackson Brigade. We arrested some people and in Boston, the Sam Melville—

Senator GLENN. If I could interrupt, what do you mean by success?

Mr. MIGNOSA. Arrests and convictions, sir. I don't like to get into budget. But we did ask for, in the domestic security/terrorism field, and that is what you have been talking about, for $12 million in 1979. We are being allocated $9.2 million, approximately.

And, as Miss Lawton said, it will cause us cutbacks, because the program against terrorism is not just domestic security cases, which are the preventive side of the operation, but they are the reactive cases, the bombings, nuclear extortion cases, and so on.

Senator PERCY. I am wondering if you could supply either now or subsequently for the record—taking the last 2-year period as an example—the number of investigations, arrests and convictions secured by the FBI for political bombings over that period.

Do you know how long it would take to get those figures?

Mr. MIGNOSA. I don't know, Senator, but we will try to get them for you as soon as possible.

Senator PERCY. I ask that the record be held open so they can be inserted at this point.

[The information referred to follows:]

TERRORIST BOMBINGS, ARRESTS, AND CONVICTIONS 1976 - 1977

During the year 1976 there were 65 terrorist bombings, 29 attempted terrorist bombings, 9 terrorist fire bombings, and 3 attempted terrorist fire bombings for a total of 106 terrorist bombing incidents.

During the year 1977 there were 58 terrorist bombings, 12 attempted terrorist bombings, 27 terrorist fire bombings, and three attempted terrorist fire bombings for a total of 100 terrorist bombing incidents.

During 1976 there were 22 convictions, and during 1977 there were 33 convictions of persons for violations of Explosive and Incendiary Devices and Bomb Threat cases investigated by the FBI. Included among those would be numerous terrorist bombings, however, separate statistics are not maintained on convictions for terrorist bombers. Therefore, set forth below are brief descriptions of some of the more significant arrests and/or convictions obtained during the past two years in terrorist bombing cases;

On November 19, 1977, four Weather Underground Organization (WUO) members of the Revolutionary Committee (RC), which is the violence prone group of the WUO, and Clayton Van Lydegraf were arrested. Arrested in Houston, Texas, were Judith Emily Bissell, Leslie Ann Mullins, and Clayton Van Lydegraf, the leader of the Prairie Fire Organizing Committee (PFOC). Arrested in Los Angeles, California,

were Thomas Michael Justensen and Mark Curtis Perry. The aforementioned individuals were arrested on various Federal and State of California charges. All are incarcerated at various penal institutions in the State of California awaiting trial.

Gary E. Latham, Bles Jesus Corbo and Antonio Rafael De La Cova were arrested May 6, 1976, in the process of bombing a pornographic bookstore in Miami. The three were to commit the above bombing in the interest of anti-Castro Cubans. They have all been convicted.

Rolando Otero Hernandez was arrested May 20, 1976, on his return from Chili to Miami, Florida. He was arrested for numerous bombings, including the FBI Office, in the Miami area which bombings were claimed by "El Condor", an anti-Castro Cuban. He has since been convicted. It should be noted there were no terrorist bombings in Miami for approximately one year following the above arrests.

On February 21, 1976, Daniel Jason Adornetto, Janice Marianne Orson, Steven Robert Scipes, Ellen Judith Kesend, and Frederick Franklin Salkind were arrested in the San Francisco area and they along with Diane Lee Harmon were subsequently convicted for their part in various bombing activities of the New Dawn Collective of the Emiliano Zapato Unit (EZU). EZU had claimed responsibility for numerous bombings in the San Francisco Bay area since 1975.

Sam Melville-Jonathan Jackson Unit (SM-JJU) and the Fred Hampton Unit of the Peoples Forces were used to claim responsibility for a series of terrorist bank robberies and bombings in the Northeast United States. Joseph Anthony Aceto, Everett C. Carlson, Edward P. Gullion, Jr. and Richard J. Picariello have been convicted for bombing offenses claimed by those terrorist groups. Raymond Luc Levasseur, currently one of the FBI's top ten fugitives, has been named as a member of the SM-JJU.

Another person currently among the FBI's top ten fugitives is Carlos Alberto Torres, who with his fugitive associates Haydee Betran Torres, (Carlos' wife), and Oscar Lopez, is wanted in connection with numerous terrorist bombings claimed by Fuerzas Armadas De Liberacion Nacional Puertorriquena (FALN).

The bombing of the Sponge Rubber Products Plant, Shelton, Connecticut, 3/1/75, $14,000,000 damage, was investigated by the FBI as initially the perpetrators claimed to be Weathermen. That investigation resulted in the convictions in 1977 of David Noble Bubar, Peter Betres, Ronald Betres, Anthony Just, Albert Coffey, Dennis Tiche, Michael Tiche and John Walter Shaw.

Senator PERCY. Could you comment on the degree to which the FBI does seek to prevent domestic terrorist incidents by maintaining surveillance over potentially dangerous groups and individuals? Is the primary effort on prevention or is the primary effort more of a reactive response?

Mr. MIGNOSA. Our effort against terrorism by our section is basically a two-pronged effort, one being preventive and the other being reactive.

On the preventive side, we have guidelines. We utilize the Attorney General's domestic security guidelines against the domestic terrorists, and we utilize the Attorney General's foreign counterintelligence guidelines against the foreign-inspired terrorists or foreign-based terrorists.

Our biggest budgetary allotment goes toward the reactive at this point.

Senator PERCY. Thank you very much, indeed. We appreciate your appearance.

Senator GLENN. Thank you, Senator Percy.

I would like to ask you the question I asked previous witnesses here on aircraft hijacking, in particular.

Do you think it would help if we made it illegal to refuel airplanes, once they had reached their first point of landing or to transfer them to other airplanes, so that the people hijacking would know, wherever they landed, that would be it? We have been successful recently with hijackings, although there have been some internationally. Maybe that is due to the better surveillance at our airports.

If we cut down the likelihood of success of attempts, such as that, it might help. If they know wherever that airplane comes down, that is where it is going to sit.

Ms. LAWTON. I think it would be perhaps too rigid to make it a criminal violation. There may be circumstances where, because of the physical condition of the airport, because of our own jurisdictional limits, because of the psychological condition of the hijacker at that stage, as distinguished from where he might be after the longer negotiations, where we would like to keep him going, keep him talking.

I think, in general, the policy in dealing with terrorists has always been one of flexibility, based on the individual fact situation, and I would be hesitant to say, never should we refuel.

By and large, I think we should discourage it.

Senator GLENN. In each individual case, there is always a tendency to give in to the moment. This then spawns more attempts later on, when nothing happens.

Ms. LAWTON. I don't think that has been our tendency.

Senator GLENN. Perhaps flexibility has to be the role. I want to assure people they can't use us as a hopscotching pad for their airplanes and jumping all over the world.

Ms. LAWTON. Our policy as to a domestic flight might be different, but on an international flight, we would be more inclined to discourage the refueling here, because we cannot be as sure of apprehension and prosecution in some other countries, as we can be under our own law.

Senator GLENN. There are two more questions I had that Senator Heinz left. He asked me to ask these two questions and that will con-

clude this panel. I know Congressman Scheuer is waiting this morning, and we are glad to have him with us. The first question Senator Heinz wanted me to ask is, "In an article in the last Sunday morning Times, I read the Justice Department disbursed $1.5 million over the last 3 years for research on terrorism. I have not seen any of these studies. I was unaware that Justice was funding such research. I'm curious as to the kind of research undertaken and the conclusions of the studies. Can you comment?"

Ms. LAWTON. Most of that is LEAA-funded research. The psycholinkuistic program Mr. Mignosa referred to is funded through LEAA. The programs of research to which Dr. Kupperman and Mr. Hassell testified in earlier stages of this hearing are also LEAA-funded programs. That may not have come through clearly in their testimony.

Their research, the national conferences and international conferences that have been held are part of the programs that the LEAA has funded.

Some have produced classified reports, but there are public reports available also from LEAA and the Government Printing Office.

Senator GLENN. Have those reports been made available to the committee?

Ms. LAWTON. I don't know that they have been actually furnished. They are clearly available.

Senator GLENN. I ask that you might see our staff and let them go over these, and they can see what would be appropriate for submission in our record, either classified or unclassified. Some of them may be valuable additions to our testimony. We will keep the record open for submission of such reports, as they are appropriate for the hearing record.

The second question was "Considering the fact that some terrorist incidents have occurred as a consequence of terrorists attempting to enforce the release of their comrades, an international jail to house all convicted terrorists would appear to be an appropriate arrangement. What is your view?"

Ms. LAWTON. I think I would like to rely on our system, Senator.

Senator GLENN. This would establish the international jail.

Ms. LAWTON. We don't have international prosecutors or international criminal law, and they would have to come first.

Senator PERCY. I ask that questions I have for Mr. McGiffert be inserted in the record for response by him.[1]

Senator GLENN. If other committee members wish to ask questions of you, based on your testimony this morning, I hope you would reply to those.

[The prepared statement of Benjamin R. Civiletti, Deputy Attorney General, which was delivered by Ms. Lawton, follows:]

[1] See p. 206.

PREPARED STATEMENT OF BENJAMIN R. CIVILETTI, ACTING DEPUTY ATTORNEY GENERAL

Mr. Chairman and Members of the Committee,

I appreciate the opportunity to present the comments of the Department of Justice on S. 2236, the Omnibus Anti-terrorism Act of 1977.

The threat of international terrorist acts is a matter of continuing primary concern to this Administration. Shortly after President Carter's inauguration a detailed study was undertaken to assess our abilities both to develop consistent policies for dealing with terrorism and to handle any specific terrorist incidents which emerge. The result of that study was the establishment of a Working Group on Terrorism within the Special Coordinating Committee of the National Security Council. The Working Group and its Executive Committee are responsible for developing government-wide policies to deal with terrorism and for overseeing coordination of the affected agencies in any particular incident which may occur.

We are also continuing diplomatic efforts to persuade other nations to adopt basic security measures to reduce the threat of aircraft hijacking - measures which have already resulted in an appreciable decrease in hijacking incidents in this country. The Department of Justice continues its

efforts to obtain information on terrorism and to prosecute bombings and other acts of terrorism within our criminal jurisdiction.

We welcome this Committee's efforts to focus public debate on the additional measures needed to combat international terrorism and to provide the necessary legal basis for dealing with terrorist acts which affect United States citizens, at home and abroad. We are particularly pleased, Mr. Chairman, that you have included in S.2236 the changes in the laws relating to hijacking and related actions which the Department of Justice recommended to the Congress on November 11, 1977. Those provisions, embodied in Title IV of the bill, will bring the United States into full compliance with the Montreal Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation, give us needed prosecutive tools to deal with hijacking, threats and hoaxes, and provide important civil sanctions as well.

Section 401 of S.2236 revises the existing provisions of 18 U.S.C. 32 to provide greater clarity in the language and to substitute for the present requirement of proving intent to damage an aircraft the standard of the Montreal Convention - namely that the conduct involved is likely to

damage the aircraft. Further, acts of violence against passengers which are likely to endanger an aircraft in service are added to the list of prohibited acts. Finally, the existing law would be amended to prohibit the communication of false information which endangers an aircraft in flight.

In response to the requirements of the Montreal Convention, section 401 of the bill would add a new provision to the criminal code extending prosecutive jurisdiction to hijackers and others threatening aircraft when the events occur outside the United States but the aircraft lands in the United States with the terrorist still on board. This extension of jurisdiction will enable us to deal with international terrorists who are subsequently apprehended in the United States.

Other amendments in Title IV eliminate a serious gap in existing law by making criminal the threat to damage an aircraft as well as the actual conduct itself. They also provide the alternative of civil penalties for carrying arms aboard aircraft or conveying false information regarding aircraft in circumstances which, while serious, would not warrant a criminal prosecution. These civil penalty alternatives are important in emphasizing aircraft safety.

We must discourage reckless behavior which threatens air safety and frightens passengers without resorting to unnecessary crimnal prosecutions.

The Department of Justice views these amendments as necessary to fulfill our international obligations and to encourage comparable efforts by other countries to deal effectively with aircraft hijacking. We strongly support these provisions of S.2236 and urge their enactment.

Many of the other provisions of the bill are of primary concern to other agencies which have addressed or will address them. There are, however, a few provisions of direct concern to the Department of Justice which I will discuss briefly. Title III of the bill would create a new Office in the Department of Justice, headed by an Assistant Attorney General, to coordinate all antiterrorism plans and policies of the Department. In our view, the creation of such a new Office is unnecessary and undesirable. Presently responsibility for developing policies on terrorism, working with the National Security Council Working Group on Terrorism, and supervising Department response to specific investigations is vested in the Deputy Attorney General, the second ranking official in the Department - a level of responsibility which is concommitant

with the importance of the subject. The Deputy Attorney General has continuing supervisory responsibility over, among others, the Federal Bureau of Investigation, the Criminal Division, the Law Enforcement Assistance Administration, the United States Marshals, the Executive Office of U.S. Attorneys and the Immigration and Naturalization Service, all of the elements of the Department having a role in the efforts to combat terrorism. Thus, the Deputy Attorney General's Office is already providing the needed specific coordination and serving directly on the Working Group on Terrorism. Under these circumstances, the creation of a new and separate Office is unnecessary and would serve to diffuse responsibility at a lower level with limited authority.

Section 104 of the bill would require unclassified reports to the Congress on any terrorist incident involving or affecting citizens of the United States. While it permits omission from this report of information threatening or compromising sources, it makes no provision for omitting information or delaying the reporting of information which should otherwise be protected from public disclosure. As you are aware, the Department of Justice is bound by

Rule 6(e) of the Federal Rules of Criminal Procedure not to disclose information developed by a grand jury without the permission of the court. Terrorist incidents in the United States might well result in the convening of a grand jury almost immediately and the Department would be constrained by existing law from reporting to Congress information that may be developed. Moreover, ethical considerations relating to the rights of potential defendants, and longstanding policy against disclosures which would jeopardize on-going investigations limit the amount of information that the Department of Justice should make available concerning active criminal cases. Any reporting provisions included in this legislation should recognize these important constraints to effectively combatting terrorism.

Finally, the Department has serious constitutional objections to the provision in sections 105(e) and (g) of the bill which purport to authorize either House of Congress to add a country to the LOCATE list or prevent the removal of a country from the list. Congress, in its traditional legislative role may confer authority on the Executive or refuse to confer that authority. Once a law is enacted in the manner prescribed by Article I, however - that is with

the concurrence of both Houses and the approval of the Executive or the override of his veto - it may not be undone by a single House acting alone. This not only encroaches upon the duty of the Executive to execute the laws, as prescribed in Article II, it also delegates to one House of Congress the power to undo what both Houses acting together have done - namely, confer responsibility on the Executive. Thus, it infringes on the authority of the Congress as well as on the authority of the President. The Department of Justice cannot support such a distortion of the constitutional system.

We also have some technical problems with the sanction provisions of sections 106 and 108. For example, the broad wording of section 106(a)(4) would appear to bar even a United States citizen from a country on the LOCATE list. We assume that this was not intended and that problems such as this can be resolved by continuing the staff discussions which have begun.

I commend the Committee's outstanding efforts to increase the United States' ability to combat international terrorism and we will be happy to work with the Committee to resolve

any legal or policy objections which exist with regard to specific provisions of the bill.

I will be pleased to answer any questions the Committee may have.

Senator GLENN. Congressman Scheuer, we are glad to welcome you to the hearings this morning.

Your full statement will be included in the record and you may read it all or give an abridged version as you see fit.

TESTIMONY OF HON. JAMES H. SCHEUER, REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Representative SCHEUER. I will summarize my testimony.

I'm honored to be invited to appear before this distinguished committee. My message to you is a simple one: we must undertake a program of carefully planned and administered research if we are to combat terrorism in a meaningful way.

After all, carefully conducted scientific research is an essential element in the development of an informed counterterrorism strategy.

You have just been discussing the LEAA effort. They have spent $2 million on research projects basically designed to increase our understanding of the terrorist phenomena. These projects we conducted in LEAA's Office of Operational Support. And they have done it more or less with a focus on projects with immediate practical payoff, such as the training of law enforcement personnel, identification and detection of explosives, state of the art reviews of counterterrorism techniques based on inventories of terrorists events around the world. This is an excellent beginning, but a great deal more has to be done. I'm concerned that the momentum of the research underway may fade in a moment when we still have time to anticipate future terrorist activities.

You have already heard from Dr. Kupperman but I would like to discuss several other areas which anticipatory research of the kind he described can be addressed.

We ought to be thinking about a possibility of attacks on our nuclear power facilities, seizure and destruction of our offshore oil and gas stations and terrorist attacks on the kind of vast installations that will flow from the Law of the Sea Treaty if we ever get to that point and when we start mining the bottoms of the ocean.

As you know, there are trillions of dollars worth of valuable nodules down there. We will mine them with sophisticated technology of all kinds and they will be vulnerable to terrorist attack. All of those installations will be vulnerable.

Mr. Joseph Hendrie, Chairman of our own Nuclear Regulatory Commission, has noted the danger of terrorist sabotage of existing nuclear facilities in the United States and aboard.

I'm convinced that this is a very real possibility, and that it is as likely, if not more likely, than the deployment of a clandestine nuclear explosive or dispersal device by terrorists.

Mr. Robert Heilbronner, an eminent writer, has written extensively on the subject. I will read you a few quotes from a recent book he authored called "An Inquiry Into the Human Prospect."

> There seems to be little doubt that some nuclear capability will be in the hands of the major underdeveloped nations certainly within the next few decades and, perhaps, much sooner. It might be used as an instrument of blackmail to force the developed world to transfer wealth to the poverty-stricken nations. It might be the government of the underdeveloped world and

the revolutionary cast of the governments can be expected—I would emphasize the revolutionary cast of these governments or many of them—that these governments might be able to arrange for the large scale assistance they will need and they feel is owing to them without recourse to these violent means.

But given the reluctance to date of the developed world to offer more than token aid and the likelihood that assistance on a scale to raise the standard of living of the 6 to 8 billion poverty-stricken inhabitants has declined in the well-to-do nations, the resort to nuclear tactics is inevitable.

Nuclear terrorism, nuclear weaponry makes such access possible and wars of redistribution may be the only way by which the poor nations can hope to remedy their condition.

I don't think this scenario can be laughed off. The demands of the developed world have become harsh and strident. We have witnessed this in the Law of the Sea Conference. If one looks at the exponential rate by which population is growing in the developing world one can only foresee disaster of cataclysmic proportions within a generation unless there is massive intervention by these governments to contain their own rates of population growth rates.

You have a Catch-22 situation.

The very countries that have the worst rates of population growth are also the countries that are desperate to survive until tomorrow, where the human condition is already submarginal and people are literally starving.

To ask the chiefs of state of these countries to invest in projects with long-term payoffs that are not dramatic is very difficult.

You are talking about building one-room clinics, 2000 of them in the bush as the Government of Tangiers is trying to do but it takes a sophisticated, compassionate chief of state on the order of a Julius Nyerere before that kind of decision-making will take place.

He is unusual in the developing world. Most of the chiefs of states and the elite power structures in the developing world where this incredible population explosion is taking place are so concerned with survival until tomorrow and warding off starvation and trying to provide some visible evidence of the capability of governing that they seem unable to bite the bullet and make the long-range commitments and investments in family planning and rational population policies that will not show any visible dramatic payoff in less than a decade or two.

The record of our country hasn't been that good either. It was only in 1970 that we initiated a population policy to provide family planning for American women in child-bearing years.

We are still short of that. Many of our women are still not privy to family planning techniques. We have 1 million birth to teenagers every year and at least two-thirds are unwanted. Of course, our population problem is of a totally different order of magnitude than that of the developing would and ours doesn't threaten destabilization of world order.

Senator PERCY. I have to go to rules to present our budget for the year. Could I ask if at some point you could comment from your expertise in this field on the terrorist threat in the Panama Canal Zone. Is that a real threat or not? Any time you can send comments to us we would be interested.

Representative SCHEUER. I will finish my statement, conclude my quotes and give you a copy of it. I visited the Panama Canal under Gussie Autraub many months ago.

In my opinion the Panama Canal is not defensible against terrorist threats in peacetime and certainly not defensible against a major enemy threat in wartime.

We were briefed by the top military personnel of our own Armed Forces down there and they clearly led us to understand that the reason they supported a treaty, perhaps not to dot every "i" and cross every "t" of the present language, but the reason they supported a treaty was that they felt the Panama Canal was not militarily defensible.

Senator PERCY. In your judgment, how important in helping to prevent terrorism is it that we remain in partnership with Panama, considering it is surrounded on both sides by people and governments that are friendly to our being there?

Representative SCHEUER. You have to play the worst game scenario in this instance. Who knows what kind of administration we will be dealing with there in the year 2000.

The rumors of the Torrijos family's involvement in drug traffic were rampant when we were there. We heard from Embassy people, military intelligence people, from the political gossipers with whom we met. On the bottom line I have no confidence whatsoever in Torrijos or any of his works.

I have no confidence that we will have any considerable support from the Panamanian government in the year 2000. I have confidence that there will be economic incentive on the part of the Government of Panama to keep the canal open and viable because it makes a tremendous contribution to their hard dollar income and their gross national product.

On the bottom line our military tells us it is not defensible in peace and war and that there are better and more effective ways to move goods and that we simply don't need the canal.

Senator PERCY. Thank you.

Senator GLENN. Go ahead and proceed with your statement. Were you finished with your statement?

Representative SCHEUER. If you want me to continue, I would be happy to, but it is a question of your time availability.

Senator GLENN. I have to leave in a few minutes, but you can go on for a little while.

Representative SCHEUER. One think that concerns me is that an attack can take place on our offshore facilities or on the ocean floor, where we will, in the next decade or two, have literally hundreds of millions, if not billions of dollars in advanced technological machinery.

These installations are unprotected by present international law.

The third Law of the Sea Conference in 1975 adopted verbatim article 15 of the 1958 Geneva Convention on the High Seas. Rather than clearly defining the jurisdiction and legal recourse in the event of terrorism on the open seas or under the seas, the article virtually guarantees confusion and inaction.

It simply condemn illegal violent acts on or under the seas as piracy, without specifying exactly which acts are illegal.

Furthermore, it stipulates that any violent act associated with a fight for independence or liberation—and this could include liberating the developing world from the domination and exploitation of the developing world—does not fall under piracy.

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Given this framework, every terrorist act could be sanctioned as part and parcel of a fight for independence or liberation. You have an open sesame for any act of terrorism on or under the high seas.

Nations, in the event of a terrorist attack, would be hampered by the question of legality of the military response unless you could demonstrate that a soverign government committed the act. If it were an informal terrorist organization, it would be difficult, if not impossible, to pin on any government.

I suggest to you the assassination of the Egyptian editor in Cyprus. Who is guilty of that? Is the PLO guilty?

They say that a renegade radical group in PLO was responsible. Is the Iraqi Government guilty?

Well, it just gives you an analogy of the morass of legal questions and the total absence of accountability or legal responsibility that is now in the third Law of the Sea Conference.

So we are talking about sabotage of nuclear facilities, nuclear blackmail by Third World terrorists, piracy on or under the seas. I'm suggesting that our research and planning thus far has not enabled us to meet threats of this nature.

We don't know enough about the phenomena we call "terrorism" to direct our countermeasures intelligently and efficiently. We need to continually expand studies in this area.

We have to count, catalog and analyze the terrorist events as they occur up to and including the last 72 hours events.

We need thorough and scientifically rigorous research into the dynamics of terrorism. We have to know about terrorist psychologies, the role the media plays in terrorist decisionmaking and game-planning.

We need research and development of a variety of new technologies that can be successful in responding to terrorist acts.

We need commissioned studies to place the current problems of world terrorism in an historic setting, so we can benefit from our past experience.

I want to congratulate this committee on its diligence in putting forth this legislation, S. 2236.

I share your view that the executive branch has not made full enough use of the sanctions and recourses at its command to counter terrorism.

The administration needs prodding, and I believe your bill accomplishes this.

I believe it is an excellent piece of legislation, and I'm proud to be a cosponsor.

Senator GLENN. Thank you very much.

There are a couple of points you bring out which are interesting. You bring up the specter of terrorist attacks on offshore oil rigs and how these will apply to the Law of the Sea and activities on the sea that we have not dealt with.

You are right in pointing out, while most of our efforts are of immediate action of some kind, that the long-range problems that breed the terrorists and breed those not concerned with their own lives, who have reached the point of such frustration that they will sacrifice their own lives no matter what other people they take with them, those conditions are something we have to deal with on the long term also.

That does not mean we can finance the world, but it means we have to consider those things and take action, as we see best, in our time, to prevent those things in the future.

In the nuclear area, the nuclear blackmail you mentioned that Mr. Heilbronner talks about, we passed, just 10 days ago, the Nuclear Nonproliferation bill that some of us worked hard on for 2½ years, which we finally got through.

That will be going to the President shortly for signature. It passed the House also immediately after it went through the Senate. One of the main reasons we were so concerned about the bill was the fact you mentioned that we find smaller and smaller nations, those who perhaps would exhibit less hesitancy about using a nuclear weapon, if they had it than the big powers would, gaining atomic weapons in the future, as a result of technology flow.

This bill attempts to hit a reasonable balance between advancing American nuclear interests around the world and keeping our businessmen in the influential position they have been in the past few years, and yet putting safeguards on. So we have a warning if smaller nations or terrorist groups gain nuclear technology in a sufficient way, along with equipment, so that they might be able to make nuclear blackmail a reality, not just the threat we have had a few times in some American cities.

If one of these days we have a hijacked airplane with a real load of highly enriched uranium, or a surface shipment of plutonium that turns up being attacked, or some of the material is taken from it, the real credibility that the threat does exist.

If they are in downtown London with a bomb, and we know material was diverted sufficiently in that area. We know we have a problem on our hands.

This bill was designed to prevent that flow that you are concerned about, too.

We are glad to get that through, and we look forward to the President signing that bill shortly.

I was surprised, too, one thing you brought out also, was that under the 1958 Geneva Convention, article 15, these acts of independence, we apparently have a loophole as big as all outdoors. As long as somebody says, "I'm getting independence for my country," it is no longer piracy. You can do anything, as long as someone claims he is doing it for independence of his country.

Representative SCHEUER. Independence or liberation from depression, or anything else for that matter.

Senator GLENN. Any terrorist group has something they want to be liberated from.

One of these days we will have a nuclear threat that is real, and the world will be held at hostage, because of a group like this.

I appreciate your testimony very much.

We appreciate your being here this morning. Thank you very much.

[The prepared statement of Congressman Scheuer follows:]

PREPARED STATEMENT OF HON. JAMES H. SCHEUER, REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK, CHAIRMAN, SUBCOMMITTEE ON DOMESTIC AND INTERNATIONAL SCIENTIFIC PLANNING, ANALYSIS AND COOPERATION, COMMITTEE ON SCIENCE AND TECHNOLOGY

Mr. Chairman, Members of the Committee, I am grateful for this opportunity to present testimony before you. I appear today in my capacity as Chairman of the Subcommittee on Domestic and Internationa' Scientific Planning, Analysis, and Cooperation of the House Committee on Science and Technology. Our Subcommittee has special oversight responsibility for many research and development programs in the federal government, including research into terrorism.

It is not necessary for me to impress upon this Committee the gravity and potential threat of terrorist acts both domestically and internationally. You have already heard testimony from many distinguished witnesses, all of whom have emphasized the need for concerted federal action in this most important area.

My message to you is a simple one: we must undertake a program of carefully planned and administered research if we are to combat terrorism in meaningful way; carefully conducted scientific research is an essential element in the development of an informed counter-terrorism strategy. Over the past five years, about $2 million has been spent on research projects specifically aimed at increasing our understanding of terrorist phenomena. Most of the significant research on this vital topic has been supported by funds coming from the Law Enforcement Assistance Administration's Office of Operational Support.

Most of the federal funds devoted either directly or indirectly to the terrorist problem have been for projects with immediate practical payoff: the training of law enforcement personnel, the identification and detection of explosives, state of the art reviews of counter-terrorism techniques, legal research, and trend analyses based upon inventories of terrorist events worldwide.

Far from being critical of this work, I see it as an excellent beginning taken by federal officials during a period where there was no clearly articulated

policy concerning the federal role on research into terrorism. The work done to date is, therefore, testimony to the foresight and cooperation of a number of individuals who, on their own, saw the need for research on terrorism and were able to get it underway. Also, I am gratified to see that in the last few months the working group on terrorism has set up a subcommittee specifically charged with designing an overall research strategy and promoting needed research.

Despite this recent development, I am, however, concerned that the momentum of the research already underway may fade at a moment when we still have time to anticipate future terrorist activity. We should now be engaged in studies which will prepare us for possible or likely terrorist events of the future. The Mass Destruction Crisis Management scenario described to you by Dr. Kupperman of the Arms Control and Disarmament Agency is a good beginning, but we cannot stop without considering a number of other scenarios as well.

Mr. Chairman, I would like to discuss several other areas towards which anticipatory research of this nature can and should be addressed. Specifically, we should be thinking about and preparing for the possibility of attacks on our nuclear power facilities as well as seizure or destruction of our vital off-shore oil and gas stations.

With regard to the former threat, Mr. Joseph M. Hendrie, Chairman of the U.S. Nuclear Regulatory Commission has noted the danger of terrorist sabotage of existing nuclear facilities in the United States and abroad. I am convinced that such sabotage is equally as likely, if not more likely, than the deployment of a clandestine nuclear explosive or dispersal device by terrorists.

Michael Flood, a noted chemist at the University of London gives an added dimension to Mr. Hendrie's remarks when he states that:

"sabotage to a very limited number of critical components . . . identifiable from the open literature . . . could disable enough safety systems through common-mode failure to lead to a core meltdown of the reactor and containment failure. Contrary to public opinion, effective sabotage does not need to follow the sequence of any stylized design-basis accident. Shaped charges, for example, which are extraordinarily powerful weapons, developed specifically for demolishing reinforced concrete, could be used to break through protective shielding, sever pipes and wires and smash safety devices or breach the containment dome. If a nuclear station's ultimate heat sink ... the sea, a river or a lake ... were cut off by the destruction of cooling water intakes, this could also lead to disastrous consequences."

With the increasing U.S. and world dependence upon nuclear power facilities, it is imperative that we develop terrorproof safeguards to protect the public from the potential nuclear tragedy described by Professor Flood. In the absence of such safeguards, the safety of nuclear power plants must be seriously questioned.

For the Committee's information, I have appended to this testimony a list of nuclear facilities in which accidents or safety breaches have already occurred. The facilities are located in both the United States and abroad.

Mr. Chairman, I also serve as the Chairman of the House Select Committee on Population and am therefore well acquainted with current projections of third world population growth and the environmental limitation on the growth of their output. It is quite likely that unless the increasing population trends are reversed within the next two generations, massive human deterioration will occur in many African and Asian nations.

Bearing in mind these demographic realities, Robert Heilbroner, the eminent economist and social theorist, raises the specter of international nuclear blackmail employed by terrorists acting in what they believe to be the best interests of starving underdeveloped nations. These terrorists, Heilbroner claims, may demand massive transfers of food and wealth from the developed nations to the poverty-stricken world.

Yet another possibility we must address is that of attack on our off-shore energy facilities or any other acts of terrorism on the high seas. In 1975, the Third Law of the Sea Conference adopted verbatim Article 15 of the 1958 Geneva Convention on the High Seas. Rather than clearly defining jurisdiction and legal recourse in the event of terrorism on the open seas, that article virtually guarantees confusion and inaction. Put simply, Article 15 condemns illegal violent acts on the open-seas as piracy without specifying which acts exactly are illegal. It stipulates that any violent act associated with a fight for independence or liberation does not fall under the cloak of piracy. Given this framework, nearly all terrorist acts could be sanctioned as liberationist and hence would not be illegal under International Law. Any nations course of action in the event of a terrorist attack would be severely hampered by the questionable legality of a military response.

Mr. Chairman, to handicap our efforts, or any nation's efforts, to combat terrorism is inexcusable and potentially devastating, particularly since isolated incidents of terrorism are so difficult to deal with using all available means. The central reason for my appearance here today is to present to you the urgent need for research in this area.

Sabotage of nuclear facilities, nuclear blackmail by Third World terrorists, and piracy on the high seas... Mr. Chairman, has our research and planning thus far enabled us to meet threats of this nature?

The United States in particular must prepare for the strong possibility of future terrorism. Today's public demands that the intelligence community's monitoring and surveillance of individuals in our society be kept to a minumum--- and rightly so. We all hold dear our country's own tradition of personal and civil liberties. We must realize, however, that such a limited check on individual movement leaves us especially vulnerable to terrorist attack from within. The facts of the matter are that at present, we do not know enough about this phenomenon we call terrorism to direct our countermeasures intelligently and efficiently.

Certainly we need to continue and expand those studies which count, catalog and analyze the distressing parade of terrorist events as they occur. However, we also need thorough and scientifically rigorous research into the dynamics of terrorism; we must know more about police actions, hostage responses, terrorist psychologies, and the role the media plays in terrorist dramas.

In addition, we need to research and develop a variety of new technologies and strategies that could be successfully employed in preventing or responding to terrorist acts. Finally, we need specially commissioned studies to place the world's current problems with terrorism in an historical perspective so that we might benefit from the lessons of past experiences.

With regard to the legislation now being considered, S 2236, I share the Committee's view that the Executive branch has not made full use of the sanctions and resources at its command to counter international terrorism. The Administration apparently needs prodding, and I believe that your bill will accomplish this.

I commend this Committee for its initiative and leadership in facing a most challenging problem.

Thank you.

Appendix A

TABLE 1 ATTACKS ON NUCLEAR INSTALLATIONS OR FACILITIES

Date	Installation	State of Operation	Person(s) Responsible	Possible Reason	Method	Damage
May 4, 1969	USA: Mass. Inst. of Tech. reactor[a]	?	?	?	pipe bomb found	?
Sept. 1970	USA: Point Beach Reactor at Two Creeks, Wis.[a]	?	?	?	dynamite discovered	?
Dec. 7, 1971	USA: Stanford University Linear Accelerator in Calif.	—	?	?	2 bombs	heavy damage to electronic control equipment
March 25, 1973	Argentina: Atucha-1 reactor[b]	nearly built	15 men from ERP[f]	publicity	overrun; ERP flag raised	damage light; no demands
Feb. 22, 1974	USA: 400 ft. nuclear survey tower in Montague, Mass.[d]	—	Sam Lovejoy	anti-nuclear demo.	unbolted the stays	tower demolished
Aug. 27, 1974	USA: Pilgrim-1 reactor at Plymouth, Mass.[e]	Unit 1 at full power	?	?	incendiary	damage light; confined
May 3, 1975	France: Fessenheim reactor near Strasbourg[f]	nearly built	Meinhof-Puig Antich Group[k]	anti-nuclear demo.	2 bombs	considerable damage after fire
May 27, 1975	USA: Zion reactor in Illinois[g]	?	?	?	2 shots apparently fired at security guards	no damage reported
June 6, 1975	France: Framatome (nuclear mfg.) main computer at Courbevoie[h]	—	Garmendia-Angela Luther commando	anti-nuclear demo.	1 bomb carefully placed	half input terminals destroyed
	Framatome workshops at Argenteuil[h]	—			1 bomb carefully placed	valve testing shops damaged
Aug. 15, 1975	France: Monts d'Arée reactor at Brennelis[i]	fully operating	Breton separatists	anti-nuclear demo.; nationalism (?)	2 bombs	sufficient damage to close plant

TABLE 2 HOAXES AND THREATS TO NUCLEAR INSTALLATIONS OR FACILITIES

Date	Installation	Hoax or Threat Received	Purpose
1968–1975	U.K.: facilities of British Nuclear Fuels Ltd. and U.K. Atomic Energy Authority[c]	23 threats and hoaxes received by staff	various
1969–1978	USA: various facilities[b]	99 threats or acts of violence at licensed nuclear facilities listed by Nuclear Reg. Com.; 76 at facilities under ERDA's jurisdiction	various
Oct. 1972	USA: fuel fabrication plant at Serrento Valley, Calif.[c]	hoax: 3 canisters left in plant containing plastic explosive; personnel evacuated for 2-1/2 hrs.; nothing found	to "show it can be done"
Nov. 12, 1972	USA: experimental reactor complex at Oak Ridge Nat. Lab., Tenn.[c]	hijackers circled over installation and threatened to crash their plane; personnel evacuated, hijacker's bluff called	$10 million ransom
Dec. 15, 1972	Scotland, Dounreay reactor at Caithness[c]	hoax: 2 parcels left; 1,500 workers evacuated; boxes left at other sites	nationalistic motives; work of the "Jacobites"
Summer 1974	USA: Zion reactor in Illinois[f]	bomb threats received during industrial unrest; disgruntled employee blamed	?
Sept.–Oct. 1974	USA: facilities of Bonneville Power Admin. in Washington and Oregon[g]	14 transmission towers dynamited and 6 demolished during negotiations over demands (extortionists later apprehended)	$1 million blackmail demand
Jan. 30, 1975	U.K.: Windscale reprocessing plant in Cumbria[h]	telephoned threats of bombs	?

Appendix B

TABLE 3

VANDALISM AND SABOTAGE AT NUCLEAR FACILITIES

Date	Installation	Damage
?	U.K.: Winfrith SGHW reactor in Dorset	component (the calandria) seriously damaged after a compound of mercury, which was deliberately dropped into it, had amalgamated into aluminum base
March 1969–March 1971	USA: Lawrence Research Lab., Berkeley, Calif.[a]	7 separate arson attempts reported; damage not known
April 1970	U.K.: Berkeley reactor in Gloucestershire[b]	wires controlling discharge machine cut by disgruntled employee
April 1970	U.K.: Wylfa reactor in Anglesey[c]	gauges and dials smashed; electrical cables cut or removed; dozens of incidents of vandalism reported over 2-year period
May 12, 1971	USA: Donner Lab., Berkeley, Calif.[a]	arson attempt; damage not known
Nov. 4, 1971	USA: Indian Point reactor in New York[d]	$5 to $10 million damage to equipment as result of arson by former employee
?	USA: Fort St. Vrain reactor at Platteville, Colorado[e]	cables severed, and clogged helium pumps discovered
April 22, 1973	USA: General Electric, Knolls Atomic Power Lab., New York[a]	suspected arson; damage not known
Nov. 2, 1973	USA: Turkey Point reactor in Florida[d]	100 off-site incidents of damage to equipment reported during strike; police alerted to rumor of sabotage to main generator
Summer 1974	USA: Trojan reactor in Ranier, Oregon[f]	vandalism serious problem during construction; an intricate web of hand-shaped copper tubes smashed by hammer
Summer 1974	USA: Zion reactor in Illinois[g]	valves and switches found in wrong position; other valves repeatedly failed; disgruntled employee suspected
April 4, 1975	USA: Point Beach reactor at Two Creeks, Wis.[a]	telephone line cut by rifle or piston fire
July 23, 1975	USA: Nuclear Fuel Services, West Valley, N.Y.[a]	suspected arson in equipment storage barn; no further details

a. John G. Davis to James M. Cubie, Jan. 19, 1976. b. Daily Telegraph, April 30, 1970. c. Times (London), May 11, 1970; Daily Telegraph (London), May 11, 1970. d. W. B. Cottrell, "Protection of Nuclear Power Plants Against External Disasters," ORNL-NSIC-117, April 1975. e. L. D. DeNike, "Unacceptable Security Deficiencies in the Draft EIR, Proposed San Joaquin Nuclear Project," memo to Los Angeles, Calif., Dept. of Water & Power, June 1975. f. Oregon Times, Jan. 1975. g. *Environment*, 16.8 (Oct., 1974), 21.

Appendix C

TABLE 4

SECURITY BREACHES AT NUCLEAR INSTALLATIONS AND FACILITIES

Date	Installation	Purpose or Method of Entry
1957	U.K.: Calder Hall reactor in Cumberland	a rag stunt[a]
Nov. 18, 1966	U.K.: Bradwell reactor in Essex[b]	theft of 20 uranium rods; reasons obscure
March 1971	U.K.: Springfield fuel fabrication plant[c]	5 uranium rods disappeared; stolen perhaps in transit or at the Wylfa reactor in Anglesey
Aug. 1971	USA: Vermont Yankee reactor[d]	intruder wounded a night watchman before escaping
June 25, 1972	USA: New York University reactor[e]	building broken into; no damage except door panel broken for access
March 15, 1973	USA: Oconee, South Carolina[f]	break-in at fuel storage building; no material taken
Sept. 4, 1974	USA: U.S. Nuclear Corp., Oak Ridge, Tenn.[g]	attempted fence breach
Feb. 23, 1975	USA: Nuclear Fuel Services, Erwin, Tenn.[f]	fence breach; no theft
June 1975	Germany (FRG): Biblis reactor[g]	Werner Twardzig MP carried a Panzer-faust bazooka into the plant to present it to the Director
July 1975	USA: Brunswick reactor in North Carolina[h]	guards failed to check identification badges of personnel entering the plant
July 1975	USA: Quad Cities reactor in Illinois[i]	NRC inspector entered plant through an open uncontrolled gate
July 2, 1975	USA: Kerr McGee Nuclear Corp., Oklahoma City[f]	attempted forced entry
Aug. 1, 1975	Canada: Pickering reactor in Ontario[j]	Morton Shulman MP entered the plant carrying a satchel; he was not checked at the gate nor during his brief visit
Sept. 25, 1975	USA: Mass. Inst. of Tech.[f]	attempted forced entry
Jan. 27, 1978	USA: Three Mile Island reactor in Penn.[k]	intruder scaled security fence and entered protected area; he later drove off without being apprehended

a. Students at many colleges and universities in Britain set aside one week each year—Rag Week—to help raise money for charity. Rag stunts are occasions for outbursts of boisterous or mischievous exemplarity. b. Daily Telegraph, Nov. 19, 1966. *Guardian*, Nov. 21, 1966. c. Times (London), April 1, 1971. d. Dahlke, "Radioactive Malevolence" (n. 9). e. New York University to U.S. Atomic Energy Commission, June 25, 1972. f. John G. Davis to James M. Cubie, Jan. 19, 1976. g. *Nuclear News* 18:19 (Oct. 1975), 17. h. U.S. Nuclear Regulatory Commission, *News Releases*, 1:33 (Sept. 23, 1975). i. U.S. Nuclear Regulatory Commission, *News Releases*, 1:35 (Oct. 7, 1975). j. *Toronto Star*, Aug. 6, 1975, p. A6. k. U.S. Nuclear Regulatory Commission, *News Releases*, 2:12 (March 23, 1978), 1.

Appendix D

TABLE 5 U.S. COMPANIES FINED FOR NON-COMPLIANCE WITH SECURITY REGULATIONS

Date	Installation	Company or Corporation	Fine* (dollars)
June-Sept. 1974	Dresden reactor in Illinois	Commonwealth Edison	$25,000[k]
Aug. 1974	Nine Mile Point reactor in New York	Niagara Mohawk Power	4,000[l]
Sept. 1974	Three Mile Island reactor in Penn.	Metropolitan Edison	3,500[m]
Sept. 1974	Maine Yankee reactor	Maine Yankee Atomic Power	7,250[n]
Oct. 1974	Surry reactor in Virginia	Virginia Electric & Power	12,000[o]
Oct.-Nov. 1974	Fabrication facility in Attleboro, Mass.	Texas Instruments	2,000[p]
Oct. 1974	Midwest fuel recovery plant in Ill.	General Electric	6,000[q]
Nov. 1974	West Valley, N.Y. plant	Nuclear Fuel Services	4,000[q]
Dec. 1974	Millstone Point reactor in Conn.	Northeast Nuclear Energy	11,500[r]
July 1975	Quad Cities reactor in Ill.	Commonwealth Edison	25,000[s]
July 1975	Brunswick reactor in North Carolina	Carolina Power and Light	7,000[t]
Jan. 1976	Three Mile Island reactor in Penn.	Metropolitan Edison	8,000[u]

Senator GLENN. Hearings will stand in recess, subject to the call of the Chair.

[Whereupon, at 11:30 a.m., the hearing was adjourned, subject to the call of the Chair.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

WEDNESDAY, MARCH 22, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 9:55 a.m., pursuant to notice, in room 3302, Dirksen Senate Office Building, Hon. John Glenn presiding.

Present: Senators Glenn and Javits.

Staff members present: Ellen Miller, professional staff member; Robert V. Heffernan, research assistant; Brian Conboy, special counsel to the minority; Ken Ackerman, minority professional staff member. Energy Subcommittee staff: Len Weiss, staff director; Walker Nolan, professional staff member; and Sandy Spector, professional staff member.

OPENING STATEMENT OF SENATOR GLENN

Senator GLENN. The hearings will be in order.

Today and tomorrow will be 2 days of an ongoing series of hearings concerning the general subject of terrorism. The hearings will evolve around the bill that has been put in by Chairman Ribicoff.

We are particularly concerned in these 2 days of looking into the problems of or potential of nuclear terrorism where nuclear weapons might be involved or the threat of nuclear weapons would be involved.

Today, we want to get into the problem of ease of design, potential ease of design for nuclear weapons. And during the day we will bring out the extreme importance of protecting our supplies of highly enriched uranium, of weapons grade uranium and plutonium that might be used in a bomb design.

Tomorrow we shall receive administration testimony on the systems of safeguards for this material that we have available and is in use now and our Government's ability to respond to nuclear threats, of which we have had some 44 since 1970, several of which have been considered serious enough that we had response teams doing detailed investigations in different parts of the country.

Within the past 2 weeks, 11 PLO terrorists massacred innocent Israeli civilians, leading to the present military occupation of Southern Lebanon. There has also been the shocking news of the kidnapping of former Italian Premier Aldo Moro by a band of 12 terrorists, who killed his contingent of five bodyguards. Many other earlier terrorist incidents could be listed.

It is mind-boggling to even consider the prospect of nuclear weapons being possessed by these or other terrorist groups, but what may be unthinkable to some must be faced in order that we may protect humanity from this potential threat.

We have only to look at the figures on terrorist incidents with international consequences to see the basis for concern. International terrorism has sharply increased since the 1960s, whether one views it from the standpoint of number of incidents or number of casualties. According to an unclassified CIA report, the years 1968 to 1976 saw the emergence of 140 terrorist organizations from nearly 50 countries or disputed territories. There have been 1,000 deaths from international terrorist incidents during this period, with 2,000 additional persons injured. If casualties from domestic terrorist incidents are added to these figures, the numbers obviously become still higher. Much has been written concerning the motivation of various types of terrorists and whether the possession of a nuclear capability would enhance or detract from their ultimate aims. Perhaps this begs the question. For if a terrorist or terrorist group can achieve a nuclear capability, then that capability is within the grasp of every country on earth. And who will doubt the serious national security implications of that situation?

For many years there has been an ongoing debate within the nuclear community in the United States concerning the question of how easy it is to design and construct nuclear explosive devices. It is obvious that, in the light of my previous remarks, the resolution of this debate presents ramifications for safeguards which are of utmost importance to everyone.

In other words, if the mechanical equipment of a bomb is available, the only lacking ingredient for a truly workable bomb is uranium enriched to weapons grade, or plutonium.

It is not as if this question has not been raised before by this committee. Much of the debate over the Nuclear Non-Proliferation Act of 1978, recently signed into law by President Carter, was predicated on the assumption that providing fissile material or the means of obtaining fissile material to a nonnuclear weapons state was tantamount to providing them with a nuclear weapons option. Nowhere was the debate on the bill sharper than over the provision of "timely warning" which focused on the issue of how easy it was to make a weapon once the nuclear material was available. In that case, it was assumed that a scientific "team" of some size within a country could be tapped to construct the weapon. The issue of what the precise level of expertise might be was not a major part of that debate, but is at the heart of the issue we are addressing at today's hearing.

Last year in response to an earlier request from this committee the Office of Technology Assessment produced a report entitled "Nuclear Proliferation and Safeguards" in which it was stated that:

> Given the weapons material and a fraction of a million dollars, a small group of people, none of whom have ever had access to the classified literature, could possibly design and build a crude nuclear explosive device.

The same report described in general terms the two basic methods of assembling fissile material in a nuclear explosive; namely, the assembly of two or more subcritical masses using gun propellants—the gun-type device—and the achievement of supercriticality of fissile

material by using high explosive to sufficiently compress a subcritical configuration of the material. The report stated that: "Militarily useful weapons with reliable nuclear yields in the kiloton range can be constructed with reactor-grade plutonium, using low technology."

Predating the OTA report by about 3 years, a book by Mason Willrich and Theodore Taylor, who is with us today, entitled "Nuclear Theft: Risks and Safeguards," took as its central hypothesis that if the essential nuclear materials are at hand, it is possible to make an atomic bomb using information that is available in the open literature. In the introduction to their book, Willrich and Taylor recognized that every public discussion about risks to the public's security contains the potential for increasing that risk.

That is a fact that has weighed heavily upon me and others as we have struggled over the past few weeks with the question of how best to incorporate certain new information regarding the ease of weapons design into the domain of public policymaking. We have had to balance the benefits of raising public, indeed international, awareness of the problems we are to discuss today and tomorrow against the risks of encouraging warped and twisted minds to prey upon our worst fears.

I might digress from my prepared statement just a moment to say that we see the following benefits of hearings like this: We raise public awareness, number one; we raise international awareness of the problem; we can help emphasize the need for improvement of physical security; we can make acceptable needed restrictions of what is now too open a flow of information on bomb design; and we can add credibility to and acceptance of the President's nonreprocessing stance.

The risks are, I think, reasonably obvious on the other side. Do we encourage further amateur attempts at bomb design? Could we actually encourage terrorists rather than discouraging them? Would we possibly encourage additional threats and hoaxes? Can this be seized upon as another reason against nuclear power in general? Could it possibly encourage irresponsible headlining of the situation?

Well, we weighed all of these things. I must say we have had very, very lengthy discussions about them, because they are most serious.

But after much soul-searching, we have made the judgment that the national interest will be best served by open, prudent, responsible disclosure of the potential risks to our security through the possible fabrication of nuclear weapons by subnational groups or even individuals.

Senator JAVITS. Would the Chair consider yielding to me?

Senator GLENN. Certainly.

OPENING REMARKS OF SENATOR JAVITS

Senator JAVITS. Mr. Chairman, I am here to enable the Chairman to open and proceed with the hearing. I would like to say that I believe the soul-searching the Chair has spoken of is well warranted and that I believe the ultimate decision, especially as it will be taken with the care which this particular Chairman can uniquely give to this kind of a matter, with respect to the public hearing, I know will be followed.

So I believe the decision, especially in view of our unique good fortune to have Senator Glenn himself handle this hearing, justifies what the Chair has come to as the result of his own soul-searching.

I hope very much to express that hope that it will, one, properly impress our own people with the critical nature of the law which the President signed, which the Chairman and Senator Percy are the authors of and get credit for; and, second, the international community, which has been so terribly remiss, especially the new and developing countries of Africa and Asia and Latin America, which have so importantly failed to take with us the necessary measures against terrorism. That is really the root of this evil.

I hope very much that what should frighten the world in this kind of a situation, the ability to make an atom bomb by almost an amateur, will have some effect of moving the world to a better standard of care and of self-protection in this regard.

I thank the Chair so much for yielding. I express my gratitude to him as one Senator for carrying on this particular problem.

Senator GLENN. Thank you, Senator Javits, most sincerely. Thank you for your remarks. You have been working in this area a long time yourself. I certainly appreciate your efforts and your remarks.

Senator JAVITS. Thank you.

Senator GLENN. It is with those previously expressed remarks, with that conviction that I now relate the facts which form the immediate background for today's hearing.

Approximately 1 month ago Dr. Leonard Weiss, staff director of the Subcommittee on Energy, Nuclear Proliferation and Federal Services, was contacted by a 22-year-old former Harvard student, Mr. Dimitri A. Rotow, who is with us today, who brought to Dr. Weiss' attention a set of drawings and 8 out of 12 chapters of a working manuscript he had purportedly written on the design and construction of nuclear weapons.

This is the basic text of it here, and some of the information he has here, and some of the drawings I have with me today are right here, designs for an atomic weapon. These are all various blueprints Mr. Rotow brought to us.

As far as Dr. Weiss could tell, the manuscript was based upon information obtained only from the unclassified literature. He informed me of this event, and arranged for the drawings and manuscript to be reviewed by Dr. J. Carson Mark and Dr. Theodore B. Taylor, both of whom have had extensive weapons design experience.

Based upon the subsequent information I received, I arranged with Senator Ribicoff to go to the White House to discuss this matter with the President and to present some suggestions for Presidential action.

These suggestions, which are under review at the present time, are as follows:

(1) Tighten the presently loose distribution of information of direct significance for nuclear weapons design and fabrication, with the emphasis on preventing such widespread distribution of new technology as it develops. As we will find out later, the design of this came from open literature.

(2) Reexamine present levels and practices of physical security and materials accounting, with regard to weapons grade uranium and plutonium.

(a) Determine adequacy of and consider upgrading Department of Energy and Nuclear Regulatory Commission physical security on plants handling significant quantities of highly enriched uranium and plutonium to Department of Defense physical security standards for weapons.

(b) Determine adequacy of and consider establishment of a Federal nuclear protective force for plants described above. We will have more testimony on that tomorrow.

(c) Determine adequacy of and hasten development of new on-line materials accounting systems.

(d) Protect security plans of licensed facilities from indiscriminate disclosure under Freedom of Information Act requests, which we will also get into tomorrow.

(3) Inform all weapons states of these concerns and institute further diplomatic moves to restrict expansion and operation of commercial reprocessing facilities, and to upgrade physical security and materials accounting in all countries handling significant quantities of highly enriched uranium and plutonium.

I would only repeat one of the remarks in the first page of my statement, and that is in the middle of the page: In other words, if the mechanical equipment of a bomb is available, the only lacking ingredient for a truly workable bomb is uranium enriched to weapons grade, or plutonium.

With those opening remarks, we would like to welcome our first witnesses this morning. Our witnesses are Dr. Theodore B. Taylor and Dr. J. Carson Mark. I would ask them to come to the witness table, please.

I think if you just came together, we could have your statements and then could address questions as we saw fit at that time.

Dr. Taylor is at Princeton University at the present time. Dr. J. Carson Mark is from Los Alamos, formerly at the Los Alamos Scientific Laboratory in New Mexico.

Dr. Taylor, we would welcome your statement and your comments.

TESTIMONY OF THEODORE B. TAYLOR, PRINCETON UNIVERSITY; AND J. CARSON MARK, LOS ALAMOS SCIENTIFIC LABORATORY

Mr. TAYLOR. Thank you, Mr. Chairman.

I would like to paraphrase the first part of my statement in this way, that is to say that I have been concerned about this question of how difficult or easy it is to make nuclear weapons for a long time. I have given this something close to full-time attention for about the last 12 years.

That is where I am coming from in other words at this hearing. I have a serious concern about this.

Senator GLENN. I think I might just add that it was nearly 3 years ago that there was a television program based on some of the work that you had done, concerns along this very line, that some people in the room may have seen. I know I saw it and thought it was of sufficient importance that I got a copy of it from the network at that time and showed it to my office staff at that time.

Mr. TAYLOR. Yes. I remember that.

This concern comes from the experience I have had, which started, working under Dr. Mark at Los Alamos on the design of nuclear weapons, then a number of years following that on the design of nuclear power reactors and research reactors, then a rather short stint in the Pentagon as Deputy Director of the Defense Atomic Support Agency where I was concerned with the technical direction of the Defense Department's program to understand the effects of nuclear weapons. Given that background I found myself in the mid-1960s, specifically 1965, very concerned that there seemed to be a general impression, quite widespread, that nuclear weapons were very difficult to make, even if one had the necessary amounts of plutonium or uranium-235.

I found it was necessary for me first to decide, on the basis of my previous experience, whether it was anywhere near as difficult as the conventional wisdom at that time said. The answer was quite distinctly no. It is not that difficult.

During the course of the 12 or 13 years after that, I have been frustrated for the following reason, that I have found myself saying quite often publicly, that it is much easier to make nuclear weapons, given the special nuclear materials, than most people seem to be saying, particularly people in the nuclear industry and nuclear academia.

However, it has never been possible for me to say in any technically satisfying way why I have come to this conviction without actually violating Federal law by saying things that are classified.

In this context, I have tried rather hard several times to arrange for meetings with appropriate people in the AEC, then ERDA, then DOE, to go into this matter in some detail, to present the basis for my conviction, for two reasons.

One is I was not completely sure that at least among Government officials associated with the old AEC and ERDA and so on that this is really clearly understood. And I was never completely sure that I might not have overlooked some things that in fact made my statement of the relative ease of doing this incorrect.

I express that frustration because it is in that context that last week Leonard Weiss asked me to come over to the Hill and review the report, the draft report that you just referred to.

I would like to sum up my impressions of that very briefly. Mr. Rotow's manuscript is the most extensive and detailed exposition of things to think about and how to think about them in the design of nuclear weapons, nuclear fission weapons, that I have seen outside of classified literature. Although it contains a number of errors, these do not generally detract from his main lines of reasoning in setting down a variety of approaches to the design of a variety of types of fission weapons.

I was astonished by the amount of well-organized information and the number and quality of ideas he was able to assemble in a time that he says was about 3 months of intensive work. I would say his exposition is much stronger in dealing with design principles and the reasoning behind them than on estimates of performance, in which I found some significant errors.

All in all, however, I was neither shocked nor surprised that an intelligent and innovative person, without extensive training in nuclear physics, could produce such a document, though I must say I

was surprised that it took so little time. His work certainly tends to confirm a conviction I have held for more than something like 12 years.

That is my summation of my impression of the document, the draft report. I would be very glad to try to answer any questions that members of the committee may have about this.

Senator GLENN. Thank you, Dr. Taylor, very much.

Dr. Mark, would you give us your statement and then I think we could discuss this and have questions that either one of you could answer.

Mr. MARK. Thank you, Mr. Chairman.

Senator GLENN. Could you give us a little of your background also just in starting out?

Mr. MARK. Yes. I was a student of mathematics, taught mathematics, at the University of Manitoba for about 5 years. I joined the Montreal Laboratory of the National Research Council of Canada in 1943. That was the Canadian wartime project on atomic energy.

In 1945 I moved from there to Los Alamos, where I have been since. From 1947 until I retired in 1973 I was head of the division which was responsible for the design of nuclear weapons, both fission and thermonuclear, in which we had the good fortune to have Dr. Taylor as one of our team.

Since retiring in 1973 I have been a member of various advisory groups, and most particularly of the Advisory Committee on Reactor Safeguards since 1976, which committee, as you are aware, sir, is also concerned with the matter of safeguards, as well as of safety.

I have been asked to comment on the work of Dimitri Rotow; to give my assessment of the significance and quality of that.

Before doing so, I would like to just briefly make some remarks as a context for any such comments.

There is a great number of things concerning the design of nuclear weapons which are generally known, widely available in this country, around the world, and they include, for one thing, the notion that a supercritical assembly of material which has a fast neutron spectrum will explode. This is in contrast with the sort of neutronic situation that one meets in present power reactors. But there is no doubt that such a thing, if you got it together, will explode. That is absolutely known.

It was not a known fact in the first half of 1945. It has been a known fact ever since, and known to everyone.

There is, consequently, a very wide spectrum of configurations—combinations of active material and reflectors—which would provide a nuclear explosion if the configuration could be realized. There is nothing either surprising or new about that.

The means of realizing a supercritical configuration is where, of course, all the problem resides. Two qualitative means have been widely discussed. Others can be imagined. But the ones which have received very thorough attention are the gun method and the implosion.

In places like the Encyclopedia Americana and documents, newspaper articles, for many years the schematic representation of the gun assembly is quite clearly and adequately pictured, as also, even, the schematic representation of the implosion.

The design, then, of a nuclear device can take advantage of either of these methods and all it has to do in order to be a possible explosive device is demonstrate that when completed the assembly will be supercritical. Such an assembly of either uranium-235 or plutonium—whether weapons grade or reactor grade material—differ in detail, but not at all in large fact.

The problems about the design are in realizing the design, in having a configuration, or in having an actual apparatus which will do what you have specified it is supposed to do. Here one runs into a tremendously wide range of complexities and possible difficulties about which details are not written down.

The gun assembly is not necessarily properly constructed if it merely meets criteria familiar from normal ordnance. The projectile has an unfamiliar mass-to-diameter ratio. This has to be worried about in connection with the propellant charge, the qualities of the gun barrel and the breech and many things of that sort.

I am not aware of any public description providing a guaranteed solution for such problems. The drawings which one finds in the encyclopedia don't necessarily consider nor recognize those problems.

The implosion is easy to draw but by far from straightforward to accomplish. It is known that one should have a reasonably spherical detonation wave. It is known that one should have high explosive lenses, and these should be fired simultaneously to some degree. The business of finding out whether your particular set of detonators or lenses has the property of being simultaneous doesn't follow from just saying they must be simultaneous. It follows from having worked with the set.

Nevertheless, since the "design," or, if you will, the ultimate configuration to be achieved, is straightforward, no control of information is going to remove from view the kinds of situations which, if realized, would lead to explosions.

Another point, which is a general point, that I would like to make is: given an assumed supercritical configuration, the matter of being in a position to estimate the energy that would be released is an exceedingly difficult matter. One can assure oneself that it will be, let us say, "nuclear"; that is to say, have a yield much larger than if the mass of the object were built with explosive, perhaps by orders of magnitude. One can, indeed, persuade oneself of that on rather elementary grounds.

But to say that the yield is a kiloton, within an accuracy that is as good as a factor of three, becomes a matter of great difficulty. It is not likely to be available to an individual working alone. In fact, it can probably only be confirmed by having access to experimental results.

There is the large area of processing of materials. Let us pretend that one gets from some fuel fabricating source some plutonium oxide. This is the most likely thing one would be able to reach. It is conceivable that one could use the plutonium oxide as a raw material for an explosive. There are quite complicated design considerations that one would have to go into if one were to do that.

The other approach would be to think of reducing the plutonium oxide or uranium oxide to metal. There are handbooks which give information on the processes needed for such a reduction to metal.

It must be realized that these are really in the nature of cookbooks. It is as if I should have Julia Child's book here in my hand and, reading carefully line by line, expect to come out with a galantine. It takes more than those instructions. It takes experience and it takes a feeling, really quite a broad awareness, to go from the kinds of statements available in the plutonium metals handbook to achieve plutonium metal.

It is often claimed that this is an easy, straightforwardly available process for an inexperienced individual to follow. I think that statement is usually made by people who have never done it.

I have recently raised exactly that question with people who have worked in the field. Here, of course, I am crossing somewhat with Dr. Taylor's comment; and, of course, such people can be suspected of overemphasizing the difficulty. But one cannot find amongst them anyone who says it is easy. And they point out, and I believe correctly, that the analogy with the cookbook is very relevant.

Some things are written down about the mechanical arts, but by no means all of the things necessary to follow a given process ever get written down. Even in the reduction to metal, where the process is well described.

There was a situation at Los Alamos in the last year in which they had an incipient explosion, while following a routine process in the reduction to metal. This was in the hands of people working in that field for 10 to 20 years. It turned out there was a small undetected flaw in the equipment by which a certain amount of air, which wasn't supposed to be there, leaked into the particular vessel. It caught on fire and almost exploded in their face.

There are other indications that the simple descriptions of some of these mechanical arts processes are not enough to put one in a position to follow them. I am referring in particular to difficulties which have appeared over and over again in trying to transfer technology from a research group to a production group. With full cooperation, looking over the other person's shoulder, asking all possible questions and obtaining all possible documents as to just what to do; and when taken off to another site the process didn't work until one practiced with it and worked with it and finally got it beaten into place.

There is even such a case between Los Alamos and one of the other Department of Energy labs at present where, for several weeks, a process, though well in hand at Los Alamos, does not prove successful at the other place, in spite of all descriptions possible having been transferred.

The person, then, working from a design and having to exercise these things in the mechanical arts has more of a problem than has sometimes been indicated. And yet, in spite of that, there is no doubt whatever in my mind that it could be done.

A person might be lucky and go through and do it smoothly. If he didn't, he would have a chance and some likelihood of success in working it over and trying it again and trying to come out with what he was after.

But an estimate of the rapidity with which he might do it is totally without basis until you feed in a sufficient term for Murphy's law.

Not everything that can go wrong will go wrong; but it is very likely, since there are many steps, that something will go wrong.

I rather like the impression on the general subject that was given in the OTA's nonproliferation report, that:

> The manufacture (as opposed to the design) of a nuclear bomb is a complex operation demanding considerable effort and continued success through a number of difficult steps.

I think that gives the proper impression. They were speaking there perhaps primarily of a nonnuclear state. But it applies equally well to a nonstate route.

A single individual is exposed to great uncertainties, and, as Dr. Taylor mentioned, Mr. Rotow in his really carefully worked document has nevertheless made some mistakes. If he were alone, he would not necessarily be aware that he made such mistakes. If he persisted with such mistakes, he might build something with those mistakes in it. I would note, though, his prospects would be enormously improved if he were in a position to talk with other people who would at least provide some assurance that most of the serious mistakes have been found.

I think the last general point before coming down to Mr. Rotow's document or paper—though it is really a book—is that you might be amused to be reminded of something written 100 years ago by Mark Twain who, with some companions, was lost at the end of a day in a snowstorm. They could find no matches so they tried a makeshift with their pistols.

> Not a man in the party had ever tried to do so before, but not a man in the party doubted that it could be done, and without any trouble, because every man in the party had read about it in books many a time, and had naturally come to believe it with trusting simplicity—just as we had long ago accepted and believed that other book-fraud about Indians and lost hunters making a fire by rubbing two sticks together.

Many things are described in books. When you come down to do it, it doesn't necessarily fall in hand so easily.

Mr. Rotow's paper, as Ted has already said, is really very impressive. I have not seen by any means all, in fact only a rather few, of the weapons design proposals coming from people outside the weapons design community. I have certainly not seen anything as extensively argued, carefully argued, built up from scratch.

It is impressive and instructive that someone with a rather modest background in natural sciences, as I understand Mr. Rotow to have, has been able to do this. It is not surprising, but it is instructive.

Other efforts, such as that by—I can't remember his name—John Aristotle Phillips, he did not write down many of the things which appear in Rotow's manuscript because he, immersed in the discipline of physics, assumed they were understood, and to his fellows they would have been understood.

Rotow has written I think partly for his own assurance, to make sure that he understood the steps as he put them down, but the result is one which many more people could read and follow than could read and follow Phillips. It is much more instructive.

Nothing is basically new that I can think of in Rotow's paper. His designs are obvious, if you like. Some of them might be drawings of things which were described in words in the book "The Curve of

Binding Energy", where there were no drawings. These drawings have a strong resemblance to some of the things described there. It is a straightforward translation from words to drawings.

There is not in Rotow's work, in my view, sufficient awareness of some of the difficulties I spoke of earlier in actually realizing the apparatus to perform in the way which he has said it would need to perform or that it would perform. This, of course, doesn't prove anything; because it remains true that I suppose he, and certainly several people thinking as carefully as he has thought, could bring into reality such an apparatus.

I believe there is no doubt they could do so. There is no doubt that they might kill themselves in the process. But there is no certainty that they wouldn't succeed and realize the result.

One has to start with that consideration in mind—it could be done. Someone could do it. It doesn't have to be many people. They don't have to be tremendously trained in advance.

The only place in my view where there is an absolute valve on the business of going from some schematic for making a bomb to doing so is on the control of the materials required. If those are controlled, then no matter what good ideas people have, they can't make the bomb. If they are not controlled, no matter what information is held back, they can build it up as Rotow has done from existing information; and would have a chance to produce something if they could get the material.

How the present level of safeguards stands I am not in a position to make a statement about. I am quite sure that it is a great deal better than it was a few years ago. But whether it is good enough already to be reassuring with respect to possible threats, I do not know. If it isn't, then it should be made so.

That ends my statement, sir.

Senator GLENN. Thank you very much, Dr. Mark. I appreciate your remarks and those of Dr. Taylor.

I think we are concentrating much here in these 2 days on the nub of your last sentence—"if you can get the material". I think that is the problem.

I think these designs, such as Mr. Rotow has put together here and as you have testified and Dr. Taylor has testified, are probably more detailed and more possible of leading to an actual physical bomb itself than anything we have seen. So it puts the emphasis on your last statement that if one can get material which would go into this, why there would be a likelihood that some group could make use of this for their own purposes.

I think, Dr. Taylor, in your statement you question the accuracy of the yield estimates that were made by Mr. Rotow. While that may be of extreme importance in weapons design for a certain purpose, I think since we are concerned with terrorism, the likelihood of this being 10 kt. as opposed to 20 kt., or whatever the estimate may be, becomes somewhat academic in this other environment we are extremely concerned about in these hearings.

What are your views of the physical security surrounding material now? You have both had experience at the DoD level as well as the other facilities that would be outside DoD supervision. What are your views of the physical security of weapons usable material?

What steps do you think should be taken to upgrade our present accounting and security systems?

Dr. Taylor or Dr. Mark, either one.

Mr. TAYLOR. My view of the physical security safeguards of material that is not under the control of the Department of Defense or of the Department of Energy in the context of the nuclear weapons program is that it is still inadequate.

What I mean by that is that the published regulations of the Nuclear Regulatory Commission, in my view, if abided by to the letter, and even somewhat beyond the letter, would not prevent groups of people with the types of skills and resources and motivation that have been used in successful attempts at theft in the past of other values.

There have been I think important improvements of the physical security situation during the last dozen years or so. However, in the civilian facilities, certainly those under civilian control, I think it is still fair to say that the places where enough highly enriched uranium or plutonium to make at least one bomb exists, the physical security is not as good as it is in many financial institutions now for protecting money.

Senator GLENN. Just the average bank security would be better?

Mr. TAYLOR. Not the average bank security perhaps, because I really don't know what that is. But the protection that was given to the much publicized Brink's case, for example, in the Brink's robbery some 12 years ago, was as I understand it greater than the security precautions now called for for special nuclear materials by the Nuclear Regulatory Commission. That is one of the reasons for my making the statement the way I did.

I have no evidence that physical security of these materials is any greater outside the United States than it is here.

Senator GLENN. How about the converse of that? Do you think it is any less?

Mr. TAYLOR. I don't know. I have been told by several Russians that in the Soviet Union these materials are guarded heavily by the Red Army and there is no possibility whatever that the material could be stolen. I am somewhat skeptical.

I have not toured any facilities outside the United States recently to make any kind of independent assessment of how good their security is.

There is a set of guidelines that has been published by the International Atomic Energy Agency on physical security. I think that is an important step forward in this whole business. But the guidelines themselves to me reflect a level or suggest a level of protection which is not as great as would be necessary to stop theft attempts of the sort that have actually happened in the past, with respect to other value materials, not plutonium-uranium.

The situation in the United States is extremely important for international reasons, because I think many countries are looking to us to see what we do before deciding in detail what to do with respect to physical security abroad.

There have been some very healthy developments I think in the exchange of information between this country and foreign countries

on how to protect the materials, a great deal of exchange of technical information. I applaud that and I am very thankful for it.

So I would say flatly that the physical security that is now given to these materials outside the military framework in the United States is inadequate. Within the military framework I simply don't know.

I was concerned several years ago by statements made by Senator Symington to the effect that he was not at all happy with the state of security of our weapons, particularly abroad, and to some extent I believe in the United States. Now I have never toured those facilities, but I was concerned because Senator Symington expressed his concern.

I am leery of saying that the standards that now exist within the Defense Department or the part of the Department of Energy concerned with military materials and explosives, should be set up as the standard and that we can all relax if that standard is met, for a simple reason—I don't know what that standard is.

I am quite sure that from the technical and economic standard it would be possible to protect these materials worldwide to such a level that it would be extremely difficult to imagine a successful theft by even a very well equipped, intensely motivated group of people working outside of the law. I don't think we have come anywhere near implementing such physical security standards.

I am concerned that as far as I know, there has been a tendency to emphasize the use of armed guards in improving the physical security of materials in the United States. I am much more attracted to using physical barriers, very heavy containers, and alarm systems that will bring from off-site somewhere whatever reserves of heavily armed people are required to keep the theft from being successful, whatever the level of the attack is.

I find that I am not at all in agreement with the idea that the first thing you do is to specify the level of attack, the threat level, so-called, to which the system should be designed. I think it is quite possible to imagine a physical security system that could deal with any imaginable threat level by arranging things so that however many people turn out, with whatever skills and with whatever tools, they can't get the material out from view.

Senator GLENN. If I might interrupt, another aspect of this rather than the massive attack type approach that I think is comparatively easy to protect against, whether you use a 12-man attack force as your criteria that you are going to defend against or whatever, I have always felt and I would solicit your opinion on this—and you haven't had a chance yet, Dr. Mark, to respond to the first question—but I have been concerned about the small theft, not the massive attack type thing, but where fuel is being fabricated or uranium is being upgraded to weapons grade capability or where plutonium is around.

Is there a possibility that, say, one gram a day can be eased out some way, in clothes, or can be carried out or smuggled out in some way, and over a period of time you have enough for a nuclear weapon? I always thought perhaps there was a greater danger from that standpoint rather than from outright attack on a massive place to get weapons material.

Mr. TAYLOR. If you would say 10 to 100 grams a day, one could visualize ways of setting up a system around boundaries of a facility

such that any movement of about 10 grams of material through channels, through doors, through equipment bases, could be detected with equipment that can now be described; in fact, which is now installed in some places.

One gram is difficult. I might say that the main difficulty in setting up such a surveillance system that would detect this is the waste stream. There are large quantities of materials which are radioactive which may or may not have plutonium or highly enriched uranium in them that are very difficult to monitor with equipment.

The waste streams can be monitored if the material is divided into very small lots. This is very troublesome. It is likely to be expensive, but not on the scale such as to change substantially the cost of nuclear power.

I prefer this containment approach and the threshold detection approach, as opposed to the materials accountacy approach, which I don't think will work, where one measures how much goes into a plant, how much goes out, takes the difference and makes something of these discrepancies in measuring, measuring in some types of facilities a large flow of material in and out. To try to determine the difference with high accuracy is very difficult. But to measure specifically, to detect a very low level of flow of plutonium out a doorway can be done with extremely low threshold.

I think that is the approach that ought to be used. There are many advocates of this. There is work going on on this. I am concerned about the slowness with which these ways of solving the problem are in fact implemented.

Senator GLENN. Dr. Mark?

Mr. MARK. I don't really want to add appreciably. I have much less direct awareness of the safeguard security systems than I believe Dr. Taylor has.

I would like to emphasize that the kind of materials, plutonium and highly enriched uranium, which are handled in civilian or military contexts should certainly receive the sort of protection that one hears of in connection with gold bullion and things of that kind—at least that kind of protection, and perhaps better.

Senator GLENN. Do you think we lack that kind of protection now? Our gold bullion is better protected than our nuclear material?

Mr. MARK. No. I am not currently familiar with the means which are in effect. I am merely saying that they ought to be at least that good, enough to make it improbable that an attempt to hyjack or raid a place and make off with supplies would be successful.

I think it is important, however, to recognize that the kind of attention that is indicated by that remark really should be focused on a rather limited group of materials, kinds of materials. That sort of attention is not relevant with respect to a light-water power plant, that if people run off with pieces of fuel every day that one should worry about that. That I find rather ludicrous.

It is not just any radioactive material which, at least from the weapons-making point of view, has to be given the same level of attention. The number of places where there is highly-enriched uranium-235 and plutonium is really rather limited. It does not include all 65 operating power plants presently in the country.

They need protection and they need watching, perhaps primarily from the point of view of sabotage, but not mainly with respect to the protection of materials.

I think that should be quite carefully in mind in connection with regulations, that they don't use too broad a net and focus more on the important things.

I am hopeful, I thought it was even already at least partially true, that personnel checking apparatus at entrances to nuclear plants would be capable of detecting a few grams, if not even one gram—probably one gram of plutonium—on a person trying to smuggle it out.

This way of trying to make bombs would seem to me not really a matter of high concern. If it were true that such checking apparatus was effective, then he could only sneak out something in the neighborhood of a gram a day. The current threat, to the extent there is one—and I don't know anything about terrorist organizations or plans at all—would seem to me to reside in those places where there is a lot of material of the right quality for making the bomb. And the opportunity of somebody taking enough in one or possibly two—obviously he would have only one chance, since the minute somebody raided one of these plants it is going to be impossible to raid any others—would not be there.

Senator GLENN. I would agree that it would take a long period of time with one gram a day for one person. But if you assume there were several people working at one or more sites on this, you could theoretically come up with material for a bomb, say, within a year.

Mr. MARK. In theory you could, sir. I think also you could expect that one or another of them would seek a reward at the expense of turning in the rest of them.

Senator GLENN. Do you think there would be any advantage, particularly in the military situation, Dr. Taylor, to having a standardized or a better trained Federal nuclear protective force for plants?

Apparently most of these plants now are guarded by contract guard forces, with private companies. What would your opinion be on a Federal guard force, a paramilitary group perhaps, that was trained at one spot for this specific purpose?

Mr. TAYLOR. I think that is not only a very good idea but I find it hard to imagine our getting an effective system going without doing that.

As I am sure you know, there was a study of whether or not this was a good idea which was part of the legislation setting up ERDA. The findings of that study were that there was no need at this time to think of something like the Federal security force.

I find the reasoning that led to that very uncompelling. The fundamental difficulty I think is that non-Federal or nongovernmental security forces are not able, within the law, in many cases, to deal the way I think the public would like to be able to deal with people trying to storm a facility. The whole question of exposure to legal action comes in if someone gets shot in the course of an attack.

That apparently is not anywhere near as big a problem as if someone is talking about the analogues of the Secret Service or an organization like that.

I think it would ease the problem in industry if the responsibility for transporting and guarding all of these materials were a Federal responsibility.

The Atomic Industrial Forum several years ago, through President Carl Walske, Walske made the statement that they thought that was a very good idea—at the very least to make the transportation of these materials a Federal responsibility with the Federal security force.

Senator GLENN. Gentlemen, thank you. We may have additional questions. We are going to have to move on with our other witnesses this morning. We normally keep the record open for about 10 days.

We thank you very much for being here this morning.

Mr. TAYLOR. Thank you.

Mr. MARK. Thank you.

[The prepared statement of Mr. Taylor follows:]

Statement Presented to
The Committee on Governmental Affairs
of the United States Senate

by Theodore B. Taylor
Independent Consultant and Visiting
Lecturer, Princeton University

March 22, 1978

Mr. Chairman and Members of the Committee:

My name is Theodore B. Taylor and I live at 10325 Bethesda Church Road, Damascus, Maryland 20750. I am a part time independent consultant and have a half time appointment as a Visiting Lecturer With Rank of Professor at Princeton University's Aerospace and Mechanical Sciences Department.

I am grateful for the opportunity to testify at these hearings on nuclear terrorism, a subject that has been of major concern to me for many years.

From 1949 to 1956 I worked on the design of nuclear weapons as a member of the Theoretical Division of Los Alamos Scientific Laboratory, under the supervision of Dr. J. Carson Mark. I subsequently worked for eight years at General Atomic on the design of nuclear reactors and on a classified investigation of the possibilities for using nuclear explosives for the propulsion of very large space vehicles. From 1964 to 1966 I was Deputy Director (Scientific) of the Defense Atomic Support Agency of the Department of Defense, where my primary responsibility was the technical direction of the Agency's programs to investigate the effects of nuclear weapon explosions. Starting in the fall of 1966, and through the present time, I have devoted a large part of my time to the field of nuclear safeguards to prevent the use of nuclear energy for destructive purposes. I did most of this work under contracts to International Research and Technology Corporation (IR&T), a small consulting firm I founded in 1967, while working as an independent consultant in Vienna, Austria. I resigned from IR&T in June, 1975, but am still a consultant and member of the Board.

As a result of these experiences I have developed the conviction that one of the most important tasks facing the world is to find ways to reduce the risks of destructive use of nuclear explosives to levels that are generally acceptable worldwide. I distinguish between two types of such risks: those related to nuclear war between nations, and those related to the acquisition and subsequent use or threat of use of nuclear explosives by terrorists or other criminals. Although I am more concerned about the former than the latter, I am convinced that the risks of nuclear terrorism are both real and great, for the following reasons:

1. Given the required amounts of special nuclear materials (plutonium, highly enriched uranium, uranium-233, or any other heavy elements from which fission explosives can be made without having to perform isotope enrichment), in a variety of chemical and physical forms, it is highly credible that a small group of people could design and build fission explosives, using information and non-nuclear materials that are accessible to the public worldwide. Under some circumstances, it is quite conceivable that this could be done by one person, working alone. Such explosives could be transported by automobile. Their probable explosive yields would depend considerably on the knowledge and skills of the group. Relatively crude explosives that would be likely to yield the equivalent of up to about 1000 tons of high explosive would be much easier to build than explosives that could be reliably expected to yield the equivalent of more than 10 kilotons of high explosive. Explosives with yields in the latter range would be much easier to build with highly enriched uranium or uranium-233 than with plutonium. All three materials, including plutonium of all isotopic compositions, could be used for making relatively crude explosives with yields in the vicinity of one kiloton.

2. Publicly announced U.S. Nuclear Regulatory Commission regulations for the physical protection of quantities of special nuclear materials sufficient for one or more nuclear explosives are, in my view, still not adequate to defeat theft attempts involving scales of manpower and resources that have been successfully used for thefts of other valuables in the past. I have no evidence that the physical security of special nuclear materials for non-military purposes are substantially greater in other countries than in the United States.

3. Terrorists and criminal blackmailers continue to use high explosives for their purposes, rather than poisons or fires, both of which could cause considerably more damage for the same effort. I point this out because it has often been said that terrorists would be more likely to use biological or chemical poisons or systematic arson as means for mass destruction than they would be to use nuclear explosives, because the former would be easier than the latter. I find it just as credible that nuclear explosives would appeal to terrorists and blackmailers for the same reasons that they appealed to the United States in World War II--they are more persuasive than high explosives.

My publicly stated convictions regarding the credibility that small groups of people, or even one person, could clandestinely design and build nuclear explosives if they had the required special nuclear materials has been repeatedly challenged, both publicly and privately. In most cases it has not been possible for me to answer these challenges in satisfactory detail without revealing classified information to which I had unrestricted access from 1949 through 1965. Since that time I have

had the needed security clearance. Nevertheless, in spite of repeated efforts to do so, I have not been able to arrange for extensive and detailed classified discussions of this subject with appropriate technical people in the AEC, then ERDA and now DOE weapons laboratories. My purposes in trying to arrange such discussions was to make sure that the basis for my public statements was known, in detail, to appropriate government officials, and to straighten out any misconceptions I may have had about this subject. All the official public releases I have seen about this subject strongly suggest that I have overstated the ease with which crude but destructive nuclear weapons could be built. The frequent misconceptions and errors related to this issue that have been presented in rebuttal to my convictions, especially by people in the nuclear industry or academia with no experience related to nuclear weapons, have therefore been a steady source of frustation to me.

This was the context within which, last week, Leonard Weiss showed me a copy of a draft manuscript on how to design an make nuclear weapons, written by Dimitri Rotow. On the following day, March 15, I met with Dr. Weiss and Mr. Rotow for about an hour, and then privately discussed Mr. Rotow's manuscript with Dr. Weiss.

In this prepared statement my comments on Mr. Rotow's manuscript will be brief, partly because I do not know to what extent the members of this committee have been briefed about its content. I shall be glad to answer any questions that I can about it or related subjects, from members of the committee after I have presented my statement.

Mr. Rotow's manuscript is the most extensive and detailed exposition that I have seen outside the classified literature. Although it contains a number of errors, these do not generally detract from his main lines of reasoning in setting down a variety of approaches to the design of a variety of types of fission weapons. I was astonished by the amount of well-organized information and the number and quality of ideas he was able to assemble in a time that he says was about three months of intensive work. I would say his exposition is much stronger in dealing with design principles, and the reasoning behind them, than on estimates of performance, in which I found significant errors.

All in all, however, I was neither shocked nor surprised that an intelligent and innovative person without extensive training in nuclear physics could produce such a document, though I was surprised that it took so little time. His work certainly tends to confirm a conviction I have held for more than 12 years.

This ends my prepared statement, and I shall be glad to try to answer any questions.

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Senator GLENN. Our next witness this morning is Mr. Dimitri A. Rotow. Mr. Rotow, we welcome you this morning.

I might say before any words that you might have for us this morning, I think the claims you have made and the manuscripts which you have produced, of which we have about a 2-foot pile here this morning if we put them all together, in volume alone they are impressive and in substance even more impressive. But it is obvious that this has caused a considerable stir or we wouldn't be in this hearing this morning.

Because of the implications that follow from your claims, I think it is important to the committee and to the public and to yourself that there be no question raised as to the validity of your personal role in this matter, for your own protection as well as ours, of course.

I understand that you have agreed, therefore, to testify under oath and you have prepared a sworn affidavit to be inserted into the record. Is that correct?

Mr. ROTOW. Yes, sir, I have.

Senator GLENN. I would ask you to stand and raise your right hand.

Do you swear that the testimony you are about to give before this committee will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. ROTOW. I do.

Senator GLENN. I have here an affidavit that I will enter into the record.

[The affidavit follows:]

UNITED STATES SENATE

Affidavit of Dimitri A. Rotow

I, Dimitri A. Rotow, residing at Alexandria, Virginia, under pain and penalty of perjury depose and say:

1. I am the sole author of a manuscript entitled "Nuclear Weapons Design and Construction", and associated notes, designs, and illustrations (hereinafter, the "manuscript").

2. I personally performed all research and prepared all notes, illustrations, and scientific background materials for the manuscript between the dates of November 1, 1977, and February 1, 1978. Working from my notes, I then drafted parts of the manuscript into narrative form between February 1, 1978, and March 10, 1978. This second phase of my work involved purely literary editing and reorganization.

3. At no time was I assisted or guided in my research, drafting, editing, or illustrating work for the manuscript by any government, corporation, organization, or person, other than routine assistance by personnel of the Library of Congress.

4. At no time have I had access to classified National Security Information or Restricted Data either directly or through any intermediary.

5. In preparing the manuscript and presenting it to the Senate Governmental Affairs Committee, Subcommittee on Energy, Nuclear Proliferation and Federal Services I have not served as agent, employee, or representative of any government, corporation, organization or person.

6. On March 21, 1978, I placed all copies of the manuscript, including notes, sketches, bibliographies, library search records, partial illustrations, and all reproductions thereof in the custody of the Senate Governmental Affairs Committee, Subcommittee on Energy, Nuclear Proliferation and Federal Services for safekeeping.

I swear that the foregoing statements are true and correct.

March 22, 1978
Washington, D.C.

Dimitri A. Rotow

Subscribed and sworn to, before me, this 22nd day of May, 1978 by Dimitri A. Rotow

Notary Public, D.C.

My Commission Expires 14 May, 1978

Senator GLENN. I don't think we need to take time to read the whole thing. But it basically says that—well, perhaps we should have Mr. Rotow read the statement himself.

TESTIMONY OF DIMITRI A. ROTOW, ALEXANDRIA, VA.

Mr. ROTOW. The affidavit reads:

I, Dimitri A. Rotow, residing at Alexandria, Virginia, under pain and penalty of perjury depose and say:

1. I am the sole author of a manuscript entitled "Nuclear Weapons Design and Construction," and associated notes, designs and illustrations (hereinafter, the "manuscript").

2. I personally performed all research and prepared all notes, illustrations, and scientific background materials for the manuscript between the dates of November 1, 1977, and February 1, 1978. Working from my notes, I then drafted parts of the manuscript into narrative form between February 1, 1978, and March 10, 1978. This second phase of my work involved purely literary editing and reorganization.

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I swear that the foregoing statements are true and correct.

My signature follows.

Senator GLENN. Thank you very much.

For everyone's information here, the basic document to which he refers is this document that he brought to Mr. Weiss, Len Weiss of our staff here. There are other substantiating back-up documents and notes here which Mr. Rotow has given to us, as he indicated in his statement. If they all fall over, we will get hurt, Mr. Rotow. [Laughter.]

These are the substantiating drawings, and they are not blueprints but drawings Mr. Rotow had made with various design ideas which I believe Dr. Taylor in particular referred to when he saw these as containing considerably more material and more design detail than anything he had seen certainly outside of a regular design team at one of the laboratories. So these also were turned over to the committee.

We will have them further assessed, of course.

Mr. Rotow, just as a general background, what is your educational background?

Mr. ROTOW. Well, somewhat varied in terms of concentration. I first studied physics, which I guess is the subject that everyone is most interested in, when I was in high school in Pennsylvania, where I studied physics. While in high school, I took a physics class in

Franklin Marshall College, for a total of about a year and a half of physics. It covered the very basics.

I then went to Harvard College where I also studied physics for a year and a half. Physics was my main concentration at the time, with associated study of mathematics. I then discovered that I wasn't terribly good at physics, so I dropped out of physics at that point and changed to economics, which I have pursued ever since.

I am currently on leave from Harvard. When I return, which I expect will be in, say, a year or so. I hope to graduate with a degree in economics and later go on to law school or business school.

Senator GLENN. I don't want to make light of your situation, but I am not sure I like this combination of designing atomic bombs and economics. [Laughter.]

Mr. ROTOW. Well, my main attempt—I guess I should cover that as well. My specialty is decision analysis and game theory, especially as applied to public policy matters. About a year ago I was working with a professor at Harvard on a study analyzing financial strategies for nuclear fuel enrichment plants. We touched very peripherally on the issue of nuclear terrorism. I took up that thread again this past November when I studied nuclear weapons at the Library of Congress.

At the time, my main intent in writing the manuscript was to provide a document which would explain the whole issue of weapons design and construction to public policy decisionmakers. That is one reason why I developed it in a way I feel is the minimum level of understanding for anyone.

For example, the first chapter explains what atoms are and so forth. I must admit the research effort sort of took off on me.

Senator GLENN. Could we get more into your motivation for doing this? Was it just that you had an interest in this from previous things you read or discussed with this professor?

Mr. ROTOW. Sure. And of course I guess my background in physics came through. It is a fascinating subject for anyone interested in the physics of the matter and what occurs in an atomic detonation is somewhat unique.

I also thought at the time it would make good fodder for magazine articles, possibly even a book. I later came to realize that regardless of how technically accurate or inaccurate it is, the manuscript is, it would be an error to publish it in its entirety as purportedly a complete text on weapons design, because I think that would create significant danger; simply because people might read it and really believe this is all there is to know on the subject and then go out and steal raw materials or what have you.

Senator GLENN. Was your motivation in it monetary gain, fame, notoriety? What was your motivation in this mammoth work you have produced here? I am interested in why you went to all this effort.

Mr. ROTOW. Well, I have to admit I was familiar with John Philips and his experience with fame, notoriety and so on. In the beginning of the study, I did see it as a means of gaining credibility and, say, future funding or what have you for studying public policy issues.

What I really would like to do is analyze the safeguards issue.

I later came to realize, and this was well within a week or two of starting the whole enterprise, and increasingly more so in recent days, that there is a vast amount of danger associated with notoriety in this matter: anything from problems with kooks calling up on the telephone to national governments treating me as a desirable property, or other problems along those lines. But I don't really see that as being an issue in the present case because if somebody really wanted an expert to build a bomb, they would go steal a nuclear engineer.

Senator GLENN. Do you think you could go ahead and fabricate a weapon as you have designed here and as your diagrams have shown? Do you think you could design this without assembling a large team to do this?

Mr. ROTOW. Well, that touches on Dr. Mark's testimony. I started exploring how this whole thing should be published before I had actually completed a running document complete with index and glossary and all that sort of thing. So it wasn't really a finished product.

What I did was to hastily assemble the notes already produced into a narrative and transmit them to Mr. Weiss. These assembled notes cover the first eight chapters of the complete document. The sections on fabrication are rather lightly treated, simply because although fabrication is the area where most declassified information exists, that is also the one where, according to Murphy's Law, most things can go wrong.

So if you want to produce a comprehensive, detailed statement, you have to think out all the possibilities that might occur. Frankly, setting those down on paper takes a considerable amount of time.

Exactly what capacity I would have to build a working device depends on the type of device I would like to build. The essential feature of all this is that there isn't just one atomic bomb design. There are many basic designs, requiring varying amounts of material. How much material you have, what form it is in, bears directly upon one's ability to produce a functioning weapon.

The yield desired is also a factor in terms of my analysis, I took a minimum yield of one-tenth of a kiloton as being a significant yield for a nuclear weapon. That is the kind of yield you would want, say, to annihilate the Capitol during the State of the Union address or to knock down the World Trade Center Towers in New York. It is roughly one-tenth the yield of the device that was detonated over Hiroshima. Of course, a yield of only 10 tons of TNT is sufficient to kill everyone, say, attending the Super Bowl.

But I tried for a tenth of a kiloton as being a median figure.

Another factor in my ability to produce a working device is whether I would be rushed in putting this thing together, whether I would have to assemble some effort on a rush basis because the raw material theft had gone detected and several accessories had already been apprehended.

Finally, and most importantly, is exactly what form the nuclear material was in. There are essentially three materials that are of interest. In addition to highly enriched uranium, there is the 239 isotope of plutonium, any form of plutonium. There is also uranium-233 which, if high temperature gas-cooled reactors are adopted, will be prevalent in increasing quantities.

If the material were in a metal form when I had it, and again it depends how much I have, say 60 kilograms of weapons grade uranium, which is really a massive amount of uranium to work with—I think it would be extraordinarily, although not trivially, simple to build a working device, at least in comparison to what most people think of as being the great amount of work required for a device.

Senator GLENN. How would you go about machining it, getting the physical work done and getting things done you have diagramed?

Mr. ROTOW. For this simple gun device we are talking about, we need a packet of high explosive, two units of fossile material, and the gun. You could contract to have the gun assembly done by a machining company. You could do this in the guise of providing counter——

Senator GLENN. You could contract most of this out as opposed to having to set up your own machine shop?

Mr. ROTOW. That is what I would do, although I could build the appropriate type of mechanism and everything myself, sure. It would just take longer. I am thinking realistically in terms of what a real terrorist group might do.

Senator GLENN. What I was getting at is whether this could be fabricated as you designed. Could you fabricate it minus the core, minus the material, without assembling a team to do it?

Mr. ROTOW. Yes, no doubt about it. Even fabricating the core would be rather simple.

Here I would like to touch on another comment Dr. Taylor made. In recent weeks I have been increasingly aware that the yield and efficiency estimates I made in the manuscript are flawed. One problem with terrorist weapons, any low technology weapon, is there is never a clearly defined yield. When you are talking about a yield figure, that figure is really your most probable yield. There is some distribution about that number as to what yield the device actually gives.

I would do things slightly differently now than the way illustrated in the designs you have there in order to guarantee myself a higher yield. The device that I referred to as the—I believe I referred to it as the basic five kiloton bomb for the mechanically inept—really gives out only half a kiloton. That is still more than adequate for any terrorist purposes.

That particular device could be easily fabricated. I could fabricate the core as well, assuming I got the uranium in metal form. If it came through in the form of uranium carbide or oxide or hexafluoride gas, in which form highly enriched uranium is currently shipped, it would take longer and require a larger effort to do the conversion to metal.

I think I could do it. I am not trying to trivialize the difficulty of that conversion. However, I have personally worked in organic chemistry labs where syntheses and experiments of the highest order of sophistication were being undertaken, experiments where slight flaws in procedure or apparatus were more than enough to invalidate one's efforts.

So it would take time, but yes, I believe I could do it.

Building a more complicated device is an entirely different thing. For example, suppose I only had 30 kilograms of highly enriched uranium to work with. I would have to use a less commonly available reflector material. It would take considerably longer, and the

yield might be slightly off. But it would still generate more than a tenth of a kiloton.

Senator GLENN. How many different designs have you made so far?

Mr. ROTOW. Well, that depends on what you interpret as a design. I think including the illustrations, the designs I quote in the text and all of those blue sheets in there which are sort of my hand notes on most designs I have about 40 designs, with in general about three or four different high explosive components, and I would say at least a dozen different cores illustrations. For implosion devices specifically, there are three or four high explosive arrangements we could use, depending on what is conveniently available, and several dozen different cores explicitly shown.

Also, the little blue notebook has three charts which illustrate possible configurations based on several design parameters which I developed through which you can attain supercriticality. I think those tables represent about 60 different designs.

So the number of actual designs is on the order of 100 or 200 different possible combinations of all those.

Senator GLENN. It is our plan, I might add, with this, since we don't consider ourselves on the committee as the ultimate experts in assessing this material, to turn it over to the Department of Energy for their assessment as to what classification, if any, they feel it should have.

We have discussed this with Mr. Rotow. He has agreed this is the best thing to do. That is the reason why he turned over all of his notes and so on to us. We appreciate his cooperation.

Getting on to other designs, how about thermonuclear devices? How do you feel about those? Is that a more difficult problem? Is it more difficult to get unclassified information which you used as the basis for your studies here?

Mr. ROTOW. Well, I included a chapter commenting on the neutron bombs, Government designs, like Fat Man, and I talked about possible clandestine use of thermonuclear technology, specifically about a device known as the "Booster."

I think it is highly unlikely that any terrorist group would ever have the technical sophistication to actually produce a thermonuclear device. I have made several runthroughs at designing thermonuclear triggers and discovered that, in my understanding of the particular configuration the Government used to produce efficient triggers to detonate a thermonuclear device, it is a rather difficult thing to do, both to calculate it out and to actually build it.

Building the thermonuclear part of the bomb, in any event, would involve terrorists diverting quantities of tritium and several other exotic isotopes of hydrogen and lithium. So I don't think that is rather likely, although I feel absolutely certain that a team of two physicists or perhaps even a single physicist, a nuclear engineer, could go through the existing literature in a period of less than 6 months and by reviewing all of the data on fusion research or power plant design could come up with quite an accurate and convincing design for thermonuclear weapons.

There is the concern that such a device would cost an incredible amount to build. My first try at such a design resulted in something

that would easily cost several million dollars and would be about the size of a railroad tank car.

Senator GLENN. What comments would you have on availability of literature and your sources of information on this, without naming all of them, but the general availability of this information?

Mr. ROTOW. Well, on existing gun designs there was a book written by John McPhee, which already has been mentioned by Dr. Mark.

For one of my illustrations I used information from that book to say, well, even if the rest of my document is wrong, this one will work. Dr. Taylor has commented that that design is a valid one. So really in that book alone it has already been told how to build a bomb.

In order to get the sort of sophistication which a real live terrorist might need to deal with the many things that occur, to understand his options, to learn what to do, when this precise type of material isn't available and so forth, he would have to search through three or four basic references, let's say five or six basic references, four of which are available from the National Technical Information Service in Springfield. The Department of Commerce will sell them to you for amounts between $3 and $8. If you want it the same day, it is an additional $6 for the rush order. I actually went out and bought some of those publications that described certain data in detail, data applicable only to weapons design.

I have no concept of, or I cannot conceive why such data has been published. It is absolutely useless in the design of reprocessing facilities or for any conventional use for this material.

In addition, there are one or two handbooks on working with plutonium that are available through most library facilities. It would be difficult to suppress those.

Senator GLENN. We will have testimony later about some of the availability of this also from the National Technical Information Service directly.

Do you continue to work in this? Do you plan to continue to work in this area?

Mr. ROTOW. Well, it has opened up a Pandora's box of issues. I would like some day to complete the report, if need be in a classified version, just to show what the polished product is, what someone working on this sort of thing can really produce as a polished product.

It opens up many questions about how the Department of Defense has handled the United States' strategic weapons policy over the years.

When you really know how atomic weapons are designed and fabricated and what have you, you tend to question some of the assumptions that have been made and some of the assertions that have been set forth.

Senator GLENN. On weapons use?

Mr. ROTOW. On weapons use, the economics of deploying strategic weapons, what weapons are really capable of doing.

My personal judgment in going through all of this is that if you really want a strategic deterrent, the way to do it is with several large, very, very cheap thermonuclear warheads. You don't really need an extraordinarily flexible response using tiny, tiny low-yield tactical nukes, mini-nukes, or whatever they are called.

I hesitate to enter that in the testimony at this point. What I am saying is mainly speculation on something that should be looked into.

The report also opens up all sorts of questions about the adequacy of our safeguards, which I think Dr. Taylor has already very well addressed and has written on in many ways.

From here on my main interest in this topic would be to write on safeguard issues and how weapons design impacts upon them.

Senator GLENN. You anticipate, though, when you go back to Harvard you would continue your study of economics rather than getting into more concentration in this area?

Mr. ROTOW. Pardon?

Senator GLENN. Would you concentrate on economics rather than getting into the physics area again?

Mr. ROTOW. Certainly. The one experience I can confidently talk about is how being in the physics program at Harvard, even for a very brief period of time, showed me there are some people out there who are fanatically interested in physics, who really love the subject and live it. I don't do that. I do have that type of affinity for economics and game theory, but not for physics.

That is also a cause of concern for me because if I could produce a document like this, what could someone who was extensively trained in nuclear engineering do?

Senator GLENN. Compared to the level of training they would receive, what level of training would you have? Would you be, in your own estimate, half trained or one quarter trained as opposed to someone that really was—let's say a graduate of Harvard last year that had more exposure in the nuclear field as an area of concentration all the way through. What level of expertise do you have?

Mr. ROTOW. Maybe one-tenth in the sense that I am familiar with what atoms are. I have never had a formal quantum mechanics course. I have a fairly good grasp of mathematics, and that helps a lot. But I have never taken any reactor engineering courses or nuclear physics or anything along that line.

When I was in physics I mainly specialized in general relativity theory. That is worlds apart from what you need to produce a design effort like this.

I might add that what is really necessary here is a passing familiarity with many different topics. What you really need is someone who I would say reads Scientific American on a very regular basis and can understand how the scientific literature works. They probably could teach themselves all they need to know.

Senator GLENN. One thing I want to clarify here before we end your testimony, and that is I think because of some of the security rules that we are all operating under, Dr. Taylor is operating under, I think you made a statement that Dr. Taylor indicated your design was valid. I think you might want to correct that statement.

Mr. ROTOW. I didn't intend to say that.

Senator GLENN. I think Dr. Taylor has very carefully refrained from specifying that any one particular design would or would not work. There are a lot of security reasons why this is important to Dr. Taylor, too.

Mr. ROTOW. When I referred to Dr. Taylor saying this particular design is valid, I referred to John McPhee's quote of Dr. Taylor in

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that book, where he has Dr. Taylor talking about some device being very crude, very easy to fabricate, and saying it would go off at a tenth of a kiloton yield or so.

I have taken that description out of the book and tidied it up a bit, using some of the figures given and so on.

No one, not Dr. Taylor or anyone else, has ever confirmed to me or even hinted that something I wrote either is or is not accurate. They can't do that, obviously.

Senator GLENN. That clarifies it. I am sure Dr. Taylor appreciates that clarification for his own personal reasons.

Mr. Rotow, thank you very much. We may have additional questions and other committee or staff members may have additional questions. We will want you to answer them for the record.

You have already been most cooperative with the committee, which we appreciate very, very much. You have acted very responsibly through very much of this. I appreciate your bringing this to our attention. We will have it further analyzed, as I indicated to you.

I might add for the benefit of other witnesses here, we are under a Senate rule with the debate on the Floor as it is. We are under a Senate rule we are not to be in session in committees beyond 2 hours after the time the Senate goes in session, which this morning was at 9:30. We are now at 11:30. We have been trying for the last half hour or so to get unanimous consent from the Floor to continue the hearing beyond our 11:30 cutoff we are operating under now. So far we haven't received it. But I think we will go ahead and proceed with the next witness here and hope that clearance comes through. If not, we might have to put one of our witnesses over until tomorrow.

Thank you, Mr. Rotow.

Mr. ROTOW. Thank you, sir.

Mr. MARK. Would it be appropriate to add one remark which came to mind in connection with Mr. Rotow's testimony?

Senator GLENN. Certainly. Please sit down.

Mr. MARK. It is a very simple and trivial point, sir. He referred to critical mass data which could only have been of interest from the weapons point of view.

I am not sure that that is quite the whole picture. There are many critical mass data which are absolutely essential for people who are engaged in processing and handling plants, weapons or not.

I think that a large part of the tabulations that he referred to have been originated to meet the present need in that connection, just in the industry, apart from the military application or apart from the weapon application.

Senator GLENN. Fine. Thank you very much. I appreciate your clarification on that. Thank you, Dr. Mark.

Our next witnesses, and we will take the next two witnesses together and hope we can get all of this done here before we have a cutoff—that way we won't have more than we can handle tomorrow—are Dr. Donald Kerr, Acting Assistant Secretary for Defense Programs, Department of Energy; and Mr. Peter Urbach, Deputy Director of the National Technical Information Service.

Mr. Kerr, would you like to start off with your testimony, please?

TESTIMONY OF DONALD M. KERR, ACTING ASSISTANT SECRETARY FOR DEFENSE PROGRAMS, DEPARTMENT OF ENERGY; AND, PETER F. URBACH, DEPUTY DIRECTOR, NATIONAL TECHNICAL INFORMATION SERVICE, DEPARTMENT OF COMMERCE

Mr. KERR. Thank you, Mr. Chairman.

Mr. Chairman, in discussion with your staff, I have prepared a statement for tomorrow which will review the safeguards and the broader aspects of the Department of Energy's responsibilities. I understood that you were concerned today with some questions of classification. And rather than make a prepared statement, in the interest of preserving your time, I will address your questions.

Senator GLENN. Fine. Thank you.

May we turn to Mr. Urbach. Would you care to proceed? Do you have a statement?

Mr. URBACH. I do, Mr. Chairman.

Senator GLENN. Why don't you go ahead and then we can have the questioning.

Mr. URBACH. Mr. Chairman, my name is Peter Urbach and I am the Acting Director of the National Technical Information Service.

I am appearing before you today in response to your letter dated March 20, 1978, requesting that a representative of the National Technical Information Service of the U.S. Department of Commerce provide testimony concerning the dissemination by NTIS of certain technical documents listed in your letter.

Prior to providing specific information concerning the documents listed in your letter, however, I would like to describe generally for the committee the mission of the National Technical Information Service.

Under chapter 23 of title 15 of the United States Code, the Secretary of Commerce is directed to establish and maintain within the Department of Commerce a clearinghouse for the collection and dissemination of scientific, technical, and engineering information. This function is presently carried out by the National Technical Information Service.

Specifically the NTIS is authorized under chapter 23 to search for, collect, classify, coordinate, integrate, record, and catalogue scientific, technical, and engineering information from whatever sources, foreign and domestic, that may be available and to make such information available to industry and business, to State and local governments, to other agencies of the Federal Government, and to the general public.

As a matter of policy, chapter 23 requires that each of the services and functions provided by the clearinghouse be to the fullest extent feasible and consistent with the objectives of the statute self-sustaining or self-liquidating. The chapter specifically states the policy that the general public shall not bear the cost of publications and other services which are for the special use and benefit of private groups and individuals.

The scientific, technical, and engineering information made available to NTIS by Federal departments and agencies and other con-

tributors is always unclassified information intended for release to the public. The contributor has the responsibility to ensure that the information made available to NTIS can be freely disseminated.

NTIS has had a longstanding relationship with the Department of Energy and its predecessor organizations to make unclassified, unlimited atomic energy research information available to the public. Of the 11 specific documents cited in your letter as being of interest to this committee, nine are available from NTIS upon payment of the prescribed purchase price.

The two documents not available from NTIS are available from two private commercial publishers.

With respect to each of the documents available from NTIS, I have compiled detailed information concerning the number of each sold by NTIS and the identity of each purchaser, some of whom are individuals. With your permission, Mr. Chairman, I would like to provide this detailed information separately for the committee's record.

I would now be happy to respond to any questions that you might have.

Senator GLENN. Fine. Thank you.

Dr. Kerr, would you briefly describe DOE's practice with respect to classifying weapons design information and give us some reference as to the point at which design information becomes so specific it must be withheld for national security reasons? There is a dividing line there someplace. What is it?

Mr. KERR. It has always been our rule on formulating policy on classification and declassification of restricted data that weapons design shall not be declassified. Under this rule, the complete design of all weapons is classified. That would refer to the complete detailed drawings, for example, from which one could fabricate a device.

However, classification policies in the weapons field must take into account the fact that the basic science, such as information on the nuclear properties of fissile materials, is useful both for peaceful and military uses in nuclear energy.

With the atoms for peace program in the 1950s, it was national policy to declassify the basic science that was common to the military as well as the civil uses. For example, it is necessary to have knowledge of critical masses of fissile materials to design a safe nuclear reactor.

When this information was being considered in the 1950s for declassification for civil applications, the main threat to the United States was considered to be a foreign national nuclear weapons production effort. In that context, information that was known to be easily acquired by a national scale project was considered eligible for declassification if significant power applications were known to exist.

With the advent of terrorist threats, it seems possible that much unclassified information in the nuclear area may be useful to terrorists. We have even considered the possibility of classifying restricted data that has been officially declassified. However, section 146 of the Atomic Energy Act has been considered to prohibit such an action.

And, practically speaking, when information has not only been declassified but also published and widely circulated, a reclassification action would have little effect.

Presently when information is being reviewed for declassification, consideration is given to its possible usefulness to terrorists as well as to other nations.

Senator GLENN. How did so much information which was previously classified come to be released to the public? Was this sort of a fallout of the atoms for peace program? How did all this occur?

Mr. KERR. Certainly in the 1950s the major impetus behind declassification was the usefulness of this information in civilian nuclear power programs. For example, when studying the safety of power reactors, one is concerned, for example, with critical mass. Since an accident scenario might have to be postulated and then calculated, that would involve the assembly of a critical or near critical mass of materials. So from that point of view the main emphasis in the past has been two items. One is the usefulness to civilian applications. The other is that the basic physics understanding has for the most part also been unclassified.

It is the technology of how weapons designs are derived from the basic physics, and, in particular, the techniques for fabrication which have been protected and continue to be protected.

Senator GLENN. Mr. Rotow has placed all copies of these manuscripts and notes in the custody of the Subcommittee for Energy, Nuclear Proliferation and Federal Services for safekeeping. You see them right here. We want this material reviewed to determine whether any of it should be classified. He has assured us he will comply with any ruling you might make with respect to keeping part of the text confidential.

Is the Department of Energy prepared to make such a review for us?

Mr. KERR. Yes, we are. We have a standard policy not to comment or add in any way to the design of nuclear weapons brought to our attention by would-be designers. However, should a member of the public submit an unsolicited design, we will do at least two things. We will assess the design to determine its credibility. We will take whatever actions are required to see that Federal laws are upheld and enforced, including, where appropriate, advising the designer of the physical dangers inherent in proceeding and of the Federal laws that he may violate.

So in answer to your question, Mr. Chairman, we would review the design and we would communicate our assessment to you. We would not communicate it to Mr. Rotow unless he chose to become part of our personnel security system and received proper clearance.

Senator GLENN. Can you tell me, just offhand, do you get a number of proposals like this in detail? Do you get very few? I know you get a lot of suggestions. Somebody will send in a drawing and say this will work. You dismiss it because it is obviously a copy out of Popular Science or so forth.

But how many serious proposals do you have to get the weapons experts involved with and do you have them come into the department? Can you give us an idea of that?

Mr. KERR. I don't have the number at hand. Fortunately it is not a large one. I would be pleased to submit it for the record. You have heard another one referred to today.

Clearly the answer is there are a few per year on the average. Fortunately we don't see a lot of them. We do everything we can to discourage those who submit such designs from continuing their approach.

Senator GLENN. I would be interested in having that submitted for the record. If you could do that, I would appreciate it very much.

Mr. KERR. I would be happy to make it a part of my statement to you in the morning.

Senator GLENN. All right. That would be fine.

I am not interested in just the number of letters you get on this subject or just little drawings or elementary school drawings that say, "Won't this type of bomb work?", but I am interested in any substantive studies such as this one which obviously has a very high level of credibility. I am interested in any that you put through a real process of analysis like that.

Mr. KERR. Yes. We will be happy to do that, sir.

[See testimony of Mr. Kerr on March 23, 1978.]

Senator GLENN. What is the Department of Energy doing to assure that newly developed information doesn't become as readily available as some of our past information has?

I might add, I look at this as the major outcome of these sets of hearings, perhaps, that we tighten up on future developments. What is out and is in public print now we are not able to control, obviously. But I am concerned that one of these days, if we have a laser isotope separation method, for instance, that is compact, small, or other methods of enrichment—I don't know what that might be or that somebody might find; it might be quite possible even with household chemicals available, or something. I don't think that is likely, but who knows? If there are more simplified methods of making weapons grade material or plutonium, certainly with that being the only lacking ingredient now for successfully making a nuclear weapon, we certainly would want to control that kind of information.

I don't have a feel yet for where we have stopped the information flow now to prevent that kind of future information being disseminated on the same basis that much of this has been.

Mr. KERR. Our current practices follow the policy I related to you at the outset. At the present time, for example, restricted data, that is weapons data, is not subject to automatic declassification with the passage of time, as is national security information. Declassification of restricted data takes a specific action on our part. We have to determine either that the material is already in the public domain or that it will pose no risk to us in a national security sense or, since 1972 when the terrorist threat first became well known to all of us, whether it would be useful in terrorists' hands.

We do from time to time declassify information. But a good example of how we protect it, particularly in the area of isotope separation, is the fact that the details of the gaseous diffusion process have never been declassified. Yet the gaseous diffusion plant has been in operation since the decade of the 1940s and continues to be the source of uranium reactor fuel.

Senator GLENN. How do you make your judgments? How do you make your judgments in the aggregate on what are unclassified com-

ponent parts? Is there a situation, and I think there probably would be, that information drawn from public records or public sources is then put together in such a way as to become classified? How do you make a decision like that?

I am thinking of this situation here, for instance. If you look at this and decide yes, this thing would work, it is simple, it shouldn't be out. But yet all the material came from individually unclassified component parts. How do you make a judgment on that?

Mr. KERR. I make a historical reference I think for your benefit in understanding that. The first nuclear weapons were developed using unclassified principles of physics. What we are really concerned with is the assembly of information into a confirmed working design. Those parts that go with such a confirmed design are restricted data and protected as such, as are the detailed drawings and fabrication techniques for making them.

Senator GLENN. What rights would an author retain in a work that he developed from public sources but which later became classified?

Mr. KERR. If it were restricted data, he would have no rights to publish it and disseminate it unless it were within the classification system.

Senator GLENN. Looking at the publicly available material relied on by Mr. Rotow, is there any way restrictions can be placed on access to this, as you see it?

I understand, for instance, that ERDA or DOE recently amended part 810 of its regulations to place restrictions on the transfer of plutonium handling technology overseas. Can we tighten up at home in a similar fashion?

Mr. KERR. With respect to materials that are already in the public domain, which have been distributed to libraries and which have been duplicated in part through other countries' publications in the same technologies as part of their reactor programs, I don't think there are acceptable and practical means.

With respect to information that might be declassified in the future, I think we should pay attention to the two issues I mentioned before, that of our national security, both from national threats to developed nuclear weapons, and from subnational or terrorist threats.

We do pay attention to that. The section 810 revision you referred to has to do with export controls, a subject that I will be discussing with you tomorrow.

Yes, as part of the nonproliferation policies that we are now following, we are tightening substantially on the export of nuclear technologies and require the other nations who receive those technologies to be party to bilateral agreements and under IAEA safeguards.

Senator GLENN. Mr. Urbach, do you as the Acting Director of NTIS have the authority to restrict sales of any documents on your own?

Mr. URBACH. No, sir, I don't believe so. Our practice is to rely upon the instructions of the contributing agency which we regard as the authority to make that decision.

Senator GLENN. In other words, if we wish to restrict the sales that are open at this time, in some of this area, not that it is going to be at the highly classified but just that we probably would feel it should be made less readily available than it is now, you would have to go back to the original source of classifying that material?

Mr. URBACH. I would normally refer that request to the department or agency involved and request their guidance.

Senator GLENN. Have you been instructed by the White House recently to review dissemination of any of these component parts that Mr. Rotow has used in his study of this matter?

Mr. URBACH. No, sir.

Senator GLENN. One other question on that same subject. Would you be willing to put a hold on further sales and distribution of these documents pending a formal review or decision to halt sales?

Mr. URBACH. Yes, sir.

Senator GLENN. Do you plan to do that now?

Mr. URBACH. I will do that, sir, if you wish.

Senator GLENN. I thank you very much, gentlemen. It has been a rather lengthy hearing this morning. We appreciate your patience with us on this.

Tomorrow we will have a hearing beginning at 10 a.m. It will not be in this room. It will be in room 4221, the Foreign Relations Committee room. At that time we will have representatives of the Department of Defense, Department of Energy, the Nuclear Regulatory Commission, and the FBI, and we will be getting into areas of safeguards adequacy, how this can be improved, stopping some of the readily available information flow we have had up until this time so we don't have some of these future developments just as available as past developments have been as far as weapons design information goes, and in particular concentrating on the adequacy of some of the physical security surrounding access to highly enriched uranium and plutonium and other safeguard matters.

The committee stands in adjournment until 10 a.m. tomorrow morning in room 4221. Thank you very much for being with us this morning.

[Whereupon, at 11:55 a.m., the committee recessed, to reconvene at 10 a.m. on Thursday, March 23, 1978.]

AN ACT TO COMBAT INTERNATIONAL TERRORISM—S. 2236

THURSDAY, MARCH 23, 1978

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The committee met at 10 a.m., pursuant to recess, in room 4221, Dirksen Senate Office Building, Hon. John Glenn presiding.

Present: Senators Glenn and Danforth.

Staff members present: Richard A. Wegman, chief counsel; Ellen Miller, professional staff member; Robert V. Heffernan, research assistant; Brian Conboy, special counsel to the minority; Ken Ackerman, minority professional staff member. Energy Subcommittee staff: Len Weiss, staff director; Walker Nolan, professional staff member; and Sandy Spector, professional staff member.

OPENING REMARKS OF SENATOR GLENN

Senator GLENN. The hearings will be in order.

Today the committee will hold a second day of hearings on the deeply troubling question of potential terrorist activities involving the use of nuclear materials. It is part of our ongoing series of hearings about the problem of terrorism in general.

Yesterday the committee heard some very disturbing testimony on one facet of this subject, the possibility of illicit manufacture of nuclear weapons. That testimony, which included statements by nuclear weapons experts and by a young man who has attempted to prepare a detailed manual for making such weapons based on the open literature, leaves little doubt that the clandestine fabrication of a nuclear explosive device is considerably less difficult than has been thought by many people.

Yesterday's hearing, indeed, makes clear that the only limiting factor preventing the construction of illegal nuclear bombs is access to the necessary special nuclear materials—plutonium and highly enriched uranium.

If such material becomes available to unauthorized groups, we can no longer take any comfort from the fact that their nuclear weapon may never get built or may turn out to be a dud; we must assume it will work.

I should stress at this point that our focus here is not on the nuclear material currently used in the nuclear power reactors we are coming increasingly to rely on for electric power production. These reactors use low-enriched uranium which cannot be transformed into weapons,

not the highly enriched uranium and plutonium which we are concerned about today. These latter materials sometimes referred to as "strategic special nuclear materials," are used by the Department of Defense for the U.S. nuclear weapons arsenal and naval propulsion systems and, in the civilian sector, for certain specialized uses, such as for research reactor fuel.

The relative ease with which nuclear weapons could be illegally made from these last materials means, however, that our only true bulwark against their malevolent use are the safeguards measures which have been implemented to prevent their falling into the wrong hands.

Our hearing today will examine in particular the present status of these safeguards as applied by the Department of Defense, the Department of Energy, and the Nuclear Regulatory Commission. The FBI's role in planning against and responding to potential terrorist threats will also be scrutinized.

It should be kept in mind in reviewing the adequacy of present safeguards that although there have been no instances to date of actual terrorist use of strategic nuclear materials, there has been a considerable history of violent and/or illegal acts directed at nuclear materials and facilities, more generally:

There have been proven instances of actual thefts of small amounts of weapons-usable material, and in the eyes of at least some public officials, circumstantial evidence suggesting that a major diversion of these materials has occurred;

There have been intrusions and attempted intrusions at plants handling these materials;

There have been reports of uranium fuel rods having been stolen, and subsequently recovered, I might add, in Great Britain, of a uranium smuggling ring in India, and, according to a recently released CIA document, of Israel's having obtained nuclear materials by "clandestine" means; and

There have been a number of incidents related to possible theft attempts directed at our nuclear weapon storage sites in Europe.

This background provides unmistakable evidence of a continuing malevolent interest in nuclear materials. This reality should infuse our thinking on safeguards and make us insistent on a high level of conservatism in safeguards planning.

With this in mind, one issue which the committee will examine at some length this morning is the relative strength of the physical security systems—that is, guards, fences, weaponry, communications—which have been adopted by the three agencies directly responsible for safeguarding nuclear weapons and weapons-usable materials.

One particular question in this regard is the posture of the Nuclear Regulatory Commission. It has been alleged by some people that the great preponderance of studies conducted for that agency indicated that it should adopt a particular, high level of physical security but that the Commission decided upon a lesser level of protection. We will look into this matter this morning.

In addition, we will explore the difficulties which have been experienced in accounting for weapons-usable material at the various facilities handling such material.

Finally, there have been serious allegations that Federal officials have been less than candid in dealing with safeguards issues, and in particular in dealing with the inventory discrepancy at the NUMEC facility in Apollo, Pa. We will explore this matter this morning and examine with great care the statements made on this subject.

Today, to my knowledge, will be the first time the Department of Energy will testify on this matter as the heir to ERDA and the AEC. I sincerely hope it will see fit to inject a new measure of candor into its comments on this subject.

With these background issues in mind, I would now like to introduce our witnesses that we have as a panel this morning so we can have various expressions on particular questions from a number of different sources.

Mr. Thomas O'Brien is with us. He is Director for Security Plans and Programs, Department of Defense; Dr. Donald Kerr, Acting Assistant Secretary for Defense Programs, Department of Energy; Mr. Sebastian Mignosa, Director of Domestic Security Sections, Criminal Investigative Division of the FBI; Dr. Victor Gilinsky, Commissioner of the Nuclear Regulatory Commission, and another Commissioner, Mr. Peter Bradford, are with us this morning. That will be our panel.

Our first testimony will be from Mr. Thomas O'Brien, Director for Security Plans and Programs for DOD. Mr. O'Brien, we welcome your testimony.

TESTIMONY OF THOMAS J. O'BRIEN, DIRECTOR FOR SECURITY PLANS AND PROGRAMS, DEPARTMENT OF DEFENSE; DR. DONALD M. KERR, ACTING ASSISTANT SECRETARY FOR DEFENSE PROGRAMS, DEPARTMENT OF ENERGY; SEBASTIAN S. MIGNOSA, CHIEF, DOMESTIC SECURITY AND TERRORISM SECTION, CRIMINAL INVESTIGATIVE DIVISION, FEDERAL BUREAU OF INVESTIGATION; VICTOR GILINSKY AND PETER BRADFORD, COMMISSIONERS, NUCLEAR REGULATORY COMMISSION

Mr. O'BRIEN. Thank you, Mr. Chairman.

It is my pleasure to appear before this distinguished committee to provide information on the physical security of our nuclear weapons sites. We in the Defense Department appreciate this opportunity to develop a common understanding of our program and exchange views on our mutual concern for safeguarding nuclear weapons.

With your permission, Mr. Chairman, I will summarize my statement here this morning and submit it for the record in its entirety.

Senator GLENN. The statement will be put in the record in its entirety. If other members of the panel choose to do the same thing, that will be fine. All the statements will be included in their entirety.

Mr. O'BRIEN. Our nuclear forces in conjunction with the conventional elements present the deterrent that allows us to remain at peace. We must deploy our weapons for that deterrent posture to have credibility. Accordingly, our nuclear weapons are deployed in NATO countries, the Pacific Theater of Operations, within the United States

and aboard naval vessels deployed worldwide. Our aims have been, and will continue to be, that of insuring the proper security for our nuclear weapons regardless of where they are stored. Loss of a weapon in any manner would produce grave consequences, adversely affecting our nuclear posture, and our relations with other countries and the security of our country.

Terrorist attacks, particularly the attack in Munich during the Olympic Games of 1972, graphically demonstrated the added threat—that of an overt terrorist attack.

The characteristics of the terrorist threat that our nuclear security program is designed to counter, is set forth in this chart. Basically, we envision a small unit, well armed, well equipped, well trained and fanatical. At this point I think it is most important that I emphasize that the Department of Defense has never had a nuclear weapon stolen, nor have there been any bonafide attempts or threats to steal any of these very sensitive resources. There are occasional situations where someone wanders nearby a site and these events are reported and reacted to, but none has proved to be a serious threat to our nuclear weapons.

The concept developed into an in-depth security system utilizing various elements which mutually support and, where possible, overlap each other. These elements involve physical security measures, intrusion detection systems, and well equipped and well trained security forces.

The areas in which our weapons are stored are generally small, leaving as little territory to secure as possible while insuring enough space in which to tactically operate and defend. As a general rule, these areas are utilized solely for the storage of nuclear weapons, thereby enabling us to strictly limit the number of people requiring access to the site.

I have a chart, Mr. Chairman, which I will use to describe the physical security and the concept that we employ.

At this typical site, the rectangles in the middle would represent the storage structures in which the weapons are stored. Generally speaking, these are earthen-covered igloos. They are equipped with a heavy steel door with high security hasps and padlocks. We also have an intrusion detection device on the door itself. We at the present time are in the process of installing a second intrusion detection device, volumetric type sensor, inside the igloo so we will have two sensors at the igloo. It is designed to detect any possible intruder.

Now, at the perimeter, we have, of course, fences, and historically we have had fences. At the present time, we are in the process of installing dual sensors at the perimeter. These sensors are of various kinds. Some might be buried. Some might be affixed to the fence. But the idea of these sensors is again to immediately detect a would-be intruder at the perimeter.

We have the capability to immediately assess any alarm. We have people either in towers or in some cases we have electrical or optical-visual equipment, a TV camera type, to assess what is there. Also, we have people located in towers. Sometimes a tower at the site is configured in such a way it might be in the middle of the site or it might be on the perimeter. We have sentries there who are again

able to assess an alarm and also see a person attempting to go over the fence.

We have lights so that the perimeter is kept lighted to again assist in the immediate assessment of any alarm.

We have fixed fighting positions. Finally, and the most important part of our whole system, of course, is the people part, our manpower. We have at each site a hardened structure where we keep our response force. As a minimum, we will have a response force of 15 men capable of responding within five minutes. They are trained to respond tactically. They are equipped with helmets and flak jackets, with M-16 rifles generally, M-60 machineguns and grenade launchers.

When an alarm sounds, the people on the fixed post tell the firehouse, as it were, what is going on and these people are ready to respond. This is somewhat new in our thinking. We feel people who are on duty in the cold and heat for long, boring hours are not really ready to fight, so our response force is rested and ready to react. The adrenalin is flowing.

Senator GLENN. What clearance do these people have? Are these specially selected or run-of-the-mill people run through boot camp and assigned to a job here?

Mr. O'BRIEN. No. They are very carefully selected. We have in the Department of Defense what we call our personnel reliability program. Our people who are involved in nuclear weapons duties, including our security force personnel, will be screened first with a security clearance. It might be at the secret level. It might be at the top secret level.

Senator GLENN. They do get security clearance?

Mr. O'BRIEN. Yes, sir. The investigation is conducted as part of the security process. Then the individual is interviewed by the commanding officer to see if his attitude and whole demeanor is proper. We do a psychiatric and medical evaluation on him, a formal program. Once he is in the program, he is flagged so the supervisor knows he is in the "PRP."

So we have continuing, day-to-day evaluation. When anything goes amiss, when his trustworthiness might be in doubt, he can be removed from the program. He can be removed on a temporary basis.

Senator GLENN. Go ahead with your statement. We might want to get into that later.

Mr. O'BRIEN. I planned to cover that anyway, so I am happy you did mention it.

As I say, that briefly summarizes the concept. Let me then add that in 1974 and 1975 the funding level for nuclear weapon security was a total of $41.6 million. Upon initiation of the site security upgrade program, Congress authorized in excess of $330 million for the years 1976 through 1978. The major elements of the permanent security upgrade program consist of perimeter sensors, improved lighting and fencing, hardened guard facilities, defensive positions, loudspeaker and warning system and improved communications.

The site security upgrade program is a complex undertaking. There are seven types of sites, each individual in nature, housing varieties of weapons in different locations throughout the world. Construction is being performed by United States and foreign contractors in both

unclassified and classified contracts. In NATO, the contractual process must be handled by the host governments and is subject to the international competitive bidding process. It is further complicated by operational decisions affecting the number of sites involved. While there have been problems encountered in Europe, construction at these sites is now moving ahead very well.

The security of nuclear weapons is a constant and ongoing process which is undergoing continuing review by all levels throughout the Department of Defense. We believe our security is good and that our improved in-depth security system is providing a greatly enhanced capability to thwart any attempt on a site by terrorists, while still being responsive to the historical covert threat. We will continue to review our program and make improvements as deemed necessary.

There is considerable coordination between the Department of Defense and numerous other Federal agencies to insure planned and coordinated efforts in reacting to nuclear emergencies. In the field of intelligence, working through the military departments and DIA, Defense Intelligence Agency, excellent intelligence support is provided. This assistance is a cooperative effort throughout the U.S. intelligence community.

Representatives from the Department of Defense, along with other Federal agencies, participate on various committees and working groups which have been established for developing policies, planning guidance and procedures to insure that governmental agencies can react in unison in combating any terrorist threat to nuclear weapons.

The Department of Defense has entered into a number of formal interagency agreements. These agreements are designed to provide a policy and procedural framework for reacting to a wide range of potential nuclear incidents.

Mr. Chairman, that concludes my statement. I would be pleased to answer any questions. However, if the answers involve a more detailed description of our security system than covered in my statement, I would suggest we go into a closed session.

[The prepared statement of Mr. O'Brien follows:]

PREPARED STATEMENT OF THOMAS J. O'BRIEN, DIRECTOR, SECURITY PLANS PROGRAMS, OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE (SECURITY POLICY)

IT IS MY PLEASURE TO APPEAR BEFORE THIS DISTINGUISHED COMMITTEE TO PROVIDE INFORMATION ON THE PHYSICAL SECURITY OF NUCLEAR WEAPONS SITES. WE IN THE DEFENSE DEPARTMENT APPRECIATE THIS OPPORTUNITY TO DEVELOP A COMMON UNDERSTANDING OF OUR PROGRAM AND EXCHANGE VIEWS ON OUR MUTUAL CONCERN FOR SAFEGUARDING NUCLEAR WEAPONS.

OUR NUCLEAR FORCES IN CONJUNCTION WITH THE CONVENTIONAL ELEMENTS PRESENT THE DETERRENT THAT ALLOWS US TO REMAIN AT PEACE. WE MUST DEPLOY OUR WEAPONS FOR THAT DETERRENT POSTURE TO HAVE CREDIBILITY. ACCORDINGLY, OUR NUCLEAR WEAPONS ARE DEPLOYED IN NATO COUNTRIES, THE PACIFIC THEATER OF OPERATION, WITHIN THE UNITED STATES AND ABOARD NAVAL VESSELS DEPLOYED WORLDWIDE. OUR AIMS HAVE BEEN, AND WILL CONTINUE TO BE, THAT OF INSURING THE PROPER SECURITY FOR OUR NUCLEAR WEAPONS REGARDLESS OF WHERE THEY ARE STORED. LOSS OF A WEAPON IN ANY MANNER WOULD PRODUCE GRAVE CONSEQUENCES, ADVERSELY AFFECTING OUR NUCLEAR POSTURE, AND OUR RELATIONS WITH OTHER COUNTRIES AND THE SECURITY OF OUR COUNTRY.

UNTIL THE EARLY 1970'S OUR CONCEPT FOR THE SAFEGUARDING OF NUCLEAR WEAPONS WAS TO PROTECT AGAINST ENEMY ACTION, A COVERT TYPE OF ATTACK BY A SMALL GROUP OF OUTSIDERS AND THE INTERNAL THREAT POSED BY AN UNRELIABLE OR IRRATIONAL INDIVIDUAL. VARIOUS MEANS WERE PROVIDED FOR PROTECTION OF THE WEAPONS.

TERRORIST ATTACKS, PARTICULARLY THE ATTACK IN MUNICH DURING THE OLYMPIC GAMES OF 1972, GRAPHICALLY DEMONSTRATED THE ADDED THREAT--THAT OF AN OVERT TERRORIST ATTACK. INTERNATIONAL TERRORISM, WHICH HAS BECOME ALMOST COMMONPLACE IN THE 70'S, BECAME THE MOTIVATING FORCE BEHIND OUR APPROACH FOR FURTHER UPGRADING THE SECURITY OF NUCLEAR WEAPONS.

THE VIOLENT, EFFICIENT, AND RAPID MANNER IN WHICH SOME TERRORIST ACTS WERE EXECUTED POSES A UNIQUE AND SIGNIFICANT THREAT TO OUR NUCLEAR WEAPONS. THE TRANSNATIONAL AND SUBNATIONAL ASPECTS OF TERRORISM LEAVES NO COUNTRY IMMUNE TO THEIR ATTACK. THE CHARACTERISTICS OF THE TERRORIST THREAT THAT OUR NUCLEAR SECURITY PROGRAM IS DESIGNED TO COUNTER IS A SMALL UNIT, WELL FINANCED, WELL ARMED, WELL EQUIPPED, WELL TRAINED, AND FANATICAL

AT THIS POINT I WISH TO EMPHASIZE THAT A DEPARTMENT OF DEFENSE NUCLEAR WEAPON HAS NEVER BEEN STOLEN AND THERE HAVE NOT BEEN ANY BONA FIDE THREATS TO THE SECURITY OF THESE VERY SENSITIVE RESOURCES. THERE ARE OCCASIONAL SITUATIONS WHERE SOMEONE WANDERS NEARBY AND THESE EVENTS ARE REPORTED AND REACTED TO BUT NONE HAS PROVED TO BE A SERIOUS THREAT TO NUCLEAR WEAPONS.

A DOD-WIDE REVIEW OF THE NUCLEAR WEAPON SECURITY PROGRAM INITIATED LATE IN 1972 MADE IT APPARENT THAT WITH THE

POSTULATED SIZE OF AN ATTACKING FORCE AND THEIR RECOGNIZED CAPABILITIES, OUR SECURITY CONCEPT NEEDED MODIFICATION AND STANDARDIZATION.

THE CONCEPT DEVELOPED INTO AN IN-DEPTH SECURITY SYSTEM UTILIZING VARIOUS ELEMENTS WHICH MUTUALLY SUPPORT AND, WHERE POSSIBLE, OVERLAP EACH OTHER. THESE ELEMENTS INVOLVE PHYSICAL SECURITY MEASURES, INTRUSION DETECTION SYSTEMS, AND WELL EQUIPPED AND TRAINED SECURITY FORCES.

THE AREAS IN WHICH OUR WEAPONS ARE STORED ARE GENERALLY SMALL, GIVING AS LITTLE TERRITORY TO SECURE AS POSSIBLE WHILE INSURING ENOUGH SPACE IN WHICH TO TACTICALLY OPERATE. AS A GENERAL RULE, THESE AREAS ARE UTILIZED SOLELY FOR THE STORAGE OF NUCLEAR WEAPONS THEREBY ENABLING US TO STRICTLY LIMIT THE NUMBER OF PEOPLE REQUIRING ACCESS TO THE SITE.

THE PHYSICAL MEASURES UTILIZED INCLUDE A HARDENED STRUCTURE, USUALLY EARTHEN-COVERED, WITH STEEL DOORS AND HIGH SECURITY HASPS AND PADLOCKS. THE DOORS ARE EQUIPPED WITH INTRUSION DETECTION SYSTEMS AND WE ARE CURRENTLY AUGMENTING THESE WITH AN INTERIOR, VOLUMETRIC TYPE SENSOR, TO PROVIDE DUAL SENSOR DETECTION ON STORAGE STRUCTURES. OTHER PHYSICAL MEASURES INCLUDE A SUBSTANTIAL PERIMETER BARRIER SYSTEM WHICH INCLUDES CHAIN LINK FENCING TOPPED WITH BARBED TAPE TO CLEARLY DELINEATE THE PERIMETER OF THESE AREAS. ALSO AT THE PERIMETER WE ARE

INSTALLING DUAL INTRUSION DETECTION SYSTEMS. WE HAVE THE CAPABILITY TO IMMEDIATELY ASSESS ALARMS FROM THESE SYSTEMS EITHER VISUALLY OR BY ELECTRO-OPTICAL EQUIPMENT. THESE SYSTEMS ARE UTILIZED TO ELIMINATE PEOPLE FROM BORING AND TEDIOUS DETECTION FUNCTIONS AND ASSIGN THEM TO REACTION FORCE DUTIES WHERE THEY WILL REMAIN ALERT AND READY TO RESPOND SHOULD THE NEED ARISE. THE PERIMETER BARRIER SYSTEM ALSO INCLUDES LIGHTS TO ASSIST IN ALARM ASSESSMENT. WE ALSO HAVE RESTRICTED AREA SIGNS AND A PUBLIC ADDRESS SYSTEM TO WARN PEOPLE AGAINST INTRUSION AND THAT DEADLY FORCE MAY BE APPLIED SHOULD THEY PERSIST ON ENTERING THE SITE.

OF COURSE, THE HEART OF THE SECURITY SYSTEM IS THE MANPOWER AVAILABLE TO REACT TO ANY THREAT. EACH SITE IS REQUIRED TO HAVE FIXED POSTS SUCH AS ENTRY CONTROLLERS, ALARM MONITORS, OBSERVATION TOWER SENTRIES TO VISUALLY ASSESS ALARMS, AND A SUPERVISORY ELEMENT. SOME SITES HAVE ROVING PATROLS. IN ADDITION TO THESE FIXED POSTS, EACH SITE IS REQUIRED TO HAVE A MINIMUM OF 15 MEN CAPABLE OF RESPONDING TO AN INCIDENT WITHIN 5 MINUTES. LARGER SITES OR SITES WHERE THE THREAT IS PERCEIVED TO BE GREATER WILL HAVE MORE THAN A 15 MAN RESPONSE FORCE. A CAPABILITY MUST ALSO EXIST TO ESTABLISH A 15 MAN REINFORCEMENT UNIT WHEN THE INITIAL REACTION FORCE IS DEPLOYED. A THIRD FORCE IS ALSO REQUIRED TO BE CAPABLE OF AUGMENTING THE ON-SITE SECURITY

FORCES IN THE EVENT A THREAT TO THE SITE HAS BEEN RECEIVED AND IS EXPECTED TO LAST OVER A PERIOD OF TIME. OF COURSE, DESPITE THESE DESIGNATED FORCES, SHOULD A VALID THREAT OCCUR, THE ENTIRE UNIT WOULD BE ALERTED, RECALLED, AND UTILIZED TO INSURE THE SECURITY OF THE WEAPONS.

ALL OF THESE REACTION FORCES ARE WELL EQUIPPED WITH PERSONAL PROTECTIVE GEAR AND IN MOST CASES THE M-16 AUGMENTED BY M-60 MACHINE GUNS AND GRENADE LAUNCHERS.

SECURITY FORCES ARE GIVEN EXTENSIVE TACTICAL TRAINING INCLUDING EMPHASIS ON THE TERRORIST THREAT. BASIC TACTICAL TRAINING IS GIVEN TO PERSONNEL BEFORE ASSIGNMENT TO THESE SITES AND ADDITIONAL TRAINING IS GIVEN BY THE UNIT PRIOR TO DUTY ASSIGNMENT AS A MEMBER OF THE SECURITY FORCE.

SECURITY FORCES ARE CONTINUALLY EXERCISED, AT LEAST WEEKLY, TO INSURE THEIR READINESS. THEY ARE INSPECTED FREQUENTLY BY VARIOUS LEVELS OF COMMAND. MOREOVER, STAFF VISITS BY REPRESENTATIVES FROM THE OFFICE OF THE SECRETARY OF DEFENSE AND THE NUMEROUS LEVELS OF COMMAND WITHIN THE SERVICES ARE ALSO CONDUCTED TO INSURE COMPLIANCE WITH EXISTING GUIDANCE.

THIS SECURITY CONCEPT AND ACTIONS TAKEN TO IMPLEMENT IT ARE INCLUDED IN DOD DIRECTIVE 5210.41, TITLED SECURITY CRITERIA AND STANDARDS FOR PROTECTING NUCLEAR WEAPONS.

MORE IMPORTANTLY, WE HAVE A DEPARTMENT OF DEFENSE MANUAL WHICH SETS FORTH SECURITY POLICIES AND PROCEDURES IN DETAIL.

THESE PROCEDURES APPLY TO EACH OF THE MILITARY DEPARTMENTS, PROVIDING THE BASIS FOR OUR STANDARDIZED SECURITY SYSTEM. THESE DETAILED PROCEDURES AND THE MANUAL ARE, OF COURSE, CLASSIFIED.

WHILE THE ULTIMATE OBJECTIVE OF PREVENTING UNAUTHORIZED ACCESS TO ANY NUCLEAR WEAPON REMAINS UNCHANGED, THE NEW SECURITY CONCEPT PROVIDES FOR MUCH EARLIER DETECTION AND, THEREFORE, GAINS TIME FOR IMPROVED REACTION BY SECURITY FORCES. THIS SECURITY SYSTEM IS DESIGNED TO BRING FIREPOWER ON THE INTRUDER BEFORE HE HAS COMPLETELY PENETRATED THE PERIMETER BARRIER SYSTEM AND TO PROVIDE FOR SECURITY IN-DEPTH.

NUMEROUS ACTIONS WERE INITIATED TO IMPLEMENT THE NEW CONCEPT AND INSURE OUR SITES WERE ADEQUATELY PROTECTED AGAINST THE NEWLY DEFINED THREAT.

THE DEPARTMENT OF DEFENSE IMMEDIATELY UNDERTOOK NUMEROUS MEASURES PENDING THE APPROVAL OF FUNDS AND THE CONSTRUCTION OF PERMANENT FEATURES. FIRST WAS A REVIEW TO DETERMINE THE OPERATIONAL NEED FOR EACH SITE. AS A RESULT, SOME SITES WERE ELIMINATED. FOR THOSE THAT STORE OUR THEATER NUCLEAR WEAPONS, IT IS BELIEVED THAT WE HAVE ABOUT REACHED THE MINIMUM CONSIDERING OPERATIONAL REQUIREMENTS AND SURVIVABILITY. "QUICK FIX" MEASURES TO IMPROVE SECURITY WERE APPLIED TO THE REMAINING SITES. THEY INCLUDED SUCH ITEMS AS HARDENING SECURITY FACILITIES UTILIZING

SANDBAGS AND OTHER AVAILABLE MATERIALS, DEFENSIVE FIGHTING POSITIONS, ENTRY ROAD BARRIERS, INCREASED FIREPOWER, FLAK JACKETS AND HELMETS, PLUS IMPROVED TRAINING.

SIMULTANEOUSLY, A PROGRAM WAS INITIATED TO DESIGN AND FUND FOR MORE PERMANENT PHYSICAL SECURITY MEASURES.

IN 1974 AND 1975 THE FUNDING LEVEL FOR NUCLEAR WEAPON SECURITY WAS A TOTAL OF $41.6 MILLION. UPON INITIATION OF THE SITE SECURITY UPGRADE PROGRAM, CONGRESS AUTHORIZED IN EXCESS OF $330 MILLION FOR THE YEARS FY76 THROUGH FY78. THE MAJOR ELEMENTS OF THE PERMANENT SECURITY UPGRADE PROGRAM CONSIST OF PERIMETER SENSORS, IMPROVED LIGHTING AND FENCING, HARDENED GUARD FACILITIES, DEFENSIVE POSITIONS, LOUD SPEAKER AND WARNING SYSTEM AND IMPROVED COMMUNICATIONS.

THE SITE SECURITY UPGRADE PROGRAM IS A COMPLEX UNDERTAKING. THERE ARE SEVEN TYPES OF SITES, EACH INDIVIDUAL IN NATURE, HOUSING VARIETIES OF WEAPONS IN DIFFERENT LOCATIONS THROUGHOUT THE WORLD. CONSTRUCTION IS BEING PERFORMED BY US AND FOREIGN CONTRACTORS IN BOTH UNCLASSIFIED AND CLASSIFIED CONTRACTS. IN NATO, THE CONTRACTUAL PROCESS MUST BE HANDLED BY THE HOST GOVERNMENTS AND IS SUBJECT TO THE INTERNATIONAL COMPETITIVE BIDDING PROCESS. IT IS FURTHER COMPLICATED BY OPERATIONAL DECISIONS AFFECTING THE NUMBER OF SITES INVOLVED. WHILE THERE HAVE BEEN PROBLEMS ENCOUNTERED IN EUROPE, CONSTRUCTION AT THESE SITES IS NOW MOVING AHEAD.

THE REQUIREMENT FOR A 15 MAN RESPONSE FORCE WAS ESTABLISHED IN DECEMBER OF 1976. THIS NECESSITATED AN INCREASED MANPOWER AUTHORIZATION FOR THE SERVICES. CONGRESS HAS GRANTED THESE INCREASES, AND THE ADDITIONAL PERSONNEL ARE CURRENTLY BEING RECRUITED AND TRAINED. WE ARE GIVING OVERSEAS LOCATIONS FIRST PRIORITY AND WE ANTICIPATE THAT THE FULL 15 MAN RESPONSE FORCE WILL BE IN PLACE AT ALMOST ALL SITES DURING THIS CALENDAR YEAR.

THE SECURITY OF NUCLEAR WEAPONS IS A CONSTANT AND ONGOING PROCESS WHICH IS UNDERGOING CONTINUING REVIEW BY ALL LEVELS THROUGHOUT THE DEPARTMENT OF DEFENSE. WE BELIEVE OUR SECURITY IS GOOD AND THAT OUR IMPROVED IN-DEPTH SECURITY SYSTEM IS PROVIDING A GREATLY ENHANCED CAPABILITY TO THWART ANY ATTEMPT ON A SITE BY TERRORISTS, WHILE STILL BEING RESPONSIVE TO THE HISTORICAL COVERT THREAT. WE WILL CONTINUE TO REVIEW OUR PROGRAM AND MAKE IMPROVEMENTS AS DEEMED NECESSARY.

TO ASSURE THE HIGHEST POSSIBLE STANDARDS OF INDIVIDUAL RELIABILITY IN PERSONNEL PERFORMING DUTIES ASSOCIATED WITH NUCLEAR WEAPONS, THE NUCLEAR WEAPON PERSONNEL RELIABILITY PROGRAM (PRP) HAS BEEN ESTABLISHED.

PERSONNEL ASSIGNED TO NUCLEAR WEAPONS DUTIES MUST FIRST POSSESS AN APPROPRIATE SECURITY CLEARANCE. THE INVESTIGATION CONDUCTED FOR THE SECURITY CLEARANCE IS REVIEWED AS PART OF THE SCREENING. THE PERSON IS THEN INTERVIEWED BY HIS COMMANDING OFFICER AND IS GIVEN A MEDICAL AND PSYCHIATRIC EVALUATION PRIOR

TO BEING ASSIGNED THE POSITION. ONCE IN THE "PRP," THE INDIVIDUAL'S SUPERVISOR HAS A CONTINUING RESPONSIBILITY TO CAREFULLY MONITOR THE INDIVIDUAL'S PERFORMANCE. IF ANY PROBLEMS OR ERRATIC BEHAVIOR IS NOTED, STEPS ARE IMMEDIATELY TAKEN TO DETERMINE IF THE INDIVIDUAL'S RELIABILITY IS QUESTIONABLE. WHERE A PROBLEM OF RELIABILITY DEVELOPS, THE INDIVIDUAL IS IMMEDIATELY REMOVED FROM NUCLEAR WEAPONS DUTY.

THERE IS CONSIDERABLE COORDINATION BETWEEN THE DEPARTMENT OF DEFENSE AND NUMEROUS OTHER FEDERAL AGENCIES TO INSURE PLANNED AND COORDINATED EFFORTS IN REACTING TO NUCLEAR EMERGENCIES. IN THE FIELD OF INTELLIGENCE, WORKING THROUGH THE MILITARY DEPARTMENTS AND DIA, EXCELLENT INTELLIGENCE SUPPORT IS PROVIDED. THIS ASSISTANCE IS A COOPERATIVE EFFORT THROUGHOUT THE UNITED STATES INTELLIGENCE COMMUNITY.

REPRESENTATIVES FROM THE DEPARTMENT OF DEFENSE, ALONG WITH OTHER FEDERAL AGENCIES, PARTICIPATE ON VARIOUS COMMITTEES AND WORKING GROUPS WHICH HAVE BEEN ESTABLISHED FOR DEVELOPING POLICIES, PLANNING GUIDANCE AND PROCEDURES TO INSURE THAT GOVERNMENTAL AGENCIES CAN REACT IN UNISON IN COMBATING ANY TERRORIST THREAT TO NUCLEAR WEAPONS. PARTICIPATION ON SUCH COMMITTEES AND WORKING GROUPS PROVIDES A VIABLE MEANS OF PREPARING OVERALL FEDERAL PLANNING GUIDANCE, WHICH IS DESIGNED FOR USE BY STATE AS WELL AS FEDERAL AGENCIES. ADDITIONALLY,

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THE DEPARTMENT OF DEFENSE HAS ENTERED INTO A NUMBER OF FORMAL INTERAGENCY AGREEMENTS. THESE AGREEMENTS ARE DESIGNED TO PROVIDE A POLICY AND PROCEDURAL FRAMEWORK FOR REACTING TO A WIDE RANGE OF POTENTIAL NUCLEAR INCIDENTS.

MR. CHAIRMAN, THAT CONCLUDES MY PREPARED STATEMENT. I WOULD BE PLEASED TO ANSWER YOUR QUESTIONS; HOWEVER, IF THE ANSWER INVOLVES A MORE DETAILED DESCRIPTION OF OUR SECURITY SYSTEM THAN COVERED IN MY STATEMENT, I WOULD LIKE TO REQUEST THAT I ANSWER THOSE IN CLOSED SESSION.

Senator GLENN. Thank you, Mr. O'Brien.

I would like to have all the statements first. I think it is more productive to do it that way and then ask questions that cross-relate here.

Mr. O'BRIEN. Fine.

Senator GLENN. Our next statement will be from Dr. Donald Kerr, Acting Assistant Secretary for Defense Programs, Department of Energy.

I might add that I see the buzzer just went off for a vote over on the floor, so if we get through your statement, Dr. Kerr, then I may have to run over to the floor and vote and get back as fast as I can. I am sorry for an interruption like that, but we will have to bear with it.

Mr. KERR. Thank you, Mr. Chairman.

It is a privilege to reappear before you today on behalf of the Department of Energy to discuss the important issue of how Government-owned special nuclear materials and related technology are protected.

My testimony today will cover three principal areas: what we do to deny to would-be adversaries access to SNM; what we do to control weapons technology; and finally, how we provide assurances that these measures are adequate to minimize the incentives for an adversary to act and to prevent him from being successful if he does.

The Department of Energy routinely handles significant quantities of strategic special nuclear materials in carrying out its atomic energy defense activities. A significant quantity is 2 kg of uranium-233 or plutonium, or 5 kg of uranium-235 in uranium enriched to 20 percent or greater, which provides a substantial safety margin over the amount of material needed to fabricate a weapon.

In addition, DOE has responsibilities for the protection and accounting of lesser quantities, down to gram amounts. The 23 locations under DOE cognizance that possess significant quantities of these materials for which the DOE has safeguards responsibility and the 12 for which NRC has safeguards responsibility but DOE has contractual control are listed in my statement for your information.

The Department of Energy has taken measures to ensure the security of these materials against theft, sabotage, or other illicit use by adversaries including terrorist groups. DOE uses an approach which provides an integrated physical and administrative protection system in a cost effective manner. Physical measures include fences, alarms, prohibition of personal vehicles within protected areas, dual communication modes for guards, backup guard forces and written records of all persons visiting areas with special nuclear materials. Random searches are made of packages, briefcases, containers and vehicles entering SNM areas and mandatory searches of vehicles are made on leaving search areas. Doorway and portal monitors are being installed to detect attempts to steal even small amounts of SNM. Sensitive portable instruments are available and are used to search for nuclear materials in vehicles.

Administratively, anyone granted access to special nuclear material under DOE control must have a DOE security clearance or be escorted by a cleared employee. Operational procedures are part of

the integrated systems which add support to the hardware effectiveness. These include:

(1) The "two-man rule" for access to special nuclear materials;

(2) Detailed procedures for protecting SNM and nuclear weapons which are carried out by specially trained, equipped and physically qualified armed security inspectors and couriers;

(3) Managerial control and inventory procedures;

(4) Operational testing of system effectiveness.

DOE moves all significant quantities of strategic special nuclear material in specially designed vehicles with armored cabs and numerous protective and communications capabilities. Armed escorts accompany the point-to-point shipments, along randomly selected, preplanned routes with no intermediate stops, and maintain the cargo vehicle under continuous surveillance. A nationwide communications system enables the armed escorts to automatically signal for help in an emergency.

DOE's R. & D. program provides for development, testing, and evaluation of cost-effective systems and technology for accounting for and protecting special nuclear materials. This R. & D. program includes development of computerized techniques for modeling and evaluating the effectiveness of potential and existing safeguards systems; the development, test, and evaluation of physical protection and intricate material measurement equipment; and the design, development, test and evaluation of prototype safeguards at selected sites representative of generic classes of nuclear facilities.

Protective measures are also integrated into the actual design of nuclear weapons produced for the DOD. Some of these measures are designed and incorporated into the weapons principally for reasons of safety. However, in many cases, these safety features have the bonus effect of denying a malefactor the ability to achieve a nuclear yield without resorting to extraordinary measures. We are also incorporating various types of permissive action links (PAL's) to the weapons presently entering stockpile and those that we are now developing. These PAL's are designed to preclude unauthorized, unintended or accidental enablement of weapons fuzing and firing systems. Additionally, disablement or destruction techniques have been developed which would render a weapon useless at such times as the custodians sensed a condition approaching "in extremis."

We also have a program of security and safeguards assistance and cooperation with DOD on research, development, test and evaluation. All of our efforts relative to physical security of fixed sites and transportation systems are available to the DOD. Additionally, we assist the DOD across a spectrum of potential incidents involving radioactive materials and weapons.

DOE also has a safeguards working agreement with the NRC which provides for consultation and coordination to maintain the policy of comparably effective safeguards. This agreement is executed through a liaison board, composed of senior staff members from both organizations, which meets monthly.

DOE coordinates its safeguards research and development program with NRC to avoid duplication of effort and to minimize the dissemination of safeguards technology and equipment to the private

sector, both domestically and internationally; exchanges information with NRC for the protection, control, and accountability of SNM to assure comparability; and provides NRC with analytical services, including safeguard analytical laboratory evaluations of licensee nuclear material samples.

Further, DOE has joined with NRC in testing and evaluating its specialized communication equipment and other hardware to determine their suitability for use in the private sector.

DOE is kept aware of individuals or groups which have performed acts of malevolence or violence against nuclear installations in the U.S. by the FBI and by our field operations people if their officers or installations are affected. DOE also received information from the intelligence community on foreign terrorist activities.

Senator GLENN. If you could hold up, Dr. Kerr, that is our warning. I will be back just as fast as I can get back. I will have to run over and vote.

Mr. KERR. I understand. Thank you, sir.

[A short recess was taken.]

Senator GLENN. The hearings will be in order again. Dr. Kerr, if you would proceed with your statement, please. I am sorry for the interruption, but that is one of the hazards of trying to conduct a hearing on Capitol Hill, as you are aware. Go ahead.

Mr. KERR. Thank you, Mr. Chairman. I had begun to indicate what we do to counter the terrorist threat. I had indicated that we are kept aware of individuals and groups that have been known to perform acts of violence or threats in the past.

Much of the information provided to the Department on bombings and related domestic terrorist incidents is generated by the FBI's bomb data center and is most valuable to our threat evaluation efforts. There is a continuing need for the Department of Energy to receive timely and well analyzed intelligence on domestic terrorist incidents and organizations.

The Department has had no experience with terrorists, domestic or foreign, attempting to acquire or use special nuclear materials in an illicit manner. Persons have, however, threatened to use nuclear materials in a malevolent and destructive manner. A listing of 44 such threats was recently made public by the DOE with FBI approval.

The DOE has in place a number of response capabilities, including interfaces with the FBI, DOD, NRC and the Department of Transportation.

By virtue of the Atomic Energy Act and the Hobbs Extortion Act, a nuclear threat becomes a Federal matter properly within the jurisdiction of the FBI. Our role is to assist the FBI when requested. If the FBI communicates that a threat exists, the DOE has the following capabilities:

(1) A command and control mechanism to direct and coordinate response activities at the national level. This capability is embodied in the DOE's emergency action and coordination team (EACT), emergency operations center. The procedures have been rehearsed and incorporated in operating instructions.

(2) We have a threat credibility technical assessment mechanism. This capability relies on designated individuals at our headquarters

and in our weapons laboratories who can technically assess available threat information at the direction of the EACT.

(3) We have a search force consisting of trained scientific and technical personnel equipped with detection instrumentation, vehicular and airborne search platforms, a control and support staff, and rehearsed plans and procedures. This capability is designed for rapid assembly and deployment to any location. We use people and equipment that in a benign environment are employed in normal programmatic duties.

(4) We have a diagnostic and analysis group and an effects and containment assessment group constituted in similar fashion to the search force.

(5) Finally, a threat device neutralization group marries our DOE expertise and equipment to that of the Department of Defense Explosive Ordnance Demolition Teams.

These capabilities are the principal ones incorporated in our nuclear emergency search team (NEST) concept. However, if necessary, in a given situation, we can call on many other assets to join in the NEST effort.

Our responsibilities in an SNM threat situation are essentially those of providing technical assistance to ensure public health and safety.

In fulfillment of our responsibilities, we work with other Federal agencies as required. In addition to the written agreements we have with the FBI, we also have agreements with the Department of Defense and the Nuclear Regulatory Commission which delineate our respective roles. A memorandum of understanding between the Department of Transportation and the DOE to utilize the NEST capabilities in conjunction with the U.S. Coast Guard activities is now being considered. Additionally, DOE provides technical assistance in accordance with the Federal Response Plan for Peacetime Nuclear Emergencies promulgated by the Federal Preparedness Agency.

Classification of information is an important element relating to the security of SNM and inventory differences data. DOE policy is to classify as National Security Information, under Executive Order 11652, information which could be of significant assistance in (1) the theft of SNM that can then be used to fabricate nuclear weapons, (2) the theft of plutonium and the use of that material to contaminate large populated areas, (3) the sabotage of DOE nuclear facilities, or (4) the making of nuclear threats which could disrupt the orderly functioning of DOE facilities in programs of national importance.

The objective of DOE classification policy is to permit as much information as possible to be unclassified in order to provide maximum assistance to the public in their assessment of the adequacy of safeguards measures while at the same time protecting the information I just mentioned.

Inventory discrepancy data, not falling within the definition of restricted data, is classified confidential national security information for a period of 6 months or until an ongoing investigation is complete. Inventory discrepancy data more than 6 months old is declassified provided it does not fall within the definition of Restricted

Data. This six-month period permits an analysis of any discrepancies in the inventory data. This analysis is used to evaluate claims that quantities of SNM may have been diverted to unauthorized use, and to ensure that such data does not increase the credibility of any potential threat. Inventory discrepancy data at the Rocky Flats plant and the Oak Ridge Y–12 facility is classified confidential restricted data because it could reveal information concerning the design and production of nuclear components of weapons.

We also undertake to prevent the dissemination of the technology necessary to devise an improvised nuclear device. Yesterday I did describe our classification policies. I will answer the question which you asked then, which was how many threats or pieces of information comparable to those provided to the committee by Mr. Rotow have we reviewed.

In the past 4 years, the Department has evaluated four submissions of the nature comparable to the Rotow document. We have also analyzed a larger number of solicitations that reflected a less sophisticated approach by the author and consequently only required a cursory review.

I will describe the DOE's classification policies with regard to weapons technology, that is, how we prevent access by terrorists to information on how to build a nuclear weapon.

It has always been the rule in formulating the policies on classification and declassification of restricted data that weapons designs shall not be declassified. Under this rule, the complete design of all weapons is classified.

However, classification policies in the weapons field must take into account the fact that basic science such as information on the nuclear properties of fissile materials is relevant to both peaceful uses and military uses of nuclear energy. With the Atoms for Peace program in the early 1950's, it was the policy to declassify the basic science that was common to the military as well as the civil uses. For example, it is necessary to have knowledge of the critical masses of fissile materials to design a safe nuclear reactor.

In the 1950's, when this information was being considered for declassification for civil application, the main threat to the U.S. was considered to be a foreign national nuclear weapons production effort. In that context, information that was known to be easily acquired by a national scale project was considered eligible for declassification if significant power applications were known to exist.

With the advent of the terrorist threat, it now seems possible that much unclassified information in the nuclear area may be useful to terrorists. We have even considered the possibility of reclassifying restricted data that has been officially declassified; however, section 146 of the Atomic Energy Act appears to prohibit such an action and, practically speaking, when information has not only been declassified but also published and widely circulated, a reclassification action would have little benefit. Presently, when information is being reviewed for declassification, consideration is given to its possible usefulness to terrorists as well as to other nations.

In addition, we have a standard policy not to comment in any way on the designs of nuclear weapons brought to our attention by would-be weapon designers.

Should a member of the general public submit an unsolicited nuclear weapon design or should one otherwise be brought to our attention, the DOE does at least two things:

(1) We assess the design to determine its credibility.

(2) We take whatever actions are required to see that Federal laws are upheld and enforced, including, where appropriate, advising the "designer" of the physical dangers inherent in proceeding and of the Federal laws that he may violate.

Because public comment on a design could help make the designer's next attempt more credible, we do not inform the "designer" of the results of our assessment. Our principal aim is to discourage any further efforts in this area.

A personnel security program is in effect with the general purpose of identifying those persons who are risks and denying them access to either SNM or related technology.

The Atomic Energy Act and 10 CFR 710 provide the Department's legal framework for carrying out this program. 10 CFR 710 sets forth the criteria and procedures for processing security clearances. Access to SNM, restricted data and national security information is restricted to those who have the proper clearances. In addition, unless someone has an established "need to know," he is not given access to classified information. That is, a security clearance does not automatically entitle an individual to access.

Another way that technology is controlled is through export controls. There are a graduated series of controls which are implemented by DOE, State, Commerce, and NRC under various laws and regulations in controlling the exports of nuclear items. Under the Atomic Energy Act, special nuclear materials can only be exported under an agreement for cooperation. Proposed exports are very carefully reviewed and, depending upon the material or the country involved, appropriate conditions are placed upon the export. In all cases we require International Atomic Energy safeguards, adequate physical security both in international transit and within the recipient countries, restrictions on retransfers without our approval and assurances excluding use in nuclear explosive devices. Furthermore, we obtain Government assurances that the end user is authorized by the recipient government to own and process these materials.

Nuclear and nuclear-related components and materials that would be of interest to a terrorist group in manufacturing nuclear components are controlled by Commerce, the Office of Munitions Control in State, and the NRC. The Department of Energy reviews such cases carefully and provides recommendations including proposed restrictions or provisos on the proposed exports. Technical views of weapons laboratories are solicited on any significant exports.

In the case of unclassified nuclear technology, the DOE controls such exports under section 57(b) of the Atomic Energy Act and its regulations 10 CFR 810. Significant technologies such as enrichment, reprocessing, and heavy water require specific approval of the Secre-

tary of Energy. Exports of all unpublished nuclear technology to the Sino-Soviet bloc countries also require the Secretary's approval.

I have described the measures in place to restrict the availability of materials usable to fabricate nuclear explosive devices. There remains the challenging task of evaluating the capabilities and incentives of potential adversaries in order to determine the improvements which can be made in our system.

First, let me emphasize that so far the system has worked; we have had no serious attempts to illicitly acquire SNM or nuclear weapons. While there can be no absolute evidence that this is the result of our systems, certainly the protective measures in place, the great risks in attempting such an act, and the lack of clear incentives for the adversary have all contributed.

From the adversary's point of view, there are a number of factors which he must consider in determining the cost to him of an attempt to use diverted or stolen nuclear material for his purposes:

(1) The personal risk in handling nuclear material and the high degree of technical competence required to use the material.

(2) The sophisticated tools and equipment required.

(3) The possibility that the threat posed by the terrorist will not enlist the desired support, that is, the news media, public empathy, et cetera.

(4) The fact that the terrorist objectives might be more easily accomplished by means involving less risk, that is, conventional explosives. hostages, et cetera.

It is also important to note that acts of extreme violence or indiscriminate mass destruction would not seem to provide the kind of results that most adversaries, including terrorist groups, have sought. The most advanced organizations and, therefore, the ones with the greatest capabilities, seek to gain the support of the populace and a measure of political legitimacy. Therefore, these organizations have not carried out acts of superviolence analogous to detonating a nuclear device. even though such nonnuclear acts are clearly within their capabilities.

Still, one cannot remain complacent with the system in place. There are potential motivations which could be considered worthy of the risk, and the motivations of adversaries do change with time. We must continue to analyze these potential adversaries to assure that our safeguards measures remain effective and are modified as necessary. Therefore, the DOE approach is to design safeguards measures to be effective against a wide range of potential adversaries. There is a tendency today to focus our attention on protection against terrorist assaults and, of course, we are doing this. But effective protection also must be provided against thieves, saboteurs, lunatics, burglars, and dissident employees, to name a few.

Analyzing the variety of potential adversaries and their attendant capabilities and motivations has led us away from the concept of a "design basis threat." We do not feel satisfied if all our facilities are adequately protected against an attack by some specific number of terrorists armed in a particular way. In fact, our analyses to date indicate that such an overt armed assault is unlikely and, in addi-

tion, that the numbers of attackers is but one of a number of important attributes. As you know, we do provide a benchmark requirement that all DOE facilities which possess significant quantities of strategic special nuclear material must meet. That particular level is classified so that we do not aid potential adversaries. Beyond that, however, there are other objectives that are equally important. Not only must a facility be effective against the specified threat, but we work to make sure that the system remains effective against increases in the threat and is actually threat independent to the maximum practical extent. The objective is to force the adversary to possess capabilities that seem the hardest for him to obtain, and at levels and in combinations where he will have great difficulties. Some of the most difficult attributes to obtain appear to be the less tangible human factors such as imagination and ingenuity, criminal skills, accurate intelligence and privileged access, and the ability to achieve tactical surprise and the necessary combination of several of these. It is also a formidable task to assemble the requisite personnel who are technically knowledgeable, skilled in the operation of weapons, the use of explosives, the circumvention of alarm systems, the penetration of physical barriers, and are dedicated to the point of risking their lives. All of this must be done while maintaining group secrecy. Even then, our systems are designed to be effective.

Still, we are not complacent. We continue to interact with the appropriate agencies to analyze potential threats so that changes or trends are identified and system modifications made. We are continuing work with the NRC and DOD so that our common as well as unique situations receive comparable protection.

Mr. Chairman, that completes my statement.

[The attachments to Mr. Kerr's statement follow:]

Attachment (1)

NON-LICENSED DOE FACILITIES

Facility	^{233}U	^{235}U (more than 20% U-235)	^{238}Pu	^{239}Pu
Los Alamos Scientific Laboratory, Los Alamos, New Mexico	X	X	X	X
Pantex Plant Amarillo, Texas		X		X
Mound Laboratories Miamisburg, Ohio	X	X	X	X
Sandia Laboratories Albuquerque, New Mexico		X		
Rocky Flats Plant Rocky Flats, Colorado	X	X		X
Argonne National Laboratory Argonne, Illinois	X	X		X
Batelle Memorial Institute Columbus, Ohio		X		X
Brookhaven National Laboratory Upton, New York		X		X
Savannah River Plant Aiken, South Carolina	X	X	X	X
Portsmouth Gaseous Diffusion Plant, Piketon, Ohio		X		
Oak Ridge National Laboratory Oak Ridge, Tennessee	X	X	X	X
Y-12 Plant Oak Ridge, Tennessee		X		

Facility	^{233}U	^{235}U (more than 20% U-235)	^{238}Pu	^{239}Pu
Hanford Reservation Richland, Washington	X	X	X	X
Idaho National Engineering Laboratory, Idaho Falls, Idaho	X	X		X
Knolls Atomic Power Laboratory Schenectady, New York	X	X		
Kesserling Site (KAPL) West Milton, New York		X		
Windsor Site (KAPL) Windsor, Connecticut		X		
Atomics International Canoga Park, California		X		X
Lawrence Livermore Laboratory Livermore, California	X	X		X
Nevada Reservation Mercury, Nevada		X		X
Shippingport Reactor Facility Shippingport, Pennsylvania	X	X		X
Pittsburgh Naval Reactors Office, West Mifflin, Pennsylvania		X		
Bettis Laboratory West Mifflin, Pennsylvania	X	X		

NRC Licensed Facilities Under Contract to the DOE

Facility	^{233}U	^{235}U (more than 20% U-235)	^{238}Pu	^{239}Pu
Westinghouse Nuclear Energy Systems, Madison, Pennsylvania		X		X
Massachusetts Institute of Technology, Cambridge, Massachusetts		X		
Texas Instruments, Inc. Attleboro, Massachusetts		X		
United Nuclear Corporation Wood River Junction, Rhode Island		X		
Babcock & Wilcox Company Leechburg, Pennsylvania				X
Nuclear Fuel Services, Inc. Erwin, Tennessee		X		
United Nuclear Corporation Naval Products Division Uncasville, Connecticut		X		
Atomics International Canoga Park, California		X		
General Atomic Company San Diego, California		X		
General Electric Company Vallecitos, California		X		X
Babcock & Wilcox Company Nuclear Materials Division Apollo, Pennsylvania		X		
Babcock & Wilcox Company Naval Nuclear Fuel Division Lynchburg, Virginia		X		

Attachment (2)

CURRENT DOE REQUIREMENTS (SITES)

DOE facilities which currently possess significant quantities of license-exempt Government-owned strategic special nuclear materials are subject to the following major safeguards requirements:

- o A DOE-approved Safeguards and Security Plan.
- o A safeguards and security organization including armed guards.
- o SSNM protected by a dual barrier system with a cleared, illuminated and electronically-monitored or guard patrolled protected area.
- o SSNM not in process stored in vaults or in security rooms equipped with electronic intrusion detection devices and alarms.
- o SSNM not in storage under continuous surveillance by at least two cleared and authorized individuals or protected by electronic alarms if not attended.
- o Access of personnel and vehicles to protected areas controlled by guards.
- o Personnel, packages, and vehicles subject to search for contraband materials upon entry to a protected area.
- o Search of all personnel and packages for surreptitious removal of SSNM upon exit from a material access area or protected area.
- o Annunciation of alarms at guard communications center and one other location.

- o Continuous communications capability between guards, guard stations, and local law enforcement agencies by at least two means.
- o Facility survey and approval prior to introduction of SSNM.
- o Security clearance requirements for all operative and protective personnel.
- o Guard emergency response time within ten minutes.
- o Written records of visitors.
- o Personal vehicles prohibited entry.
- o Guard posts at material access areas equipped with duress alarms.
- o Facility surveys or assessments conducted at least semiannually.
- o Medical and professional qualification and requalification standards for protective personnel.

Attachment (3)

CURRENT DOE REQUIREMENTS (TRANSIT)

The following major requirements govern the protection of significant quantities of strategic special nuclear material in transit:

- o DOE-approved written procedures must be followed.
- o Tamper indicating seals are used on shipments.
- o Road shipments only by specially designed Government-owned safe secure trailers and tractors, operated by DOE couriers, accompanied by at least one escort vehicle and at least five DOE couriers, with no intermediate stops, and cargo vehicle under continuous surveillance.
- o Continuous two-way radio communication between cargo and escort vehicles.
- o By rail in specially designed Government-owned locked and sealed railcars, accompanied by at least three DOE couriers. Individual units weighing over 5,000 pounds may be shipped on flatcars, escorted by one DOE courier.
- o All rail and road shipments are continuously monitored utilizing the specially designed nationwide SECOM radio communication system.
- o When not otherwise prohibited by statute, in DOE owned or exclusively contracted aircraft accompanied by at least two DOE couriers.
- o Security clearance requirements for all operative and protective personnel.

Senator GLENN. Thank you, Mr. Kerr.

Mr. Gilinsky is a Commissioner with the Nuclear Regulatory Commission.

Mr. GILINSKY. Thank you, Mr. Chairman.

I am pleased to appear before you today to discuss the risks of terrorist activities involving the use of nuclear explosive materials. I should add we are lacking a quorum at the moment and other Commissioners not present have not had an opportunity to review my statement.

The materials we worry about, of course, are highly enriched uranium and plutonium. The Nuclear Regulatory Commission regulates possession of all these so-called "special nuclear materials" which are held in the commercial sector. Our authority derives from the Atomic Energy Act and the Energy Reorganization Act of 1974, which created the U.S. Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards.

MATERIALS AND FACILITIES

There are 12 domestic facilities possessing significant quantities of highly enriched uranium or plutonium licensed by NRA. The number is down from 19 about 2 years ago. Practically all of the highly enriched uranium is Government owned almost all of it intended as fuel for naval reactors. Material that is owned by the Government and in Department of Energy facilities is not regulated by NRC.

The remaining highly enriched uranium—less than 5 percent of the total—is intended to fuel the high-temperature gas-cooled reactor at Fort St. Vrain, Colo., and several test and research reactors. The plutonium in commercial plants—several hundred kilograms—is both Government and privately owned, and is used in connection with research and development activities.

REGULATORY REGIME

NRC requires licensees holding significant quantities of nuclear explosive material to submit and receive approval for security plans for these materials, both in their facilities and in transport. At fixed sites, licensees must have trained security organizations—including armed guards—provide physical barriers, control access to the facility and material, use intrusion alarms, make arrangements for communicating with local law enforcement agencies in order to receive emergency assistance, and establish contingency plans to deal with threats, theft or sabotage, as well as a number of additional measures.

The transport of all Government-owned material, the overwhelming majority of shipments, is handled by DOE, which uses special armored vehicles protected by armed guards, as described by Dr. Kerr. In transporting privately owned material, each licensee must preplan in an approved manner to reduce risks in transit, make road shipments in special or armored vehicles, provide armed escorts in a separate vehicle, and arrange for periodic communication with the control point.

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In addition to physical security measures, the licensee must establish a material control and accounting program designed to detect discrepancies between what is supposed to be on hand and what is in fact on hand.

In order to give guidance to our licensees in safeguards design, and to provide a uniform standard of evaluation, the physical protection requirements are summed up in terms of a so-called design threat. In these terms, the current NRC requirements for nuclear explosive materials protection are described as intended to protect against a determined violent assault by several persons assisted by an insider. As you mentioned in your opening remarks, the right level of protection has been a matter of great dispute both inside and outside the NRC.

In July 1977, NRC proposed new rules to strengthen physical protection for nuclear explosive material at fixed sites and in transit. The objective is to achieve a higher level of protection while at the same time allowing a reasonable flexibility to the licensee in developing security programs suitable to individual facilities. This will be accomplished by establishing a general performance objective for licensees, underlined by detailed specific functions which must be carried out in the safeguards program. These are more rigorous than in the past because we have decided that we will want more protection in the future than we have been satisfied with in the past. A shorthand way of accomplishing this is to set a bigger design threat. That doesn't mean that we perceive a change in the outside environment; it is simply a reflection of the fact we think we ought to have more protection.

So the external adversary characteristics defined in our proposed rules have therefore been altered to postulate a more formidable adversary group. Again, there is wide debate about the necessity and sufficiency of our proposed rules.

RELATIVE PROTECTION—NRC, DOE AND DOD

You have asked about the relative effectiveness of the protection for nuclear material in the licensed sector and under DOE and DOD regimes. About a year ago the Government Accounting Office issued a report entitled "Commercial Nuclear Fuel Facilities Need Better Security," which compared NRC's safeguards system with that of the Department of Energy. GAO concluded there are differences between the two programs. They mention the differences in instructions to its guards and the use of force differ from ours, DOE applies personnel screening programs for facility guards and individuals having access to nuclear material. DOE is upgrading its safeguards, as described by Dr. Kerr, and overall my impression is the upgrade in DOE's physical security has probably proceeded at a faster pace than our own, although I expect the licensed sector will catch up in most respects. One of the problems we have is that we regulate a number of relatively small facilities that are intrinsically more difficult to protect. At the same time, we probably have stricter requirements on material control and accounting.

So far as DOD is concerned, the comparison is with protection for assembled nuclear weapons, and my impression is that their security is on the whole tighter.

CONFIDENTIALITY OF SAFEGUARDS INFORMATION

It is obvious that a physical security plan designed to protect nuclear explosive materials must be shielded from general public view. There are two ways of exempting safeguards information from public disclosure. The first is to require that physical security plans be placed under national security classifications. Certain NRC licensees having contracts with DOE are required to do this.

Other information on safeguarding nuclear materials is categorized proprietary information, thus exempting it from mandatory public disclosure under exemption 4 of the Freedom of Information Act.

The same two approaches are used in controlling material accounting data. Inventory discrepancy data for facilities not engaged in DOE military programs is labelled proprietary data. This data on inventory differences is released after six months unless an active investigation is still underway. Our first release of inventory difference data was made in August of last year and we expect to make our second release within a month.

The Commission is not entirely satisfied with the current basis for protecting safeguards information from disclosure, and our staff has therefore been asked to prepare draft legislation to amend the Atomic Energy Act in order to provide a statutory basis for protecting safeguards information from release. It is my view that the key to solving these disclosure problems would be to exempt a narrow category of information from disclosure under exemption 3 of the Freedom of Information Act.

THE MATTSON TASK FORCE REPORT

I would like to respond to your expressed interest in the recommendations of the Mattson task force report. As you are aware, the task force was established by direction of the Commission in April 1977 to look into a number of questions related to the effective functioning of the regulatory safeguards system. In submitting its report, the task force recommended a series of improvements. The Commission requested the staff to implement certain of these and subsequently reviewed its proposed plan of action.

Basically, what the task force recommended was that procedures be developed to ensure that the safeguards staff had sufficient guidance from the Commission and adequate information from other agencies to carry out its mission. We have gone a long way toward implementing these recommendations.

TERRORIST ACTIVITIES

In your letter to Chairman Hendrie inviting us to appear before this committee, you expressed interest in the history of activities by terrorists groups or other unauthorized persons in the United States involving the illicit acquisition and/or use of special nuclear material. In response to this request, we have been preparing a list of all incidents or threats we know of which related to or might have related to nuclear facilities is now in preparation and should be available for the record within the next three weeks.[1]

[1] See page 921 in Appendix.

In addition, I might comment on the question of NRC's ability to obtain complete and accurate intelligence information. Certain categories of such information are useful for determining most effectively where vulnerabilities might exist in our safeguards regulations and where additional protection might be required. To support these needs, we have established working relationships with appropriate Federal agencies to receive this information.

In conclusion, I would like to assure the committee that the Commission takes its safeguards responsibility very seriously indeed. I said earlier that I thought we needed more protection. But we must also be discriminating in our approach, bearing in mind that tighter security is too easily accompanied by more intrusion into the private sector than is comfortable, either for the public or its government. Even our proposals for strengthening physical security have been met, in some quarters, by anguished complaints. It is said that we are turning private facilities handling highly enriched uranium and plutonium into armed camps. This raises the question in my mind of whether activities of this sort should in fact be in private hands. I do not have the answer, but it is a question we need to think about.

Whatever the answer, the ultimate question we face is not unlike that which confronts the national defense establishment: How much protection is enough? It is a vexing question, and the Commission can only provide its best judgment. The consequences of providing too much protection are painful but the consequences of providing too little are all too obvious.

Thank you, Mr. Chairman.

Senator GLENN. I certainly concur with your last statement there; there is no doubt about that.

We will now hear from Mr. Sebastian Mignosa, Director of Domestic Security Sections, Criminal Investigative Division of the FBI.

Mr. MIGNOSA. Thank you for making me the Director, sir, but I am the Chief of the Domestic Security and Terrorism Section of the Criminal Investigative Division.

Senator GLENN. Thank you. We will correct that.

Mr. MIGNOSA. I have just a short statement, Mr. Chairman.

The FBI derives its jurisdiction to investigate nuclear incidents, which are of a criminal or terroristic nature, from various criminal statutes under which the FBI has investigative jurisdiction. These statutes are primarily the Atomic Energy Act of 1954, title 42, USC, sections 2011-2281, and extortion, title 18, USC, sections 873, 875, 876, and 877. As you are aware, the FBI is also the lead agency within the Department of Justice in combating terrorism within the United States, and as such, is responsible for investigating acts of nuclear terrorism.

Nuclear extortions wherein the use of a nuclear device has been threatened have been investigated as extortions and require considerable cooperation between the FBI, the Department of Energy and the Department of Defense/Explosives Ordnance Disposal personnel. The roles assigned each agency are clearly defined in a memorandum of understanding between the FBI and the Department of Energy.

The FBI is in overall command of such situations from their inception to their ultimate resolution. Additionally, the FBI coordinates criminal or terroristic aspects of peacetime nuclear incidents with the Department of Energy and other pertinent agencies such as the Nuclear Regulatory Commission—NRC—as the need arises. It is recognized this coordination is vital to protect the United States from the terroristic use of a nuclear device. The FBI's efforts in this area will, of course, continue.

That is my statement, sir.

Senator GLENN. Thank you, Mr. Mignosa.

Before we get into some of the general questioning, I would like to illustrate why we are so concerned about this. I will just use one set of examples here this morning. I wish we had time to go into all of these that I have laid out here before me over about a 6-foot area.

There was recently a series of articles that Mr. Joe Albright wrote regarding nuclear weapons security; among other things, he was able through a simple open request, to receive blueprints for protective guard stations at the Hanford nuclear facility in Washington, one of our major facilities in this country.

These are not little, superficial diagrams. These are the actual blueprints and the working diagrams and the numbers and the electrical core and so on.

I will only hold a few of these up here so you all can see them. These are the electrical plans for a storage area. This was one from an air base where they were upgrading the security improvements at that base; electricity distribution and control, control schematic, with architectural details of exactly how it would be wired in.

Here from the Hanford plant are electrical plans and notes. Here is one for a guard station in particular; electrical plot plan and diagrams. It even shows the exact wiring diagram here for such things as metal detection, special nuclear material detectors, door control, explosive detectors. And we are passing these out as public literature on request.

I am not castigating one Department because I think if we had delved into each one of your Departments in the same depth perhaps each one would have something like this occurring in each department of the Government.

In NRC, for instance, we didn't get to go into that, but there is a question there of freedom of information and whether they can even prohibit requests for security plans from being honored, whether they have the authority to do that or not.

These particular diagrams here are not only electrical plans, they go into architectural details concerning where those plans fit in, structural plans and details, the actual construction diagrams here; another one, back to the Air Force base again, weapons storage area, entry control facilities, plans and specifics showing all the details of it, all the wiring diagrams; another wiring diagram in detail here, and actual architectural layouts of where the wiring goes with regard to fencing and fence gate controls. There are details on the alarm hookup, with certain types of wiring, and even where they go and actually plotted on these charts as to where they are within the specific buildings.

We could go through these, but I think I have made my point about the reason why we are so concerned about these things.

It does little good to upgrade people and so on if we are passing out the information of what our security is, in such detail as this, and make it known to everybody who wants to write in and ask. It is not even classified.

I don't know if it is any law we have mistakenly passed here in Congress or what the rationale is behind this. But it is absolutely nonsense to my way of thinking that we should be sending this kind of material out. And in talking to Mr. Albright yesterday, even after he had published this in the paper, the computer once again spewed out an updated version of this 2 weeks later, after he had published the information about getting this through unclassified channels. It wasn't even cut off after the original publication of articles surrounding this.

The articles portray this, and I agree, as security breaches resulting from this material being indiscriminately sent to anyone who asks for the material. That is one of the problems.

I am sure if we went into other examples of other departments than just the Department of Defense, we could probably run into the same kinds of examples.

I use this not to overdramatize this because I don't think you can overdramatize the importance of this, but I do this just to point out in starting the questioning of the extreme importance of this and how foolish some of our policies appear to be in not restricting this.

I don't know whether you wish to respond now or go on to some questions about this.

Has this type of thing been stopped, as of now at least, with the Department of Defense?

Mr. O'BRIEN. Mr. Chairman, yes. I would like to just provide some additional information.

Senator GLENN. What I ask first is are you familiar with the series of articles Mr. Albright wrote?

Mr. O'BRIEN. Yes, very familiar.

Senator GLENN. Fine.

Mr. O'BRIEN. In the Department of Defense, we have very carefully analyzed what information we can safeguard and what information is just not practical to safeguard.

In our construction planning, we divide our contracts into two prime contracts as a general rule. The first prime contract is essentially a construction contract which includes the building of the buildings, the site's security control center, the entry control building, the erection of fences, the cutting in of roads where necessary for access, this kind of thing. Essentially all this information is readily available from just observing the site, from just looking in, from flying overhead, what have you. So if we were to attempt to classify this, we would be doing a fruitless thing and it would cost us a great deal of money.

In Europe alone we estimated that—and I forget the exact figures—it would cost us approximately $187 million more if we were to do these construction things on——

Senator GLENN. You mean general site appropriations?

Mr. O'BRIEN. Yes, sir; for 2 years. The workers are picked up in the morning and go home in the evening. There is no way we can clear these people. So we are realistic about it.

The second contract is what we call our security contract. This is a classified contract. That would have the details, for example, of our intrusion detection systems. That is classified.

But things like light towers that you see up there, our power, normal electricity that goes into the sites, comes from a local utility. Therefore, to classify those facts, we just can't do it. It is not practical.

We do have backup power—emergency generators. We have carefully looked at all this. We think we have carefully hit the right balance.

Under the Freedom of Information Act, if it is not classifi[illegible], we just can't hold it under some of the various contracting programs, minority contracting and the like. It is something we have carefully looked at on a number of occasions, but we feel we have come out at the right spot.

Senator GLENN. Do you think wiring diagrams like this and where they go in the building should be put out, that that is not classified?

Mr. O'BRIEN. Yes, sir. That is our conclusion. On electrical wiring, the electricity going into the site——

Senator GLENN. Don't you think if you were a nuclear terrorist trying to go into some of these sites and trying to do something that these would be a big help to you?

Mr. O'BRIEN. Certainly it would. There is no question that every bit of it would be helpful. It is all a question of how much insurance and how much can we do.

But the electrical—now these are in the site. These are in a protected area. And again, it is an area where people might have honest differences of opinion. But we have looked at it and this is our conclusion.

Senator GLENN. Is there any attempt at all made to check out the people who ask for this on whether they have a need-to-know basis?

Mr. O'BRIEN. We have changed our procedure since Mr. Albright wrote in and got these. Now yes, we do. We insure the person is in fact a contractor before we send them.

Senator GLENN. But any contractor that sends in on his letterhead stationery I assume would get the full package; is that right?

Mr. O'BRIEN. We require he be on a bidder's list. So through our normal precontract arrangements we ensure that he is a proper contractor.

Senator GLENN. If specific wiring diagrams and specific functions labeled with specific numbers on the control panels and information about where those go in guard towers and control systems and control access through the site, if those are not classified, I don't know where you get to your highly classified material. Would it be only details of specific detector devices then?

Mr. O'BRIEN. Right. The kinds of intrusion detection systems, where it is located, how it works, all that is classified. So when we get into the intrusion detection system, other than the fact that we use them, that is a classified drawing.

Senator GLENN. We have a diagram here for special nuclear material detectors, wiring diagrams of how they are wired in.

Mr. O'BRIEN. I think that might be DOE.

Senator GLENN. It is DOE on that one.

Mr. KERR. If I might respond as well, Mr. Chairman. I don't intend in any way to take issue with your comment which I support heartily.

On the other hand, I would like to point to a success in our system, and that is Mr. Albright was identified by the security personnel in Hanford as a reporter. In fact, he was given what all contractors bidding on the job would have access to, which is a generic schematic drawing provided to them for the purpose of developing costs to bid for the job.

The detailed schematic of the actual installation to be made in our facilities is a classified document and remains classified.

Senator GLENN. Well, if anybody calls up and says, "I am a contractor, Bill Jones, over here. I would like to go out and look at the plant out here."

If he has a letterhead, he can go, right? You would run him through and run him through perhaps if he was on an Air Force base, as happened with Mr. Albright. He even was in an area where one could actually see and lay their hands on, I guess, hydrogen bombs at one point.

I can't believe that any contractor that shows up at the front gate of one of these plants or writes in to you on letterhead that he can have printed anywhere down the street, is automatically given access to these places to go through, perhaps take pictures, we don't know, and get the schematics and drawings just on that basis, with no classification and no security clearance whatsoever. I can't believe we are that careless.

Mr. O'BRIEN. If I might comment on Mr. Albright's visit to the Air Force bases that he went to. Yes, he did write in posing as a contractor and got the drawings, the unclassified drawings. He did visit the base again posing as a contractor.

When he visited, though, he was always under armed escort. Not only was at least one escort with him immediately, but through our communication network the guards knew that there was a contractor in the area. They were well aware of it.

The closest he got to a nuclear weapon was something in the vicinity of 190 feet. There was a fence between himself and the weapon. He was under, as I say, constant observation by armed people.

So the thought that he got his hands on a weapon is just not an accurate appraisal.

Senator GLENN. Maybe I misstated the hands on the weapon. But I certainly don't want any contractor in the country running around to even see a hydrogen bomb, as far as I am concerned, or even getting that kind of knowledge about where these things are stored, how they are stored, the number of security gates he has to go through to get there, what the procedures are, where the guards are, where the obvious wiring is that supports the guard towers, and so on. I just think that is extremely lax.

Mr. O'BRIEN. I think in that case, Mr. Albright didn't know how many guards were actually observing him. Things like the gates, you can't hide that. It is there. You know that there is "X" number of fences or you have to go through so many gates to get there. It is in the open. It is just difficult to classify.

Now a contractor, before he bids a job, has got to see the site to come up with a realistic cost estimate.

Senator GLENN. Let's get into some other areas here.

How about personnel clearance? That has concerned me for some time, too. Even if we have perfect perimeter fences, we still have people involved that are moving in and out of those areas.

Where are clearances required, background clearances? DOD has a clearance requirement; is that correct?

Mr. O'BRIEN. Yes, sir.

Senator GLENN. Is the DOD clearance requirement based on a full FBI check, background check?

Mr. O'BRIEN. The clearance that would be involved would be two levels. If the person is what we call in a critical position, he would have a background investigation. We conduct it within the Department of Defense by our Defense Investigative Service. It is a full background investigation.

The people that are in the control positions, in the less sensitive positions, will have a minimum secret clearance based on a national agency check. There are other attributes of the person's reliability program as I explained during the formal statement.

Senator GLENN. How about DOE then? What does DOE do in that regard?

Mr. KERR. DOE requires clearances at varying levels, but in particular those in the most sensitive positions receive a full background investigation from the FBI; those in slightly less sensitive positions, a similar full background investigation from the Civil Service Commission. And in areas where access is not possible to SNM, similar to DOD we do a national agency check.

In addition, personnel who have access to special nuclear materials or assembled weapons are screened beyond the clearance on a regular basis.

Senator GLENN. But does DOE hire its own guard force or do they contract out with existing guard force contractors for that?

Mr. KERR. We do both. We use private sector guard forces for some of our locations. We use Federal guards at some others.

Senator GLENN. If you contract out with, what, Wackenhut or someone else, one of these outfits that is a commercial guard force, then are all the people they send to do the job all cleared with the same kind of clearance?

Mr. KERR. Yes, they are.

Senator GLENN. The same background? It would be the full FBI background investigation on those people in the sensitive positions?

Mr. KERR. That is correct.

Senator GLENN. What does NRC do in that regard, Mr. Gilinsky?

Mr. GILINSKY. There are no specific clearance requirements for the licensees. Now most of the material——

Senator GLENN. Wait a minute. Say that again? There are no clearance requirements for licensees?

Mr. GILINSKY. At the present time, yes. Now we have published a proposed rule in March and we are scheduling hearings in May or June on a rule which would require clearance of employees with access or control over this——

Senator GLENN. Are employees now operating NRC monitored plants—certainly there is some security classification they must run through, is there not? Is there no requirement for people licensed by you to have some sort of security clearance at all?

Mr. GILINSKY. There is not. Let me just qualify that. Most of the material handled is defense related. The contractor requires employees to have "Q" clearances.

Let me put it this way: Essentially most of the employees that are in fact in this category have clearances, but there is no specific NRC requirement. There are some employees handling it in the private sector who do not have clearances.

Senator GLENN. There would be employees right now that are outside the DOD control that would be working at these facilities and have access to special nuclear material who have no classification; is that correct, or have not passed any security clearance?

Mr. GILINSKY. I believe that is right, yes.

Senator GLENN. I can't believe that has gone this long without somebody doing something about that. That is incredible to me.

These people would have access, have potential access to special nuclear material.

Mr. GILINSKY. Yes, sir.

Senator GLENN. To either plutonium or highly enriched uranium.

Mr. GILINSKY. Yes.

Senator GLENN. I feel reasonably certain we are going to want to get into this in some more depth than we will be able to take care of at this morning's hearing, especially in light of yesterday's hearing where we showed I think rather conclusively what we have all felt for a long time, that the mechanics of nuclear weapons were there and could be built out of unclassified literature. I think we pretty well showed that yesterday with Mr. Rotow's testimony before us. The only lacking ingredient is having some of this special nuclear material to fabricate and put into some of these things.

I think it is obviously a big gap in our security here that we are going to have to fill in.

I am sorry; I didn't see Senator Danforth come in here a little bit earlier. Senator Danforth, go ahead. I am sorry.

Senator DANFORTH. You are doing fine. [Laughter.]

Senator GLENN. We normally observe the 10-minute rule.

Senator DANFORTH. Suppose I was a terrorist. How would I go about getting this nuclear material? What would I have to do?

Mr. GILINSKY. I mean, you have to get it. It is guarded.

Senator DANFORTH. Right now. I have just decided today I want to go and get nuclear material because I read about a guy in the paper this morning who can make a bomb, and I have called him up and got an appointment with him. Now all I need is the material. What do I do?

Senator GLENN. Would you repeat what you said just before his last question, because I think that was—as I heard what you said, you said, well, you just go get the material.

Mr. GILINSKY. No. It is a matter of getting the material, and it is guarded. It isn't as if you can walk in and pick it up and walk away with it.

Senator GLENN. You say it is guarded.

Mr. GILINSKY. Of course, yes. As I pointed out in my statement, there are requirements for guards and barriers and alarms and all sorts of other protection devices and procedures.

There is a certain amount of question and dispute about what the right level of protection is. I think we have all decided we want to go to a higher level of protection in the regulated sector.

But I am not sure how to answer your question.

Senator DANFORTH. Right now I am an employee elsewhere. I have a Government job here. But I am loose, free to do otherwise. We have a recess coming. After my vote on the Panama Canal Treaties, there are a lot of people back home who think I should be doing other things.

I could get a job anywhere I want——

Senator GLENN. I might add, he stated publicly he won't serve more than two terms. So he is going to be at loose ends some day.

Senator DANFORTH. No, I didn't. I said I can't.

What would I do? I could apply for a job, say, with the utility that has a nuclear plant? Is that what I would do?

Mr. GILINSKY. No. It wouldn't be a utility because, as the chairman pointed out, that isn't the kind of material we are talking about.

Senator DANFORTH. Where is this material located?

Mr. GILINSKY. There are about a dozen facilities which process highly enriched uranium or plutonium which are regulated by the NRC. Most of these are processing Government-owned material. Most of that material is defense related one way or another. And that material is protected by a regulatory regime which we require and involves protection by guards, a security plan.

Senator DANFORTH. If I wanted to get a job which would give me access to the material, who would I apply to? Who is the employer?

Mr. GILINSKY. Well, there are private firms. Now in the case of most of the material, it is, as I said, defense related and those employees are cleared. But that doesn't cover all of them, although it does, I think, the overwhelming majority.

Senator DANFORTH. How about that which is not defense related?

Mr. GILINSKY. You would just apply then. It would be up to them to check out your background at this present time to the extent they can. There are problems with it.

Senator DANFORTH. Who are these employers?

Mr. GILINSKY. Various firms involved in nuclear fuel cycles. I can give you some names. They are involved in the research and development on various types of nuclear fuel or supplying fabricated fuel for research reactors.

Senator DANFORTH. Could I get plutonium from them? Would they have plutonium?

Mr. GILINSKY. Fortunately Mr. Albright didn't try to get into one of the facilities we regulate. I don't know whether he thought it would be too easy or too hard. But there is plutonium in these facilities, yes, sir.

Senator DANFORTH. And the facilities are privately owned and not Government facilities?

Mr. GILINSKY. That is right.

Senator DANFORTH. Are there or are there not regulations imposed by the Government with respect to physical defense and security?

Mr. GILINSKY. Yes. There very definitely are regulations that cover these in great detail. In other words, there are very specific requirements. They have to go through a security plan which we have to approve. And we have to approve the number and placement of guards and procedures that he used and the various barriers, fences and lighted areas and intrusion arms and access controls and so on.

Senator DANFORTH. So I couldn't just drive up a truck?

Mr. GILINSKY. No, no. But the question that one gets into is just how much protection is enough. Do you have to protect against a truck? Do you have to protect against a tank? Do you have to worry about assailants with handguns or automatic rifles or bazookas or what?

Senator DANFORTH. How much plutonium do you need to have something really useful as far as making a weapon?

Mr. GILINSKY. On the order of kilograms.

Senator DANFORTH. How big and how much? How big is that?

Mr. GILINSKY. It is fairly small. Plutonium is heavy stuff.

Senator DANFORTH. Could you put it in a lunchbox?

Mr. GILINSKY. You probably could. You have to remember that a lunchbox, if you have got the right amount of plutonium, it does get critical. But there are detectional alarms which would detect not kilograms of material but grams of material.

Senator DANFORTH. So the person would be detected going out of the facility, right?

Mr. GILINSKY. The system is designed to protect it, yes. And it is guarded. We have had teams go out to all of these places. In fact, we had a very intensive program checking the facilities which we regard as on the weaker side. We have had a very, very thorough evaluation of some of these places, which has resulted in our discovering weaknesses which we are trying to fix up. So this is a matter that is being taken pretty seriously, very seriously.

Senator DANFORTH. If I were to really set my mind to it, decide I was going to get just the right kind of job and work my way into the right position and spend a lot of time at it, do you think there would be a reasonable likelihood that I could abscond with a sufficient quantity of nuclear material to create a weapon?

Mr. GILINSKY. I don't think so. I mean, we take great pains to consider all the possible ways this could be done. It is constantly looked at. Clever people do this. Every now and then they think of something that hasn't been thought of before, so we institute a new kind of fix.

Senator DANFORTH. Let me ask you this: There have been a lot of news stories about missing plutonium.

Mr. GILINSKY. Yes.

Senator DANFORTH. Are those stories true?

Mr. GILINSKY. Well, what that stems from is differences—I should say discrepancies—in our accounting between the books and what is on hand. You can go one way or the other.

You can on one hand conclude that the stuff is gone or that the accounting system isn't any good or isn't as good as it should be. I think it is the latter. I think we have done a lot to improve the accounting system.

Senator DANFORTH. You think there is not a loss of plutonium?

Mr. GILINSKY. But I say what this means is that there is uncertainty about what went on. You can't really give a very confident statement about the state of affairs. When you have this sort of——

Senator DANFORTH. Do we now have an accounting system which will assure us that if at some future time a discrepancy is discovered, that is a real discrepancy rather than just an accounting problem?

Mr. GILINSKY. I think the answer is no.

Senator DANFORTH. We do not have that kind of system?

Mr. GILINSKY. No. I think we are improving it, but it is not nearly so good as it should be; nor are the inventories, I think, as timely as they ought to be.

We take inventories every 2 months, in certain categories more frequently. But I think one really ought to have a more up-to-date reckoning of where we are.

Now, there are two ways we control the material in the plant and keep track of it. One is to simply have monitors on all the doors and so on, everybody being reasonably confident nothing has left. But I think you really need to have the other kind of confidence that when you go look for it, it is there, to be able to total it up and have it all check out.

I must say these accounting systems are still in a relatively rudimentary stage. One of the reasons it is difficult or has been very difficult to improve that is that we are working with facilities that were not designed with real accurate accounting in mind. Some of these are old facilities, and it has been very difficult to get to the point where one really has precise measurements in accounting covering the entire process.

Senator GLENN. Will the Senator yield on that point?

Senator DANFORTH. Yes.

Senator GLENN. I think this is a most important point, because I can understand in the early days of the program how we did not have accounting type equipment installed in some of these early plants. So maybe we weren't capable of monitoring and auditing what goes through and the input and output of these plants.

But yet we have built up—this is the MUF data report that ERDA put out last August, "A Report on Strategic Special Nuclear Material Differences," and then the one NRC has put out separately from that, I believe.

They come to the conclusion that there is some 8,000 kilograms of material that would be on the MUF list if we took all of it from

the start, right from day one. There are some 8,000 kilograms unaccounted for. That is enough for I don't even know how many bombs.

Now the theory has always been this is lost in the pipe; it is manufacturing differences; it is within the tolerance of error; or the instrumentation system and so on. So I think that the point Senator Danforth is getting to is extremely important. Have we upgraded these systems so we now have a better handle on what is happening, or are we just going into the future with this MUF data building up and up and up and we never know what is going on? Where do we stand with this now?

You stated you felt it is rather rudimentary at this stage. Are we putting sufficient research into this area to really make sure we just don't continue to increase the amount of MUF into the future?

Mr. GILINSKY. Research in this area is being primarily handled by DOE. Dr. Kerr can comment better than I can on that.

But I think we simply don't have the technology that can really keep track of the material on a current basis. So what we do is we have periodic inventories and we are doing much better I think than we have done in the past. I don't think there is any comparison. But I don't think it is good enough.

Mr. KERR. Let me try to add to the information Mr. Gilinsky has given you.

I think the question is what are we doing about this and, in particular, what are we now doing? So let me answer that in two parts.

In the overall safeguards area we are hoping to complete within fiscal 1979, a program of substantial upgrading involving all aspects of the safeguards program. It includes hardened guard posts, security command centers, additional dynamic material control and accountability system, which I will come back to, further consolidation of material access areas so there are not as many locations where one has to close the balance, additional storage facilities, additional perimeter closed-circuit TV systems or alarm systems—that is, if a barrier like a fence is apparently being penetrated, it gives the guards a way to look without physically deploying—further application of barriers for vehicles, more effective access control and identification systems, and much wider application of nondefense structures as, say, equipment at selected sites.

To get back to the thing which I think would be of most interest to you, at two of our newer facilities for handling plutonium, one at Los Alamos and one at the Rocky Flats plant near Denver, we are trying to implement a system we call DYNAM for dynamic material control. It essentially is an automated system based on a small computer which will attempt to do the material accounting in near real time and would permit almost instantaneous knowledge of a missing amount of material larger than whatever error would be present in the system.

I should comment on that point a bit. Any system that involves a physical measurement involves an error. If we design a system accurate to plus or minus 1 gram, we will have 1-gram errors in some of the measurements. As we get better, the numbers perhaps could be smaller.

That is the future. You are also interested in what we are doing now.

At the present time, in our plants that handle strategic quantities of SNM, we close and balance our records daily if the plant is operating on a daily basis or for each shift if it is a plant that operates around the clock. So in fact we try to close the records and examine the inventory 3 times a day for plants operating around the clock, once a day for those that operate on a daily basis.

Senator GLENN. I know you have all been very concerned about this. There has been a lot of effort to upgrade these systems. I appreciate your comment on that. I am not trying to indicate in these hearings this morning you are not concerned about these. But we do appreciate a status report of where our MUF monitor capability is, because that has been a woeful lack I think, and perhaps not enough attention has been paid to it all the way through the program.

I thank the Senator for yielding. I took a long time.

Senator DANFORTH. I am through. Thank you.

Senator GLENN. Following up on this a little bit, in April 1965 AEC conducted a survey of NUMEC at Apollo, Pa., which I am sure you are all familiar with, which uncovered a large number of kilograms which could not be accounted for.

On May 10, 1967, the staff was still informed the AEC Commissioner at NUMEC was still not adequately accounting for special nuclear materials. Besides the payment made by NUMEC for the missing materials, has DOE or any of its predecessor agencies ever determined for sure how this material was lost, where it went, or any of the other circumstances surrounding that?

Mr. KERR. The NUMEC question has received a great deal of attention.

Senator GLENN. It has been very vexing to the committee, I might add. We have run up against about three or four stonewalls so far in our attempts to investigate what happened at NUMEC. We would appreciate any comments you might make.

Mr. KERR. I will tell you as best I can what I know of it. There are others here from the DOE who could supplement from their knowledge if it is useful to do that.

But as the inheritor of the AEC and then ERDA programs, we also have inherited the NUMEC question. The question you have put to me I think is can we, without qualification, tell you that there either was diversion of the material or there was not diversion of the material.

The answer that we have to give you, based on examination of technical information available to us, is that we cannot prove to you that there was no diversion; nor can we prove to you that there was a diversion. The preceding discussion I think explains why.

Now it is of sufficient concern to us that we haven't closed the NUMEC file. In fact, the Department, recognizing the public interest and congressional interest, has done several things. One is to continue analysis of the NUMEC facility. Our study of the processes carried out within that plant—and we have compared them, for example, to similar activities at other plants—

Senator GLENN. Have we been able to change instrumentation so we have a better record of what is going on there? I fully realize

these plants are set up with instrumentation built in. It is very difficult to do this after the fact once the plant has started operating. Have we been able to upgrade it so we know what is going on? Because the last MUF report on NUMEC still had it way above anybody else.

Mr. KERR. We are upgrading the NUMEC facility. It is one of the facilities I believe that is an NRC licensed facility but one where we have contracts and for the contractor who is there, we are responsible under our guidelines for his performance on our contracts.

With respect to the further study of the NUMEC question, the Under Secretary for Energy has asked that the Inspector General for the Department conduct a separate and independent investigation from that study carried out by people in my area, including the safeguards responsibility, for the department.

So at this point in time, in addition to reviewing the technical evidence that we have available to us, in addition to reviewing other agencies' studies, reports and opinions, we are also independently with our Inspector General looking at the whole question of what information is available within the DOE. He is charged with providing the Secretary essentially a list of all information under our control. And as part of the DOE legislation, of course, anything we do turn up in this area is to be reported to the Congress.

Senator GLENN. Have you had full cooperation with the FBI and CIA on this? They have both looked at it.

Mr. KERR. We have had full cooperation with the FBI. We also, because the DOE and its predecessor agencies were part of the intelligence community, if you will, have participated in our normal role of technical support for certain intelligence estimates.

For example, it has been the AEC's position and now is the DOE's position to agree with the likelihood of the availability of weapons usable material to Israel since the early seventies. That has been the point at issue. This judgment was based upon the general competence of the Israeli nuclear program, the availability of unsafeguarded natural uranium which Israel had obtained from foreign sources, and the capability of the unsafeguarded Dimona reactor to produce plutonium since the 1960's.

In 1974, the then Assistant General Manager for Military Application of the AEC stated a position to the effect that he had no firm information that would support a conclusion that it is likely that Israel had illicitly acquired a quantity of weapons grade uranium of U.S. origin.

That is a fairly technical point. It has to do with the following matter.

A national intelligence estimate is an opinion. It is normally based on circumstantial evidence. One is discussing the capabilities, for example, of another nation to do something. It differs, for example, from information developed on firm evidence as would be developed, for example, in a criminal investigation or a court proceeding. So

one has to be careful in talking about NUMEC to distinguish between estimates based on physical measurement of material passing through the plants and opinions based on an assessment of another country's capability, for example, to have nuclear weapons.

Senator GLENN. Does anyone else wish to comment on NUMEC?

Mr. GILINSKY. Senator, the Apollo facility processes highly enriched uranium and is in the process of closing out its operation. I thought you might be interested in knowing that.

Senator GLENN. When does that occur?

Mr. GILINSKY. Sometime this year. I am not sure exactly when.

I also wanted to qualify a bit my response to Senator Danforth, where I pointed to the problems with the accounting system as being the explanation for most of the discrepancies. But this one that we are talking about has been looked into some detail. I think one has to say there is simply no satisfactory explanation of what happened.

Senator GLENN. Unfortunately at a very inconvenient time the records all just happened to burn up in a fire, too, which made the whole process even more difficult. I would presume that if those records were available, we could perhaps have known a lot more about the missing material, if it was missing, and perhaps what happened. But there have been so many circumstances surrounding that NUMEC situation that have gone unanswered for so long that I wish we would finally put it to rest once and for all with some final conclusion, if that is possible; but maybe it is not.

Mr. Mignosa, your organization looked into NUMEC for a while at the request of some other Government agencies. Do you have anything to add to the NUMEC situation?

Mr. MIGNOSA. No, Senator. As you are aware, this is an open session. I respectfully wish to advise it is a currently pending investigation, the results of which are now in the hands of the Department of Justice. As such, I am really not in a position to talk about the particular case.

As you know, we have briefed members of Congress and GAO concerning the case, however.

Senator GLENN. It is at Justice now?

Mr. MIGNOSA. Yes, sir.

Senator GLENN. I have three documents here I want to enter into the record. It is summary notes of briefing on safeguards and domestic material accountability from Monday, February 14, 1966, of the Atomic Energy Commission, which deals in some degree with NUMEC; a listing of foreign governments and private firms with which NUMEC had either contracts, agreements, or preliminary discussion in the field of nuclear energy; and a letter regarding that situation from the AEC to the Joint Committee on Atomic Energy. So I would like to enter that into the record.[1]

Also, I want to enter into the record the "Memorandum on Prospects for Further Proliferation of Nuclear Weapons"

[1] See p. 703.

which is a CIA report, unclassified, and which has, as one of its last conclusions—No. 14:

> Terrorists might attempt theft of either weapons or fissionable materials. They could see the latter as useful for terror or blackmail purposes even if they had no intention of going on to fabricate weapons.

That is a little different slant than we have been taking. I want to submit that also for the record.[1]

Senator GLENN. I would like to get into a different area. So far this morning we have covered some of the views on physical security and the need to upgrade those and make them as high as possible, some of the difficulties in knowing exactly what we have available, the MUF data, and what may have occurred at NUMEC, and emphasizing the fact that we need to upgrade our security material to the greatest extent possible.

I would like to get into a little different area now where I presume all of you gentlemen are cooperating, or your agencies are cooperating to the degree possible. That is, what happens when there is a threat? What happens when we hear on the "Today Show" or one of the other morning shows the news broadcast comes along that someone has hijacked an airplane. They claim they have nuclear weaponry on board. They are going to crash into something or other. We could set up many hypothetical cases.

Who does what and what goes into operation? How do you deal with a situation like that?

Mr. MIGNOSA. Senator, if we could, why don't we talk about nuclear extortions, which we have been faced with.

Senator GLENN. That is what we are talking about.

Mr. MIGNOSA. Well, since about 1970, there have been some 40-plus nuclear extortions wherein the use of a nuclear—

Senator GLENN. How many?

Mr. MIGNOSA. Some 40. The incidents have been investigated by the FBI as extortions and require considerable cooperation between the FBI, Department of Energy and the Department of Defense Explosive Ordnance Disposal personnel.

We mentioned earlier, the roles assigned to each agency are clearly defined in a memorandum of understanding between the FBI and the Department of Energy.

In addition to the actions which are taken by participating agencies which are set forth in the memorandum of understanding, we usually follow some procedures that go something like this: We are basically trying to assess the credibility of the nuclear threat. For example, upon the receipt of an extortion communication, it is immediately furnished to the Department of Energy headquarters, which through its scientific laboratories provides a technical credibility assessment of the threat. The communication is also transmitted to a consultant of the Bureau who provides a psycholinguistic evaluation.

Senator GLENN. Who is in charge of all this now when this occurs? Is one agency in charge of the whole thing? Does the FBI take this on first?

Mr. MIGNOSA. Yes. The FBI is a lead agency in responding to nuclear extortions.

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[1] See p. 710.

Psycholinguistic analysis of the content of the communication provides the FBI with information about the writer or writers of the communication and the opinion of the consultant as to whether or not the individual or group is willing to carry out the threat of using a nuclear device if the demands are not met, should they in fact possess such a device.

Following the psycholinguistic and technical assessments, a decision is made by the FBI as to whether or not the Department of Energy's NEST group should initiate search procedures to locate the nuclear device.

The search is conducted utilizing sophisticated technical equipment designed to detect the presence of an improvised—

Senator GLENN. NEST being the Nuclear Emergency Search Team?

Mr. MIGNOSA. Yes, sir—improvised nuclear device through the location and identification of radioactive emissions.

Once a device is located, it becomes the responsibility of the Department of Energy scientific and EOD personnel to render the device safe.

Senator GLENN. Does control shift at that point then as far as control of NEST teams and so on? Does the FBI give up the leading agency status at that time?

Mr. MIGNOSA. No, sir. It is still our overall responsibility. The FBI is still in charge of the situation.

Basically I answered that. I was going to say that the FBI is in overall command of each of these situations from the inception to ultimate resolution.

Additionally, the FBI is coordinating aspects of peacetime nuclear incidents of a criminal or terrorist nature with the Department of Energy on a continuing basis and other pertinent agencies such as the Nuclear Regulatory Commission as the need arises.

Senator GLENN. Could I ask, if you retain control all the way through on this at the FBI, how did that work out during the recent Russian satellite reentry up in Canada? Did the NEST team go into operation on that or was that a special operation?

Mr. MIGNOSA. We were not involved in that. That wasn't a nuclear extortion threat or something within the FBI's jurisdiction. We were not a part of that operation at all.

Senator GLENN. Are there any other kinds of nuclear terrorist threats besides extortion threats that someone else would be a lead agency on? In any nuclear terrorist threats, you would be the lead agency?

Mr. MIGNOSA. Yes, sir. We have investigative responsibility.

Senator GLENN. So only part of what the NEST team would normally be doing is not what they could do up there?

Mr. KERR. That is correct, sir. In the instance of the reentry of Cosmos 954, the National Security Council took the lead within the Government, called together appropriate Government agencies, and charged us with the responsibility of assisting the Canadian Government after the President had made the offer. We did in fact dispatch a team which at one time numbered 120 people. At this point it is down to only a few, as the Canadians have developed their own equipment and capability working with us in the field.

Senator GLENN. There have been a number of incidents, as was stated by Mr. Mignosa, where we have actually had a terrorist threat or a nuclear threat. These were considered serious enough by the FBI to set this whole operation in motion.

Could you give us a description of one or more of these events? I know we don't want to go through all 40 of them. Could you describe how this worked and how successful it was or was not?

Mr. KERR. Why don't I try to answer it from the technical side.

First I would like to reemphasize that we work for the FBI in such an instance. We know about the technical things. They are charged with law enforcement and coordination.

The scenario would be the receipt of a credible threat message. Its credibility would be assessed as previously discussed.

Once we are asked to deploy, we provide first a search team that is capable of searching general areas using aircraft and mobile units and vans. Also there are hand-held detection equipment so we could cope with a threat, for example, of a device in a building. In no instance to date have we needed to go beyond the deployment of the search capability. In those instances where we have supported the FBI in the field, we have not found anything, and nothing was believed to be present.

It is a difficult problem in the sense that one is asked again to prove the negative, that there is nothing there. Clearly you are limited by your resources and manpower and technical capabilities of the equipment.

The second phase, had we found an improvised device, would be to bring into play people who could make a diagnostic assessment of the object through nondestructive testing to determine whether or not in fact nuclear material was present.

If yes, whether it was in a configuration that would yield a nuclear explosion. If yes, we could then advise the FBI, and in their coordinating role they would be responsible, for example, for proper notification of other civil authorities, the setting into motion of various disaster plans to evacuate and otherwise control the situation.

Having done that, we would then face the very difficult problem of do we know enough about it so that we could tell an explosive ordnance destruction team member how to go about disarming this thing?

These parts of our preparations and thinking have never been called into play in a real threat. We have, however, exercised them completely in various laboratory prepared simulated problems.

And I think I do you a disservice to leave you with the impression that we have this completely under control. We are doing what we think we can do with the technology available to us. But one must recognize this is a mixture of a technical response and what I will call good old law enforcement. That is one of the critical tools, law enforcement and intelligence, in dealing with a problem of this sort.

Senator GLENN. And a high degree of psychological input here, too. I mean, trying to deal with people who may be of a demented nature or at least misguided nature of some kind, to whatever level of zealousness their cause leads them to take. I think you get into a whole gamut of things here.

I appreciate the difficulty of trying to set up something that will take care of every possible contingency. I don't think it is any secret that we have had specific incidents out of these 44 that were considered serious enough to fully deploy groups and put this whole thing into operation with every facility at command at that point.

There were instances, I believe, in Los Angeles, in Spokane, and Boston specifically.

Would you care to comment on how this operation went in each one of those cases, or if it is of a classified nature say so and we won't press the point.

Mr. MIGNOSA. You mentioned the Los Angeles one. I will give just a brief overview on the Los Angeles situation. That was in November 1975, when the Union Oil Co. in Long Beach, Calif., received a letter which stated that unless $1 million was paid, a 20-kiloton nuclear device concealed on one of Union Oil's properties would be detonated. Instructions for the pay off were also provided in the letter.

ERDA, now the Department of Energy, was promptly advised of the situation. After analyzing the threat, we were told by ERDA that they were unable to furnish a technical credibility assessment since not enough technical information was provided in the threat message.

Senator GLENN. You had gone through all your linguistic checks and everything and felt this had the possibility of being a legitimate threat?

Mr. MIGNOSA. That is right, sir. Well, we treat them all as legitimate until we can prove that they are not.

Essentially the threat assessment was that it could be possible. That is why the decision was then made that the NEST should be deployed, Nuclear Emergency Search Team.

At that time they were deployed, and within hours NEST personnel and equipment were in fact deployed to Long Beach.

Following the search, the technical aspect of which DOE is prepared to talk about, nothing was found by the NEST people. Shortly thereafter, the FBI followed the payoff instructions contained in the letter and, as a result, identified an individual as a suspect in the matter.

Subsequent investigation produced additional physical evidence against this particular person, and he was eventually arrested. When tried, he was found guilty of extortion and sentenced to 5 years in prison. He subsequently served 6 months of his sentence and was released.

Oversimplified, that is the case.

Senator GLENN. He is out now.

Mr. MIGNOSA. Yes, sir.

Senator GLENN. How about the other cases? Any details on those as to Spokane or Boston?

Mr. MIGNOSA. Yes, sir.

Senator GLENN. Were they roughly the same progression of events?

Mr. MIGNOSA. The same type of situation, sir, with different resolutions. But basically it turns out the same way. Nothing is found and the case is brought to some sort of conclusion.

Senator GLENN. Adding to your case as you go through and trying to add credibility, at any time in any one of these cases was there

ever any indication of missing nuclear material that lent any credibility to the threat as you saw it?

Mr. MIGNOSA. I don't remember any, sir.

Senator GLENN. From your standpoint, Dr. Kerr, was there ever any indication——

Mr. KERR. No, sir.

Senator GLENN. Mr. Gilinsky, what does NRC do in a case like this? Are you called in for advice also?

Mr. GILINSKY. If there is a violation of law, we look to the FBI. We either would serve in an advisory role and, of course, do whatever else we thought was appropriate in the way of getting a handle on what the material situation was.

Senator GLENN. Are you part of this team? Are your experts part of this team automatically, or is that strictly a DOE matter?

Mr. GILINSKY. As for these NEST teams, they are DOE teams. But we have an agreement——

Senator GLENN. Do you furnish experts that help DOE in a situation like that?

Mr. GILINSKY. We would participate; and if the facilities dealt with were regulated, then of course we would give whatever assistance we could, and we would certainly jump in and try to get a fix on what the material accounting situation was.

Senator GLENN. What is DOD's role in this?

Mr. O'BRIEN. Ours is primarily supportive. We will provide experts, equipment, transportation, helicopters, that kind of thing.

Senator GLENN. Airborne equipment searches, things like that?

Mr. O'BRIEN. Yes, sir.

Mr. KERR. If I might, let me supplement this a bit. I could provide for the record the three interagency agreements that are relevant. There is an agreement between DOE and the NRC in this matter where we would provide our technical resources if an incident involved one of their facilities.

Senator GLENN. Fine.

Mr. KERR. Similarly with the FBI and the Department of Defense.

[The information referred to follows:]

Department of Energy
Washington, D.C. 20545

DOE/ASDP EMERGENCY RESPONSE CAPABILITIES

The Assistant Secretary for Defense Programs is responsible for:

1. the overall planning and preparedness for emergencies involving nuclear weapons or components in DOE custody, or significant quantities of government-owned special nuclear material in transit.

2. the overall planning and preparedness for DOE responses to terrorist threats or acts, natural disasters and national emergencies.

3. liaison with appropriate emergency preparedness organizations.

To accomplish these responsibilities, a number of assets have been developed with specialized expertise for emergency response. These assets, with a brief description of each, are listed at Tab A. In addition, there are three formal Memoranda of Understanding (MOU) with other Federal agencies which spell out the respective organizational responsibilities for emergency response:

1. Agreement between the U.S. Energy Research and Development Administration and the U.S. Nuclear Regulatory Commission for Planning Preparedness, and Response to Emergencies, dated March 8, 1977, Tab B.1

2. Memorandum of Understanding between the Energy Research and Development Administration and the Federal Bureau of Investigation for Responding to Nuclear Threat Incidents dated June 11, 1976, Tab B.2

3. Joint Department of Defense and Energy Research and Development Administration Agreement in Response to Accidents or Incidents Involving Radioactive Material of Nuclear Weapons dated March 1, 1977, Tab B.3.

Included at Tab C is a current estimate of the resources assigned to the emergency preparedness activities. In addition to these resources, however, it must be remembered that all of the technical expertise within

the DOE complex normally assigned to day to day operations can be made available as necessary during an emergency. Finally, a short background paper is attached (Tab D) to provide a brief history of the DOE (and its predecessor agencies) involvement in terrorist activities..

Enclosures:
As stated

DOE EMERGENCY RESPONSE ASSETS

1. Emergency Operations Center (EOC)

   The EOC is a facility located within the DOE Germantown building. It is manned 24 hours a day, seven days a week to receive emergency notifications from DOE field organizations and other Federal and state agencies and to support the EACT emergency response activities.

2. Radiological Assistance Teams (RAT)

   Radiological assistance response teams are established at selected DOE installations. Personnel, equipment, and facilities are available for activation and dispatch in response to radiological emergencies.

3. Nuclear Emergency Search Team (NEST)

   The NEST provides for DOE assistance to the FBI in nuclear threat emergencies. The Manager, Nevada Operations Office (NV), has the responsibility for the planning and execution of all DOE directed operations, involving any DOE-owned radiation detection systems and associated personnel for the search and identification of any ionizing radiation-producing materials which may have been lost or stolen or may be associated with bomb threats, and/or radiation dispersal threats without geographical limitation.

4. Surveillance Accident Nuclear Detection System (SANDS)

   The SANDS provides DOE with operational aerial and vehicle mounted capabilities for mapping nuclear material dispersed over the terrain as the result of an accident. The Manager, NV is responsible for the SANDS program.

5. Aerial Measurement Systems (AMS)

   The AMS is an aerial detection system used for measuring a variety of energy sources. This system can:

   a. respond to a major accident involving radiation sources.

   b. perform radiation and other remote sensing surveys.

   c. conduct large area terrain radiation mapping programs.

   The Manager, NV is responsible for the AMS program.

6. Radiological Assistance Advisory Missions Abroad (RAAMA)

   The RAAMA consists of scientific, medical, and technical personnel and specialized equipment to respond to requests by foreign governments for radiological assistance in non-weapon and non-space nuclear radiological emergencies.

7. Nuclear Weapons Accident Response Group (ARG)

The ARG consists of scientific, medical, and technical personnel and specialized equipment designated to carry out DOE's accident response operations upon notification of a peacetime nuclear weapons accident. The Manager, Albuquerque Operations Office (AL) is responsible for the ARG.

8. Joint Nuclear Accident Coordinating Center (JNACC)

The JNACC, located at AL and FC/DNA on Kirtland Air Force Base, assists the DOD, DOE and civil authorities in execution of their responsibilitie in the event of an accident or incident involving nuclear weapons or radioactive materials.

9. Radiation Emergency Assistance Center Training Site (REACTS)

The REACTS is located at the Oak Ridge, Tennessee, City Hospital. This is a multipurpose medical facility prepared to deal with all types of radiation exposure emergencies.

10. Emergency Resources Identification System (ERIS)

The ERIS is a computerized system for listing all DOE emergency resources including personnel, equipment, facilities, technical data and materials which may be of assistance in a major emergency.

11. Atmospheric Release Advisory Capability (ARAC)

The ARAC is located at the Lawrence Livermore Laboratories (LLL) and provides responsible site officials with estimates of the effects of accidential atmospheric releases of hazardous materials as rapidly and accurately as possible in the event of an emergency.

12. Nuclear Materials Management and Standards System (NMMSS)

The NMMSS is a reporting and analytical system used in safeguarding and managing nuclear materials. It processes information on nuclear materials: (a) owned by the United States Government; (b) leased to private companies and foreign governments; (c) privately owned within the United States; and (d) sold to foreign governments.

13. Albuquerque Security Communications Control Center (SECOM)

The SECOM Control Center provides the necessary communications and actions to initiate immediate response to DOE transportation emergencies involving nuclear weapons, components and devices and strategic quantities of government-owned SNM. The Center is staffed 24 hours a day, seven days a week. The Manager, AL is responsible for the SECOM.

14. Secure Automatic Communications Network (SACNET)

The SACNET system handles DOE's normal requirements for secure message and data traffic within the continental United States and exchanges such traffic with other agencies by direct interconnects with the DOD automatic digital network, which additionally allows access to the Department of State, Diplomatic Telecommunications Systems, and the GSA's Advanced Record System.

15. Emergency Radio System (ERS)

The ERS provides the minimum essential radio and teletype capability to backup and supplement landline communications serving the DOE Headquarters EOC in the event that landline facilities become inadequate or inoperable during emergencies. A new Emergency Communications (ECOM) system now being developed will support national, regional, and local emergencies and other response activites, e.g., EACT, NEST, AMS, etc.

AGREEMENT BETWEEN THE U.S. ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND THE U.S. NUCLEAR REGULATORY COMMISSION FOR PLANNING, PREPAREDNESS, AND RESPONSE TO EMERGENCIES

Under the Energy Reorganization Act of 1974 (P.L. 93-438) and the Atomic Energy Act of 1954, as amended, both the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC) have responsibilities for planning and preparedness to cope with emergency situations which may involve or result from facilities, activities, or operations under their respective jurisdictions so as to assure for the common defense and security and protect public health and safety.

The Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 charge both the ERDA and the NRC with the responsibility for assuring for the protection and safeguarding of nuclear materials and facilities within their respective areas of jurisdiction. Section 204(b) (2)(B) of the Energy Reorganization Act directs that the NRC develop, in consultation and coordination with the ERDA, contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear materials, high-level radioactive wastes, and nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954, as amended.

Prior to the enactment of the Energy Reorganization Act of 1974, the Atomic Energy Commission (AEC) organization under the AEC General Manager (from which ERDA was formed) and the AEC organization under the Director of Regulation (from which the NRC was formed) each maintained liaison and coordination with other agencies, reporting systems for emergencies, and emergency response procedures. The AEC General Manager, however, had responsibility for the overall planning and preparedness for national level emergencies. In implementing the Energy Reorganization Act the main resources and capabilities for national level planning and preparedness under the AEC General Manager were placed in the ERDA.

The ERDA and the NRC share responsibility for the operation or activities conducted at certain nuclear facilities (called "mixed facilities") licensed by the NRC but performing work under contract to ERDA. A radiological or safeguards emergency at such a facility could affect both the NRC and ERDA.

To avoid duplication of effort, provide for coordination and consistency in areas of common responsibility and interest, and take best advantage of the capabilities of both agencies, the ERDA and the NRC have executed this agreement relating to planning and preparedness for, and response to, emergencies involving or resulting from facilities, materials, activities, or operations under the jurisdiction of either the ERDA or the NRC.

The definitions used for the purpose of this Agreement are as follows:

Emergency. Any occurrence which has or may have a significant adverse effect on the common defense and security of the United States, the health and safety of the public, or the environment.

Radiological emergency. An actual or potential release of radioactivity resulting from an operational accident or natural phenomenon affecting a nuclear facility or nuclear material or from the culmination of a safeguards emergency.

Safeguards emergency. A verified and credible threat, or an act of theft or sabotage relating to special nuclear materials, high-level radioactive wastes, or nuclear facilities.

National emergency. A condition proclaimed by the President, or declared by the Congress, including a probable, imminent, or actual attack upon the United States.

Emergency planning. The development and preparation of plans and procedures which contain preconceived response actions to cope with emergencies.

Safeguards contingency plan. A document to give guidance for the accomplishment of specific objectives in the event of threats, thefts, or sabotage relating to special nuclear materials, high-level radioactive wastes, or nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954, as amended; and containing a preconceived series of decisions and actions, an identification of the data, criteria, procedures, and mechanisms necessary to efficiently effect the decisions and actions, and a specification of responsibilities for each decision and action.

Radiological emergency plan. A document which gives guidance and direction to cope with a radiological emergency.

National level (emergency) plan. A series of documents which give guidance and direction for preparing for, and continuity of an agency's role and mission during the time of, national emergencies.

Emergency preparedness. The training of personnel, acquisition of resources and facilities, and the testing of plans and procedures to assure an effective response to emergencies.

Mixed (ERDA-NRC) facility. An NRC-licensed facility performing work under contract to ERDA.

The Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission (NRC), subject to their respective statutory authorities and responsibilities, agree as follows:

I. PURPOSE

The purpose of this agreement is to provide for coordination of agency activities in order to apply ERDA and NRC capabilities and resources in an effective coordinated response to emergency situations involving facilities, activities, or materials under the jurisdiction of either the ERDA or the NRC.

II. RESPONSIBILITIES AND AUTHORITIES

A. The NRC will develop standards governing emergency planning and safeguards applicable to facilities, materials, and activities under NRC jurisdiction, and will, when appropriate, adopt regulations imposing those standards on licensees, facilities, materials, and activities subject to its jurisdiction. The NRC will exercise all its safety and safeguards and security responsibilities at mixed facilities. The NRC will use its best efforts to coordinate the exercise of the foregoing responsibilities with ERDA.

B. The ERDA will develop standards governing emergency planning and safeguards applicable to facilities, materials, and activities under ERDA jurisdiction, and will, when appropriate, adopt regulations and directives imposing those standards on facilities, materials, and activities subject to its jurisdiction. The ERDA will exercise its contractual responsibilities for security at mixed facilities. The ERDA will use its best efforts to coordinate the exercise of the foregoing responsibilities with NRC.

III. EMERGENCY PLANS AND PREPAREDNESS

The NRC and the ERDA will consult and cooperate in the development and maintenance of their respective plans and preparedness for responding to emergencies which may involve, or result from, facilities, materials, and activities under their respective jurisdictions. The NRC and the ERDA will also consult and cooperate in the application and implementation of those planning and preparedness standards, criteria, and guidelines issued for Federal agencies under the authority of applicable Federal Statues and Executive Orders which involve guidance to, assistance from, and coordination with other Federal, State, and local agencies.

IV. CONTINGENCY PLANS

In accordance with Section 204 of the Energy Reorganization Act, the NRC will develop, in consultation and coordination with the ERDA, contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear materials, high-level radioactive wastes, and nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954, as amended.

V. NATIONAL LEVEL (EMERGENCY) PLANS

The ERDA and NRC proposed to the Federal Preparedness Agency (FPA), General Services Administration, statements of their respective national level emergency planning and preparedness functions for inclusion in Executive Order 11490, Assigning Emergency Preparedness Functions to Federal Departments and Agencies. 1/ Pending Presidential approval and signature of an amended Executive Order 11490, these separate statements will be the basis for the national level emergency preparedness for NRC and ERDA. Pending the development by NRC of an independent capability to carry out emergency operations during national emergencies, the ERDA will provide support and resources for that effort to the extent of its capability and as deemed mutually desirable and necessary.

VI. MUTUAL SUPPORT

A. The ERDA and the NRC will provide mutual assistance in responding to emergencies occurring in or affecting facilities, materials, or activities under their respective jurisdictions, and will consult and coordinate in the providing of advice, assistance, and technical support to another agency which may be involved in or have responsibility for the investigation of or the response to such an emergency.

B. The ERDA will:

1. notify the NRC immediately of all emergencies, including threats, believed to involve NRC or Agreement State licensee activities or facilities, transportation of licensed materials, or releases of hazardous material to unrestricted areas as the result of an occurrence in ERDA facilities or operations;

2. provide the resources of the Nuclear Emergency Search Team (NEST) and Aerial Radiological Measuring System (ARMS) assistance and radiological emergency assistance to support NRC response to emergencies to the extent these capabilities are available and, with respect to radiological assistance, in accordance with the Interagency Radiological Assistance Plan;

3. request technical advice and assistance from NRC as necessary to support ERDA response to emergencies;

1/ EO 11490, as presently written, contains responsibilities and functions for the Atomic Energy Commission, now divided between the NRC and the ERDA. The proposed statements were submitted to FPA as follows: ERDA, October 22, 1975; NRC, December 8, 1975.

4. dispatch promptly, when mutually agreed, an ERDA representative to the location of the NRC Incident Management Center to provide liaison with NRC and to keep ERDA informed of the sequence of events occurring during the course of the NRC emergency, NRC response activities, and additional assistance required from the ERDA; and

5. continue to maintain, to the extent possible, initial and periodically updated aerial radiological survey maps of all nuclear sites. Should NRC request additional maps or surveys, these will be provided on a cost reimbursable basis in accordance with the ERDA's established pricing policy.

C. The NRC will:

1. notify the ERDA immediately of an emergency situation believed to involve ERDA facilities or activities or materials under ERDA jurisdiction;

2. notify the ERDA immediately of an emergency involving NRC licensees, facilities, or activities when NRC expects or anticipates that assistance and support from ERDA will be required;

3. provide technical advice and assistance as necessary, and, to the extent of available capability, support ERDA in its response to emergencies;

4. provide ERDA's Regional Coordinating Offices with information relating to licensee emergency planning and preparedness necessary for ERDA to provide support under its Radiological Assistance Program;

5. request technical advice and assistance from ERDA as necessary to support NRC response to emergencies; and

6. dispatch promptly, when mutually agreed, an NRC representative to the location of the ERDA Emergency Operations Center to provide liaison with ERDA and to keep NRC informed of the sequence of events occurring during the course of the ERDA emergency, ERDA response activities, and additional assistance required from the NRC.

VII. EXCHANGE OR INFORMATION

A. The ERDA and the NRC will advise and consult with one another regarding the development and implementation of standards, guides, regulations, plans, and procedures relating to emergencies as may be required to avoid conflict in the discharge of their responsibilities for assuring for the common defense and security of the United States and the protection of public health and safety.

B. The ERDA and the NRC will make available to the other, where appropriate and subject to security requirements affecting the release of information, summaries of inspection records, investigations of emergencies, and other matters relating to safety and safeguards of nuclear facilities and materials.

VIII. WORKING ARRANGEMENTS

A. ERDA's Director, Emergency Action and Coordination Team (EACT) and the NRC's Executive Director for Operations (EDO) will be the formal channel for communications and exchange of documentation between the respective agencies on general emergency planning and preparedness.

B. The initial reporting of emergencies and the exchange of information through the transition period from an implied or actual threat to a condition requiring response action will be made through the ERDA's Emergency Operations Center (EOC) and the NRC's Duty Officer (DO) and/or Information Assessment Team (IAT).

C. When an emergency requires response action, the ERDA's EACT and the NRC's Incident Response Action Coordination Team (IRACT) will be the single points of contact for liaison and coordination between the two agencies.

D. The NRC's Division of Safeguards and the ERDA's Division of Safeguards and Security will be the normal channel of communications in NRC's development of national level Safeguards Contingency Plans.

E. The NRC's Office of State Programs and the ERDA's Division of Safety, Standards, and Compliance will be the normal channel of communication relating to mutual assistance and support in planning and preparedness for national level emergencies.

F. The NRC's Office of Inspection and Enforcement and the ERDA's Division of Safety, Standards, and Compliance will be the normal channel of communication relating to mutual assistance and support in planning and preparedness for radiological emergencies.

G. The NRC's Office of State Programs and ERDA's Division of Safety, Standards, and Compliance will be the normal channel of communication relating to the Federal interagency program for providing radiological emergency response planning guidance, training, and other assistance activities for the States and their local governments.2/

H. The identification of points of contact above is not intended to restrict communication between NRC and ERDA staff members on technical, administrative, and other day-to-day matters in the course of their normal activities and the discharge of agency responsibilities.

I. NRC and ERDA representatives will participate as members or observers on committees, working groups, task forces, study groups, etc., as may be appointed from time to time, and in other interagencies activities as may be necessary or appropriate to assure coordination on matters of mutual responsibility and common interest.

IX. TERM OF AGREEMENT

A. This agreement shall be effective as of March 8, 1977 and, shall continue in effect unless terminated by either party upon 120 days' notice in writing.

B. Amendments or modifications to this Agreement may be made upon written agreement by both parties to the Agreement.

Approved for the U. S. Nuclear Regulatory Commission

By Jan K. Smith

Date February 18, 1977

Approved for the U. S. Energy Research and Development Administration

By Alfred D. Starbird

Date March 8, 1977

2/ F. R. Vol. 40, 248, December 24, 1975 - "Radiological Incident Emergency Response Planning; Fixed Facilities and Transportation"

MEMORANDUM OF UNDERSTANDING BETWEEN THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION AND THE FEDERAL BUREAU OF INVESTIGATION FOR RESPONDING TO NUCLEAR THREAT INCIDENTS

I. PURPOSE - In recognition of the responsibilities and functions of the Energy Research and Development Administration, hereinafter referred to as ERDA, and the Federal Bureau of Investigation, hereinafter referred to as the FBI, under the Atomic Energy Act of 1954, this Memorandum of Understanding sets forth the responsibilities of each agency with regard to nuclear threat incidents.

II. IMPLEMENTATION - ERDA and the FBI will develop and exchange such additional instructions and operating procedures as are deemed necessary to the continued implementation of this Memorandum of Understanding.

III. RESPONSIBILITIES

A. FBI

The FBI is responsible for investigating all alleged or suspected criminal violations of the Atomic Energy Act as set forth in Section 221 b. of that Act. The mission of the FBI in a nuclear threat incident is to take primary jurisdiction where a question of the violation of federal law exists and, where appropriate, to coordinate the utilization of available resources in the interest of the public health and safety.

It is therefore understood that the FBI shall:

1. Assume jurisdiction over all field organizations associated with a nuclear threat incident.

2. Establish and maintain contacts and coordinate nuclear threat incidents with other federal and local law enforcement agencies, and military authorities, as appropriate.

3. Ensure that all reasonable measures are provided for the security from physical violence of personnel and equipment to be utilized in search, deactivation, and cleanup operations related to a nuclear threat incident, and on the advice and recommendation and with the assistance of specially trained ERDA and/or DoD teams, ensure that all reasonable measures are provided for the safety of personnel from radiological hazard.

4. Designate a liaison representative to accompany ERDA Nuclear Emergency Search Team (NEST) personnel to the scene of a threat incident for the purpose of coordinating with local FBI officials and law enforcement agencies.

5. Promptly notify National Command Authority of any nuclear threat incident.

6. Promptly notify ERDA Headquarters of any actual or alleged nuclear threat incident reports.

7. Promptly provide ERDA with the exact wording of threat messages, copies of drawings, nuclear material samples, or other intelligence related to a threat for scientific analysis and credibility assessment.

8. Promptly provide ERDA with all available information pertinent to an assessment of a threat perpetrator's technical capabilities to carry out a threat.

9. At the scene of a nuclear threat incident, provide necessary support as may be needed by ERDA NEST personnel in carrying out assigned operations.

10. Request assistance of DoD/Civil Explosive Ordnance Disposal (EOD) resources, as appropriate.

B. ERDA

The mission of ERDA in a nuclear threat incident is to provide expert assistance to the FBI upon notification of the existence of such an incident.

It is therefore understood that ERDA shall:

1. Activate the ERDA Headquarters Emergency Action and Coordination Team (EACT), as appropriate, to coordinate with the FBI and direct ERDA's involvement in a nuclear threat incident.

2. Provide scientific and technical support for threat assessment and search operations, device deactivation, relocation and storage of special nuclear material evidence, and/or in post-incident cleanup.

Scientific and technical support shall include:

a. Analysis of threat messages for technical content nuclear design feasibility, and general credibili

b. Prediction as to the size of a potential nuclear burst as may occur from the successful detonation of a threatened nuclear device activation.

c. Prediction of contamination zones and radioactivi levels.

d. Recommendations for evacuation.

e. Recommendations for special search techniques.

f. Operations of special search equipment.

g. Identification of isotopes.

h. Recommendations for special EOD procedures and techniques.

i. Identification of nuclear weapons and components.

j. Identification of radioactive hazards during cleanup activities and bomb scene investigation.

k. The provision of personnel who are expert in nuclear weapon design, health physics, special detectors, explosives, nuclear materials, arming and firing systems, radiography, transportation and storage of nuclear materials, and contamination prediction.

3. Acquire, maintain, and make available any special equipment and capabilities required to provide the necessary scientific and technical support.

4. Coordinate nuclear threat incident activities with the Nuclear Regulatory Commission (NRC), as appropriate. (Nuclear threat incidents involving facilities or material within the jurisdiction of the NRC are initially reported by NRC to the FBI.)

5. Arrange for any special transportation of ERDA equipment and personnel, and/or nuclear evidence, as required during a nuclear threat incident.

6. Notify and request assistance from the DoD and civilian agencies for post-incident cleanup activities as soon as appropriate.

7. Have final authority in matters of (a) Restricted Data classification and (b) ERDA-originated National Security Information classification associated with

source material, special nuclear material, radioactive byproducts, or nuclear weapons/components.

8. Provide, upon request by the Justice Department, scientific and technical information and testimony for use in any legal action taken by the Department of Justice.

C. JOINT

The FBI and ERDA shall:

1. Coordinate all proposed press releases related to nuclear threat incidents. Any media or public inquiries will be initially referred to the FBI; responses to such inquiries will be coordinated with ERDA.

2. Where appropriate, identify individuals assigned to fulfill the positions and responsibilities outlined in Section IV. B., 1. and 2. and 3.

3. Treat all threat incident information with adequate security and confidentiality commensurate with National Security guidelines and the standards for the preservation of criminal evidence.

4. Review, as appropriate, the events leading to and occurring during any nuclear threat incident alert for the purpose of improving upon future joint responses.

5. Provide a mechanism for coordinated planning and the testing of nuclear threat incident management, equipment and personnel.

IV. STANDARD PROCEDURES

A. INITIAL NOTIFICATION

1. Nuclear threat incidents could be reported to either the FBI or ERDA. Upon receipt of such a report the agency informed shall immediately notify the other agency about the situation and as to the exact information known.

2. Both agencies shall notify, as appropriate, the various branches, offices or individuals within their jurisdictions about the situation and what actions might be required.

B. POINTS OF CONTACT

1. The FBI will designate a Special Agent to take command of field operations in a nuclear threat incident, and a Special Agent to act as a liaison officer with ERDA at the Headquarters level.

2. The ERDA Headquarters EACT will command the ERDA Headquarters Operations Center and the Director, EACT, will direct an ERDA Field Manager of Operatio. to act as ERDA representative for field operations in a nuclear threat incident.

3. The Director, EACT, will consult with FBI and will assign NEST personnel to provide required support in a nuclear threat incident. An FBI liaison representative will be designated to accompany NEST personnel to the scene of a threat incident for local coordination purposes.

4. Points of contact with other involved federal agencies will be maintained by the Director, EACT, as appropriate.

C. THREAT ASSESSMENT

1. ERDA will provide scientific and technical support for determining the credibility of specific nuclear threats and the potential hazards associated with those threats.

2. ERDA will endeavor to verify, with the cooperation of the NRC and/or DoD, whether any source material, special nuclear material, radioactive byproducts, or ERDA nuclear weapons/components are missing or unaccounted-for.

D. SEARCH, DEVICE DEACTIVATION, AND POST-INCIDENT CLEANUP SUPPORT

1. ERDA will dispatch, upon request of the FBI, an ERDA NEST response group and any necessary specialize equipment to the scene of an incident.

2. The ERDA NEST lead representative on-scene will:

   a. Direct the activities of the ERDA response group in support of the FBI Agent in charge.

   b. Ensure coordinated ERDA support in all matters pertaining to search and identification operation and bomb scene examinations.

   c. Ensure coordinated ERDA support of the EOD servic associated with any device deactivation operation

   d. Ensure coordinated ERDA support with the DoD and other civilian agencies, as currently provided for under other agreements, for post-incident cleanup operations.

   e. Advise the on-scene Special Agent in charge of any requirement for additional ERDA response capabilities and coordinate the provision of such additional capabilities as may be mutually agreed upon.

3. The on-scene Special Agent in charge will:

   a. Establish and maintain all local contacts with other law enforcement agencies.

   b. Direct the on-scene activities of the FBI and other law enforcement agencies.

   c. Establish a field command post.

   d. Provide for necessary escorts as may be required to facilitate rapid movement of ERDA and ERDA contractor personnel and equipment to the scene of a threat incident.

e. Direct the recovery operation of lost or sto special nuclear materials, radioactive bypro and nuclear weapons/components.

F. MAJOR EMERGENCY/DISASTER - In the event of a major emergency/disaster, ERDA will assist in the response to post-incident cleanup requirements in coordinatio with the DoD, and various civilian agencies as curre provided for under other agreements. ERDA will requ assistance from the DoD as provided for in the Joint DoD and ERDA Agreement In Response to Accidents and Incidents Involving Radioactive Materials and Nuclear Weapons.

V. EMERGENCY ASSISTANCE EXPENSE - ERDA and the FBI will each fund for the costs incurred in providing the necessary assistance required to meet the responsibilities defined in this Memorandum of Understanding.

This Memorandum of Understanding takes effect immediately.

Assistant Administrator for National Security
Energy Research and Development Administration

6/11/76
Date

Clarence M. Kelley
Director
Federal Bureau of Investigation

June 8, 1976
Date

APPENDIX

DEFINITIONS AND ABBREVIATIONS

DoD - Department of Defense

FACT - ERDA Headquarters Emergency Action and Coordination Team composed of representatives of the Divisions of Military Application; Safeguards and Security; Operational Safety, and the Office of Public Affairs

EOD - Explosive Ordnance Disposal, U. S. Army

ERDA - Energy Research and Development Administration

FBI - Federal Bureau of Investigation

NEST - Nuclear Emergency Search Team

NRC - Nuclear Regulatory Commission

Nuclear Threat Incident - Any situation involving stolen, lost or unauthorized possession of source materials, special nuclear materials, radioactive byproducts, nuclear weapons/devices of U. S. and/or foreign manufacture, improvised nuclear explosives, radioactive dispersal devices or the threatened use of said items.

Source Material - The term "source material" means (1) uranium, thorium or any other material which is determined by the Administration pursuant to the provisions of Section 61 of the Atomic Energy Act to be source material; or (2) ores containing one or more of the foregoing materials, in such concentration as the Administration may by regulation determine from time to time.

Special Nuclear Material - The term "special nuclear material" means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material which the Administration pursuant to the provisions of Section 51 of the Atomic Energy Act determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

Radioactive Byproduct - The term "radioactive byproduct" means any radioactive material (except special nuclear material) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing special nuclear material.

Improvised Nuclear Explosive (Device) - Any non-conventional explosive device containing nuclear or radioactive material in combination with explosives.

MAR 01 1977

JOINT DEPARTMENT OF DEFENSE AND
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

AGREEMENT IN RESPONSE TO ACCIDENTS OR INCIDENTS
INVOLVING RADIOACTIVE MATERIAL OR NUCLEAR WEAPONS

1. Purpose and Scope: To set forth the general areas of responsibility and procedures required for prompt, effective and coordinated worldwide response to peacetime accidents or incidents involving U.S. nuclear weapons or radioactive material where either agency has responsibilities relating to safety, recovery, radiation monitoring or decontamination.

2. Cancellation: This agreement updates and supersedes the "Joint Department of Defense and Atomic Energy Commission Agreement in Response to Accidents Involving Radioactive Material," dated 9 May 1966 and the "Joint Department of Defense and Atomic Energy Commission Memorandum of Understanding for AEC Response to Accidents Involving Nuclear Weapons in Custody of DoD," dated 10 June 1970.

3. Policy: The Energy Research and Development Administration (ERDA) is generally responsible for protecting the public from hazards involving the development, use, or control of Government-owned radioactive materials. The Department of Defense (DoD) is responsible for identifying and resolving health and safety problems connected with the transportation and storage of nuclear weapons in its custody. The ERDA will participate in the consideration of these problems as a matter of continuing responsibility.

4. Implementation: The Military Services, the Defense Nuclear Agency (DNA), and the Energy Research and Development Administration will issue instructions and operating procedures to implement this agreement.

5. Responsibilities:

a. General.

(1) Primary responsibility for command and control at the scene of an accident or incident, except under circumstances set forth in 5a(2) below, rests with the service or agency having physical possession of the material at the time of the accident. Command and control at the scene will be assumed as soon as possible by the representative of the responsible service or agency.

(2) Upon Presidential declaration of a domestic emergency, the Department of the Army will become the DoD Executive Agent for military support and will assume primary responsibility for command and control. The term "domestic emergency" applies to emergencies occurring in and

affecting the public welfare of the United States, its territories and possessions, and which disrupt the usual processes of Government.

(3) The DoD or ERDA official first to arrive at an accident or incident scene will assume initial control of emergency operations and take such immediate action as may be necessary to protect the public health and safety. The official will remain in control until relieved by the commander of the nearest military installation or ERDA facility, or by a representative of the service or agency having the primary responsibility.

(4) The commander of the military installation or ERDA facility nearest an accident or incident will assume control of emergency operations and take such actions within the limits of his capability, as may be necessary. The commander will remain in control until relieved by a representative of the service or agency having the primary responsibility.

(5) DNA and the ERDA will operate a Joint Nuclear Accident Coordinating Center (JNACC) to provide and perform the function and mission set forth in this agreement.

(6) The DoD and the ERDA will establish procedures to ensure that the JNACC is advised of all radiological accidents and incidents.

(7) The Military Services, DNA, and the ERDA will provide JNACC with information necessary for the maintenance of current records reflecting the location and capability of specialized units and teams which can be used for emergency radiological accident or incident operations.

(8) The Military Services, DNA, and the ERDA will respond to requests from the JNACC for mutual assistance subject to command and operational limitations. When the services of the JNACC are being employed, commanders concerned will keep JNACC informed of the status at the incident/accident scene and the identity and location of the on-scene commander.

b. Energy Research and Development Administration.

(1) The ERDA will immediately notify the DoD of the occurrence of an accident or incident.

(2) The ERDA response organizations, such as the Accident Response Group and the Nuclear Emergency Search Team, will be comprised of technical specialists with equipment on continuous alert and ready for dispatch to the scene of a nuclear accident or radiological incident. They will advise and assist in evaluating, collecting, handling, and neutralizing radioactive and nuclear weapon hazards; threats involving the use of radioactive materials;

loss, seizure, or theft of nuclear weapons; special nuclear materials, improvised nuclear devices, or improvised radiation dispersal devices.

(3) The ERDA will dispatch the appropriate response organization and any necessary specialized equipment to the scene of a DoD accident or incident, after consultation with the designated DoD point of contact. The specific composition of the organization will be designed to best meet the requirements of the incident and the needs of the DoD commander.

(4) While at a DoD accident or incident scene, the designated response organization will be under the control and public information policy of the DoD On-Scene Commander.

(5) The response organization's missions will include provisions for the following support to a DoD On-Scene Commander:

(a) Technical advice and assistance for determining the extent of any radioactive hazards.

(b) Technical advice to minimize hazards to the public.

(c) Technical advice and assistance in the collection, identification and disposition of weapon components, weapon debris, and radioactive material.

(d) Technical advice and assistance in the identification and protection of nuclear weapon design information and other Restricted Data.

(e) Support to the DoD On-Scene Commander in on-site discussions with foreign or local Government officials on matters within areas of special ERDA competence.

(6) The ERDA response organization will be headed by an ERDA Representative. The ERDA Representative will:

(a) Direct the activities of the ERDA response organization.

(b) Ensure coordinated ERDA support for the DoD On-Scene Commander in all matters pertaining to the mission of the designated response organization.

(c) Advise the DoD On-Scene Commander of any requirement for additional ERDA response capabilities and provide for such additional response as may be mutually agreed upon.

(7) The response organization will normally include a Senior Scientific Advisor. The Senior Scientific Advisor may, with the concurrence

of the ERDA Representative, be designated by the DoD On-Scene Commander to serve as a scientific advisor to the DoD Commander.

c. Department of Defense.

(1) The DoD will immediately notify the ERDA of the occurrence of an accident or incident. In addition, the appropriate Military Service and DNA will advise the ERDA of the designated point of contact for coordinating the ERDA response to an accident.

(2) Upon request, the DoD will provide worldwide military transportation, airborne survey platforms, and associated logistic support services to the ERDA response organization for:

(a) U.S. Nuclear Weapon Accidents.

(b) Radiological incidents when necessary to protect the public health and safety from hazards involving radioactive materials.

(c) Incidents requiring a specific ERDA capability that is requested by the DoD or a DoD component.

(3) The responsible DoD component will provide administrative, medical, and logistic support services (including communications and necessary military transportation) for the designated response organization to perform its mission. The extent of these support services will be governed by the accident or incident location, environment associated therewith, type of accident or incident, and the capability of the ERDA to support itself.

(4) Information which relates to ERDA activities at an accident or incident scene will be coordinated with the ERDA Representative prior to public release.

6. Joint Nuclear Accident Coordinating Center:

a. Mission. To provide a centralized agency for exchanging and maintaining information concerned with radiological assistance capabilities and coordinating assistance activities, when called upon, in connection with accidents or incidents involving radioactive materials.

b. Principal Task and Functions.

(1) Maintain current information as to the location and availability of specialized DoD and ERDA teams or organizations capable of responding to accidents or incidents involving radioactive materials.

(2) Receive notification of accidents/incidents and requests for assistance.

(3) Request necessary assistance from DoD or ERDA.

(4) Provide available accident/incident information to appropriate commands and agencies.

(5) Obtain all available information regarding the radioactive material involved in the accident/incident for relay to the accident/incident scene.

(6) Refer public queries to the service or agency having primary command responsibility as described in paragraph 5a above. Queries on any nuclear accident or incident involving radioactive materials and DoD personnel, equipment, or facilities will immediately be referred by the responsible DoD service or agency to the Assistant Secretary of Defense (Public Affairs) for response.

7. Reimbursement for Emergency Assistance Expense: The Military Service or agency providing the necessary assistance will fund such costs initially within existing fund availability. The Military Service or agency having physical possession of a nuclear weapon or radiological material at the time of the accident or incident will be responsible for reimbursing, upon request, the Military Service or agency providing the necessary assistance for those costs which are in addition to normal operating expenses and which are directly chargeable to, and caused by, the radiological accident/incident.

By authority of the Secretary of Defense and the Administrator, Energy Research and Development Administration:

FOR THE DEPARTMENT OF DEFENSE:

D. R. Cotter
Assistant to the Secretary
of Defense (Atomic Energy)

FOR THE ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION:

Alfred D. Starbird
Assistant Administrator
for National Security

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FY 1978 ASDP EMERGENCY RESPONSE RESOURCES

MANPOWER	FULL TIME
Headquarters	6
Albuquerque Operations Office	11
Nevada Operations Office	6
EG&G	68

In addition the weapons laboratories (LASL, LLL, SL) and field offices (NV, AL) have approximately 100 people identified with current credentials, i.e., passports, travel orders etc. who are immediately available to respond upon notification of an emergency. Once an emergency is defined, additional technical support is diverted to the situation as necessary.

FISCAL RESOURCES

Operating	$5,240,000
Capitol Equipment	2,035,000
Total	7,275,000

This does not include funding for actual emergencies.

Historical Overview of DOE Response to Terrorism

As a direct result of the occurrence of increasing acts of international terrorism in the early 1970's, and in particular following the incident involving an assault by the Black September Movement on the Israeli Olympic Team in Munich in 1972, a Cabinet Committee to Combat Terrorism (CCCT) was formed at the direction of the President on September 25, 1972. The Secretary of State was designated to chair the committee and major departments and agencies of the Government were identified as participating members on that committee. All departments and agencies of the Government were instructed by the President to "be fully responsive to the requests of the Secretary of State and assist him in every way in his efforts to coordinate Government-wide actions against terrorism."

In the light of the major responsibilities of one of DOE's predecessor agencies, the Atomic Energy Commission, in the establishment and maintenance of sophisticated security systems for nuclear weapons production and development facilities, and for the safeguarding of Government-owned special nuclear materials, the implications of international terrorism were most significant. Therefore, the AEC, in response to the President's order, arranged for immediate liaison with the Chairman of the CCCT and fully participated in the ensuing regular meetings of the committee. At the outset of the Cabinet Committee's activities, the Office of the Assistant General Manager for National Security (AEC) established the working arrangements for AEC's participation in the coordinating interagency group. Several briefings were provided to the Committee's Working Group (CCCT/WG) by AEC representatives with respect to a then-proposed physical protection upgrading program for special nuclear materials to be undertaken by the Government, as well as on the general responsibilities of the AEC in the nuclear security and safeguards field.

At one of the first meetings of the CCCT/WG in November 1972, the Federal Bureau of Investigation was designated as the agency having primary jurisdiction at the scene of any terrorist event occurring within the continental United States. Consequently, the Division of Safeguards and Security, as the primary point of contact in the AEC for the FBI and as the staff organization responsible for security of nuclear installations in the United States, became directly involved in the activities of the CCCT.

In the roughly five years following establishment of the Cabinet Committee, the AEC and ERDA representation on the Working Group and various subcommittees remained within the National Security element of those agencies. This delegation of responsibility stemmed from the fact, of course, that the major impact of international terrorism on AEC and ERDA primarily affected: (a) basic concepts of physical security for nuclear weapons and special nuclear materials in the United States; and (b) the potential for use of a stolen nuclear weapon or special nuclear material as an extortion tool of the terrorist.

It was the ... on of ..., ..., which ... tion a total re... of ... physical ... ty sys... ...loyed by the AEC (and ...RDA) to safeguard U.S. nuclear ... s ... materials in its possession at facilities throughout the United States. A subsequent program, of multi-million dollar proportion, to upgrade physical security systems was initiated and is continuing to this date under the Department of Energy. Further, and as a direct result of the increase of terrorist acts in the world, the Government had cause to gradually revise its views respecting the possibility, even though remote, of malevolent use of special nuclear materials or a stolen nuclear weapon by a terrorist group. It, therefore, became necessary that AEC (and ERDA) conduct an extensive reexamination of its role in the Government in planning for such contingencies inasmuch as AEC-ERDA (now DOE) has been the primary U.S. Government resource for technical expertise in the field of nuclear weapons and nuclear materials. Subsequent contingency plans were developed to integrate this technical expertise into the response mechanisms of the Government for dealing with terrorist acts. DOE, therefore, has become the natural point of contact in the Government for advice on nuclear associated problems relevant to terrorism or the potential for terrorist acts.

As a collateral function of revising AEC-ERDA plans and programs, our direct participation in Working Group activities also expanded in that AEC and ERDA played a significant role in several comprehensive CCCT/WG studies relevant to the terrorism problem. These included studies of: the potential for "Mass Destruction Terrorism"; the "Near Term Potential for Serious Acts on Terrorism"; "Counter-Terrorism Research and Development Technology"; and a follow-on examination of the need for comprehensive funding and the assignment of priorities to the respective agencies for counter-terrorism research and development.

With respect to the responsibilities of the Department of Energy in the nuclear field as it relates to the problem of terrorism, there have been significant contingency arrangements developed over the past several years. It is necessary that such activities continue to be coordinated with the NSC/SCC Working Group on Terrorism and its Executive Committee. These contingency arrangements primarily include the development of a Memorandum of Understanding with the Federal Bureau of Investigation for Responding to Nuclear Threat Incidents. This MOU sets forth the specific responsibilities of our respective agencies in a nuclear threat matter and, in particular, requires the provision of DOE technical expertise and sophisticated nuclear detection equipment in assistance to the FBI in operational threat matters. Additionally, DOE has "Nuclear Emergency Search Teams" established in the western and eastern sections of the United States, prepared to respond to major emergency nuclear threat conditions occurring anywhere in the U.S. on a two hour response basis. These teams are equipped with extensive mobile laboratory analysis and detection equipment, computer and communications gear, etc., capable of aircraft and land transport, and including DOE-owned aircraft. Moreover, an elaborate emergency communications network has been established within the DOE with an Emergency Operations Center in-place at our Germantown facility for immediate communications with internal and external individuals and agencies concerned with major emergencies, including nuclear terrorism. Arrangements are also currently underway with several foreign nations to provide for immediate capability to establish points of contact for consultations in nuclear threatening situations.

Senator GLENN. Would one of you spell out the difference between the Emergency Action Coordination Team, EACT, and Nuclear Emergency Search Team, NEST, and how they coordinate?

Mr. KERR. I will give you the whole document for the record.

The Emergency Action Coordination Team is a group of people assembled here in Washington. The Director is presently Major General Bratton, when it is an emergency of the sort we have been discussing. He is Director of Military Applications for the DOE.

In other sorts of emergencies, for example a spill at a plant or less serious from the point of view of public health and safety, other senior members of the staff may head the team.

The NEST capability is the Nuclear Emergency Search Team. It consists of the people and equipment drawn principally from our field facilities. They are the ones who go do the search with our equipment. They are drawn from three weapons laboratories in the Nevada operations office in DOE.

There are other capabilities that are also brought into play. For example, there is a Joint Nuclear Accident Coordinating Center at Alburquerque which is a joint Defense and Energy center. It provides us with a means to move quickly, for example, using military airlifts to anyplace in the world where a nuclear accident may have occurred.

Senator GLENN. We have a little different problem between an actual attack on a DOD installation, trying to get a nuclear weapon, as opposed to a situation where fuel or where highly enriched uranium is being fabricated or plutonium is found which could be spirited out which could then be combined outside to form a sufficient amount for a weapon. So I realize that these are different areas as far as the type of protection that is needed.

But do you see any sufficient difference level in that threat? I have always thought it would be far more likely that we would have the small amounts of material that would be stolen rather than any direct attack on a military installation to try to steal a bomb, as such, particularly in light of the fact that we have these PAL devices which inactivate a weapon. It would have to be disassembled, gone through, with somebody probably that really had a considerable capability to disassemble that thing.

Would you comment on where the greatest likelihood of assembly of enough material would be to form a terrorist nuclear weapon? Do you think it is more likely to come from stealing a nuclear weapon or an artillery shell in Europe or someplace, for instance, that could be used for whatever purposes, as opposed to stealing small amounts of material and putting them into a bomb, as Mr. Rotow brought out in his testimony yesterday? How do you assess the threat? Where is the greatest threat?

Mr. KERR. Let me go first and try to help you with that. I am not a very good terrorist, I hope, and can't put myself in the place of those who might perpetrate such a thing.

Weapons have a property that differs from improvised devices. That is, they are known to work. So the level of attraction certainly depends heavily on one's view of capabilities and risks.

Clearly if you could obtain a weapon that has been certified and delivered to the Department of Defense, that is a thing that will work provided one knows the code.

I will rephrase your question a bit to try to help explore the area. If you ask do we have differing views of the need to protect SNM and weapons, the answer for DOE is we protect SNM whether it is metal or wrapped inside of a high explosive. The guidance to our facilities and laboratories is the same, whether they deal with plutonium metal or fully assembled weapons.

Senator GLENN. A different problem of security, though.

Mr. KERR. Now the spectrum of threats we defend against I did discuss at some length in my testimony. The materials accounting system, the portal monitors, and a variety of other means are used to help defend against the sort of threat you brought up, the diversion of small amounts of material on a regular basis.

Other measures are designed for the armed attack. These measures differ from facility to facility, taking account of the nature of the building, terrain, the accessibility of the location, if you will. But the design basis, the principles which govern the implementation of the safeguards, is common to all of the facilities, and we treat all of our SNM in the same way as far as we are able to.

Senator GLENN. Does anyone else wish to comment?

Mr. GILINSKY. I think we want to make it very difficult for anyone to do any of these things, exceedingly difficult. I don't think we can take any comfort in any particular conjecture by one or another expert as to which would be the most likely course for someone to make that attempt.

Senator GLENN. You can't put yourself in the role of a terrorist and say, "I know where to get an artillery shell," as opposed to another group of people who may have access to highly enriched uranium and might assemble enough for a bomb. There might be different approaches for different groups, obviously. But I just wondered whether each one would have an opinion as to where you saw the greatest threat coming from.

I think in discussion with a number of different people there has been a general opinion, and that is all it is so far because you couldn't prove one way or the other, it is a general opinion that DOD has had a much tighter security system than perhaps the other facilities, those supervised by NRC or DOE. So it raises the question of what the standards should be. And if DOD does set higher standards and have better security, then why aren't we doing that across the board in other agencies? Do we need a paramilitary organization that would provide guard services for these other functions that would be better trained and all highly screened and qualified, as opposed to contracting out with private guard services, which it seems to me is a lot more risky procedure.

Maybe there are reasons why we could not do that. I don't know. But if DOD in fact does have better security and if people acknowledge that, then why can't we provide that same kind of security in other areas?

That is the reason I led into this with the comments about there being a different nature of the type protection you need as to whether you are trying to protect existing nuclear weapons in a storage bunker or someplace. That is a whole different problem than trying to make sure that highly enriched uranium or a tiny amount of plutonium is not smuggled out on a day-in-day-out basis until enough is assembled to make a weapon.

So there are different problems. That is the reason why I was trying to get into how you felt about where the greatest threat might come from and what we can do to plug those loopholes in our security system as I see them.

Mr. KERR. If I might, Mr. Chairman, maybe I can supplement my earlier remarks. I clearly won't read this to you, but I will submit it for the record.

Senator GLENN. Please do not.

Mr. KERR. It is a document recently prepared for us on the attributes of potential criminal adversaries to the U.S. nuclear programs. It has been prepared by the Rand Corp.[1] It draws heavily on analogous threats, terrorist incidents, criminal action.

Senator GLENN. May we have a copy of that for the record?

Mr. KERR. Yes. This one is yours.

Second, in answering your question, what I told you was that DOE protects SNM whether it is in weapons or not to the same standards. I failed to say that we feel our protection for SNM, and particularly for assembled weapons, which we also have custody of, is comparable to that provided by the DOD.

I should point out, however, that DOD probably differs somewhat from ours in the following sense. The DOD, to carry out its mission, deploys weapons worldwide. Our facilities for weapons are in the continental United States. So the context for the protection is a bit different. Nonetheless, we feel our security on assembled weapons and on strategic quantities of SNM is comparable to what DOD provides.

With respect to the question of capabilities of Federal versus contractor guard forces, I clearly can't comment on relative effectiveness. Others are expert in that.

We use a mixed force, as I have told you. The principal difference in what we do with that mixed force is that under section 161(k) of the Atomic Energy Act, we are authorized to arm Federal guards anywhere in the United States, while the same section authorizes us to arm our contractor guards only at facilities owned or contracted for by DOE. That is the sole difference.

Senator GLENN. Who would provide armed guards then at those?

Mr. KERR. We provide armed guards.

Senator GLENN. Maybe I misunderstood your statement.

Mr. KERR. We can use the contractor guard forces on our own sites, facilities we own, and at sites where our contractors operate——

Senator GLENN. There aren't?

Mr. KERR [continuing]. There aren't.

We also have Federal armed guards who are free to move anywhere in the United States. For example, the couriers for our shipments of material are Federal guards, not contractor employees.

Senator GLENN. What does NRC do in that regard as far as the arming of guards and the ability to set up a mini combat situation?

Mr. GILINSKY. Well, armed guards are required at all of these facilities that we have talked about and in transport. Most of the transport is handled by DOE, so it is covered by what Dr. Kerr described.

As far as the qualification of guards, we have a proposed rule

[1] See p. 555.

which we put out last year which would increase the requirements, training requirements, and other requirements for the guards.

Senator GLENN. Would decrease?

Mr. GILINSKY. Would increase.

Senator GLENN. You are setting standards for what the guards have to come up to today?

Mr. GILINSKY. We set the standard. The guards are either employed by the facility or contracted for.

Senator GLENN. From both of your stands, DOE and NRC in particular, do you think there would be any advantage to setting up a Federal nuclear guard force or something where there was standardized training and equipment and this would be the guard force? In other words, sort of a para-military organization rather than this contracting out of private groups that have guards come and go. Do you see any advantage to such a force?

Mr. GILINSKY. Well, I think there are advantages and there are also problems. It is not clear what they would do most of the time. At most of these facilities, the guard forces have other functions than simply protecting the strategic material. There are a lot of functions related to the activities of the licensees, monitoring against various sorts of violations and so on.

One would not expect a Federal force to get involved in the operations of the licensee in that way. So they would be pretty much on a standby basis.

Our conclusion has been that with proper requirements, proper training, private forces can do the job as well. But it is something to reflect on.

Senator GLENN. Has there been any effort between DOE and NRC to set up any standardized guard force outside the military or cooperate on this so there is some standardization? I tell you the reason I bring this up and push the question a little bit is because we keep hearing rumors about the laxity in NRC, the laxity in DOE, even compared to DOD. DOD, of course, has a different situation, as I pointed out before, weapons guarding mainly, as opposed to the facilities that may be more difficult to guard.

But if there has been an upgrading, so we have a fairly substantial protection of this equipment, it would seem to me it would be a step forward in this direction.

So what kind of cooperation is there, if any, between NRC and DOE with regard to guard forces?

Mr. GILINSKY. We have discussed the common training, sort of common standards for the training of guards. I think we have tried in this area, as in other areas, to arrive at some comparable level of protection. I think that we are trying to have equally effective guards in both places.

Senator GLENN. We could go on with many hundreds of questions here, obviously. Our time is getting short here. We are already over our time. We were supposed to have a limit on hearing times this morning because we are in session. There is supposed to be a 2-hour limit on committee meetings, which we have already exceeded a little bit. Let me finish with a couple of different lines of questioning.

One we haven't covered yet is what happens on an international terrorist type base? How is that covered, Mr. Mignosa? What kind of

connections do you have to make sure an airplane hijacked in Holland and perhaps heading for this country which has a nuclear weapon threat aboard, let's say, how do we handle an international situation like that?

Mr. MIGNOSA. Basically, Senator, you are talking about an airplane hijack from, for example, Paris, France, and it is on its way to the United States. That would be a joint venture really between the FBI and the FAA and State Department.

When the plane basically is overseas, it is being monitored very closely by the State Department, the Office to Combat Terrorism. It is also monitored by the FAA and, of course, it is monitored, too, by the FBI, thinking about the possibility that the airplane will come to the United States.

If the plane does in fact come into the United States, then it becomes the joint responsibility of the FBI and FAA to cope with the situation.

We in the FBI, as well as FAA, have contingency plans in all of the airports throughout the United States to cope with the various hijacking situations as they arise. Our success against hijacking in the United States is the fact that we are operating on our own turf.

Senator GLENN. Is there any international organization that performs a lead agency function internationally as you perform domestically?

Mr. MIGNOSA. I don't know of any, sir.

Senator GLENN. You mentioned in your statement, Dr. Kerr, the protection given during transport of material. You went into a little bit of length on that. You didn't mention air transport, however, material that may be air shipped and material that is shipped in foreign aircraft, even when we have had indications before where a shipment bound for a certain country, we let their airplane come in and they are the shipping authority with their pilots and their crews, which puts a little element of risk in there perhaps that we don't have control over domestically. That concerns us a little bit at least.

How do you look at that situation? Should we have clearances for foreign pilots on some special basis, or should we have armed guards aboard as long as this is over U.S. territory? How should we handle that problem?

Mr. KERR. I think I better limit my answer to those things we have direct responsibility for. Those are DOE shipments. In that area we had direction from the Congress last year to minimize the use of air transport in making our own shipments. We are permitted to make them. We are required to advise our authorizing committee of the fact that we do. We are enabled to do it under a National Security exclusion. But we make every attempt to ship all of our material on the ground at this point in time, using either rail cars or the security trailor system.

Senator GLENN. We do ship abroad. We ship that by air, do we not?

Mr. KERR. I need a little help in that area. But the shipments abroad are under NRC.

Senator GLENN. We ship abroad by air, as I understand it, do we not, Mr. Gilinsky?

Mr. GILINSKY. Yes, we do. These are licensed exports which, as you know, are shipped by air. There are certain requirements for guard forces during the transfer period. There is a requirement for an escort.

Senator GLENN. A U.S. escort?

Mr. GILINSKY. No. Usually these are picked up by foreign carriers. If they are not, the shipper is to provide an escort.

Senator GLENN. The foreign shipper, the foreign buyer would supply his own escorts?

Mr. GILINSKY. Well, the travel plan is—we deal with the agent, the domestic agent who is providing a service for the foreign buyer. He is the one who has to supply a security plan for how this is going to be shipped, which we have to approve.

Senator GLENN. In advance?

Mr. GILINSKY. Yes, sir.

Senator GLENN. You have to approve the security plan for the shipper?

Mr. GILINSKY. Yes.

Senator GLENN. What would be your criteria for setting up the guards and control over the ship?

Mr. GILINSKY. There is a specified number of guards when the material goes from the truck and plant. There are certain kinds of requirements or procedures.

Senator GLENN. These they would all furnish? It would be foreign?

Mr. GILINSKY. No. This would be furnished or arranged for by the domestic shipper who is the agent of the entity abroad which was receiving the material.

Senator GLENN. Would he normally have his own security force from his own plant then?

Mr. GILINSKY. No. He would arrange for it one way or another.

Senator GLENN. What would be the criteria on the type people he could use or he could hire? Could he go out and hire a local guard service during this time period or what?

Mr. GILINSKY. He would normally I believe hire a contractor with a contracting service, yes. There are some standards for the guards, and as I say, we are trying to upgrade those.

Senator GLENN. Do you think that is adequate right now?

Mr. GILINSKY. I think we ought to have more security in that area, and our proposed rules do provide more security.

Senator GLENN. When will these new rules go in effect or when are they to be approved or discussed? You indicated earlier something about this summer.

Mr. GILINSKY. They will be up for the Commission to decide I think this summer, yes, or very soon.

Senator GLENN. Where do any of you see deficiencies in this whole system that need additional legislation?

Mr. GILINSKY. Well, we certainly need legislation in the area of protecting security plans.

Senator GLENN. Would you elaborate on that a little bit? There has been some controversy within NRC, I believe, as to whether you feel you have authority to restrict the flow of information on some of these plans for specific sites, some of the things I mentioned

earlier that Mr. Albright received. Apparently NRC has had a controversy as to whether they have authority to even restrict the flow of this information. There has been some controversy, as I understand it.

So have you taken it upon yourselves there to restrict this information, or have you taken it upon yourselves to go ahead and release it pending some further legislation that is needed?

Mr. GILINSKY. Well, the material that is restricted is the security plan relating to a particular facility. That deals largely with the procedures that are used in providing the security. They would not generally be the plans that are at a facility and so on. These are available. But I think the most sensitive——

Senator GLENN. Plans are available for every facility under NRC like this?

Mr. GILINSKY. Generally speaking, there is a safety analysis report which includes the details of the facility. This would normally be available, yes.

Now I think the most important and the most sensitive material is in fact the security procedures that are used by the guard force and security organizations. Those are withheld on the basis that they are proprietary information.

Senator GLENN. Why are the plans not withheld?

Mr. GILINSKY. Because given our procedures, licensing the facility is usually a public matter, particularly the safety of the facility. And the plans are part of that, are part of that discussion.

Senator GLENN. Don't you think the security plans, though, should not be released? Should the security plans be released?

Mr. GILINSKY. No. Security plans are not released.

Senator GLENN. I thought you said they were.

Mr. GILINSKY. No. I was saying construction plans. I mean the layout of the facility.

Senator GLENN. How about the security system and the guard towers and the wiring system for detectors and all this sort of thing, is that released?

Mr. GILINSKY. My impression is that the construction details are available, yes.

Senator GLENN. Including all of this?

Mr. GILINSKY. I believe so, yes. I would like to check that for the record. But I believe the answer is yes.

What is in fact withheld are the details of the security procedures. Now I think that is the most important information from a security point of view.

[Mr. Gilinsky later confirmed for the record that construction details of facility security systems—that is, wiring diagrams for detection systems—are withheld from public release by NRC as commercial or financial information under the protection provided under paragraphs 2.790(d), 9.5 and 9.12, title 10, U.S. Code of Federal Regulations]

Senator GLENN. Do you feel you need additional authority to better classify information or to better restrict the flow of material you see as sensitive?

Mr. GILINSKY. Let me say we can, I believe, classify this material as national security information. Now that has certain implications

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for our other activities. I must say I for one have been reluctant to use the national security classification system. I much prefer to use the statutory basis for withholding information.

One of the problems in using the national security classification system is the extension to other areas. I think that discrete statutory exemption of certain information from the Freedom of Information Act would be a preferable way to go.

Senator GLENN. You don't feel then that to have a better handle on restricting what you would see as sensitive information that you need additional legislation?

Mr. GILINSKY. I believe we do in order to exempt this information from mandatory release under the Freedom of Information Act.

Now we have used the proprietary category to withhold it. But we believe that it would provide us with a firmer base.

Senator GLENN. There has been some misunderstanding, there was some question on NRC. You felt if you ever did try to restrict certain parts of this information, you would be challenged in court and perhaps you would lose, so perhaps you needed additional legislation.

Mr. GILINSKY. There is the possibility, which is the reason that I think we need additional legislation.

Senator GLENN. I might wish to have our staff get together with your office and get some further information, because I think if that is an area we can help tighten up on the flow of information——

Mr. GILINSKY. We would be happy to do that.

One of the problems we have is that it would be useful to have one regime for the regulation, Senator. You get into problems if you extend this regime to the reactors. It means you would extend the national security regime to the utility industry. That poses all sorts of problems.

Senator GLENN. I am the last one who wants to overregulate, but I do want to control one of our gaps, as I see it, in the security and the ability of you folks to control the flow of information that you think is sensitive, particularly in this area that might make it available to terrorists and so on.

Mr. GILINSKY. I think we agree on that.

Senator GLENN. Does anyone else feel there is any area you need legislation on to plug any of these areas that we have been discussing in general terms this morning?

A couple of questions to wind up here. How many facilities are there in nonweapons states around the world that are handling HEU or plutonium? Do we have figures on that from anyone?

Mr. GILINSKY. I certainly don't have a figure available. We could supply for the record the facilities to which we export material.

Senator GLENN. If you would, I think that would be of interest to us.

[The information follows:]

FACILITIES TO WHICH THE US HAS AUTHORIZED EXPORTS OF HIGH-ENRICHED URANIUM OR PLUTONIUM SINCE JANUARY 1, 1975.

Country	Reactor or Facility	Type of Facility	Location	Use
Austria	ASTRA	Research Reactor	Seibersdorf	Fuel
Belgium	BR-2	Research Reactor	MOL	Fuel
	Franco-Belge de Fabrication de Combustible	Fabrication Facility	Dessel	Fuel Fabricatior
Canada	Bruce Generating Station	Power Reactors	Tiverton, Ontario	Booster Rods
	McMaster University	Research Reactor	Hamilton, Ontario	Fuel
	NRX-NRU	Research Reactor	Chalk River, Ontario	Fuel
	Ontario Hydro	Power Reactor	Toronto, Ontario	Booster Rods
	Slow Poke	Research Reactor	Toronto, Ontario	Fuel
	WR-1	Research Reactor	Pinawa, Manitoba	Fuel
China, Republic Of(Taiwan)	THOR	Research Reactor	Hsin-Chu	Fuel
Denmark	DR-3	Research Reactor	Riso	Fuel
France	Ateliers de Traitment de L'Plutonium de Cadarache	Conversion and Fabrication Facility	Cadarache	Conversion/fuel fabrication
	CABRI	Research Reactor	Cadarache	Fuel
	CERCA	Fabrication Facil ty	Romans	Fuel fabrication
	EL-3	Research Reactor	Marcoule	Fuel
	Magasin Central des Matieres Fissiles	Central Receiving area for material to be fabricated	Cadarache	Receiving facility prior to fabrication
	MELUSINE	Research Reactor	Grenoble	Fuel

Prepared by:
R.Neal Moore
OIP/NRC
April 18, 1978

Country	Reactor or Facility	Type of Facility	Location	Use
France	OSIRIS	Research Reactor	Saclay	Fuel
	ORPHEE	Research Reactor	Marcoule	Fuel
	PEGASE	Research Reactor	Cadarache	Fuel
	RAPSODIE	Research Reactor	Cadarache	Fuel
	RHF	Research Reactor	Grenoble	Fuel
	SILOE	Research Reactor	Grenoble	Fuel
	TRITON	Research Reactor	Fontenay-Aux-Roses	Fuel
Germany	Alkem	Fabrication Facility	Hanau	Fuel Fabrication
	AVR	Research Reactor	Rhein-Westfalen	Fuel
	BER	Research Reactor	Berlin	Fuel
	FRG 1 and 2	Research Reactor	Geesthacht	Fuel
	FRJ-2	Research Reactor	Julich	Fuel
	FRM	Research Reactor	Garching	Fuel
	HOBEG	Fabrication Facility	Hanau	Fuel Fabrication
	HOR	Research Reactor	Delft	Fuel
	KNK-II	Research Reactor	Karlsruhe	Fuel
	KFA	Research Reactor	Julich	Fuel
	MERLIN	Research Reactor	Julich	Fuel
	NUKEM	Conversion and Fabrication	Hanau	Fuel Fabrication
	RBU	Fabrication Facility	Hanau	Fuel Fabrication
	THTR-300	Power Reactor	Uentrop	Fuel
Italy	ESSOR	Research Reactor	Ispra	Fuel
	Cobustibili Per Reattori Nucleari (COREN)	Fabrication Facility	Saluggia	Fuel Fabrication
	TRINO	Power Reactor	Trino Vercellese	MOX Fuel

Country	Reactor or Facility	Type of Facility	Location	Use
Japan	Electrotechnical Laboratory	Laboratory	Tokyo	Fast Spectra Measurement
	JRR-2	Research Reactor	Tokai-Mura	Fuel
	JMTR	Materials Test Reactor	Oarai	Fuel
	Kyoto University	Research Reactor	Osaka	Fuel
	Nuclear Fuel Industries	Fabrication Facility	Tokyo	Fuel Fabrication
	Power Reactor and Nuclear Fuel Corporation	Fabrication Facility	Tokai	Fuel Fabrication
Sweden	R-2	Research Reactor	Studsvik	Fuel
Switzerland	Beznau I	Power Reactor	Baden	Fuel
South Korea	KORR-2	Research Reactor	Seoul	Fuel
United Kingdom	British Nuclear Fuels	Conversion/Fabrication	Salwick-Preston	Fuel Fabrication
Yugoslavia	Jozef Stefan Institute	Research Reactor	Ljubljana	Fuel

Senator GLENN. If you have information about what percentage of those are guarded by IAEA——

Mr. GILINSKY. The IAEA doesn't guard any of them.

Senator GLENN. None of them?

Mr. GILINSKY. In fact, its role in physical security is strictly an advisory one.

Senator GLENN. To monitor?

Mr. GILINSKY. To put out a standard for protection in this area. But its activities are really restricted to the material accounting area.

Senator GLENN. This past Sunday there was an article in The Washington Post regarding the FBI approving an offer to sell weapons grade uranium. Do you have anything to report on that yet, Mr. Mignosa? That was quite an interesting article.

Mr. MIGNOSA. I read the article, and also this is in open session and that is a pending investigation.

Senator GLENN. I could have anticipated that answer.

Mr. MIGNOSA. Yes, sir.

Senator GLENN. It is very interesting that we are getting to the point these days where there is enough doubt about what is available around the world that we now have offers being made apparently on the international market. Whether valid or not we do not know, which I hope you determine very shortly. But that this offer was made of highly enriched uranium. This was not normal uranium or a light water reactor. This was highly enriched uranium that supposedly would be able to be used for making a weapon if it was in fact in existence and could be sold.

Mr. KERR. If I might just offer something for the record on that. The article was from the Washington Post on March 19. This material supposedly available in Switzerland was investigated by Westinghouse and determined to be depleted uranium with a uranium-235 content of about four-tenths of 1 percent. That is compared to the seven-tenths of 1 percent in natural uranium.

I also further understand that NRC has placed in their public documents room a copy of the Westinghouse letter reporting the above fact.

Senator GLENN. Fine. Thank you. I was not aware of that. Has that been made public?

Mr. GILINSKY. Yes.

[Mr. Gilinsky subsequently advised the committee that the Westinghouse letter placed in the NRC public document room—PDR—was one dated August 12, 1977, containing a chronology of events arising from discussions of the uranium's possible availability for purchase, and not the letter mentioned by Mr. Kerr. That letter had not been received by NRC, hence was not placed in the PDR.]

Senator GLENN. Fine. Thank you.

We have covered quite a field here this morning. It is now afternoon. I do appreciate you gentlemen spending this much time with us. We will have additional questions, I am sure, for each one of you, because we have only gotten through a small percentage of the number of questions we had here this morning. I have tried to hit at least some of the different areas this morning rather than exploring into

the depth we would like to get into some of these areas. I would appreciate it if you could respond to any of the questions we might send in writing. We will keep the record open for the normal 10 days and you can submit whatever your reply might be as part of the original committee testimony.

I thank you very much for being here.

The committee will stand in adjournment subject to the call of the chair. Thank you very much, gentlemen.

[Whereupon, at 12:40 p.m., the committee adjourned.]

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ADDITIONAL MATERIAL SUBMITTED FOR THE HEARING RECORD

95TH CONGRESS
1ST SESSION

S. 2236

IN THE SENATE OF THE UNITED STATES

OCTOBER 25 (legislative day, OCTOBER 21), 1977

Mr. RIBICOFF (for himself, Mr. JAVITS, Mr. PERCY, Mr. CASE, Mr. RANDOLPH, Mr. MORGAN, Mr. DOLE, Mr. MELCHER, and Mr. HELMS) introduced the following bill; which was read twice and referred to the Committee on Governmental Affairs and if and when reported to be referred jointly by unanimous consent to the Committees on Commerce, Science, and Transportation and Foreign Relations for not to exceed thirty days

A BILL

To effect certain reorganization of the Federal Government to strengthen Federal programs and policies for combating international and domestic terrorism.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. This Act may be cited as the "Omnibus Antiterrorism Act of 1977".

SEC. 2. TABLE OF CONTENTS.—

DECLARATION OF FINDINGS

SEC. 3. The Congress hereby finds and declares that because of the serious threat to human life, property, the sovereign rights of United States citizens, international trade and travel, which is posed by terrorism, coordination and the assignment of a high priority in the executive branch to United States policy for combating such terrorism is imperative. Further, the Congress finds that a Council for Combating Terrorism (hereinafter referred to as "Council")

must be established in the Executive Office of the President to assure consistency in the management of such policy, to assure an efficient response to emergency and crisis situations, and to press for international sanctions against convicted terrorists. Further, the Congress finds and declares it necessary to provide for an Assistant Secretary of State and an Assistant Attorney General to assure high-level attention to activities to combat terrorism in the United States Department of State and United States Department of Justice. Further, the Congress finds and declares that economic sanctions should be directed at countries which harbor, aid, abet, or assist terrorists.

DECLARATION OF PURPOSES

SEC. 4. The Congress therefore declares that the establishment of a Council for Combating Terrorism and the assignment of a high priority to antiterrorist policy is in the public interest to promote the welfare of American citizens by assuring coordinated and effective administration of Federal programs and policies for combating terrorism. It is the purpose of this Act—

(a) to establish in the Executive Office of the President a permanent Council for Combating Terrorism;

(b) to establish in the Department of State a Bureau, headed by an Assistant Secretary, to coordinate

the responsibilities of that Department for combating international terrorism;

(c) to establish in the Department of Justice an Office, headed by an Assistant Attorney General, to coordinate the responsibilities of that Department for combating terrorism;

(d) to bring together in the new offices the responsibility for coordinated management of all of the antiterrorist policies and programs;

(e) to provide an appropriate organizational framework for the implementation of such programs;

(f) to provide for effective permanent mechanisms for development and implementation of a comprehensive national antiterrorist policy;

(g) to assure coordinated and effective research in antiterrorist measures;

(h) to improve the effectiveness of the information-gathering system regarding terrorist acts and results;

(i) to establish effective sanctions against those countries which harbor, aid, or abet international terrorists;

(j) to coordinate and supervise the implementation of United States policy with respect to international acts of terrorism;

(k) to oversee and administer the provisions of this Act;

(l) to develop new initiatives which the United States can implement unilaterally or with other nations to control international acts of terrorism;

(m) to participate in international conferences and negotiations on the control of international acts of terrorism; and

(n) to devise procedures for reacting swiftly and effectively to acts of terrorism that occur.

DEFINITIONS

SEC. 5. For the purposes of this Act—

(a) "terrorism" includes but is not limited to the calculated use of violence or the threat of violence to obtain political goals through instilling fear, intimidation, or coercion. It usually involves a criminal act, often symbolic in nature and intended to influence an audience beyond the immediate victims; and

(b) "international terrorism" is terrorism transcending national boundaries in the carrying out of the act, the purpose of the act, the nationalities of the victims or the resolution of the incident. These acts are usually designed to attract wide publicity to focus attention on the existence, cause or demands of the terrorists.

TITLE I—REORGANIZATION OF EXECUTIVE OFFICE OF THE PRESIDENT

ESTABLISHMENT OF COUNCIL TO COMBAT TERRORISM

SEC. 101. There is hereby established in the Executive Office of the President an entity to be known as the Council to Combat Terrorism (hereinafter referred to as the "Council"). The Council shall be headed by, and its activities shall be administered under the supervision and direction of, the Assistant to the President for National Security Affairs.

COUNCIL FUNCTIONS

SEC. 102. The Council shall—

(a) assist the President in the implementation of this Act and shall provide staff support and assistance in the preparation of the Lists required by sections 105 and 107.

(b) consider the most effective means by which to combat terrorism in the United States and abroad;

(c) serve as the lead group in establishing procedures to insure that the United States Government can take appropriate action in response to acts of terrorism which directly or indirectly affect United States citizens;

(d) coordinate, among the Government agencies, ongoing activity for the prevention of terrorism, including the collection of worldwide intelligence, the physi-

cal protection of United States personnel and installations abroad, and foreign diplomats and diplomatic installations in the United States;

(e) evaluate all such programs and activities and, where necessary, recommend methods for increasing the effectiveness of their implementation; and

(f) make recommendations to the Director of the Office of Management and Budget concerning proposed funding of such programs.

COUNCIL MEMBERSHIP

SEC. 103. The Council shall consist of the following individuals:

(1) the Assistant to the President for National Security Affairs;

(2) the Secretary of State;

(3) the Secretary of the Treasury;

(4) the Secretary of Defense;

(5) the Attorney General;

(6) the Secretary of Transportation;

(7) the United States Ambassador to the United Nations;

(8) the Director of Central Intelligence;

(9) the Assistant to the President for Domestic Affairs;

(10) the Director of the Federal Bureau of Investigation;

or their delegates, and any additional members which the Assistant to the President for National Security Affairs may determine are necessary.

REPORT ON TERRORIST ENTERPRISES

SEC. 104. (a) In the event of an act of terrorism which affects or involves citizens of the United States, the President shall submit to Congress an unclassified report regarding such act of terrorism within forty-five days following the commencement of such act.

(b) Such report shall include, but not be limited to, the following information—

(1) the identity of any individual, entity, group, and/or organization responsible for, or implicated in, the commission of such act;

(2) the identity of any country responsible for, or which may have willfully contributed to, aided, abetted, facilitated, or assisted the planning, execution, or commission of such act, or which grants safe haven or sanctuary from prosecution to the perpetrators of such act;

(3) a description of the activities, actions, and involvement of each individual, entity, group, organization, and country described in paragraphs (1) and (2);

(4) the names of any countries the President has

added to the List of Countries Aiding Terrorist Enterprises (LOCATE) established pursuant to section 105, and the reasons for the inclusion of each country on the List; and

(5) if any country described in paragraph (2) is not already on the List of Countries Aiding Terrorist Enterprises (LOCATE) established pursuant to section 105 and is not described in paragraph (4), the reasons that country has not been added to the List.

(c) When the disclosure of information required in section 104(a) would directly threaten the safety of an informant or confidential source or seriously compromise a covert information gathering program or source of information, the information may be withheld from the unclassified report. Such information shall instead be reported in classified form to the Senate and House Intelligence Committees.

LIST OF COUNTRIES AIDING TERRORIST ENTERPRISES

SEC. 105. (a) Within sixty days after enactment of this Act the President shall prepare and submit to Congress a List of Countries Aiding Terrorist Enterprises (LOCATE).

(b) The LOCATE shall contain names of countries which have been found to have willfully contributed to, aided, abetted, facilitated, or assisted in the planning, execution, or commission of any act of terrorism which affects or involves citizens of the United States, or which grants safe

haven or sanctuary from prosecution to the perpetrators of such act, and the reasons for inclusion of each country on the list.

(c) After the submission of the first LOCATE (required by subsection (a)), the development of the LOCATE shall be based on information submitted to Congress as required by section 104 of this Act.

(d) At the time the report required by section 104 is submitted to Congress, the President, based upon the information in the report, shall add the names of any countries to the LOCATE which he finds to have willfully contributed to, aided, abetted, facilitated, or assisted in the planning, execution, or commission of any act of terrorism or which grants safe haven or sanctuary from prosecution to the perpetrators of any such act which affects or involves citizens of the United States.

(e) Within thirty days after the submission of the report required by section 104, either House of Congress may pass a resolution adding the name of a country to the LOCATE which that House of Congress believes willfully contributed to, aided, abetted, facilitated, or assisted in the planning, execution, or commission of an act of terrorism (described in the report) which affects or involves citizens of the United States or which grants safe haven or sanctuary from prosecution to the perpetrators of such act. The name of that

country shall be added to the LOCATE thirty days after the approval of such a resolution unless prior to that time the other House of Congress passes a resolution disapproving the addition of that country's name to the LOCATE.

(f) The LOCATE shall be reviewed periodically by the President. After a country has been on the List for a period of at least one year, the President may submit to Congress "A Request of Removal," which shall constitute a request to remove that country's name from the list. Such a request shall be accompanied by the reasons for such request.

(g) The name of a country contained in "A Request of Removal" shall be removed from the LOCATE thirty days after the submission of that Request to the Congress unless either House of Congress by resolution disapproves that Request.

SANCTIONS AGAINST COUNTRIES AIDING TERRORIST ENTERPRISES

SEC. 106. (a) Within thirty days of the listing of any country on the List (LOCATE), the President shall impose sanctions against each such country including, but not limited to—

(1) issuance of a declaration that the country is "dangerous for United States citizens to travel to or reside in";

(2) suspension of all direct commercial air service between the country and the United States, including all direct flights by the country's own carriers, third party carriers, and United States carriers;

(3) suspension of all indirect flights between the country and the United States by both the country's own carriers and United States carriers;

(4) refusal of admittance into the United States to any person who has traveled to or through a country on the LOCATE, unless (i) his passport contains a visa issued by a third country in the third country and (ii) such visa was issued after the date of his departure from the country on the List;

(5) refusal of permission to permit the deplaning of baggage belonging to a person who has traveled to or through a country on the LOCATE unless the baggage subsequently has been thoroughly examined in a third country not on the LOCATE;

(6) refusal of permission for the landing of any plane if it has landed in any country on the LOCATE unless the plane subsequently has been serviced and thoroughly inspected in a third country not on the LOCATE;

(7) inspection of all freight and mail that has come from or passed through a country on the LOCATE;

(8) refusal to grant new export licenses for the sale or transfer of items contained on the United States Munitions List to any country on the LOCATE, including government-to-government and commercial transactions; and

(9) the refusal to grant new export licenses for the sale or transfer of any nuclear equipment, materials or technology to any country on the LOCATE.

(b) Within thirty days after a country is added to the List (LOCATE), the President shall consider the imposition of sanctions (in addition to those automatically imposed by subsection (a)) against any country on the LOCATE, including but not limited to suspension or curtailment of trade, and suspension or curtailment of the shipment of spare or replacement parts and training, in connection with military and commercial purchases.

LIST OF DANGEROUS FOREIGN AIRPORTS

SEC. 107. (a) The President is required to prepare and submit to Congress, one hundred and eighty days after enactment of this Act, a List of Dangerous Foreign Airports.

(b) An airport shall be considered dangerous and, therefore, included on the List of Dangerous Foreign Airports, if the airport is not as safe as an airport which meets the minimum United States safety criteria as established by title 49, United States Code.

(c) The List of Dangerous Foreign Airports shall include, but not be limited to, the following:

(1) a list of airports, country by country, which are found to be dangerous pursuant to subsection (b);

(2) a description of the safety and security deficiencies of each airport on the list.

(d) The List of Dangerous Foreign Airports shall be open for public inspection.

(e) Whenever the President finds that a foreign country has purposely obstructed the collection of information required to be gathered pursuant to this section, he shall submit such information to the Congress at the time of the submission of the List of Dangerous Foreign Airports, and shall add the name of that country to the list.

(f) The President shall periodically review and revise the List of Dangerous Foreign Airports.

SANCTIONS AGAINST DANGEROUS FOREIGN AIRPORTS

SEC. 108. Within thirty days of the listing of any airport on the List of Dangerous Foreign Airports, the President shall impose sanctions against each airport including, but not limited to—

(1) suspension of all direct commercial air service between that airport and the United States, including all direct flights by the country's own carriers, third party carriers, and United States carriers;

(2) suspension of all indirect flights between that airport and the United States by both the carriers of the country in which the airport is located and United States carriers; and

(3) refusal of permission for the landing of any plane if it has landed in that airport unless the plane subsequently has been serviced and thoroughly inspected at any airport not on the list of dangerous airports.

TRANSFER OF EXISTING FUNCTIONS AND PROPERTY

SEC. 109. There are hereby transferred to and vested in the Council all functions and authorities, personnel, property, and records vested in the Cabinet Committee to Combat Terrorism, and its working group.

TITLE II—REORGANIZATION OF THE DEPARTMENT OF STATE

ESTABLISHMENT OF BUREAU FOR COMBATING INTERNATIONAL TERRORISM

SEC. 201. (a) There is hereby established in the Department of State a Bureau for Combating International Terrorism (hereinafter referred to as the "Bureau"), which shall be headed by an Assistant Secretary of State, appointed by the President, by and with the advice and consent of the Senate.

(b) Section 5315(22) of title 5, United States Code,

is amended by striking out "(11)" and inserting in lieu thereof "(12)".

BUREAU FUNCTIONS

SEC. 202. The Bureau shall—

(a) coordinate, supervise, and insure the efficient management, implementation, and development of all antiterrorist policies, programs, and activities of the Department of State;

(b) work closely with the Council to Combat Terrorism, in assisting that Council in the performance of its functions; and

(c) assist the President in the implementation of section 203 and the other provisions of this Act.

PRIORITIES FOR NEGOTIATION OF INTERNATIONAL AGREEMENTS

SEC. 203. (a) The President is hereby urged to seek international agreement to assure more effective international cooperation in combating terrorism.

(b) High priority in the negotiation of such agreements should be given to agreements which include, but which need not be limited to the following:

(1) establishment of a permanent international working group, including subgroups on topics such as law enforcement, intelligence sharing, and crisis man-

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agement, which would combat international terrorism by—

(A) promoting international cooperation among countries; and

(B) developing new methods, procedures, and standards to combat international terrorism;

(2) establishment of sanctions to assure compliance with—

(A) the Convention for the Suppression of Unlawful Seizure of Aircraft (the Hague, December 16, 1970);

(B) the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (Montreal, September 23, 1971); and

(C) the Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents (New York, December 14, 1973);

(3) establishment of international legal requirements to prohibit and punish the act of taking hostages, and

(4) the strengthening of nuclear nonproliferation efforts by—

(A) the establishment of physical security

standards for nuclear materials and facilities, including international shipments;

(B) the incorporation of standards developed in subparagraph (A) into New Agreements for Cooperation;

(C) the establishment of an information exchange system between signatory nations involving technical, administrative, and intelligence information relating to physical security; and

(D) the establishment of guidelines by an international agency or organization for contingency plans for action by signatory nations in the event of theft of nuclear materials.

IMPLEMENTATION OF MONTREAL CONVENTION

SEC. 204. The President shall develop standards and programs to insure the full implementation of the provisions of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (Montreal, September 23, 1971).

DEFENSE SALES TO INDIVIDUALS, GROUPS

SEC. 205. (a) No sale, credit, or guarantee shall be made or extended or shall any export license be issued by the United States with respect to any defense article or defense service for any individual, group, or organization without the specific prior approval of the President.

(b) No such sale, credit, guarantee, or license may be made, extended, or issued, as the case may be, with respect to any defense article or service for any country unless such country shall have agreed not to transfer title to, or possession of, such defense article or defense service to any other individual, group, or organization.

UNITED STATES MUNITIONS LIST

SEC. 206. The President shall include the names of all types of explosives on the United States Munitions List (22 U.S.C. 2278).

TRANSFER OF EXISTING FUNCTIONS AND PROPERTY

SEC. 207. There are hereby transferred to and vested in the Bureau all functions and authorities, personnel, property, and records now vested in the present Office for Combating International Terrorism established by the Secretary of State.

TITLE III—REORGANIZATION OF THE DEPARTMENT OF JUSTICE

ESTABLISHMENT OF OFFICE FOR COMBATING TERRORISM

SEC. 301. (a) There is hereby established in the Department of Justice an Office for Combating Terrorism, which shall be headed by an Assistant Attorney General, appointed by the President, by and with the advice and consent of the Senate.

(b) Section 5315(19) of title 5, United States Code,

is amended by striking out "(9)" and by inserting in lieu thereof "(10)".

OFFICE FUNCTIONS

SEC. 302. The Office shall—

(a) coordinate, supervise, and insure the efficient management, implementation, and development of all antiterrorist policies, programs, and activities of the Department of Justice; and

(b) work closely with the Council to Combat Terrorism, in assisting that Council in the performance of its functions.

EXTENSION OF EXISTING SAFETY AND SECURITY MEASURES

SEC. 303. The President shall extend existing safety and security requirements of title 49, United States Code, to supplemental means of air transportation, foreign or domestic, including the charter operations of regularly scheduled airlines, commuter services regulated by Civil Aeronautics Board, and other regularly scheduled interstate or intrastate passenger operations; and to any airport in the United States serving aircraft subject to the above provisions.

MANDATORY USE OF EXPLOSIVE TAGGANTS

SEC. 304. No explosive may be imported, manufactured, or exported unless such explosive contains identification and detection taggants. Such taggants must identify the source

and time of manufacture of that explosive, regardless of whether such explosive has been detonated and permit the detection of concealed explosives.

The President shall issue regulations to implement this provision to the maximum extent possible under existing technology so that the taggants will provide maximum assistance to law enforcement agencies in locating, identifying, and prosecuting individuals illegally utilizing such explosives. The President shall periodically review and revise the regulations to take into account improvements in taggant technology.

TITLE IV—AIRCRAFT SABOTAGE AND PIRACY

AIRCRAFT SABOTAGE

SEC. 401. (a) Section 31 of title 18, United States Code, is amended—

(a) by striking out "Civil Aeronautics Act of 1938" and inserting in lieu thereof the words "Federal Aviation Act of 1958"; and

(b) by adding at the end of the first paragraph thereof the following two paragraphs:

"'In flight' means any time from the moment all the external doors of an aircraft are closed following embarkation until the moment when any such door is opened for disembarkation. In the case of a forced landing the flight

shall be deemed to continue until competent authorities take over the responsibility for the aircraft and the persons and property aboard.

"'In service' means any time from the beginning of preflight preparation of the aircraft by ground personnel or by the crew for a specific flight until twenty-four hours after any landing; the period of service shall, in any event, extend for the entire period during which the aircraft is in flight.".

(b) Section 32, title 18, United States Code, is amended to read as follows:

"§ 32. Destruction of aircraft or aircraft facilities

"Whoever willfully sets fire to, damages, destroys, disables, or interferes with the operation of, or makes unsuitable for use any civil aircraft used, operated, or employed in interstate, overseas, or foreign air commerce, or willfully places a destructive substance in, upon, or in proximity to any such aircraft which is likely to damage, destroy, or disable any such aircraft, or any part or other material used, or intended to be used, in connection with the operation of such aircraft, or willfully sets fire to, damages, destroys, or disables any air navigation facility, or interferes with the operation of such air navigation facility, if any such act is likely to endanger the safety of any such aircraft in flight; or

"Whoever, with intent to damage, destroy, or disable any

such aircraft, willfully sets fire to, damages, destroys, or disables or places a destructive substance in, upon, or in the proximity of any appliance, structure, ramp, landing area, property, machine, or apparatus, or any facility, or other material used, or intended to be used, in connection with the operation, maintenance, or loading or unloading or storage of any such aircraft or any cargo carried or intended to be carried on any such aircraft; or

"Whoever willfully performs an act of violence against or incapacitates any passenger or member of the crew of any such aircraft if such act of violence or incapacitation is likely to endanger the safety of such aircraft in service; or

"Whoever communicates information, which he knows to be false, thereby endangering the safety of any such aircraft while in flight; or

"Whoever willfully attempts to do any of the aforesaid acts—shall be fined not more than $10,000 or imprisoned not more than twenty years, or both.".

(c) Chapter 2, title 18, United States Code, is amended by adding immediately after section 32 the following:

"§ 32A. Offenses in violation of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation

"(a) Whoever commits an offense as defined in subsection (b), against or on board an aircraft registered in a coun-

try other than the United States and is afterward found in the United States—

shall be fined not more than $10,000 or imprisoned not more than twenty years, or both.

"(b) For purposes of this section, a person commits an 'offense' when he willfully—

"(1) performs an act of violence against a person on board an aircraft in flight if such act is likely to endanger the safety of such aircraft; or

"(2) destroys an aircraft in service or causes damage to such an aircraft which renders such aircraft incapable of flight or which is likely to endanger the safety in flight of such aircraft; or

"(3) places or causes to be placed on an aircraft in service, by any means whatsoever, a device or substance which is likely to destroy such aircraft, or to cause such damage as to render such aircraft incapable of flight, or to cause such damage as is likely to endanger the safety in flight of such aircraft; or

"(4) attempts to commit, or is an accomplice of a person who commits or attempts to commit, an offense under this subsection.".

(d) The analysis of chapter 2 of title 18, United States

Code, is amended by inserting between items 32 and 33 the following new item:

"32A. Offenses in violation of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation.".

(e) Section 101(34)(d) of the Federal Aviation Act of 1958, as amended, is amended as follows:

(a) by striking out "or" at the end of subclause (i);

(b) by striking out "and" at the end of subclause (ii) and inserting in lieu thereof "or"; and

(c) by adding at the end thereof the following:

"(iii) regarding which an offense as defined in subsections (d) and (e) of the first section of article 1 of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation, done at Montreal on September 23, 1971, is committed, if such aircraft lands in the United States with an alleged offender on board; and".

(f) Section 902(k) of the Federal Aviation Act of 1958, as amended, is further amended by adding at the end thereof the following:

"(3) Whoever while aboard an aircraft in the special aircraft jurisdiction of the United States commits an act which would be an offense under section 32 of

title 18, United States Code, shall be punished as provided therein.".

(g) Chapter 2 of title 18, United States Code, is amended by adding at the end thereof the following new section:

"§ 36. Imparting or conveying threats

"Whoever imparts or conveys, or causes to be imparted or conveyed, any threat to do an act which would be a felony punishable under section 32 or 33 of this chapter or section 1992 of chapter 97 or section 2275 of chapter 111 of this title with an apparent determination and will to carry the threat into execution, shall be fined not more than $5,000 or imprisoned not more than five years, or both.".

(h) The analysis of chapter 2 of title 18, United States Code, is amended by adding at the end thereof the following new item:

"36. Imparting or conveying threats.".

AIRCRAFT PIRACY

SEC. 402. (a) Section 901 of the Federal Aviation Act of 1958 is amended by adding at the end thereof the following new subsections:

"(c) Whoever imparts or conveys, or causes to be imparted or conveyed, false information, knowing the information to be false, concerning an attempt or alleged attempt being made or to be made, to do any act which would

be a crime prohibited by subsection (i), (j), (k), or (l) of section 902, shall be subject to a civil penalty of not more than $1,000 which shall be recoverable in a civil proceeding brought in the name of the United States.

"(d) Except for law enforcement officers of any municipal or State government, or the Federal Government, who are authorized or required within their official capacities to carry arms, or except for other persons who may be so authorized, under regulations issued by the Administrator, whoever, while aboard, or while attempting to board, any aircraft in, or intended for operation in, air transportation or intrastate air transportation, has on or about his person or his property a concealed deadly or dangerous weapon, which is, or would be, accessible to such person in flight shall be subject to a civil penalty of not more than $1,000 which shall be recoverable in a civil proceeding brought in the name of the United States.".

(b) Subsection (a) of section 1395 of title 28, United States Code, is amended by inserting before the period at the end of such subsection a comma and the following: "and in any proceeding to recover a civil penalty under section 35(a) of title 18, United States Code, or sections 901 (c) or (d) of the Federal Aviation Act of 1958, all process against any defendant or witness, otherwise not authorized under the Federal Rules of Civil Procedure, may be served

in any judicial district of the United States upon an ex parte order for good cause shown".

(c) Section 902 (m) of the Federal Aviation Act of 1958 is amended to read as follows:

"FALSE INFORMATION AND THREATS

"(m) (1) Whoever willfully and maliciously, or with reckless disregard for the safety of human life, imparts or conveys, or causes to be imparted or conveyed, false information knowing the information to be false, concerning an attempt or alleged attempt being made or to be made, to do any act which would be a felony punishable under subsection (i), (j), or (l) (2) of this section, shall be fined not more than $5,000 or imprisoned not more than five years, or both.

"(2) Whoever imparts or conveys, or causes to be imparted or conveyed, any threat to do an act which would be a felony punishable under subsection (i), (j), or (l) (2) of this section, with an apparent determination and will to carry the threat into execution, shall be fined not more than $5,000 or imprisoned not more than five years, or both.".

(d) The analysis of section 902 (m) of the Federal Aviation Act of 1958 is amended by adding "and threats" immediately after "information".

(c) Section 903 (b) (1) of the Federal Aviation Act of 1958 is amended by striking out "Such" at the beginning of the second sentence and inserting in lieu thereof "Except with respect to civil penalties under section 901 (c) and (d) of this title, such".

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Senate

By Mr. RIBICOFF (for himself, Mr. JAVITS, Mr. PERCY, Mr. CASE, Mr. RANDOLPH, Mr. MORGAN, Mr. HELMS, Mr. MELCHER, and Mr. DOLE):

S. 2236. A bill to effect certain reorganization of the Federal Government to strengthen Federal programs and policies for combating international and domestic terrorism; to the Committee on Governmental Affairs; and, if and when reported, to the Committee on Foreign Relations for not to exceed 30 days.

ANTI-TERRORISM ACT

Mr. RIBICOFF. Mr. President, today I introduce the Anti-Terrorism Act. This legislation will use diplomatic initiatives and strong sanctions to encourage all nations to work together to combat international terrorist acts such as airline hijacking.

In recent years terrorism has increasingly become a fact of life. Between 1968 and the end of 1975, there were 913 international and transnational terrorist incidents directly affecting U.S. citizens, corporations, or institutions.

Terrorism cannot be considered a series of isolated incidents. Those who wage it are fighting an ongoing war. To remain organized, unprepared, or unable to deal effectively with the wide range of terrorist incidents would be to compromise our security.

The United States and other nations must develop effective and comprehensive policies for dealing with the constant threat of terrorism. For our part, we have not done all that we can do. A CIA research paper dated April 1976 concluded that the risk and success rate in committing a terrorist act, based on 63 major kidnapping operations executed between early 1968 and late 1974 are the following:

Eighty-seven percent probability of actually seizing hostages;

Seventy-nine percent chance that all members of the terrorist team would escape punishment or death;

Sixty-seven percent chance that if concessions to the principal demands were rejected, all or virtually all members of the terrorist team could still escape alive by going underground, accepting safe passage in lieu of their original demands, or surrendering to a sympathetic government; and

Virtually a 100-percent probability of gaining major publicity.

Of 127 terrorist attempts to seize aircraft between March 1968 and early July 1974, only a dozen were unsuccessful. Of the remaining incidents, fewer than 10 are known to have ended in the death or imprisonment of the terrorists.

In recent years businessmen have increasingly found themselves to be vulnerable targets for terrorists. The tragic events in West Germany during the past few days are only the most recent reminder. In the last few years terrorism has increasingly involved new and more dangerous weapons and technologies. Would-be terrorists have twice been apprehended near airport runways with heat-seeking missiles capable of bringing down a 747 aircraft.

There is no easy solution to the problem of terrorism. It is impossible to defend totally against crimes of a random nature. We must, however, take every reasonable precaution and develop an effective capability to deal with terrorist acts before, during, and after they are committed. Legislation should only be one part of the development of an effective policy for combating terrorism. We need to upgrade the fight on terrorism as a national priority. The bill I am introducing sets out some ideas for action which the United States has not taken but should take. By introducing legislation now, I hope to establish both the framework and a schedule for long-overdue action.

This bill will upgrade the existing office for combating terrorism in the State Department and will establish a comparable office in the Department of Justice. These two offices would handle day-to-day aspects of terrorism, State on the international side and Justice domestically. They would be headed by an Assistant Secretary of State and by an Assistant Attorney General.

The present interagency "working group" for combating terrorism would be upgraded and relocated in the Executive Office of the President. The interagency group would be chaired by the Director of the National Security Council.

The bill would identify and impose sanctions against countries which aid or abet individuals or groups which commit terrorist acts. Using both public information and intelligence the President would be required to develop and maintain a public list of countries which aid or abet international terrorism. Procedures are established by the bill to allow both the President and the Congress to add or delete names of countries from the list. Terrorism depends to a large extent on the support and assistance of various governments. In fact, the role some countries play in assisting terrorists is well known. Still, most people do not know the extent to which governments aid or abet international terrorism. Libya, for example, serves as the main training center in the Middle East for international terrorism. Libya supplies terrorists with forged passports, cash, documents, contacts, weapons, and training bases. Sometimes transportation is provided, and often safe haven is given after commission of a terrorist act.

In July 1976 I asked the Library of Congress to prepare a report on countries which aid and abet international terrorism. That report read in part:

Specialists on terrorism often cite the following countries as supporting terrorists activities by supplying armies and money, giving asylum, allowing terrorists to train on their territories, etc: the Soviet Union, China, North Korea, Cuba, Libya, Algeria, Syria, the Peoples Democratic Republic of Yemen, Iraq, Lebanon, Tanzania, Congo (Brazzaville) and Zaire.

Countries that aid or abet terrorism are outlaws. The United States should stand up and identify these countries. The United States should take the lead in recognizing and condemning countries that promote terrorism.

Once a country is included on the list of those that aid or abet international terrorism, the following sanctions would be imposed against it:

The President would be required to declare the country dangerous for Americans to travel to or live in;

All commercial air service between the country and the United States would be suspended;

Passengers, baggage, and aircraft which have recently been in a country on the list would not be allowed to enter the United States unless they had been thoroughly searched in a third country;

All persons and all freight or mail coming from a country on the list would be subject to careful inspection before being allowed into the United States.

No export licenses would be granted for the sale of items on the munitions list to these countries;

The sale or transfer of nuclear facilities, material or technology to any country on the list would be prohibited.

The President would be required to develop and maintain a public list of foreign airports, ports and other public facilities which are dangerous and unsafe for use by Americans. The list would include all foreign facilities which are less safe or secure than comparable facilities subject to safety and security standards in the United States.

In addition to the names of the various foreign facilities, an accounting of their specific safety and security deficiencies would be required. If a foreign country were to refuse to allow an accurate assessment to be made, the facility would be presumed to be dangerous and unsafe for use by Americans and would be included in the list. Flights originating in the United States would be banned to airports on the dangerous list until these airports conform to the security requirements in this legislation.

Priorities for negotiating international agreements on the control of terrorism would be established by the legislation. The major areas in which the United States should seek international agreement include:

Creation of a permanent international working group to combat terrorism. The purpose of the group would be to promote international cooperation and coordination in dealing with international terrorism;

Sanctions to enforce compliance by signatories with the 1970 Hague Convention for the Suppression of Unlawful Seizure of Aircrafts; the Montreal Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aircrafts; and the Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, including Diplomatic Agents;

Making the taking of hostages a crime under international law;

Establishment of safety standards for U.S. nuclear exports, supplies, technology, and fuels and the establishment of a formal mechanism to deal with physical safety and protection of nuclear facilities and materials.

The bill includes a series of legislative proposals to improve the ability of the United States to combat and control international terrorism domestically. The proposals include:

Implementation of the Montreal Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aircraft;

Extension of existing safety and security requirements for regularly scheduled large commercial aircraft to charters and other scheduled interstate and intrastate passenger operations;

Extension of existing safety and security requirements to U.S. airports served by these aircraft;

Extension of existing safety and security requirements to include charters by foreign airlines servicing the United States;

Prohibition of the sale or transfer of arms or munitions by the United States to any nonstate groups or individuals without specific approval of the President;

Prohibition of the transfer of arms obtained from the United States by another country to any nonstate groups or individuals;

All explosives manufactured in or brought into the United States would be required to have both identification and detection taggants. To the extent possible, the taggants should make possible the detection of concealed explosives prior to detonation and the identification of the source and time of manufacture, either before or after a detonation.

SUMMARY

TITLE I

A Council to Combat Terrorism (the "Council") would be established in the Executive Office of the President. The Council would be headed by the Assistant to the President for National Security Affairs. The Council would: 1) coordinate and supervise the implementation of U.S. policy with respect to acts of terrorism, 2) oversee and administer the provisions of this Act and the mechanisms it creates, and 3) develop new initiatives which the United States can implement unilaterally or with other nations to control international acts of terrorism.

The functions and authority of the present Cabinet Committee to Combat Terrorism and its Working Group would be transferred to the Council.

A mechanism would be established to identify and impose sanctions on countries that aid or abet individuals or groups which commit international acts of terrorism.

The President would be required to inquire into the commission of all acts of international terrorism affecting or involving U.S. citizens, property or interests by every means available to identify individuals, groups, organizations or countries responsible for or implicated in the commission of such acts. The President would be required to report his findings to the Congress in unclassified form within 45 days of the terrorist act.

Details concerning the identity of individuals, groups or organizations, or the nature of their involvement, could be excluded from the unclassified report only if publication would directly threaten the safety of an informant or seriously compromise a confidential source of information. In such cases, a complete report would be given to the Intelligence Oversight Committees while the names of countries involved and any other information that could be included would be reported in unclassified form to the full Congress.

Based on all available data, including intelligence information, the President would be required to develop and maintain a public list of countries that aid or abet international terrorism.

An explanation of his reasons for including each country on the list would be required. By passing a simple resolution, either House of Congress could include on the list any country implicated by any Presidential inquiry (if the other House of Congress does not disagree within 30 days).

After a country has been on the list for one year, the President would review its standing. If he recommends that a country be taken off the list, either House of Congress could pass a simple resolution of disapproval within 30 legislative days, and keep the country on this list for another year.

Within thirty days after a country is added to the list, the President would be required to consider imposing in addition to those sanctions automatically imposed by statute, other appropriate sanctions such as the suspension or curtailment of trade, and the shipment of spare or replacement parts and training, in connection with military and commercial purchases.

Once a country is included on the list of those that aid or abet international terrorism, the following sanctions would be automatically imposed against it:

(A) The President would be required to declare the country "dangerous for Americans to travel to or live in."

(B) All commercial air service between the country on the list and the United States would be suspended. This ban would prohibit direct flights by the country's own carriers, third party carriers, and U.S. carriers. It would also bar indirect flights between the country and the U.S. by both the country's own carriers and U.S. carriers.

(C) No passenger who has travelled to or through a country on the list, or whose journey originated in such a country, would be allowed to enter the United States unless his passport contains a visa issued (1) by a third country in the third country, (2) after the date of his departure from a country on the list.

(D) No plane would be allowed to unload in the United States if it is carrying any baggage, including checked and transit baggage, associated with any passenger referred to in (C) above unless the baggage has been thoroughly searched in the course of the procedures required for such passengers in (C) above.

(E) No plane would be given permission to land in the United States if it has landed in any country on the list until it has been thoroughly serviced and inspected in a third country.

(F) All persons, and all freight or mail that have come from or passed through a country on the list within a year of the time at which entry into the United States is sought, would be subjected to thorough inspection before being allowed to enter the U.S.

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(G) No export licenses would be granted for the sale or transfer of items contained on the munitions list to any country on the list. This would apply to government-to-government and commercial transactions.

(H) The sale or transfer of any nuclear facilities, material or technology to any country on the list would be prohibited.

The President would be required to determine which foreign airports are less safe or secure than comparable facilities subject to U.S. safety and security standards in the United States. In making his determination, the President would be required to take into account all available data and any information obtained through relevant or necessary safety and security inspections.

Based on his findings, the President would be required to develop and update at regular intervals a public list of foreign airports which are dangerous and unsafe for use by Americans. The list would include all foreign facilities which are less safe or secure than comparable facilities which are subject to U.S. safety and security standards in the United States. The list would include, in addition to the names of the various foreign facilities, an accounting of their specific safety and security deficiencies. The President would be required to transmit the initial list to the Congress in unclassified form within 180 days of enactment of the legislation.

If an accurate assessment of the safety or security of a foreign facility is purposely obstructed by the actions of the foreign country in which the facility is located, or if that foreign country refuses to allow an accurate assessment to be made, the foreign facility involved would automatically be considered dangerous and unsafe for use by Americans and would be included on the list.

On an airport is included on the list of dangerous foreign airports, the following sanctions would be automatically imposed against it:

(1) All commercial air service between the airport on the list and the United States would be suspended. This ban would prohibit direct flights by the airlines of the country where the airport is located as well as direct flights by third party carriers and U.S. carriers. The ban would also cover indirect flights between that airport and the United States by both carriers of the country where the airport is located and U.S. carriers; and

(2) No plane would be given permission to land in the United States if the plane has landed in an airport on the list unless the plane has subsequently been thoroughly inspected at an airport not on the List of Dangerous Foreign Airports.

TITLE II

A new Bureau for Combating International Terrorism is created in the Department of State. The Bureau would be headed by an Assistant Secretary of State. The Bureau would coordinate and supervise international efforts by the United States to combat terrorism.

Priorities for the negotiation of international agreements on the control of international acts of terrorism and similar acts of political violence would be established by resolution. The major areas in which the United States should seek international agreement include:

(A) Creation of a permanent international working group to combat terrorism. The purpose of the group would be to promote international cooperation in dealing with international and transnational terrorism, to harmonize national standards and to develop new methods, procedures and standards to control terrorism. The permanent working group should include sub-groups to deal with different areas such as intelligence sharing and crisis managements.

(B) Sanctions to enforce compliance by signatories with the 1970 Hague Convention for the Suppression of Unlawful Seizure of Aircraft; the Montreal Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aircraft; and the Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents.

(C) Prosecution of known or suspected terrorists or the extradition only to other nations for prosecution. The agreement would bar signatories from granting known or suspected terrorists safe haven. The agreement could be patterned after the European Convention on the Suppression of Terrorism, which requires signatories to "extradite or punish" terrorists.

(D) Making the taking of hostages a crime under international law.

(E) The establishment of physical security standards for nuclear materials and facilities, including international shipments; the incorporation of such standards into New Agreements for Cooperation; the establishment of an information exchange system between signatory nations involving technical, administrative, and intelligence information relating to physical security; and the establishment of guidelines for contingency plans for action by signatory nations in the event of theft of nuclear materials, by an international agency or organization.

The following additional actions to improve our ability to combat and control international acts of terrorism would be mandated:

(1) Implementing of the Montreal Convention for the Suppression of Unlawful Acts against the Safety of Civil Aircraft.

(2) Prohibition of the sale or transfer of arms or munitions by the United States to any non-state groups or individuals without explicit approval from the President in advance of any such sale of transfer.

(3) Prohibition of the transfer by another country to any non-state groups or individuals of arms or munitions obtained from the United States.

(4) Requiring that all types of explosives be put on the U.S. Munitions List.

TITLE III

An Office for Combating Terrorism would be established in the Department of Justice to coordinate law enforcement efforts against domestic and international terrorism. The Office would be headed by an Assistant Attorney General.

This title would also mandate:

(1) Extension of existing safety and security requirements for regularly scheduled large commercial aircraft to supplemental transportation including charter operations by scheduled airlines, CAB regulated commuter services and other scheduled interstate or intrastate passenger operations.

(2) Extension of existing safety and security requirements to all U.S. airports served by the various classes of aircraft included in (1) above.

(3) Extension of existing safety and security requirements for regularly scheduled service by foreign carriers servicing the United States to charter operations of foreign carriers servicing the U.S.

(4) Requiring that all explosives manufactured in or brought into the United States have both identification and detection taggants. To the extent allowed by existing and future technology, the required taggants should make possible the detection of concealed explosives prior to detonation and the identification of the source and time of manufacture either before or after a detonation.

TITLE V

This title contains the statutory provisions needed to implement the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation signed in Montreal on September 23, 1971.

OCTOBER 24, 1977.

STATEMENT BY J. J. O'DONNELL, PRESIDENT, AIR LINE PILOTS ASSOCIATION, DURING JOINT PRESS CONFERENCE WITH SENATOR ABRAHAM A. RIBICOFF

I am pleased and honored to share with Senator Ribicoff the announcement of his proposed legislation of an Anti-International Terrorist Act.

Representing the 30,000 members of Air Line Pilots Association, I enthusiastically support Senator Ribicoff's legislation that calls for severe economic, political, and social sanctions on those nations that aid and abet individuals or groups which commit international acts of air piracy.

I applaud the initiative of Senator Ribicoff in development of this timely and strong legislation that provides swift and necessary action for an important and growing international political problem. Its need is obvious following the events of the past week.

The world cannot and must not tolerate air piracy any longer.

[Due to mechanical limitations, the hijacking list will appear in a subsequent edition of the RECORD.]

Mr. RIBICOFF. Mr. President, I ask unanimous consent that the Omnibus Anti-Terrorism Act of 1977 be referred to the Committee on Governmental Affairs, and that when the bill is reported by the Committee on Governmental Affairs, it be referred to the Committee on Foreign Relations for a period not to exceed 30 days.

The PRESIDING OFFICER. Without objection, it is so ordered.

STATEMENT OF LISBETH KAMBORIAN GODLEY, DEPUTY ASSISTANT SECRETARY FOR ADMINISTRATIVE AND LEGISLATIVE POLICY, INDUSTRY AND TRADE ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Introduction and Background

I am delighted to appear before this Committee to discuss the activities of the Department of Commerce in response to the growing problem of terrorism.

In August 1976 the Department of Commerce, at the request of the Chairman of the Working Group of the President's Cabinet Committee to Combat Terrorism, undertook to help American companies deal with terrorism as it affects their operations at home and abroad. This initiative was prompted by an increasing number of terrorist attacks against business, and by the need of the business community for coordinated government assistance to meet this threat.

Explanation of Current DOC Program

In November 1976 the Department of Commerce established a small unit on terrorism within the Domestic and International Business Administration, now known as the Industry and Trade Administration. The Commerce unit -- in attempting to improve the business community's ability to deal with terrorism -- responds to specific inquiries and requests for information, acts as the point of contact between business and other Federal agencies dealing with terrorism, and arranges background briefings and conferences on the problem for businessmen.

Currently, the Commerce unit gives priority to the development of country profiles, which include the following information:

- o the potential terrorist threat in specific countries
- o chronologies of past terrorist incidents in those countries
- o the policies and attitudes toward terrorism by local authorities
- o data on the socio-economic environment in those countries and their laws pertaining to acts of terrorism

Over 200 multinational corporations have contacted the Commerce unit for assistance. During calendar year 1977 this unit received and processed approximately 900 requests. Most of these have been assessments of the current threat in those countries where terrorism is most prevalent. Examples of other assistance we have provided include:

- o Crisis Management Techniques
  - for example, one company with extensive foreign operations, established a Crisis Management team to deal with acts of terrorism against that company. Commerce was asked to critique their plans.

- o Incident analysis
  - after the assassination of an executive of an American corporation in Northern Ireland last February, several firms asked if the incident constituted the beginning of a terrorist campaign directed against American enterprises
- o Analysis of the psychological effects of terrorism on victims and victimized companies
  - several inquiries have been received on how to minimize the stress of an executive's kidnapping on his family, and how to assist the victim, his family and his company during the readjustment period
- o Techniques for protecting highly vulnerable executives
  - in response to scores of inquiries, we have suggested precautions for businessmen travelling or working abroad
- o Statistical compilations and incident chronologies
  - this type of information is used to show intensity and trends of terrorist activities

In addition, Commerce has been asked on a number of occasions by industry to sponsor orientations, symposia, and conferences on terrorism for businessmen and their dependents. Based on our experience over the past 14 months in responding

to these requests, we have concluded that the business community ought to develop its own programs using information collected by government agencies. We now are exploring how best to share this knowledge and information with them. We will be coordinating these efforts with the Working Group of the NSC Special Coordination Committee.

Until Commerce established its unit there was no central point of contact in government for companies to obtain information on terrorism. Our experience has underscored the need in government for an information clearinghouse. In our opinion, the need for these services has been demonstrated by the steady increase in inquiries during the past year.

Current Authority to Impose Export Controls to Prevent International Terrorism

Another important function I would like to mention at this time is the statutory responsibilities of the Secretary of Commerce under the Export Administration Act of 1969, as amended.

Section 3(8) of this Act sets forth U.S. policy with respect to the use of export controls to encourage other countries to take immediate steps to prevent the use of their territory or resources to aid persons involved in acts of international terrorism. That section directs the President to make every reasonable effort to secure the removal or

reduction of such assistance to international terrorists through international cooperation and agreement before resorting to the imposition of export controls. The President's authority to secure international cooperation in this area has been delegated to the Secretary of State. The actual imposition of export controls to achieve this policy is the responsibility of the Secretary of Commerce.

Comments on S. 2236

The Department of Commerce endorses the general intent of the "Omnibus Anti-Terrorism Act of 1977," to enable the United States to deal more effectively with terrorism. However, we believe that the recent establishment of the new NSC Special Coordination Committee Working Group makes the Council to Combat Terrorism as proposed in Title I of S. 2236 unnecessary. On the other hand, if such a Council is established, we strongly recommend adding the Secretary of Commerce to its membership.

The Department of Commerce is a member of the NSC Special Coordination Committee's Working Group on Terrorism. We have found that this inter-agency Working Group is especially useful as a forum for exchanging information and ideas and for expediting coordination between agencies.

Further, Section 106(b) of Title I is of particular interest to Commerce. We support the general concept of

imposing sanctions, but believe that the Export Administration Act of 1969, obviates the need for additional legislation in this area. The present law already provides for the possible imposition of export controls to combat other countries' support of terrorism. Moreover, Section 3(8) of that law, allowing the President to make other efforts before the imposition of export controls, reflects an awareness of the need for seeking multilateral coordination before resorting to unilateral action.

Conclusion

In closing, I believe that the Department of Commerce has been responsive to business needs and is making a contribution to combatting terrorism. I do, however, want to reiterate that there continues to be a need for government assistance and that the Department will do whatever it can to help the business community cope with this growing and serious problem.

That concludes my testimony. I will be glad to answer any questions.

STATEMENT ON S.2236, THE OMNIBUS ANTITERRORISM ACT OF 1977, BEFORE THE SENATE COMMITTEE ON GOVERNMENTAL AFFAIRS, JANUARY 27, 1978

John F. Murphy
Professor of Law
University of Kansas
School of Law

Mr. Chairman, I appreciate the opportunity to appear before this Committee today to give my views on S.2236, the Omnibus Antiterrorism Act of 1977. As one who has himself attempted to cope with the problem of terrorism, I also appreciate the importance that sponsors of this bill have assigned to efforts to prevent and punish these criminal acts which violate fundamental human rights and which constitute a serious threat to democratic principles and to minimal world order.

I believe the Committee has a copy of the Report on "Legal Aspects of International Terrorism,"* which was submitted to the Department of State on September 1, 1977. Professor Alona E. Evans and I served as editors of and contributors to this Report. Because of the Report's length, and in an effort to focus discussion on the Report, Professor Evans and I have prepared a paper, "Legal Aspects of International Terrorism: The Trees and the Forest," which gives our individual views as

*"Legal Aspects of International Terrorism," a Study prepared for the Department of State by a Working Group of the American Society of International Law and edited by Alona A. Evans and John F. Murphy (Spetember 1, 1977).

to those conclusions and recommendations of the Report we regard as especially worthy of consideration. With the permission of the Chairman, and for the record, I would like to submit this paper along with my statement.

Because of its length and the complexity of the subject it addresses, S.2236 does not lend itself easily to concise comment. Let me attempt such comment, however, by focusing on those provisions of the bill which appear especially meritorious or which raise possible problems the Committee may wish to consider.

High Priority and Reorganization of the Executive Branch to Combat Terrorism

I agree emphatically with the finding of the bill that "the assignment of a high priority in the executive branch to United States policy for combatting such terrorism is imperative." Frankly, it has been my impression, as well as the impression of many more familiar with the inner workings of government than I, that at least in the recent past the executive branch has assigned a low priority to combatting terrorism and that the attention of high ranking officials to this problem has been limited to ad hoc reactions to individual incidents as they arise. To be sure, government officials now assure us that this high level inattention is a thing of the past; that U.S. policy is no longer merely reactive and involves long range planning. However, one may be permitted a measure of skepticism.

To implement its intent that efforts to combat terrorism be given a high priority in the executive branch, the bill would

require a substantial reorganization of the Executive Office of the President, the Department of State and the Department of Justice. I am informed that the executive branch opposes such reorganization on the ground that existing structure is adequate. Since I am not an expert on public administration, I will refrain from expressing an opinion as to the correctness of this assertion. I would suggest, however, that the Committee may wish to examine this issue closely. The executive branch also opposed reorganization of the Department of State in the human rights area on the ground that the existing structure was adequate.[1] It may therefore be useful for the Committee to review the effectiveness of the institutional arrangements for human rights and to explore whether experience in that area may hold lessons for the proper institutional approach to terrorism.

Defining Terrorism

Section 5 of the bill attempts to do what the world community (as well as scholars in the field) has consistently failed to do: define terrorism. In United Nations deliberations on the problem, the aphorism, "One man's terrorism is another man's heroism," has prevailed. For its part Congress in previous legislation[2] has declined to define terrorism, and Representative Wolff has suggested that "...in the end, I fear that the definitions of international terrorism are similar to Supreme Court Justice Potter Stewart's comment on obscenity when he said 'I know it when I see it'".[3]

Nonetheless, it may be useful to attempt at least a rudimentary definition of terrorism for purposes of this bill, as long as it does not purport to be exhaustive. In this regard, it is noteworthy that Section 5(a) of the bill contains the key language "includes but is not limited to," in order to indicate that the scope of the following definition is not intended to be exhaustive.

It also is noteworthy that the definition of terrorism in the bill, although intended to describe "criminal" acts, would not be the basis for criminal liability under United States law. If it were, the inherent vagueness of the concept of terrorism might create constitutional problems. At any rate I favor the view that the term "terrorism" should not be employed in United States criminal law and that the subject should be approached in terms of identifying actors, targets and circumstances which should give rise to criminal liability. This is the approach taken to date by United States federal criminal law with respect to targets deemed vital to international intercourse, such as aircraft and diplomats.[4]

As presently drafted, the definition of terrorism in Section 5 is somewhat imprecise. To note the missing preciseness is easier than to supply it. But at a minimum the definition should specify that, for purposes of the bill, the acts covered are those of individuals and not those of countries, in order to ensure that so-called state terrorism is not included within the scope of the definition. State terrorism is a singularly ambiguous term and refers to actions by countries which constitute

violations of international human rights and the laws of war. These actions are best dealt with by laws relating specifically to human rights and armed conflict.

Another important element of any definition of terrorism, which distinguishes it from such common crimes as murder, assault, kidnapping or hijacking, is the goal of the terrorist, namely, to damage the interests of or obtain concessions from a country or international organization. Thus, for example, the hijackers of the Lufthansa airplane to Mogadishu, Somalia demanded that the Federal Republic of German pay a ransom of fifteen million dollars and arrange for the release of eleven political prisoners from West German jails and two from Turkish jails. The immediate or instrumental targets of the terrorists were the airplane and its passengers. But the primary target was the West German Government whose interests the terrorists sought to damage and from whom they sought concessions.

Similarly, terrorist kidnapping of an American businessman and a demand for ransom directed to the business of which the victim is an employee involves the victim and the firm as immediate or instrumental targets and the government of the host country and that of the United States as primary targets, since a primary goal of the terrorists is to damage the interests of the host country and those of the United States by undermining the business climate in the host country and by obtaining funds to finance resolution against the government in power.

In a specific instance of terrorism, the instrumental and primary targets may be the same. Examples would be the assasination of a government official or the bombing of a government building.

Hence, with some trepidation, I would suggest that paragraph (a) of Section 5 of the bill be revised so as to read:

> (a) "terrorism" includes but is not limited to the intentional use of violence or the threat of violence by private persons in order to damage the interests of or obtain concessions from a government or international organization through instilling fear, intimidation or coercion; and

Paragraph (b) of Section 5 also attempts a task the world community (as well as scholars) have failed to accomplish: to distinguish "international" from "domestic" terrorism. As it stands, "international terrorism" is imprecise because it is used most often to refer to the acts of individuals rather than to the actions of countries or government officials. As a result, some have employed the term "transnational terrorism" when referring to the acts of individuals who are not controlled by a sovereign nation.

In any event, at a minimum, international terrorism involves the interests of more than one country. This international dimension may be supplied by the location of the terrorist conduct; the political objectives of the terrorists; the nationalities of the terrorists and their victims; the nature of the targets (e.g., aircraft or diplomats); or the flight of a terrorist across international boundaries.

Accordingly, again with trepidation, I would suggest a revision of paragraph (b) along the following lines:

(b) "international terrorism" is terrorism transcending national boundaries and involving the interests of more than one country. The international dimension of terrorism may be found by reference to the following factors: the place(s) where the terrorist act(s) occurs; the political objectives of the terrorists; the nationalities of the terrorists and of their victims; the nature of targets chosen; and the flight of a terrorist across international boundaries.

In its present form, Section 5 omits one very important definition, namely, that of "aiding and abetting" as this concept applies to governmental support of terrorism. These terms are subject to varying definitions under United States criminal law, and their scope for purposes of this bill should be clarified. Defined and applied expansively, these terms could cast a wide net. For example, Saudi Arabia furnishes substantial financial support to the Palestine Liberation Organization, some of whose members have engaged in terrorist acts. I assume that most if not all would agree, however, that Saudi Arabia should not therefore be classified under this bill as aiding and abetting terrorism.

Thus, for purposes of this bill, aiding, abetting or facilitating terrorism should be defined narrowly to cover only those countries which intentionally and directly contribute to terrorism. Examples would be furnishing arms with the intention and expectation that they would be used in terrorist acts; recruiting and training persons for terrorism; planning and assisting in the execution of terrorism; and providing safe-haven and sanctuary from prosecution for terrorists.

In order to accomplish this, a new paragraph (c) along the following lines might be added to Section 5:

> (c) "aiding, abetting, facilitating, or otherwise assisting terrorism" is limited to the intentional commission of the following acts: furnishing arms to private persons with the expectation that they will be used for terrorism; recruiting and training persons for terrorism; planning and assisting in the execution of terrorism; and providing safe-haven or sanctuary from prosecution to the perpetrators of terrorist acts.

Report on Terrorist Enterprises and List of Countries Aiding Terrorist Enterprises

In my opinion, Section 104's requirement that the President submit a report to Congress regarding an act of terrorism involving citizens of the United States is especially meritorious. As a general matter, I strongly favor maximizing informational interchange between Congress and the executive branch in the conduct of foreign policy,[5] and terrorism is an area where the "need to know," of both Congress and the public, is substantial. Such reports from the President would be particularly useful in cases where the executive branch's handling of an incident was controversial.

To this same end I favor Section 105's requirement that the President prepare and submit to Congress a List of Countries Aiding Terrorist Enterprises (LOCATE). More emphasis should be placed on pointing out those countries supporting terrorist activities in that this would serve both to educate the public further about the problem of terrorism and to bring the pressure

of publicity to bear against the governments of those countries which fall into this category.

I would suggest certain revisions in paragraphs (e), (f) and (g) of Section 105. With respect to paragraph (e), I believe that the name of a country should not be added to the LOCATE over the objection of the executive branch unless both Houses of Congress pass a resolution to this effect. Presumably this kind of conflict between Congress and the executive branch would seldom arise, but if it did, it would likely involve a situation where the executive branch believed that adding a country's name to the list would interfere with delicate negotiations currently in progress with that country. In such a situation, at a minimum, a majority vote of both Houses should be required to override the President's wishes.

In paragraph (f) there appears to be no sound reason for requiring a country's name to be on the list for a year before the President can request its removal. Anytime a country has indicated to the President's satisfaction that it has ceased its support for terrorism, the President should be able to request removal from the list.

As to paragraph (g), in line with my comments on paragraph (e), I would suggest that the President's request for removal of a country's name from the list be acted upon favorably unless both Houses of Congress by resolution disapprove that request.

Sanctions Against Countries Aiding Terrorist Enterprises

Section 106, with its provisions for sanctions against countries aiding terrorist enterprises, is likely to be highly controversial. Most controversial will be paragraph (a) of Section 106, under which the President would be required to impose automatically sanctions against any country listed on the LOCATE. In my opinion, this would be highly undersirable.

It is useful to consider a tentative list of countries against which these sanctions--including, most particularly, the suspension of commercial air service--would automatically be imposed. At a minimum the list would probably include such Communist countries as the Soviet Union, East Germany, Czechoslovakia, Bulgaria, Romania, the People's Republic of China, North Vietnam, North Korea, and Cuba, as well as such non-Communist but "revolutionary" countries as Algeria, Libya, Tanzania, Zambia, the Republic of the Congo (Brazzaville), Zaire, the Popular Democratic Republic of Yemen, Iraq, and Syria.[6] Brian Crozier, a British expert on international terrorism, has identified the Soviet Union as the greatest of the "subversive centers," i.e., countries that provide assistance to subversive or terrorist groups who carry out their terrorist activities in other countries. I submit to the Committee that the application of automatic sanctions to the Soviet Union per Section 106 would be immensely harmful to vital United States interests.

As this Committee is aware, legislation already exists that would enable the United States to impose a variety of

economic sanctions against countries aiding and abetting terrorism. For example, the Antihijacking Act of 1974 authorizes the President to suspend civil air traffic with any foreign nation that does not abide by the Convention for the Suppression of Unlawful Seizure of Aircraft (Hague Convention), or that otherwise aids and abets terrorist groups, or with any other nation that continues to provide air service to a nation encouraging hijackers.[7] Also, Section 620A of the Foreign Assistance Act of 1961, as amended, requires termination of military and economic assistance to any country granting sanctuary from prosecution to terrorists unless the President determines that national security considerations justify the continuance of such aid, in which case he must file a report with Congress stating the reasons for his decision.[8] Section 115 of Public Law 95-52, the "Export Administration Amendments of 1977," amends Section 3 of the Export Administration Act of 1969 by adding at the end thereof the following new paragraph:

> (8) It is the policy of the United States to use export controls to encourage other countries to take immediate steps to prevent the use of their territory or resources to aid, encourage, or give sanctuary to those persons involved in directing, supporting, or participating in acts of international terrorism. To achieve this objective, the President shall make every reasonable effort to secure the removal or reduction of such assistance to international terrorists through international cooperation and agreement before resorting to the imposition of export controls.

Finally, Public Law 95-118, the Omnibus Multilateral Development Institutions Act of 1977, in Section 701(a)(2) and (f) requires that United States Executive Directors of these lending institutions oppose any loan or other form of financial or technical assistance to any country that offers sanctuary to individuals hijacking airplanes, "unless such assistance is directed specifically to programs which serve the basic human needs of the citizens of such country."

None of these provisions requires the automatic imposition of sanctions with no "escape clause" available to the executive branch. Under the Antihijacking Act and the Export Administration Act the executive branch has unfettered discretion to decide whether, and if so to what extent, to impose sanctions. In the case of the Foreign Assistance Act and the Omnibus Multilateral Development Institutions Act, although its discretion is limited, the executive branch can avoid the imposition of sanctions if it finds the existence of certain circumstances.

Even in the related area of human rights, legislation has not provided for the automatic imposition of sanction 5. Section 116 of the Foreign Assistance Act of 1961, as amended, prohibits the provision of development assistance to any country that engages in a consistent pattern of gross violations of internationally recognized human rights, unless such assistance will directly benefit the needy people in such country.[9] Section 502B of the same Act applies to all "security assistance" including military aid, military training, sales of defense implements or services, the extension of credit

or loans for the purchase of weapons, and any license for the export of defense articles or services:

> It is further the policy of the United States that, except under circumstances specified in this section, no security assistance may be provided to any country the government of which engages in a consistent pattern of gross violations of internationally recognized human rights.[10]

Reprotedly, the Administration has threatened or halted United States assistance to a number of countries under this or other relevant legislation.[11] Moreover, Congress on its own initiative has enacted legislation which has limited or eliminated assistance to several countries.[12]

A discussion of the human rights policy of the Administration, including the imposition of economic sanctions, is beyond the scope of this statement. It is worth noting, however, that recent legislation in the human rights area appears to rely less on the sanctions approach and more on providing incentives for countries to improve their human rights record. For example, Section 701(a) of the Omnibus Multilateral Development Institutions Act of 1977 provides that the United States Government shall seek to channel the assistance of international lending agencies towards countries other than those that engage in consistent patterns of gross violations of human rights.[13] Section 111(e) of the International Development and Food Assistance Act of 1977 earmarks $750,000 for studies and for carrying out programs and activities which will encourage increased adherence to civil and political rights set forth in the Universal Declaration of Human Rights, in countires eligible for assistance under the Act.[14] And in the

Export-Import Bank Amendments of 1977 Congress rejected amendments that would have mandated the bank to deny any loan or financial assistance going to a country that is violating the basic human rights of its citizens.[15] Rather, the provision adopted requires the Board of Directors of the Bank to take into account the "observance of and respect for human rights in the country to receive the exports...and the effect such exports may have on human rights in such country."[16]

There is, of course, the crucial question whether unilateral sanctions are useful in combatting terrorism. I am among those who are skeptical about such sanctions, and I have tried to support this view in the chapter on "State Self-Help and Problems of Public International Law," Volume II, Part III(5) of our Report. Many of the countires that would be potential targets of these sanctions do not even maintain air transport relations with the United States, and U.S. military and economic aid to such countries is limited or even absent entirely. Also, as United States experience with the Hickenlooper Amendment vividly demonstrates, other countries are likely to react strongly and negatively in response to United States' attempts to impose economic sanctions against them.[17]

It has recently been contended that experience under the Hickenlooper Amendment is not apposite because that Amendment was designed to protect only parochial U.S. interests and to elevate a predominantly U.S. view to a supposedly international

norm.[18] By way of contrast, the argument continues, legislative provisions that would impose unilateral economic sanctions against countries aiding terrorists are an "expression of...a truly global outrage at the threat of terrorism" and serve "actively to advance the emerging international norm condemning terrorism."[19]

With respect, I believe this distinction is more apparent than real. While there may be a "global outrage at the threat of terrorism," this is of little practical significance, because there is no worldwide agreement on the definition of terrorism. On the contrary, many countries, probably a majority, believe that individual acts of international terrorism are a minor threat to human rights and minimum world order as compared with other threats such as state terrorism. As noted previously, state terrorism is a term fraught with ambiguity. According to the ideological viewpoint, state terrorism may be defined to include, among other things, torture, apartheid, Israeli practices on the West Bank, U.S. actions in Vietnam, or the excesses of General Amin. Because of the world community's failure to define the subject, one must be skeptical whether there is any "emerging international norm against terrorism."

It has been suggested further that the major benefit of sanctions legislation is symbolic, i.e., "its firm underscoring of the U.S.'s commitment to the antiterrorism cause."[20] I would suggest that the constant efforts of the United States in the United Nations, the International Civil Aviation

Organization and other international fora, as well as in bilateral and multilateral negotiations, towards combatting international terrorism should leave no fair minded person or country with any doubts as to the strength of the United States's commitment.

More important, one may ask whether unilateral imposition by the United States of sanctions may appear to many countries to be symbolic of something other than that of leadership in the antiterrorism cause. To some these sanctions may be still another example of the United States wielding its economic power against Third World countries in order to force them to act as the United States dictates. The sensitivities of the developing countries in this area are well known.

There seems to be general agreement that unilateral imposition of sanctions would have little practical effectiveness, at least in the short term, in combatting terrorism. It is possible, however, that such sanctions would be worse than ineffective; they might be, to use a favorite State Department expression, "counterproductive." That is, the reaction of the countries against which sanctions were imposed might be to intensify their support for terrorism. It is worth noting that, in the one case where the Hickenlooper Amendment was applied, Ceylon not only refused to bow to U.S. pressure; it proceeded to expropriate additional assets of the very same companies.[21]

This is not to say that unilateral sanctions should never be applied by the United States against a country aiding

terrorists. It is to say that such sanctions should be taken only as a last resort after all other approaches have been exhausted. In most instances quiet and patient negotiations are likely to be the most fruitful method of coping with this problem, as illustrated by the successful conclusion in 1973 by the United States and Cuba of an agreement which eliminated Cuba as a safe-haven country for hijackers of airplanes and by the recent willingness of Libya to allow Lufthansa security personnel to screen passengers and baggage boarding there.[22]

Moreover, such sanctions should be imposed on an ad hoc basis and only after several variables have been considered. These variables include, among others, the effectiveness, if any, of such sanctions in inducing the target country to change its policies; the likely effect imposition of sanctions will have on overall U.S. relations with the target country and with third party countries (will other countries rally to the side of the target country?); the costs of imposing such sanctions (e.g., denial of access to energy resources, eliminating safe-havens as a concern to terrorists if they agree to release hostages). The problem of terrorism is important. It is not, however, the only, nor necessarily the most important, factor to be taken into account in the decision making process in every instance.

There remains the important question of who is to make the final decision on whether to impose sanctions against countries aiding terrorists--the executive branch or Congress? In my opinion, every effort should be made to take such decisions by

agreement after close consultation between the executive branch and Congress. If, in a particular case, agreement is not possible, the final decision should rest with the executive branch, unless Congress decides to override by legislation or by a joint resolution. As this committee is aware, there is a sharp dispute--as yet unresolved by the courts--of the constitutionality of the so-called legislative veto.[23] I will leave it to others to argue this thorney issue. For my part, I will just suggest that, as a policy matter, it would be undersirable for Congress to impose economic sanctions against a country aiding terrorists unless it were to do so by means subject to Presidential veto. Here the Presidents responsibility for the overall conduct of foreign affairs weighs in favor of his making the decision unless two-thirds of both Houses vote to override.

Let me take a moment to discuss the question of multilateral sanctions against countries aiding terrorists. I am not sanguine that global efforts towards sanctions against such countries will be successful, especially in light of the dismal failure of the 1973 Conference of the International Civil Aviation Organization in this regard. Perhaps the possibility of countries with attitudes towards terrorism like that of the United States--i.e., the industrialized countries of Western Europe and Japan--reaching agreement would be greater, but here too there are substantial difficulties. Western Europe and Japan are heavily dependent on some of the possible target countries (most particularly Libya) for energy

resources. Also, for the industrialized countries to band together and impose economic sanctions on Third World countries such as Libya or Algeria might result in strong, united and heated response from Communist and Third World countries. This negative reaction could have a number of undesirable ramifications. Irreparable damage might be done to the delicate negotiations now taking place between the United States and the Soviet Union in the area of arms control. Equally delicate negotiations regarding the Law of the Sea, international trade, monetary affairs, and other subjects between the industrialized countries and the Third World also might be seriously compromised. In short, measured in terms of a cost/benefit ratio, a multilateral imposition of sanctions by the industrialized states might result in a situation where the costs would outweigh the possible benefits. Accordingly, less drastic measures of self-help on the part of the United States, such as the bringing of international claims, diplomatic protests and quiet and patient negotiations would seem preferable as alternative courses of action.

List of and Sanctions Against Dangerous Foreign Airports

The requirement of Section 107 of the bill that the President submit to Congress a List of Dangerous Foreign Airports, as measured by compliance with minimum safety criteria established under the United States Code, would ensure the availability to Congress and the public of important information. Under

Section 108, however, this list also would serve as the basis for automatic sanctions against each unsafe airport. For many of the reasons discussed in the previous section of this statement, such a provision would be undesirable.

In addition, application of Section 108 would result in the imposition of sanctions against airports in many of our closest allies. In 1974, for example, the FAA reported that 18 major airports in Western Europe had lax standards of security.[24]

Moreover, Section 108 is superfluous. Under the Antihijacking Act of 1974, the Secretary of Transportation, with the concurrence of the Secretary of State, is authorized to suspend air service between the United States and any country which does not maintain and administer security standards that are equal to or above the minimum standards set forth in Annex 17 to the Chicago Convention on International Civil Aviation.[25] These provisions have not been invoked to date, because more effective results can be obtained through negotiation and cooperative planning. For instance, the FAA has been working with foreign countries to help develop effective security systems and to train their security personnel.[26] The FAA also makes periodic visits to foreign airports in order to ensure the maintenance of effective security by United States air carriers.[27] This is not to say that the FAA is doing all it might do in this area. On the contrary our Report recommends that the FAA should pursue with increased vigor its efforts to encourage the improvement

of airport security at foreign airports. It is to suggest that the cooperative rather than the confrontational approach is likely to be the most effective in this area.

Further, in this same vein, it is submitted that the development and enforcement of security standards for aircraft and aircraft facilities should be pursued on a bilateral, regional or global basis. Specifically, in the chapter on "Aircraft and Aviation Facilities," Volume I, Part II(1), pp. 66-67, of our Report, it is recommended that bilateral, regional or multilateral treaties should be concluded establishing minimum standards of security for aviation facilities and making attacks on such facilities an international offense. A multilateral treaty might be concluded under the auspices of the International Civil Aviation Organization, and ICAO personnel might serve as inspection teams in order to implement such a treaty.

Priorities for Negotiation of International Agreements

Section 203 of the bill would urge the President to seek international agreement on a high priority basis with respect to several specified subjects. Since this provision in no way commands such action, there is no constitutional problem of interference with the executive branch's prerogatives in the negotiation of international agreements. As to the subjects specified, I believe that these all are important areas. Of special importance perhaps is the need for an international agreement regarding measures to combat possible

terrorist attacks involving nuclear facilities and materials, as referred to in paragraph (4) of Section 203. The chapter on "Nuclear Facilities and Materials," Volume I, Part II(2) of our Report, documents the substantial need for international agreement in this area.

It should be understood that an international agreement in the areas specified by Section 203 need not necessarily take the form of a treaty. In some areas, such as law enforcement and the gathering of intelligence, more informal arrangements than a treaty would be appropriate.

Implementation of Montreal Convention and Extension of Existing Safety and Security Measures Regarding Aircraft and Aviation Facilities

Section 204 and Title IV of the bill contain a variety of provisions which would revise U.S. law and practice so as to bring them into accord with the requirements of the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (the Montreal Convention). Section 303 would extend existing safety and security measures beyond their present coverage. My colleague, Professor Evans, who is one of the world's leading authorities on United States and international law and practice regarding aircraft hijacking and sabotage, was scheduled to testify in person, and I had planned to defer to her expertise. Unfortunately, Professor Evans is unable to be here today because of illness, although she plans to prepare written testimony on the bill as soon as she recovers her health. In Professor Evans' absence I will

attempt a few brief comments on these provisions, while urging the Committee to study Professor Evans' written testimony carefully when it becomes available.

Revision of United States law and practice in order to implement the Montreal Convention is a step that is long overdue. The Montreal Convention is an important supplement to the Convention on Offences and Certain Other Acts Committed on Board Aircraft (Tokyo Convention) and the Convention for the Suppression of Unlawful Seizure of Aircraft (Hague Convention). The Montreal Convention covers acts against aircraft in a country's domestic service, even when the acts take place solely within that country, if the offender escapes to another country. In the words of the head of the United States delegation to the conference which drafted the Montreal Convention: "This convention declares that no one who sabotages a civil aircraft--whether in domestic or international service--no one who places a bomb on board such an aircraft, no evildoer who commits violence aboard such an aircraft in flight, no criminal of this character shall ever find sanctuary anywhere in the world..."[28] United States failure to implement this Convention at the domestic level has left an important gap in enforcement mechanisms with respect to sabotage against aircraft and aircraft facilities.

A problem with security measures concerning aircraft and aircraft facilities in the United States is that they do not reach General Aviation aircraft, i.e., private charters, air taxis,

cargo carriers, or private aircraft. Section 303 of the bill would extend existing safety and security requirements to "supplemental means of air transportation, foreign or domestic, including the charter operations of regularly scheduled airlines, commuter services regulated by [the] Civil Aeronautics Board, and other regularly scheduled interstate or intrastate passenger operations; and to any airport in the United States serving aircraft subject to the above provisions." In addition, we would suggest that airport security programs should be extended to cover General Aviation at the point where general aircraft meet with public air facilities. An extension of such programs to cover all of General Aviation would seem precluded by cost factors. However, General Aviation operators should be encouraged to adapt aviation security controls to their facilities to the extent this is economically feasible.

Defense Sales to Individuals, Groups

Section 205 of the bill would require specific prior approval of the President for the sale and other transactions regarding any defense article or defense service to any individual, group or organization and would prohibit any such transaction with respect to a defense article or service for any country unless that country had agreed not to transfer title to or possession of a defense article or defense service to any other individual, group or organization. As pointed out by the chapter on "New Vulnerabilities and the Acquisition of New Weapons by Nongovernmental Groups," Volume II, Part II(4),

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of our Report, the massive trade in arms provides terrorists with many opportunities to acquire sophisticated weapons. However, the issue of the arms trade is one that involves a number of complex factors besides that of potential benefit to terrorists, and perhaps should be considered in the context of debates on international security assistance and arms control.

Moreover, I would urge the Congress, either in the context of this bill or in some other appropriate forum, to consider the recommendations for congressional action in this area submitted in our Report. Brian Jenkins, the co-author of these recommendations, who also is testifying this morning, is the best person to present and elaborate upon them.

Other Possible Legislative Actions

A. Terrorism on the Oceans

In the chapter on "Ocean Vessels and Offshore Structures," Volume I, Part II(3), pp. 48-49, of our Report, there are a number of recommendations for revision of the U.S. Code so as to fill various jurisdictional lacunae that currently exist with respect to possible terrorist attacks on ocean vessels or offshore structures. In order to limit the length of this already too lengthy statement, I will not summarize these recommendations here. It should be noted, however, that completion of these revisions of legislation would help the Department of state to negotiate bilateral or multilateral treaties requiring either extradition or prosecution

for those criminal acts committed on or against vessels or offshore structures.

B. Law Enforcement

A primary problem identified by U.S. law enforcement officers is that executive and legislative guidelines concerning the scope of their permissible activities in combatting terrorism, especially in the key area of gathering information about terrorists and their activities, are ambiguous and should be clarified by executive order or by legislation. Specifically, as noted in the chapter on "Practical Problems of Law Enforcement," Volume II, Part III(4) of our Report, Executive Order No. 11905, which relates to foreign intelligence activity covering United States citizens, aliens admitted to the U.S. for permanent residence, and corporations or other organizations incorporated or organized in the United States, fails to define key terms. It is recommended that Congress and the executive branch consult with a view to supplying these definitions and to ensuring that they provide law enforcement and security officials with appropriate authority and adequate guidelines to discharge their responsibilities to combat terrorist activities.

Similarly, the chapter's analysis of both the Privacy Act of 1975 and of the Freedom of Information Act discloses ambiguities of concern to law enforcement officials. These should be resolved in order to avoid imposing unnecessary and undue restrictions on antiterrorist law enforcement activities.

FOOTNOTES

1. International Protection of Human Rights: The Work of International Organizations and the Role of U.S. Foreign Policy: Hearings Before the SubComm. on International Organizations Movements of the House Comm. on Foreign Affairs, 93d, Cong., 1st Sess. 817 (1974).

2. Most particularly, in Section 620A of the Foreign Assistance Act of 1961, as amended, 22 U.S.C.A. § 2371(a)(b).

3. Hearings on H.R. 11963 Before the House Comm. on International Relations, 94th Cong., 1st & 2d Sess. 685 (1976).

4. For a consideration of the confusion generated by use of the term terrorism, see Baxter, A Skeptical Look at the Concept of Terrorism, 7 U. AKRON L. REV. 380 (1974). At the state level, the term has on occasion been used to define criminal liability. See Validity and Construction of "Terrorist Threat" Statutes, 58 A.L.R. 3d 533 (1974).

5. Murphy, Knowledge is Power: Foreign Policy and Informational Interchange Among Congress, the Executive Branch, and the Public, 49 TULANE L. REV. 505 (1975).

6. See Brian Crozier, Terrorism: The Problem in Perspective, (March 25, 1976) (Presented to the Department of State Conference on International Terrorism).

7. 49 U.S.C.A. § 1514.

8. 22 U.S.C.A. § 2371(a)(b).

9. 22 U.S.C.A. § 2151n(a).

10. Id. § 2304(a)(2).

11. See Recent Human Rights Legislation and Its Implementation, Staff Report of the Senate Committee on Foreign Relations, 123 Cong. Rec. 19420 (daily ed. Dec. 7, 1977).

12. Id.

13. Pub. L. No. 95-118.

14. Pub. L. No. 95-88.

15. House Comm. on Banking, Finance and Urban Affairs, Extending and Amending the Export-Import Bank Act of 1945, H.R. Rep. No. 95-235, 95th Cong., 1st Sess. 4-5 (1977).

16. Section 2, Pub. L. No. 95-143.

17. LILLICH, THE PROTECTION OF FOREIGN INVESTMENT 117-146 (1965).

18. Lillich & Carbonneau, The 1976 Terrorism Amendment to the Foreign Assistance Act of 1961, II J. INT'L L. AND ECON. 223, 225 (1977).

19. Id.

20. Id. at 226.

21. LILLICH, supra note 17, at 143.

22. N.Y. Times, Nov. 9, 1977, at A3, col. 1.

23. The United States Supreme Court currently has before it the issue of the so-called "one-house veto." N.Y. Times, Jan. 9, 1978, at A14, col. 3. For conflicting views on this subject, compare Abourezk, The Congressional Veto: A Contemporary Response to Executive Encroachment on Legislative Prerogative, 53 IND. L. J. 323 (1977) with Rovine, Separation of Powers and International Executive Agreements, Id. at 398, 421.

24. Montreal Star, Oct. 17, at A15, col. 1.

25. 49 U.S.C.A. § 1515.

26. Evans, "Aircraft and Aviation Facilities," I LEGAL ASPECTS OF INTERNATIONAL TERRORISM, Part II (1), 1-22 (Sept. 1, 1977).

27. Id.

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CAAA SUPPORTS THE INTENT OF S. 2235, BUT DOES NOT SUPPORT SECTION 303

The Commuter Airline Association of America commends the committee's work to combat international terrorists' acts such as airline hijackings; however, the CAAA takes issue with Section 303 of the proposed legislation which would extend full anti-hijacking and security provisions to commuter services and airports. In the first place, the risk of hijackings at commuter facilities is small. Commuter aircraft are not likely targets for such attacks due to their extremely limited range. Secondly, the expense of implementing full-scale security programs at such small facilities would create an onerous if not impossible burden on local communities and commuter carriers which would be unjustifiable in light of the limited volume of traffic they generate. The result would be the loss of all passenger air service to many of the nation's smaller communities.

The focus of S. 2236 is the prevention of international terrorism. In view of the alarming increase in terrorist acts throughout the world, such measures as those proposed in the Omnibus Antiterrorism Act of 1977, are needed to insure the safety of the traveling public. Extending full-hijacking and security procedures to commuter activities and airports is really outside the scope of this Bill. As Secretary Adams testified: "In strengthening security, we must continually be aware that the problem is extremely complex." He went on to point out that security requirements for a small airport served by a commuter airline need not be the same as those requirements at larger airports.

Last October, the Senate Commerce Committee voted out a bill which would fundamentally reform the economic regulation of the airline industry. The committee report contains extensive praise for the commuter airline industry. ". . . . (C)ommuter air carriers have been providing outstanding service to many small communities through-

out the country . . . the success of such services has been remarkable." Commuter carriers have been successful in specializing in service to small communities because they are able to operate at significantly lower costs than the certificated carriers.

The proposed new requirements would be extremely costly to commuter airlines and would not advance the public's interest in safe and secure air travel one iota. As stated earlier, the Commuter Airline Association strongly supports measures to insure the security of the traveling American public and this testimony is not meant to undermine current security procedures. The objections presented by the CAAA are by no means meant frivolously or with any disregard for the realistic security needs of the traveling public and carriers.

THE COMMUTER AIRLINE INDUSTRY

In 1977, approximately 250 commuter airlines carried over 8 million passengers and over 420 million pounds of cargo and mail in service to over 617 communities throughout the United States.

The CAB classified the scheduled air taxis as commuter air carriers in 1969. Commuters are restricted by regulation to fly aircraft of less than 30 passenger seats or 7,500 pounds payload capacity. Despite having two commuters become certificated 401 carriers, the commuter airline industry has experienced an average annual growth rate of 9.5% in passenger service and 30.5% in cargo service. The growth rate for all CAB certificated carriers in scheduled domestic service was 5% per year over the same period.

Commuter airlines do not receive subsidy to provide service to isolated communities nor are they eligible to finance aircraft under the "Government Guarantee Equipment Loans Act." Small community airports served by these carriers are not eligible for the same level of funding for runways, equipment, facilities and terminals as those served by the major airlines. In other words, the brunt of the costs needed to provide full hijacking and security provisions to commuter services and airports would be put on the shoulders of the commuter carriers and the small airports they serve.

COMMUTERS' SECURITY RECORD

Since 1961, the FAA has kept extensive records on hijackings of U.S. registered aircraft. Of the 183 hijackings in the FAA files, only three have in any way involved commuter air carriers. There has not been a single incident involving commuter air carriers in over five years.

Clearly Section 303 of S. 2236 is designed to solve a problem that does not exist.

The FAA has worked with commuters to develop effective security programs designed to meet the needs of the carriers and the communities they serve. At some locations the commuter and the community have decided to voluntarily follow the FAA full-hijacking and security procedures.

In addition, whenever a commuter flies into a secure airport all of the passengers connecting with a certificated carrier pass through that carrier's security. Obviously, the current procedures have been effective.

COST OF IMPLEMENTING SECTION 303 1/

The markets served by commuters are relatively thin in terms of passenger volume. Consequently, the per passenger cost of full-hijacking and security procedures would have a severe impact on commuter airline services. Considering the fact that all carriers have been burdened by increasing costs, the further cost of additional security would have a dampening effect on the volume of air travel. The end result may well be a termination of service to a large percent of the nation's small communities.

In light of the outstanding security record of the commuter airline industry, the costs of implementing full-hijacking and security procedures are not justifiable in terms of security need.

The CAAA wishes to stress that in testifying against Section 303 we do not mean to obstruct the security objectives of the FAA. Indeed, the FAA's security programs vis'-a-vis' commuter air carriers has been effective and merits public approbation. CAAA fully supports realistic programs designed to meet the security of the traveling public and the carriers.

1/ The Commuter Airline Association of America is currently conducting an extensive survey of its membership to develop cost estimates of implementing full-hijacking and security procedures. CAAA will make the results available to the Committee.

STATEMENT OF
MUNZ NORTHERN AIRLINES, INC.
BEFORE THE GOVERNMENTAL AFFAIRS COMMITTEE
OF THE UNITED STATES SENATE

During the past several weeks, the Committee on Governmental Affairs has been holding hearings on S. 2236, the "Omnibus Anti-terrorism Act of 1977". As we understand it, the record will remain open until March 1, 1978 for the receipt of written comments on this bill. In this regard, Munz Northern Airlines, Inc. (Munz Northern) submits the following comments on S. 2236, and it is requested that they be made a part of the record of these hearings.

Munz Northern is an air carrier providing service within Alaska to more than a score of small "bush" points served out of Nome and Kotzebue with small aircraft (predominantly 9 passenger Britten-Norman Islanders) pursuant to both a certificate of public convenience and necessity and Part 298 of the Civil Aeronautics Board's Economic Regulations.

In recognition of the special circumstances affecting air service within Alaska, the Congress enacted, in P.L. 94-353, a specific exemption for airport security in Alaska which authorizes the FAA Administrator to exempt, from the provisions of Sections 315 and 316 of the Federal Aviation Act, airports in Alaska which receive service only from certificated air carriers which operate aircraft having a maximum certificated gross take-off weight of less than 12,500 pounds and do not enplane any passenger or property to be carried in the cabin which is moving in

interstate, overseas, or foreign air transportation and which will not be subject to security screening before leaving Alaska. In addition, Section 315(b) authorizes the Administrator to exempt commuter air transportation operations from the otherwise applicable requirements pertaining to passenger screening set forth in Section 315 of the Act, once again recognizing the importance of granting the FAA discretion in implementing its security requirements for commuter operations.

Section 303 of S. 2236 would, if enacted, have the unwarranted effect of eliminating this discretion by imposing the "safety and security requirements of Title 49, United States Code", to "commuter services" or "other regularly scheduled interstate or intrastate passenger operations; and to any airport in the United States serving aircraft subject to the above provisions". In this regard, Munz Northern is unaware of any incident within Alaska which would support the need for imposition of these requirements to presently exempted services within Alaska, services which were exempted by the Congress only nineteen months ago!

The simple fact of the matter is that at, for example, many of the "bush" points served by Munz Northern, it simply would not be possible for these "airports" to comply with all of the security requirements without incurring substantial unnecessary costs which would have to be passed on to Munz Northern's passengers. Indeed, at most of the points served by Munz Northern, there are no law enforcement personnel whatsoever, and such personnel would have to be hired for the sole purpose of servicing Munz Northern's flights --

an expense which could never be covered by the small number of passengers serviced by Munz Northern at these points and which would, in turn, result in the cessation of service to these points. Furthermore, most "bush" airports are strips of open land or snow which are not fenced or even capable of being fenced effectively in deep snow.

In short, Munz Northern submits that it would be particularly unwise to remove the FAA Administrator's discretion to devise flexible regulations for use with regard to Alaskan air transportation. As was quite correctly pointed out by Secretary of Transportation Adams in his testimony of January 25, 1978 before this Committee, devising appropriate security standards for air transportation "is extremely complex" and "security requirements for a small airport serving commuter airlines which board fewer than half a dozen passengers per flight need not be the same as those required at larger airports." Accordingly, Munz Northern strongly urges that Section 303 of S. 2236 not be enacted.

Munz Northern appreciates this opportunity to provide these comments to the Committee on S. 2236 and its implications for Alaskan air service, and would be pleased to respond to any questions the Committee or its staff might have concerning these comments.

STATEMENT OF
ROCKY MOUNTAIN AIRWAYS, INC.
BEFORE THE GOVERNMENTAL AFFAIRS COMMITTEE
OF THE UNITED STATES SENATE

Recently, the Governmental Affairs Committee has been conducting hearings on S. 2236, the "Omnibus Antiterrorism Act of 1977". In this regard, we have been informed that the record is to remain open until March 1, 1978 for the receipt of written statements concerning this proposed legislation. Accordingly, Rocky Mountain Airways, Inc. (Rocky Mountain) submits the following comments on S. 2236, and it is requested that this statement be made a part of the record of these hearings.

Rocky Mountain is a commuter air carrier providing scheduled air service pursuant to Part 298 of the Civil Aeronautics Board's Economic Regulations and Part 135 of the Federal Aviation Regulations. This service is provided entirely within the State of Colorado between Denver and several recreation destinations, including Aspen, Vail/Eagle, Steamboat Springs, Craig and Granby/Winter Park. As a consequence of the nature of Rocky Mountain's operating authority and the action of the Federal Aviation Administration acting pursuant to the exemption authority for commuter air carrier services presently provided in Section 315 of the Federal Aviation Act, as amended (49 U.S.C. § 1356), Rocky Mountain's operations to the small airports serving these

recreation destinations are not presently burdened by the extensive and expensive reach of the Federal Aviation Administration's security program.

Unfortunately, if S. 2236 were enacted as presently drafted, Section 303 of that bill would require that the "safety and security requirements of Title 49, United States Code," would be imposed both upon Rocky Mountain and upon each of the airports which it serves. For the reasons set forth below in greater detail, Rocky Mountain submits that mandatory extension of these "safety and security" requirements to either Rocky Mountain or the airports which it serves is unnecessary and unwarranted, and that portion of Section 303 encompassing operations such as those conducted by Rocky Mountain should, therefore, be eliminated from S. 2236.

At the outset, it is particularly important to remember that the exemption in the Act does not strip the Federal Aviation Administrator of any authority to impose security requirements, but instead is permissive, with the Federal Aviation Administrator possessing discretion as to whether the full range of the security requirements should be made applicable to commuter operations. As the Committee is no doubt aware, this exemption was created in the "Antihijacking Act of 1974", P.L. 93-366, and reflected the considered judgment of both the Senate Commerce and House Interstate and Foreign Commerce Committees that it was necessary and appropriate

for the Administrator to possess discretion with regard to imposition of security requirements on, inter alia, commuter operations. Unless and until there is substantial evidence that these requirements should be imposed on commuter operations (and Rocky Mountain is not aware of any, much less substantial, evidence to that effect), Rocky Mountain submits that the discretion for the Administrator presently prescribed in the Act should be maintained.

To do otherwise could, in the case of Rocky Mountain's operations, result in additional -- and, Rocky Mountain submits, unnecessary -- operating costs for Rocky Mountain and the airports it serves with the resultant possibility that Rocky Mountain would be forced to consider whether service at certain of the smaller points could continue to be provided on an economic basis. The simple fact of the matter is that the likelihood of a commuter carrier aircraft being hijacked is almost infinitesimal, and the benefits of providing additional security (and thus reducing, but not eliminating, the possibility of a hijacking) are clearly outweighed by the additional costs involved.

In this latter regard, Rocky Mountain noted with great interest that Secretary of Transportation Adams, in his testimony before this Committee on January 25, 1978, stated that the security program "is extremely complex" and urged that the provisions relating to commuter airline security and safety requirements "not be combined" in this terrorism bill. Rocky Mountain heartily concurs in this statement, and urges that the Committee retain the

discretion in the FAA Administrator to evaluate the need for additional security for commuter operations on a case-by-case basis, much in the manner in which the Administrator is presently evaluating the need for additional security requirements for charter operations.

Rocky Mountain appreciates this opportunity to provide these comments on S. 2236 to the Committee, and would be pleased to respond to any questions the Committee or its staff might have concerning these comments.

February 28, 1978

American Society for Industrial Security

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International

E. J. Criscuoli, Jr.
Executive Director

POSITION STATEMENT

on

The Omnibus Antiterrorism Act of 1977

The Board of Directors of the American Society for Industrial Security (ASIS) has unanimously approved and respectfully submits the following Statement to the Governmental Affairs Committee of the United States Senate in regard to Senate Bill S.2236, The Omnibus Antiterrorism Act of 1977, now in hearing before the Committee.

ASIS is a professional society whose members currently number over 10,000. These members, individuals from industry, government and institutional entities, are active through more than 110 chapters in the U. S., Western Europe, Latin America and the Carribbean, the Middle East, Australasia and the Orient. Since 1955, ASIS has played a leading role in developing and disseminating doctrine and standards in the fields of security and assets protection. Dealing with the problem of terrorism as it affects personnel, facilities and other assets, especially in the private sector, is specifically a charge of the Society and, in particular, of its Committee on Terrorist Activities.

Acts of terrorism, wherever they occur, constitute social, political and economic threats to the entire world community as well as the personal catastrophes such acts represent for the victims and their families. The need to control the growing hazard of terrorism, and to prevent and/or suppress incidents threatening persons or physical assets and facilities is urgent. In this regard, ASIS supports enactment

of useful legislation by the Congress. The Society believes the following provisions should certainly be found in such legislation:

(1) Practical and effective sanctions to be invoked against countries which support, aid, abet or encourage terrorist (individuals or groups) or acts of terrorism;

(2) Assignment of responsibility for coordination and oversight of official U. S. counter-terrorism programs to a high level of the Executive Branch;

(3) Provision of a specific mechanism for the exchange of planning and threat assessment information dealing with the neutralization of the terrorist threat between responsible agencies of the U. S. Government and the U. S. business community.

In addition to these general observations, ASIS recommends that the following specific objectives should be achieved through legislation:

(1) A mechanism should be created to distribute on a timely and controlled basis all relevant information concerning threatened, anticipated or actual terrorist incidents and situations to responsible protection officials in the private sector. At present such information is not available. A provision of required guidance for protecting U. S. personnel and facilities is essential.

(2) Sanctions, of the kind referred to in Section 4.i. of S.2236, must be compatible with legitimate operating requirements of the U. S. business community.

(3) A single agency should be designated at the Cabinet level as the responsible channel for regular dissemination of the information described in (1) above. Designation of that agency should be made in light of existing agency resources and accomplishments.

In conclusion, ASIS expresses general support for the objectives of S.2236 and full agreement in principle with the concept that legislation be enacted to clarify and consolidate public and private response in the U. S. to terrorism in the world.

As suggested in this Statement, some specific aspects of S.2236 might be modified to more effectively deal with this serious problem. To that extent, ASIS respectfully urges further consideration of those aspects by this Committee.

TESTIMONY SUBMITTED TO THE SENATE GOVERNMENTAL AFFAIRS COMMITTEE BY THE U.S. LABOR PARTY FEBRUARY 10, 1978

The Omnibus Anti-Terrorism Act of 1977 (S. 2236) now before this committee not only fails as an effective means to achieve international cooperation against terrorism; in fact, its use of confrontationist economic sanctions against targetted nations will carry out the same economic warfare against Western Europe, the United States, and the developing sector that last year's deployment of terrorist assassinations was designed to achieve.

The U.S. Labor Party is not opposed per se to the use of strong sanctions — economic and political — against nations that foster terrorism; however, if economic sanctions are to be legislated by the U.S. Congress in the interest of stopping terrorism, political reality demands that these sanctions be aimed explicitly at Great Britain, which controls most international terrorism.

Informed circles in U.S. and Western European intelligence and security agencies are fully aware that international terror networks operate under the control of British intelligence through two principal channels: (1) the networks of the MI-6 Specials Operations Executive which built up so-called separatist movements during World War II for covert operations for example the Corsican, Basque, and South Moluccan movements); and (2) the synthetic "leftist" network run out of the London Institute for Race Relations, the Institute for Policy Studies, based in the U.S., and its Amsterdam affiliate, the Transnational Institute.

Surrogate Warfare

Since the July 30, 1977 assassination of Dresdner Bank head Jurgen Ponto, London's principal aim has been to use international terrorism as "surrogate warfare" against selected individuals and governments of Western Europe, the U.S., and the developing sector. The purpose is to block moves by these nations toward economic cooperation based on the hard commodity financing of high-technology trade. The assassination of West German industrialist Hans Martin Schleyer and the still unsolved abduction of Eduard-Jean Empain, the leading manufacturer of nuclear reactors in France, are part of this overall activation.

A secondary purpose of the surrogate warfare has been to create an atmosphere of chaos in order to terrify into action potential leaders of a financial counterpole to London.

The bill's proposed **mandatory** ban on the sale or transfer of "any nuclear facilities, material or technology" to any country judged to be aiding or abetting terrorism contributes directly to London's financial gameplan. The sponsors of this bill are attempting to achieve an antinuclear policy on the coattails of public outrage against terrorism, at a time when the development of nuclear technologies supplied by American corporations and scientists for peaceful purposes throughout the developing sector represents both a solution to the U.S. balance of payments deficit and a means of putting the world economy on a firm footing.

Consider the nations mentioned in Sen. Ribicoff's statement in introducing S. 2236 — the Soviet Union, China, North Korea, Cuba, Libya, Algeria, Syria, the People's Democratic Republic of Yemen, Iraq, Lebanon, Tanzania, Congo (Brazzaville), and Zaire. The sanctions mandated in the current bill are tantamount to breaking diplomatic relations with any nation listed on the "LOCATE" list. Contrary to the contents of the bill, economic and political cooperation along the lines of expanding trade and exchange of technology for peaceful purposes with many of the named nations is in the absolute strategic interest of the United States.

In fact, the rigorous public pursuit of such a policy via institutions like an expanded Export-Import Bank is the most effective way to clean out the vestiges of British Special Operations Executive within those nations that provide the shelter and training for terrorists. Where rigorous investigations have been conducted, every case of the above-cited governments' involvement in international terrorism has been traced to a primary problem of penetration and subversion by the Institute for Race Relations and/or British intelligence services.

Furthermore, to impose Sen. Ribicoff's proposed sanctions primarily against Arab and Middle East nations at this time, would seriously damage the very delicate negotiations for a peaceful settlement in the Middle East, and would drastically increase the likelihood of a replay of the 1973 Kissinger and British-orchestrated Yom Kippur War and oil hoax.

Senator Ribicoff's Coverup

The question of who is "aiding and abetting" terrorism is crucial to competent antiterrorism legislation; yet, Sen. Ribicoff's formulation of how terrorism is actually run is either naive or complicit in covering up some important facts. In the last 10 years, the Institute for Policy Studies, has been involved on different levels in holding forums organizing legal defense, publishing statements, and providing a clearing house and meeting place for the following terrorist groups: the Weather Underground, the Baader Meinhof Gang, the Japanese Red Army, the FALN in the U.S. (Armed Forces of National Liberation). This information has been provided to congressional committees by the U.S. Labor Party on previous occasions. During the Schleyer kidnapping and simultaneous Rote Armee Fraktion (Baader Meinhof) hijacking of a Luftahansa airliner, the Institurte for Policy Studies and its affiliate organizations, the Institute for Race Relations and Transnational Institute, were carrying out the following activities:

* The Institute-affiliated Center for Constitutional Rights and *Counterspy* magazine sponsored attorneys for the Rote Armee Fraktion on a U.S. tour to hold demonstrations and raise legal defense funds.
* The terrorists involved in the abduction and murder of Schleyer were recruited out of a network of communes including the notorious Longe Mai commune in Belgium linked to Sicco Mansholdt and the Institute for Policy Studies. The actual paramilitary training was carried out at Longe Mai.
* While French authorities were attempting to extradite Rote Armee Fraktion terrorist attorney Klaus Croissant to stand trial in West Germany, the Institute's "environmentalists" in France staged protest demonstrations, carried out protest bombings, and conducted interviews with Croissant while withholding his location from French authorities.

Despite this mass of evidence, the crimes of the Institute circles have been systematically and thoroughly withheld from the American public. Ironically, Institute-related "public interest law" operations like the Campaign to Stop Government Spying and the National Lawyers Guild have exposed information about the operations of U.S. intelligence agencies — the CIA and the FBI — that, in some cases have put the lives of agents in jeopardy while the terrorist support networks under investigation were able to operate as though they were under "Official Secrets Act" immunity.

The campaigns to prohibit the FBI, CIA, and law enforcement agencies from conducting terrorist investigations

by imposing "guidelines" that limit agency activities to investigation of criminal acts after the fact have actually added to ease with which the Institute-related terrorist networks can function inside the border of the U.S.

Toward Effective Counterterror Measures

As most members of Congress should be well aware, the U.S. Labor Party by no means wishes to stand in the way of meaningful and effective counterterror legislation. However, when government officials like Sen. Ribicoff, whose own historical associations with the Institute for Policy Studies are well-known, proposes legislation that would be not only ineffective but thoroughly detrimental to the nation's vital political and economic interests, we must state our opposition. In the interest of arriving at effective counterterror measures, we wish to submit a recent statement by U.S. Labor Party Chairman Lyndon LaRouche concerning the present terrorist dangers in Europe.

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How To Analyze And Uproot Terrorism

by Lyndon H. LaRouche,Jr.

WIESBADEN, West Germany, Jan. 26 (NSIPS) — In the interest of the United States and its allies, I cause various kinds of relevant information to be made available to European security agencies responsible for antiterrorism. This includes information received from reliable sources which wish that information transmitted. It also includes evaluations and knowledge developed through the specialized capabilitites of myself and my associates.

There have been many complaints against my own and my associates' activities to this effect, complaints from the associates and sympathizers of the terrorists and "zero-growthers."

Some of this information is "sensitive," and therefore is not and should not be publicized outside appropriate channels. Certain sources must be protected from public identification. Innocent people in the same milieu with terrorist-linked persons must not be subjected to avoidable injuries to their reputations. Sound working hypotheses of a criminal investigation, however sound, ought not to appear in public print except as strictly necessary for preventing criminal activity.

Nonetheless, some of this information transmitted to security agencies ought to be given the widest public circulation. The public has the right to be informed of the basic facts concerning international terrorism. Public knowledge of the nature of the terrorist problem is also essential to provide appropriate state agencies with the mandate for the measures those agencies must employ to fight terrorism effectively.

The following report is exemplary of the sort of information developed by myself and my associates which ought to be made public.

Through reliable, and partially through confidential sources, we have received briefing-information concerning the objectives of British intelligence agencies behind the new, current phase of international terrorism. Those British agencies — unless prevented — intend to mount the worst wave of terrorism to date — inclusive of Italy, France and the Federal Republic of Germany — and to lay a trail of false evidence leading to East Germany, Czechoslovakia, and other East bloc nations. This false trail will emphasize the nominally "leftist" self-designation of certain British networks, and will also employ British intelligence networks in the East bloc and certain "Third World" nations.

Although the intelligence services of some of the targeted nations know that British intelligence is behind the terrorism, those intelligence services complain justly that their governments so far refuse to give them the needed authority to go after British intelligence networks as such. This misguided refusal by governments is based on fears which are variously diplomatic, financial and internal-political. The leadership of certain parties — such as the Socialist Party of France, the Lombardi-Craxi leadership of the Socialist Party of Italy — are deeply involved in international terrorist networks and also agents-of-influence of British intelligence services. Thus, any open attack on British intelligence means some degree of internal political crisis, because of the reaction by parties and fractions of parties under British influences.

This is complicated by the fact that elements of the United States policy establishment are British agents-of-influence — e.g., Henry Kissinger, Walter F. Mondale, William F. Buckley, et al. Although the electoral base for these forces is between 20 and 30 percent of the U.S. electorate, British agents-of-influence have a disproportionate penetration of elements of the U.S. Executive branch. Hence, honest Americans are sometimes obliged to employ indirect means for assisting our European allies in the fight against environmentalism and terrorism.

The following report covers two vital features of British intelligence's international terrorist networks. First, the general way in which terrorist-controlled networks are organized. Second, the crucial features which must be isolated to determine whether or not the terrorist and terrorist-sympathizer organizations are British or not.

The point is that terrorism can be stopped at the source if appropriate political penalties are applied to suitable elements of British networks. Strike the hydra in the head, and the rest of the British-terrorist network is rather easily mopped up. As long as governments pursue the diplomatic course of pretending that the international terrorism problem is not British, the terrorism problem will simply become worse and worse.

How Terrorist Networks Are Organized

The majority of terrorist networks are set up in a manner intended to defy tracing responsibility to the source. British intelligence networks control elements of political parties, universities, professional associations, trade union organizations, corporations, and so forth. In addition, British intelligence creates various kinds of organizations, such as "environmentalist" groups, "peace movements," and so forth. British intelligence then penetrates these organizations with a different sort of organization. These latter are organizations which have a nastier quality than the organizations they penetrate. However, usually, most of the operatives of this

second set of networks have no direct knowledge of the network's control by British intelligence.

That is the simplest form of the type of British intelligence network relevant to the terrorist problem. More complex arrangements are simply that: more complex applications of the same method of splitting and cross-penetrating one's own covert-use organizations.

The effect of this arrangement is principally twofold.

First, the pumping of material resources through a "peace movement" or "environmentalist" organization, or a section of a party, trade union and so forth is not in itself a visible offense. However, the effect is to place part of those resources at the disposal of the other organizations which penetrate the first. (A study of the material aid flowing into the Hamburg Maoist *Arbeiterkampf* ("Workers Struggle") and KBN groups would reveal this pattern.) With a witting, complicit British agent or agent-of-influence in the first organization, the pathway is eased for such penetration operations of the second.

This illustrative case represents a two-layer "safe-house" arrangement for inserting the terrorist-network operation. Now, the penetrating organization is itself penetrated by the British-intelligence network which runs the terrorism.

For example, in tracing the connection to the Longo Mai "commune" in France, our sources first encountered camps in Belgium involving documents leading directly to Second International zero-growth ideologue Sicco Mansholt. From these Belgium camps selected, profiled participants were led into sex-and-drug camps in France (in one case, adjoining the Pyrenees.) After a subject's extended conditioning in these sex-and-drug camps, the subject was recruited to the Longo Mai camp, where terrorist weapons training was given. The Belgian end of the terrorist operation was directly linked to Riccardo Lombardi of the Socialist Party of Italy, and to the British Mafia operation in the south of Italy. Furthermore, through financial networks centered around Geneva, save-houses for terrorists were operating for Longo Mai graduates and other terrorists, in the region north of Lake Geneva, as well as the old British Special Operations Executive safe-house in the south of France near the Italian border.

A terrorist operation in West Germany, such as the kidnapping and murder of industrialist leader Hanns-Martin Schleyer, is thus staged from the indicated French-speaking region of Switzerland, in which region "green border" operations into adjoining areas of France are relevant.

Among the available sources of funds for such operations is the British-controlled international drugs and arms traffic. From the "silver triangle" in the British West Indies, an indicated $8 billion annual valuation of combined heroin, cocaine, and marijuana is conducted, with a large portion of the funds "laundered" through Eurodollar market banks. The magnitude of British intelligence-coordinated international drug traffic — through Hong Kong and Singapore as well as the British West Indies circuits and Canadian British-intelligence channels — is estimated to equal the level of the petrodollar flow of surplus funds.

Thus, although the terrorists have so far run chiefly under a "left" cover, the operation is directly connected to the neo-fascist networks, including the British Mafia and "Corsican Brotherhood."

The available model case for British terrorist operations is given by U.S. intelligence services' monitoring and neutralization of a projected "Black September" terrorist operation against the United States scheduled for early 1974. The results of that investigation were matched with British-Peking operations in Canada and with British-intelligence drug-running into the United States through the Canadian provinces of Ontario, British Columbia and the city of Montreal. In this matter, with considerable helpful information supplied to us by several concerned security services, we were able to get directly to the core of the British intelligence operation.

The "Black September" operation, which we have exposed previously, was summarily as follows.

Captured Soviet arms were shipped, in U.S. wrappings, from an airfield depot outside London. They were received in Toronto, Canada, at the premises of a Yemen Airlines office. There, the weapons, destined for "Black September" operations in the United States, were inspected under the supervision of a top British agent, an old British Special Operations Executive operative, whose regular assignment is the interface between U.S. Maoist organizations and Peking. The fact that a U.S. intelligence operative penetrated this aspect of the operation most probably led to the operation being scrapped.

U.S. intelligence penetration of the network was made possible through initial penetration of the Ku Klux Klan (also created by British intelligence in the 19th century, with participation of former Confederate Treasurer Judah Benjamin, a Rothschild agent allied with August Belmont.). This penetrated a joint Maoist-Ku Klux Klan-linked gun and drug-running operation in the Reading, Pennsylvania area. This was a cutout arms depot for explosives and weapons, which supplied various terrorist groups in the U.S., including the Weathermen. (Later investigation of this connection turned up Henry Kissinger's authorization of covert gun-running into Lebanon.)

The Maoist network associated with Ku Klux Klanners in operating the Reading-area arms depot was both a part of the drug-networks of the Institute for Policy Studies, and a Maoist group under the leadership of the same William Hinton who worked closely with Canadian-based British intelligence in his travels to and from Peking, China. Not only did Reading lead to the Black September base in Toronto, but the same British Special Operations Executive agents in charge of the Black September operation were otherwise linked to Reading through William Hinton's Maoist activities.

Although the Institute for Policy Studies' links to British intelligence usually operate under a left-to-liberal denomination (London Institute for Race Relations, Holland's Transnational Institute), the connection to the Ku Klux Klan in the Reading area is not untypical of the neo-Fabian's rightwing affiliations. Major funding of the now-liquidated CounterSpy-Fifth Estate operation, to which Philip Agee's name is most notoriously associated, came through the Eli Lilly Foundation, which like Milton Friedmann, is usually associated with funding "extreme right-wing" organizations.

Just as EEC Commissioner Roy Jenkins' circles were associated with the creation of the London Institute for Race Relations, so Winston Churchill III is presently a central figure in maintaining British intelligence's "conservative" networks. British "liberal" networks are of major importance, as are British fascist networks. British intelligence comes in all colors of the nominalists' political spectrum in every part of the world.

The importance of this fact is that the British are able to set up what are ostensibly violently antagonistic "right," "left," and "liberal" networks in various nations, and then to abruptly deploy these in coordinated fashion for concerted effect at a point of British intelligence's choosing.

For example, the bulk of the "black nobility" in Italy — the descendants of the "Black Guelphs" of the 14th century — are presently working hand-in-hand with the Italian Maoists, Trotskyists, and terrorists, with the Mafia, and with the networks of Socialist Party figure Riccardo Lombardi, in Henry Kissinger's projected 90-day "Chile Scenario" for Italy.

Except in such cases as the cited "Black September" operation, security services seldom get through the tangle of cross-penetrating cut-outs through which British intelligence deploys its international terrorism.

Cutting Through The Screen

Although it is unavoidable, indispensable, to attack the terrorist problem as such, no general success can be gained by limiting countermeasures to this level of approach. On that level one is fighting a hydra's many, proliferating tentacles. One might strike the hydra in the vital center, kill it, and then the arms are easily eliminated. The "Old Man of the Mountain," Hassan ibn Saba, (leader of the Ismailis in the late 11th and early 12th century —ed.) were he alive, would have none of the conceptual difficulties which have weakened the effectiveness of most European security agencies to date in dealing with this problem.

It is a slander that Hassan ibn Saba's "Assassins" were indiscriminate killers. On the contrary, the Ismaili assassins were a counterterror force, whose targets were always selected most carefully to eliminate key oppressors of the Middle East populations. For example, the Assassin's unfortunately unsuccessful effort in sending 40 agents to attempt to eliminate Ghenghis Khan. What sort of morality is it which states that nations and persons have no right to efficiently defend themselves against brutal murder of the sort represented by British international terrorism today?

Assassination of a key figure behind terrorism is not recommended of course, except to stop an impending crime which can be stopped in no other way. Such desperate measures need not be required if other, political means are used in time.

I am informed that Gottfried Wilhelm Leibniz (17th and century German philosopher, mathematician, and Humanist —ed.) understood this correctly.

It is the political measures for stopping terrorism we propose here. Only if the public press creates such a clamor against British responsibility for international terrorism, so that British interests are penalized generally as a result of this scandal, can one create so large a penalty for Lazard Brothers, Barings, N.M. Rothschild, Winston Churchill III, et al., that they will abandon their terrorism as a practice made visibly contrary to their most vital interests.

The essential motive behind British terrorism and environmentalism is identical with British opposition to the Luxembourg market, British slanders against the Dresdner bank, and then the British terrorists' murder of Dresdner's head Jürgen Ponto, British efforts to wreck the U.S. dollar and loot the U.S. economy, British efforts to sabotage Middle East peace, British efforts to ignite a global confrontation around a British-created war in the Horn of Africa, and British efforts, aided by British agents in high positions within the United States, to crush the economies of West Germany and Japan with a hyperinflationary depression.

The British loudly, shamelessly advertise such objectives in the press controlled by the same Barings, Lazards, and Rothschilds who control the Round Table, the Royal Institute for International Affairs, and the London International Institute for Strategic Studies. These ruling British forces, the avowed enemies of the entire human species, shamelessly declare war on the human species, and yet the governments of the nations targeted for victimization profess to be incredulous when we insist that the Royal Institute for International Affairs, the policy-arm of British MI-5 and MI-6, is behind international terrorism and environmentalism. This incredulousness despite the fact that every organization generating those policies for which the terrorists act is a creation of British intelligence networks. They profess to be incredulous even though every known link of the terrorists comes back to a British intelligence network doorstep.

The problem is not that they lack facts, but that they are afraid to face those available facts which lead overwhelmingly to the proper conclusion. Indeed, the British laugh at these governments' failure of nerve on just that point. It is the politicians who block relevant intelligence and security forces from pursuing leads pointing to British intelligence networks. It is fearful politicians who prevent their governments from developing the sort of anti-British counterintelligence capabilities needed to cope with the terrorist problem.

The citizens must give their governments the courage to take the necessary measures, the courage to face the facts so abundantly available.

Let me put it this way. Were I a head of state of any principal European nation, I would clean up the terrorism problem in short order. It is not that means do not exist, but that the combined will and perception to properly employ those means is wanting in the political leadership. I am not without sympathy for the problems of Presidents and Prime Ministers in this connection; fully knowing those problems, at least their nature, I insist that the existence of nations demands a corresponding courage by national leaders.

There are two kinds of facts which are crucial to determining British responsibility for international terrorism from case to case. The first, not conclusive by itself, is "Who benefits?" The second, which is decisive, is "What is the national origin of the state of mind of the terrorist? To what national interest and national philosophical outlook does that state of mind belong?"

For example, the zero-growth ideology is endemic in many nations, but, among developed nations, is characteristic only of the national ideology of Great Britain. This is most conclusive in dealing with organized groups which represent themselves as "leftist."

The Marxian socialist movement among factory workers and their supporters has always been, somewhat like Marx himself, progrowth, protechnological progress. Among Marxists, it was the failure of capitalism to continue the process of technologically advancing expansion of the economy which classically defined the point at which objective ripeness for socialist transformation appears. When the sociology of this view among working people is taken into account, it is impossible for socialist political groups concerned with the interests of working people to "independently" endorse zero-growth ideas, let alone condone violence against technological progress. Among today's "leftists" some alien intervention has occurred.

The zero-growth or Malthusian outlook has a long history, which aids us in rigorously assessing the inner national loyalties of those who espouse it. Its ancient form, continuing to the present day, is what was known during the time of Aristotle as "the Persian model," and otherwise known as the "oligarchical principle." Excepting the oligarchical strata to which this view is endemic, it has never appeared spontaneously among any urbanized section of the population except among lumpenproletarian strata ... *over a period of approximately two and a half thousand years!* Industrialist-capitalist, skilled and semi-skilled workers, and scientific-professional strata are incapable of secreting such oligarchical or zero-growth views as characteristic of their strata.

This policy is associated over two-and-half thousand years with an alliance of landlord-oligarchies with those financier-oligarchies which practice usury rather than productive investment. These oligarchical forces have always based themselves on the most backward rural strata plus the lumpen strata of urbanized regions. Since the accession of the Welfen (Guelph) house to the throne of England, and Welfen alliance with the House of Orange, Holland and England have been the leading national bastions of Welfish or "Malthusian-irrationalist" policy. Continental Europe and the United States have been anti-Malthusian, except to the extent that Anglo-Dutch networks have imposed or insinuated a contrary policy.

In the modern world, any section of urban populations

which adopts a Malthusian outlook is ipso facto an agent of Anglo-Dutch ideological influence, whether wittingly or not. Since the British military expedition led by Marlborough at the beginning of the 18th century, and more emphatically since 1815, the British and their Dutch allies have built up deep networks linked to London in every nation of continental Europe in particular. As the case of the "black nobility" of Italy illustrates, these British networks have coopted the vestiges of the old Welf-allied networks of Europe going back approximately a thousand years in some instances.

It is this feature of British networks which most completely escapes the powers of comprehension of the security agency which seeks to uncover networks it presumes to have been established ex novo during a recent few years or a decade or so. Family traditions and associations, in some cases going back more or less consciously 1,000 years, are the inner aspect of the British intelligence networks. These old families are the hard core of that oligarchy of financial and feudal traditions which is the inner core of British intelligence today. The Welfish monarchies of Britain and Holland are being used as that international oligarchy's present home base, the national royal powers through which the exertion of the oligarchy as a whole are provided a coordinating focus and conduit of national power.

These families are embedded in various institutions of each nation. Despite individual and other defections from the oligarchical traditions among these families, the core which continues to adhere to that oligarchical tradition represents aggregately a large force for Anglo-Dutch corruption in the governments and major private institutions of power in various nations.

Around these families are gathered a secondary layer of plebians. These plebians of the next-to-inner circles include leading intelligence and political families going back a generation or two, certain families with a legal-professional tradition, and so forth and so on. Around these there is an outer layer of agents, trusted, deemed useful, but not really on the "inside." Henry Kissinger is typical of this sort. Around these strata, another layer of agents, and so, down to the pathetically demented individual environmentalist or terrorist.

Apart from the determination of the oligarchy to dominate the world, the larger mass of the oligarchical faction is characterized by personal, heteronomic ambition to rise to the hierarchy. Reality, the consequences of policy for the human species, is not an object of concern. What is of concern is competition to make a reputation for oneself within the oligarchical hierarchy, usually at the expense of some competitor. They are vicious, paranoid sycophants.

Most of the agents of these networks are largely unwitting of the network as a whole. They are corrupted persons, who usually know only that certain contacts and possible contacts have the power to improve or worsen the individual's state of affairs, that such contacts have influence which reaches more or less mysteriously into high places. They sense themselves — usually without knowing — to be part of a mysterious power independent of government, with an entirely distorted perception of the reality this involves. By step-by-step conditioning of their perceptions, various elements of such networks can be induced to adopt "belief systems" and do deeds at the discretion of the oligarchy as a whole.

Thus, the British intelligence system does not operate in the main on the basis of a standard table of organization. It operates through manipulations, such that the individual down the line is induced to adopt beliefs and perform deeds without being aware of the way in which this is arranged.

Today, British-networks' control of major portions of the press, of radio and television broadcasting, of mass entertainment, book distribution, foundations which shape the policies of universities, and so forth, are the most essential "Rahmen" of British terrorism. Certain prominent newspapers and magazines do not themselves issue instructions to terrorists in the ordinary sense of instructions, but they do shape the public perception of developments in a manner which is absolutely indispensable to the kind of international terrorism Britain presently deploys.

The development of the form of linguistics associated with Rand Corporation associate Noam Chomsky and related development of controlled schizophrenia at the Tavistock Institute, are an essential part of British international terrorism. These brainwashing methods, proposed by Bertrand Russell during the 1920s, and developed in part by Russell, Karl Korsch and R. Carnap during the 1930s, are the techniques now used for "programming" journalism in the way required to develop the controlled environment of public opinion indispensable to the kind of international terrorism we face today.

The terrorist operation depends upon a predictable response from a major portion of the press and other "communications media." In addition to this, without the buildup of the fraudulent "environmentalist" doctrine by a corrupt press, without press build-up of fascist Maoist and other bandits as "leftist," the present form of international terrorism could not function.

Yet, excepting such chic individuals as Feltrinelli, there is no direct connection between the Baader-Meinhof gang terrorist and the complicit press. The connection exists, if one traces the training of journalists to such locations as the BBC or other parts of the British intelligence network, if one traces the financial connections of certain newspaper and magazines, the pedigrees of certain publishers and editors, and if one also traces the connections leading back to Lazard Brothers in London for the terrorist networks. The corrupt press and the terrorists apparently are not directly connected, except through a common "mother" squatting at the London Round Table.

Not only can such connections be established, but it can be shown that there is a close correlation between orders issued from London and shifts in behavior of both the terrorists and the corrupt media. Both are acting in parallel according to the current "party line" issued from London.

Clean It Up!

I have had personally approximately 10 years of continuously fighting British international terrorism, beginning with events around New York City in 1968. I had then the advantage of seeing the direct connection among Herbert Marcuse, the Ford Foundation, the Institute for Policy Studies and the systematic creation of the Weatherman terrorists. Over the intervening years, through collaboration with my immediate associates, and later with other forces combatting the same evil, I have a better scientific knowledge of the British mentality than perhaps any other living person, and therefore a better analytical understanding of British international terrorism than anyone outside the inner ranks of British intelligence itself. I know the enemy, how he operates, how he thinks, and how he can be decisively defeated. Vis-avis most world leaders, I find them, relative to myself, bumbling amateurs in this matter. I know from much experience what is crucial in detecting and defeating British intelligence operations, including international terrorism. What is crucial is epistemology, *Erkenntnistheorie*. One must evaluate terrorist problems in terms of the way in which the enemy and his dupes think, and one must define countermeasures based on that same knowledge.

You can not defeat terrorism if you tolerate "environmentalism," for one thing. By tolerating "environmentalism" you are not only maintaining the support-in-depth of terrorist operations, but you are refusing to establish the epistemological-political criteria, the political discrediting and

containment of "environmentalism," which is indispensable to isolating the British networks behind the terrorists as such. Every time a government makes a compromise with "environmentalism," that government is setting itself up for a new wave of international terrorism, by virtue of the fact that only an anti-environmentalist mobilization of the majority of the population gives governments the political means to contain and root out the terrorists themselves.

If one wishes to stop terrorism, these steps are indispensable: (1) expose British responsibility for international terrorism; (2) ruthlessly oppose environmentalism in favor of nuclear energy-centered, high-technology exports to the developing sector; (3) act in concert to bankrupt the City of London merchant banks, the forces behind terrorism; and (4) root out, with all force required to accomplish that, all international traffic in hard drugs and marijuana, imposing heavy penalities for individual use of marijuana pending the elimination of the general drug problem.

AIRLINE PASSENGERS ASSOCIATION, INC.

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FEB 6 1978

February 1, 1978

Sen. Abraham A. Ribicoff
Chairman
Senate Governmental Affairs Committee
3308 Dirksen Senate Office Building
Washington, D. C. 20510

RE: S. 2236 - Omnibus Antiterrorism Act

Dear Senator Ribicoff:

Airline Passengers Association ("APA") is an international membership organization based in Dallas, Texas with more than 40,000 members who average over 40 airplane trips per year. APA strongly supports S.2236 to combat terrorism and hijacking. Although some of our members may be inconvenienced by the termination of air services to a country that harbors terrorism, APA feels that the safety and security provided by such a penalty outweighs the inconvenience.

APA commends you for introducing the Bill and favors its passage. As early as 1970, APA has been very involved with the hijacking issue. I have attached a Report of the Proceedings of the "Natural Conference Seeking Solutions to the International Hijacking Problem" sponsored by APA. I hope you find this historical perspective helpful.

Very truly yours,

Harold J. Salfen
Executive Director
Consumer Affairs

HJS/sc
Encl: National Confernece - Hijacking
cc: James E. Dunne, II
Managing Director - APA

David S. Stempler, Esq.
Washington Legal Counsel - APA
1019 19th Street, N. W. - PH II
Washington, D. C. 20036

Report of Proceedings

National Conference

SEEKING SOLUTIONS TO THE INTERNATIONAL HIJACKING PROBLEM

WASHINGTON, D.C.
JULY 16, 1970

compiled by

Airline Passengers Association

P. O. BOX 2758
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P.O. Box 2768 Dallas, Texas 75221 214 742-2396

AIRLINE PASSENGERS ASSOCIATION

September 4, 1970

It is a pleasure to present this report to all persons who have an interest in the maintenance of air safety throughout the world.

The proceedings as contained herein reflect the thinking of some of the nation's most informed persons in the area of aerial hijacking. These persons, representing major associations and pertinent federal governmental departments, spent considerable effort in developing these presentations and then finally forming the conclusions which are presented on the last few pages of this publication.

As president of the Airline Passengers Association, and in behalf of our national Advisory Council members, I should like to express my sincere appreciation for the contributions made at the Washington meeting, which have enabled us to develop this report.

As it is being compiled, I regret to say that no single complete solution to aerial hijacking has been attained, but it is my sincere hope that the recommendations contained in this publication will lead toward that near-perfect solution, resulting in a complete deterrence to this menacing danger.

Sincerely,

Jack Cox

JACK COX, President

CONTINUED

5 OF 13

MEMBERS OF THE PANEL

The Honorable JOHN G. TOWER, Chairman
Senator from Texas

*The Honorable GEORGE P. MILLER
Congressman from California
Chairman, Science and Astronautics Committee

The Honorable WILL WILSON
Assistant Attorney General
United States Department of Justice

SECOR D. BROWNE
Chairman
Civil Aeronautics Board

DR. JOHN DAILEY
Psychologist
Federal Aviation Administration

FRANKLIN OELSCHLAGER, Director
Office of Enforcement
Air Transport Association
of America

CHARLES MURPHY
Director
Texas Aeronautics Commission

CHARLES RUBY
President
Air Line Pilots Association

DAVID D. THOMAS
President
Flight Safety Foundation

JACK COX
President
Airline Passengers Association

JACK COX

My name is Jack Cox. I am President of the Airline Passengers Association. I might take just a moment to tell you something about APA. It was organized some ten years ago and its objective is to serve and to represent the air traveler. Its membership approaches 25,000. Scope of membership encompasses the United States and about fifteen foreign nations. A word about this meeting being scheduled here today: We answer in our APA Dallas office in excess of 100 letters per day, which are received from members worldwide. Their letters are varied in nature, as you might surmise. Some of them are complimentary to the carriers; some of them are in the nature of complaints; some of them are requesting information about this or that particular subject; and so in meeting Mr. Browne (CAB) and the distinguished people from FAA here this morning, I thought of the numerous letters I have written to both of them concerning the many matters that our members write us about.

Because of everyone's concern with reference to hijacking, we called upon the members of our Advisory Council. There are 24 members of this council, all of whom have national prominence, and I think their names are in some of the literature which was given to you. As a result of the thinking of the Advisory Council nationwide came this meeting scheduled here in Washington. We know--both you and I--that much work and much study have been done by a dozen or more groups in an attempt to find a workable solution to aircraft hijacking, and we know, too, that progress has been made. We know that we must continue to focus attention on this problem if success is to be achieved, and as we see it, the effort of air safety and security must have continuity. If we are awakened, for example, in the morning to newspaper headlines which read that some 140, 180 or 280 persons had been killed as a result of an aircraft hijacking, there would not be an attitude of complacency anywhere so far as finding a solution to this problem is concerned.

I am well aware that there will likely be no one firm solution evolving from this group today, which will by itself or could by itself alone achieve the objective that we seek, but we believe that there are many advancements made, of which probably you are not aware, the public is not aware, the air traveler is not aware, and it is our hope that out of this meeting today will come at least some constructive ideas which will lead toward solutions to an ever-pressing problem and a more serious problem probably than any other facing the aviation industry today, that of aerial hijacking.

I think it is important, too, that in this gathering here today, and so far as I know, this is the first time that this has happened, that we have every segment of aviation represented--every segment of the entire industry. We have the air carriers. I have talked to the presidents of all the major carriers within the past two weeks, and those who could not attend are being represented by the Air Transport Association. We have the Air Line Pilots Association, represented by its president; we have the Air Transport Association; the stewardesses are represented; the Flight Safety Foundation; and

we feel probably the most important segment of commercial aviation, the passenger, because after all, the air traveler is the one that makes it all go.

Before we present the distinguished panelists who have given of their time in order to be with us today, let me set the stage for this day's work: In a few minutes we shall have statements from members of the panel. We hope to learn from these statements what devices have been used successfully; what some of the problems are in the employment of these devices, what ideas have not been tried which could be successful; and how the future looks in relation to this problem. After this session we shall adjourn for lunch, and you are all invited to join us for lunch. And then we shall come back to this room for formation into discussion groups and for room assignments. We have many participants here that I shall not introduce at this particular moment. The Advisory Council is represented and the other organizations which I mentioned earlier. In the interest of time, I think it might be well to get on with it and introduce one of the outstanding members of our APA Advisory Council.

As I mentioned a moment ago, our Advisory Council is made up of persons of national prominence, of outstanding ability, and there are 24 of these persons. One of them here today we have designated as chairman of this panel. He is one of the nation's most dedicated leaders and it is a real pleasure for me to introduce to you and to present to you, the distinguished Senator from Texas and a member of APA's Advisory Council, for his comments and introduction of the panel: United States Senator from Texas, John G. Tower.

SENATOR JOHN TOWER

Thank you, Jack. My distinguished friends, it is a pleasure to see so many interested persons attending this conference seeking solutions to the international airline hijacking problem. I trust that all of you arrived without undue and unscheduled stops en route, depending on what section of the country you come from, but I am glad that all of you could be here today because we will be seeking solutions to a very important problem indeed. It is personally important to me, because I spend a good part of my life with an airplane strapped to my back, and so I am more than casually interested in getting there, as interested as we all are in seeking solutions to this very vexing problem for our own professional or personal reasons. I don't think we are alone--I doubt that there are many Americans, the traveling and non-traveling public who do not wrestle with this problem in their own minds because hijacking creates great hazards for air travel. I find it fantastic that we have escaped major catastrophe for this long. I think the credit goes to both industry and to the government for this feat. Our problem now is to arrive at a deterrent before something catastrophic does occur.

Now, to be sure, industry and various governmental units have been working toward solutions to the problem, and steps have been taken to deter would-be hijackers, and many of these approaches will be examined today. I doubt that anyone would assert that any one of these systems is the ultimate. Perhaps that is never to be found. The solution probably lies in a combination of approaches.

You will see on the program handed to you that this is a conference seeking a solution to the international hijacking problem, and the word "seeking" is the theme of the conference. While there will be reports this morning on what approaches have been tried already, we are not gathered simply to assure ourselves and each other that we are trying hard--I think everyone knows that. Instead, what is wanted today is a brainstorming approach. We shall let our minds wander and perhaps somewhere off the beaten path we will find new answers which can also be utilized, and it may be that helpful solutions will come later--to those stimulated today with this hyperaction session. The result will be the same, whether we discover new workable approaches here today, or whether new, workable approaches are developed later as a result of our efforts today. The important thing is to find new, and most important, workable solutions.

Now, my good and old friend, Jack Cox of the Airline Passengers Association, has provided us with an important tool by setting up this conference today, and I know that with our cumulative best efforts we will find solutions. I would like now to introduce the panel and ask each one to stand when your name is called so that everybody is identified.

Of course you have already met Jack Cox. With us also is the Chairman of the House Committee on Science and Astronautics who shares my concern for improved legislation with which to combat airline hijacking, my distinguished colleague, the Honorable George P. Miller, a member of the House from California.

Here to give us a rundown of current capabilities for criminal prosecution is another old friend of mine from Texas, Assistant Attorney General in charge of the criminal division, Will Wilson. From the Civil Aeronautics Board is its very distinguished Chairman Secor D. Browne. Dr. Homer Reighard, Deputy Federal Air Surgeon for the Federal Aviation Administration, was not able to be with us today, but we are very fortunate to have in his place a man who is regarded as an expert in this matter, FAA psychologist, Dr. John Dailey; representing the Department of Transportation is Mr. John D. Flynn; representing the Air Transport Association of America is Mr. Frank Oelschlager; and representing the Air Line Pilots Association is the president of that association, Mr. Charles Ruby.

Also with us today is the director of the Texas Aeronautics Commission, Mr. Charles Murphy. Our panel is made complete by the presence of the president of the Flight Safety Foundation, Mr. David Thomas.

Now, ladies and gentlemen, that is the panel today. I am sorry that Senate business does not permit me to stay; I was due at a committee meeting fifteen minutes ago on Capitol Hill, so I will have to go and I am sorry I won't be able to participate for the remainder of your deliberations but I hope I shall have the opportunity to return at some point during the day and participate further. Best wishes for a very productive session. I will, of course, be very much interested in the outcome of this session.

WILL WILSON

Thank you, Mr. Cox. Ladies and Gentlemen, I am reminded of a story that came to mind last night in connection with another conversation on this subject of everyone's wanting to be helpful in one way or another on this aircraft hijacking problem, of a man who was walking along the sidewalk, in front of him a very large fat lady fell, and she couldn't get up, and so he walked around her about three times, finally he said, "Lady, I'd like to help, I just don't know where to take hold." I think that is the problem many of us have.

Now fortunately, the Justice Department doesn't have that problem; our function is rather limited, but we do know where to take hold, and that is when, after the thing is over, and the hijacker has been caught, we have to prosecute him. You are probably aware of the many difficulties that exist in trying to establish both venue and jurisdiction. Venue concerns the place where a person has committed a crime and jurisdiction is the right or authority to try him. As you can visualize, most of these hijackings start after the plane is in the air and they sort of emerge, and the situation may be rather fluid as to where the plane goes and its final destination, the route it takes, and the actual crime. The elements of the crime occur over a vast geographic area, and for all of these reasons it has been determined that while state laws apply, and each one of these acts is a violation of many state laws as the plane goes over a particular state, that it is best to try to handle this problem through the federal criminal processes rather than state processes, and so the vast bulk of these cases are handled in the federal courts.

In 1960, we did assume jurisdiction and passed an act, which is the principal act under which we handle these cases now. Hijacking has become a more serious, recurring phenomenon, which greatly impairs the lives and safety of the aircraft crews and passengers involved. Since 1961 there have been 65 successful hijackings of American aircraft, and twenty attempted hijackings. During 1970, there have been eight successful hijackings, and three attempted hijackings of American aircraft. As to the twenty unsuccessful attempts since 1961, 23 individuals were involved. Disposition of these 23 individuals is as follows: One received twenty years for interfering with commerce; I might say in handling these offenses, most of them, most of the federal offenses apply only to the hijacking of a plane in flight, so that the act has to occur after the wheels have left the runway under the definition of that crime. So those that occur, where the person is apprehended before the wheels leave the runway, under any circumstances, are not handled under the hijacking statute, but are handled under another one called interstate commerce and one man received twenty years for that offense; two were sentenced to fifteen years for interference with flight crew members; four received indeterminate sentences out of the Youth Correction Act for interference with flight crew members--that is the juvenile type of offender; one received a five-year sentence on a plea of guilty, charges stemming from attempted hijacking; two

would-be hijackers have been committed to state mental institutions; and two have been tried and acquitted based on a defense of insanity. In a federal system when a man offers in defense insanity and is convicted, he is then transferred to the state for treatment. Three individuals were court-martialed by military authority. Another was convicted in California and sentenced for twenty years for offenses arising out of the attempted hijacking. Further, one individual was found to be a juvenile delinquent, and five of the remaining six individuals who were involved are in custody of government authority, undergoing court-ordered mental examinations; the sixth is in state custody awaiting trial for murder. The most severe sentence in aircraft hijacking cases is life imprisonment, which was adjudged on July 7, 1970, for the offense of aircraft hijacking and kidnaping by U. S. District Court sitting in Newman, Georgia. Hopefully, the sentence should tend to deter the recurrence of similar possible cases in the future. Additionally, it may be of interest to note that during the past two years eleven hijackers have been returned from Cuba. Of this number eight were convicted, one was acquitted and two cases are pending.

Now, I want to emphasize the sentencing process with a firm statement in the belief in the effectiveness of prosecution and sentencing as a deterrent to crime. In my judgment, one of the most effective things that can be done to stop hijacking is to have a fast, vigorous and effective prosecution, and a sentence commensurate with the crime committed. Most crimes involve in a sense innocent bystanders, but vary in degree. In a robbery, the person who is threatened in the robbery is perhaps in danger, if he doesn't yield to the criminal, and perhaps a bystander, too, that might be caught if a shooting fray develops. But nothing compares with the danger to completely innocent people involved in a criminal act--nothing compares with the danger to a plane-full of passengers who have been caught in this situation. I think all of us would agree that in approaching the problems of hijacking, that is, when to use force for the interception of the hijacker, when to cross the will of the hijacker. In effect, the first and dominant element ought to be the safety of the passengers. In addition, the safety of the crew who are under direct threat and the safety of the property which is an enormous investment for the airline company have to be considered.

But I think we are all in agreement that the first and dominant question is the safety of the passengers, who are truly innocent bystanders of this affair, and so I want to conclude my opening presentation by saying that we should direct our thoughts first, of course, to preventing these things from happening by our usual approaches, plus any unusual ones that we can devise, such as the electronic devices for automatically searching of a stream of people going into a plane, and whatever mechanical devices can be added to the structure of planes in such way as to make it more difficult for a hijacker to carry out his purpose when he starts. Secondly, I would be very much interested in hearing the statement of the psychiatrist on the panel, as to what types and kinds of people there are who do these things, and to the extent that they can be reached through the usual deterrents of crime and punishment. I think it is a most vital subject, and I want to congratulate Mr. Cox and this association for taking an active interest in it and in bringing together these people today for the purpose of cross-fertilization of ideas in the two different approaches to the problem. That completes my opening statement, Mr. Cox.

SECOR D. BROWNE

Thank you for the opportunity to discuss with you today the problems of crimes against aircraft. I do not limit myself to air piracy or hijacking, because I consider equally serious the threat of ground sabotage and all other acts of violence committed during any phase of air transport operations.

Let me begin by saying that I truly believe this subject is of paramount importance to all responsible and involved persons, if not the subject of top priority. It is clear that any condition which threatens the safety of air travel simply cannot be tolerated. Crimes against aircraft, or any implied threat of violence, are a subject of international concern.

It is a problem, however, which has generated more discussion than decision; emotion than action. It is essential, when considering this subject, that the psychological roots of the problem be understood. Outside of the areas of international confrontation, such as the Middle East, where political considerations dominate motives, the problem is basically one of dealing with people.

I would also exclude that lunatic fringe element bent on self-destruction which chooses the aircraft as its vehicle. I doubt whether we can ever effectively screen out and eliminate those people. Thank goodness they are a small number.

Eliminating the professional guerilla and the insane, we are left with the common "run-of-the-mill" hijacker. The person who is not driven by any consuming internal fire, but essentially is looking for a means of expressing himself. He is, it would seem, a person capable of reason, of weighing pro's and con's, and, in a premeditated manner, one who is aware of and therefore considers alternatives.

He does not want to die and is not bent on violence though once committed to his course of action may not have any alternative but to back up an uttered threat and use whatever weapon he has at his command. He launches himself with the prior knowledge that probably nothing will go wrong, no one will get hurt, and he won't get caught. Even if he is apprehended, he is aware of the performance record of enforcement which, with notably few exceptions, has seldom adhered to Gilbert & Sullivan's admonition in The Mikado: "Make the punishment fit the crime."

Reduced to its ultimate simplicity, the solution is to be found in deterring the potential act rather than halting it once begun. The steps taken by individual carriers as far as searches, etc.; and the work being done by Dr. Rheigard in establishing the psychological profile of the potential offender are excellent and should be broadened. It has been

clearly demonstrated that the large majority of airline passengers are not offended by the efforts of the carriers and the government to isolate the hijacker before boarding.

But clearly, something else is needed. It is impractical to expect that every passenger for every flight will be screened, physically or psychologically. It is impossible to achieve absolute security on every ramp and in every hangar around the world. It is also true that there are sufficient statutory provisions to adequately handle the problem, at least as I interpret them. I do not believe that any additional laws will be helpful on a broad scale.

What then, can and should be done? How can enforcement action be ensured and adequate use be made of existing statutes? I think it is admirable that the FAA and the Department of Justice have now agreed as to who has various responsibilities. That is an important step.

However, hijacking and the intricacies of aviation law and international relationships are highly technical subjects. I do not believe a local U. S. Attorney should be expected to be an expert in this field. A task force of specialists, traveling from case to case, would enhance the pursuit of justice--not hinder it, and such a group should be set up immediately, so that when a hijacker is apprehended, he is prosecuted to the fullest extent.

While I recognize everyone's right to capitalize on events and take advantage of opportunities, I find deplorable the exploitation of some of these events which has lent an aura of glamour to the individual and an almost "holiday atmosphere" to the entire exercise. I think the communication media are in a position to carry a clear message to those who are contemplating a crime against an aircraft--that they are dealing in an area which carries stiff penalties and has, in truth, none of the aspects of a modern-day Captain Kidd charade. They should take every step, not to control the news, but to lend proper perspective to the problem.

Those involved in the international forum have taken steps to standardize procedures. The recent ICAO meeting in Montreal and its subsequent clarification and extension of the principles of the Tokyo Convention will have, I think, significant impact. It is significant that all nations, regardless of political orientation, are strongly united on this subject. But work in this area must not cease until there is clear and total agreement on definition of the crime itself. Enforcement procedures of a uniform nature and extradition rights in the absence of prosecution by local authorities remain to be agreed upon. There must be no haven for the hijacker, for as long as a single one exists, the temptations, and therefore the very real danger of mass disaster is ever present.

Since the immediate possibility of totally preventing a hijacker access to an airplane is somewhat remote and since there are still places to go, every effort should be made to control the hijack while it is in progress. This is an item squarely in the hands of the individual managements of the carriers themselves.

While violence on the flight deck is certainly to be avoided, perhaps some concentrated training of the crews in security and containment of the individual once he reaches the cockpit should be undertaken. The flight deck of a modern transport aircraft is a confusing jungle to the stranger, and a well briefed crew, acting in a coordinated fashion and making maximum use of modern deterrents should be in a position to avert disaster.

This coordination and training should also extend to a specially gathered ground crew (or crews) consisting of both government and carrier personnel, who are expert and experienced in the handling of a hijack in progress. Our communication network is such that these groups could be located in key spots and upon first notification of a hijack would immediately take over ground control of the aircraft.

Through the use of specially developed codes, and with firsthand personal knowledge of the individual crew involved, these groups could play a major role in averting an airborne disaster, should a hijacker slip past the ground screen.

The Civil Aeronautics Board has no statutory authority in this area. However, the grave impact of crimes against aircraft causes us deep and vital concern. While we are distressed and disturbed by aircraft crimes throughout the world, we can only voice suggestions to those who are directly included. We hope some have merit, and that those that do will be implemented.

The program I have outlined: the creation of a strike force to ensure adequate prosecution, the expansion of on-the-ground efforts by both carriers and government entities, the swift movement internationally to eliminate refuges, the additional special training of ground and flight crews in hijack procedures, and a concerted conscientious effort on the part of communications media, while not new in any sense, is perhaps more focused than in the past.

The Civil Aeronautics Board stands ready to help in any way. No one should rest easily until every <u>action</u> has been taken to eliminate crimes against aircraft.

DR. JOHN T. DAILEY

All of you here have been concerned with this problem for sometime, so I think you can remember back to what we might consider the height of the epidemic about the end of January, 1969. This event was building up apparently, but had gotten to the point where it was happening every two or three days, we were beginning to have two at a time, everybody was concerned, there was a great deal of publicity, everyone had bright ideas for how to stop it, but nothing seemed to be very practical and in effect, almost everybody said there just doesn't seem to be any way to stop hijacking. And I think there isn't, there just isn't, any way to completely stop crime in the streets or pilferage of air freight or any number of other problems we have. But we do feel, and this is the approach we took, that there are a number of things that can be done, and should be done to help with this problem and we hope will keep it under control until the time comes some day when all nations agree to do everything possible to eliminate hijacking, in which case we would have only a few hijackings.

We would have only the ones where he just wants to get somewhere and escape, for example, and of course, that is independent of a nation being willing to send him back. There may also be persons who just want to kill everybody with them and so on. However, we feel that for some time to come and frankly, I think for a long time to come, we have to have measures to keep this under control before we find a final solution.

At some Congressional hearings, just about a year and a half ago, most of the people testifying, testified that there just didn't seem to be much to do, but my boss at the time, FAA acting administrator, Mr. Thomas, was there, and in effect I think he said, "Well, I don't know, but we have got some people here that think there might be something that can be done. Let's give them a chance, let's try a psychological approach," so at that time they said, sure, let's try a psychological approach. That is usually what happens when all else fails--they say, well, all right, let's try psychology. Well, what we did is something that is quite common in attacking a disease from medical point of view, so perhaps it shouldn't surprise you that the Deputy Federal Air Surgeon was placed in charge of the Task Force, and that the FAA's psychologist was also assigned to it, because it is common in medicine when you have a disease you can't cure and perhaps don't even really understand, to decide, well, there are some things that we can try, some things we can do. Maybe we can at least try to make them wash their hands, or build outhouses, or maybe improve nutrition. There are things we might do to make the patient more comfortable, even if we can't cure him. If we can't cure everybody, maybe we can cure some of them, and so on. This is what we call the epidemilogical point of view which is similar to what the air industry calls the systems point of view, and so we did try this.

I would like to speak first about some of the bright ideas that come up that involve a single idea which is going to solve this problem. One amusing thing is that almost any idea in what I might call the bright idea field eventually comes to us from some brilliant youngster in the second grade, who writes a letter to the president, or Senator Tower, almost anybody, or Mr. Cox, and sometimes it gets referred to us. These letters usually come to us one way or another and often contain a real bright idea. There is nothing wrong with it, except that when you look at it from the systems point of view you find it is too expensive, it requires too much training, it is beyond the capability of the personnel involved or any number of other reasons why a bright idea just won't work. I hate to over-generalize, but it has been my impression that if you try to think of something that will end all hijacking in a single idea you are not very likely to come up with anything that will help. If you think of other things we might do, approaches we might take that might help, then you are much more likely to find something that can be accepted as part of a final package, whatever that would be, of the many approaches we take to the control of hijacking.

We started out with the concept of deterrence. We find that the further you get away from the hijacking backward in time, the more feasible it seems to be to do something about it. The most difficult thing to do is to terminate a hijacking in the air in progress. This is very difficult--it is difficult to do without compromising the safety of the passengers or making crew expendable. Nevertheless, we have not ignored this. There or things that can be done eventually; we are working on this. We can't say much about it; we are optimistic about some of the ideas that will help. They may not help with all hijackings, but they might help with some. You know some hijackers have not been very well armed, not very well determined. It might have been possible to apprehend them in the air if certain things had been done. It is a little less difficult to catch the guy when he tries to board the airplane, and that is feasible to a certain extent, but the easiest thing to do we felt in the beginning, was to try to keep him from deciding to want to hijack in the first place. I hate to use the word, manage things, but might as well, to manage things in such a way that a potential hijacker will not decide to become hijacker. And there are many ways you can do this. There is a psychological word for it called reinforcement, which means reward and punishment. So what we would do was to use reward and punishment to help deter hijacking; that is, to keep people from deciding that they want to hijack. First, I would like to answer Mr. Wilson's questions here about what we really feel about the role of punishment. Obviously reinforcement includes both reward and punishment, and punishment is important. I think even with the ones who are unstable, even with those who are very unstable, they do respond to reward and punishment, not necessarily in the way you and I would, but they do respond to reward and punishment. I personally, although this is controversial among experts, take the point of view that punishment has an important role in the deterrence of hijackers.

Of course, the quicker the punishment, the more certain the punishment, the more effective it would be. One of the things about reinforcement that we know as psychologists is that punishment or reward needs to be as close to the act as possible, and if anything happens to delay the punishment for a long time, that undercuts it, and weakens it. You know this on an intuitive basis, so one of the things that would help more than anything else is to make more expeditious the handling of these cases and punishment. This has been suggested by Mr. Browne and I really agree with that.

I would like to speak from the other side of reinforcement: reward. We don't reward these people, but there are ways in which we can reduce their reward, and we have been very active in that. For example, to the extent our research has enabled us to, we have released all the information we can to the effect that hijackers don't really come out very well. They are not treated as being heroes in certain countries, and now we have information that they are not treated very well. Since this information has become current certain categories of individuals have almost completely stopped hijacking. There are other individuals where this doesn't deter them much. For example, if you say that a hijacker who goes to Cuba is likely to end up working in the cane fields. This can be a powerful deterrent to many types of people, but not to a Cuban who is desperate to get home, and perhaps this is one reason that the trend now is that a considerable portion of hijackings to Cuba this year have been by Cubans or Latin Americans. You couldn't undercut their reward very much by telling them that if you go to Cuba, you are going to be put in the cane fields.

In our systems approach in the Task Force we were fortunate in having assigned nine persons representing different disciplines. Every person on it represents some important discipline: psychology, medicine, systems analysis, security, engineering, air transport operations, international aviation, public affairs, and law. So the answer is that we very definitely believe that people do respond to punishment and they should be punished. This is a controversial thing, some people say, oh, they shouldn't be punished, punishment won't help you and so on. But our position is that punishment has an important place here, and of course, the quicker it occurs the more effective it is going to be.

We have slides for an extensive presentation that we often make. I am not going to do that here, of course; I don't have time and I would like to apologize for just briefly flashing some of these slides and not saying much about them, but we think they may include information you would like to have a second look at this afternoon or might want to ask about. So I will show you several slides here, and we will comment on them relative to the work of our group. The first of these slides I can tell you about before it is put up. We have done very extensive research

historically into the hijacking phenomenon and we feel that we have uncovered most of the hijackings that have happend. It is impossible to catch them all, and in the early days of hijacking the press did not cover them as systematically so there are perhaps some that we haven't gotten. However, the list is based on extensive research, the cross-checking of all available lists going through the files of certain newspapers like the New York Times, etc. You will notice that this goes back a long time, and I wouldn't say that there were not hijackings before 1930, it just happens by accident that we could document one of these because a man who got hijacked in 1961 had also been hijacked in 1930, and the report in 1961 uncovered the earlier event. You will see a long jump from 1930 to 1947. I am sure there must have been some hijackings in that period, but they were just not documented by the press or anyone else, so we can't prove them. You will notice it was a long time before this hit the United States.

When we offered to brief all interested foreign nations on this recently in Washington, 52 nations showed up. Although not all of them have had hijackings, I think this is one of the few cases where they are so concerned about it that they are thinking about it before it hits them.

If you look at the first months of 1969, you will see what I mean by the epidemic increasing out of control. That was when we were having two or three a week and the way it projected it looked like unless something happened to change the trend, that the curve was going sky high. About that time some things started happening, the very first time that anything positive happened which might have a deterrent effect on the hijackers. One of the first was that word began to get around that these people weren't regarded as big heroes in Cuba and about that time one of them came back and said he had been treated very badly indeed by Cuba. Also Mr. Thomas made an announcement that field trials of metal detectors were beginning.

At the same time by the suggestion of the Congressional committee, we started putting up signs emphasizing the penalties for hijackers and also saying that passengers and their luggage might be searched. Then other things were happening. The international situation began to improve a little, with signs that we might be coming along a little faster in getting some international agreement. You wouldn't think that anything as simple as this might have any effect on the hijacking rate and we can't prove it did. However, when we look at what we have learned about hijackers and who they are, we find that with few exceptions, they weren't very resourceful. So we did feel that almost anything positive that could be done to undercut the reward for doing it, and to maximize the threat that they might be punished or that they might be caught would actually deter some of these people. And it is possible, although we can't prove it, that this sort of thing might have deterred half of the potential hijackers, the rate did drop off about 50% about that time, and

it continued at about that rate until later where other things were beginning to happen.

One of them was that we introduced our screening system, and really started using it to screen passengers. Cuba also passed a law against hijacking, passed a law saying they would like to have bilateral agreements with other nations, and other things were happening, a number of the hijackers came back, said they came back because they would rather go to jail in this country than to live in Cuba.

These things further damped it down, or could have. There is no way of proving. It could be they just spontaneously improved. However, if you will look at the other countries, look at the yellow line here, foreign to Cuba and foreign other to Cuba, you will find that they were either continuing at the same rate or getting even worse at the same time we were getting better, so that rules out such hypotheses as the moon had changed, or something else, or that people just forgot about it, and that hijacking was just fading away.

Hijacking has not faded away. It is very active worldwide, as you know, and it still exists in this country. If you will look at the situation here in the first half of '68, you will see that there wasn't a high rate of activity then. You will find that the United States and other countries were about 50/50. I think there were four from other countries and five from the United States. In the second half of '68 it took a big jump, both in the United States and other nations. It came to a head, really it split the year about the last quarter of '68, and the first quarter of '69, is where it really hit a head, but if you do it by half year you will see that in this half year it hit a peak in the United States, and there were 25 domestic hijackings to Cuba as compared to 15 in the rest of the world. Now at this time hijacking was regarded essentially as a U. S. problem and many nations, I think, felt that it was just a problem of the United States, and this is one reason perhaps that progress wasn't as fast then toward international agreement, as it seemed to be. Now you can see the change that occurred through '69 and into '70, that instead of being a predominately United States problem, it became predominately a question of a problem of other than the U. S. You can see in 1970 so far, that there have been many more hijackings outside the United States than in the U. S. Now this indicated the possibility that some of the things we and the various other groups have been trying to do may have had some effect in helping to control the epidemic of hijacking in the U. S.

The Task Force on the Deterrence of Air Piracy was set up in the FAA, and this looks like an impressive effort in that some very competent people and a number of fields were put together. However, quantitative-wise, it is just a very small group, we realize that, and the FAA is

committed to expand that effort into many more times as many people as they have in the past. What we were trying to do was to take positive action to deter hijacking, develop the behavioral characteristics of hijackers as to how they behave so we could use that as a basis for a differential screening program, to develop and test weapons-screening systems, and also disseminate public information to deter hijacking.

Unless you are specialists in the field of information flow, you would be surprised how hard it is to get the word down to most of the American public. You don't just hold a press conference and have a news release, say that six people came back from Cuba and think they would rather go to jail here than stay in Cuba. When that is splashed in the papers one day, if you study people six months later, you will find most of them either never read it, don't remember it, or have it all garbled and so on. Accordingly, the role of public information in this is very, very important, and that is why we have felt it is so important to have a full-time man for it.

We used the epidemiological or systems approach, whatever you want to call it, whether in industry or from medicine. The first thing to do is to define the phenomenon and this is crucial. Unless you have a proper understanding of what you are dealing with, you are not going to be effective with any measures for controlling it. So we systematically went through this, developed some hypotheses and assumptions, developed some systems, tried them out in field tests and application, and then to an extent we have evaluated them.

This is not a field where we can be very scientific; we can't predict what the effect of anything is going to be very far ahead, and that is why we have had to proceed a step at a time. We develop something, we try it in a number of locations, we evaluate it, we make the changes that have to occur and then go to another place and evaluate it again. After we developed a system for passenger screening, we took it to nine different airports, and made a very extensive field trial and evaluated that very carefully, and before we even planned going to the next place. We had looked over our experience and made the changes because every time we took it somewhere, we found something else that had to be changed with it.

These posters are very important, I think. They were controversial, some psychologists and psychiatrists said if you used the word hijack in public that would suggest and make everybody hijack, and they will also run off all the customers. I personally stuck my neck out and put it on the block and said, I didn't think this would cause anybody to hijack. I felt very strongly on that. I also said I didn't think it would run off all the customers either. I felt less confident about that, but that was based on interviews with passengers and it is amazing

that even back there anybody you would talk to would say, "Isn't that wonderful!" If you will talk about something to screen passengers, or just do anything about hijacking the public was just ready to support almost anything that they thought might help. Now these posters, and we will show you one in a minute, are pretty non-controversial today. There is certain wording there, everybody was so afraid of, so we checked the posters and changed that word. Now those old posters are showing up all over the place, and everybody thinks they are wonderful and it doesn't worry them a bit. I am talking about the use of the word hijacking itself. We did develop a poster which doesn't use the word hijacking as such. It is just as effective, maybe more so, than the other, but this is around if you look you will see them. You will also see a lot of the others out at Dulles Airport, for example; maybe you have noticed, there is a hijacking sign at every place, and it is the original version.

Now for our detection system plan. About a year and a half ago everybody knew that you couldn't possibly screen the customers; one, they wouldn't put up with it; two, it would never be practical to do so, and so on, even with a machine. We are not saying anybody was wrong at that time--everybody was right. You can't screen all the customers, but you don't have to. That is the new idea we had, you have to screen only some of them. So if you can identify the ones that need screening the most, and if that can be a very small fraction of your total passengers, then it becomes feasible to do all sorts of things that take a little time, take a little expense, or take some training, or take some personnel. So the key to this is to work out some way to identify the very small proportion of the passengers that are most in need of screening.

We have worked out what we call behavioral characteristics of hijackers. We find that hijackers as a group in this country are not a band of conspirators, they are not enemy agents, we are quite sure of that. They are a bunch of isolated individuals, not very aggressive really, not very determined, and not very resourceful. They have a number of things in common that I can't tell you about, of course, because these are things that could change--they could change if they knew about it. Obviously that means we are not considering such things as the color of their skin, their hair styles, etc. However, we do capitalize on certain ways they act, and so we can't tell you exactly what those are because if we did, the hijacker then would be able to change the way he acts. I can tell you though, it is some very simple things. It would have to be, or you could never teach airline personnel to do it in short periods of time.

Mr. Oelschlager and I went down to New Orleans Airport and one day we trained a cadre, who will now train the others. They will apply this airport-wide, but it has to be something simple.

We screen with detection devices, interview the suspects, and search as necessary. Let me go through the sequence. First, by means of these behavioral characteristics you can clear most of the passengers and that is the way this really works. We have things that airline people look for and if they see it they decide the person is all right; not with certainty, because psychology is not a certain science, but with perhaps 90% accuracy.

We think our system is perhaps 90% effective, but what you are doing is playing the odds that with some people you have information that indicates that it is very unlikely they are going to hijack so you take calculated risks and let them go ahead and load. The other people you just don't have information to assure you on this. It is less than one-half of 1% out of the first million and a half people who have been screened here that have not been able to clear on the basis of how they act. Of that less than one-half of 1% you can clear another half of them with a magnetometer. We know that half of the people have very little metal on them, and it is not enough to be equivalent to a serious weapon. So we let them go ahead and board on this basis even though we know nothing else about them, and have no other grounds for doing it. If an uncleared person does have some significant metal he is interviewed. We can't tell you exactly what we ask but we found that by a simple question or two you can reassure yourself about almost all of these, about 80% of them maybe. When individuals are asked, they typically say, sure, I will show you; it is this camera or something, or I have a hair dryer in my suitcase. You may use the magnetometer again to verify they are now non-magnetic. You see how that can work, so the number of people you have to search is unbelievably small. We have found that we haven't had to do any real involuntary searches yet.

At the point where the airline gives up, saying we have tried everything, we are still unable to clear you, so if you want to ride with us, we will now introduce you to this U. S. Marshal and he talks with them. He may ask them if they mind if he searches them. The Justice Department feels that by the time you get down to this handful of people out of a million who you haven't been able to clear by any of these means, that you then do have reasonable grounds for search, and a search will be made. Out of a million and a half people, we have had only about twenty arrests. I don't know that any of these are hijackers, you never know whether you have caught a hijackers or not. You only know they are trying to board an airplane with an illegal weapon.

There have been people who see all this going on and hastily turn around and leave and decide they don't want to fly, so you will never know whether they were hijackers either. Maybe they for some good reason thought they might get in trouble or something; maybe they had narcotics on them, illegal weapons, etc. We have found a number of people who show up and when you finally get down the line, they have narcotics on them, and they have been arrested and are being prosecuted for that.

Here is the approved system of the FAA for clearing passengers as much as we can tell you about it. Signs have to be posted, in other words that gives constructive notice to you that if you go past this point you are subject to search, if the airline requests it. This is in the fine print of the ticket, so you have agreed to be searched, if necessary, as a condition of flight. There is a U. S. Marshal present, or close by; the use of a magnetometer, which as I pointed out can only tell for half the people that they have very little metal. We screen passengers for selectees, a person who cannot be cleared by the characteristics is called a selectee. You clear him with a magnetometer, if you can. If you can't clear him with that, you try to clear him with interview. If he cooperates, all he has to do is take his metal objects out, and show them to you, and become non-magnetic and we can clear him. An uncooperative selectee, of course, might be subject to an involuntary search and then finally, if necessary, be denied passage or arrested. It is amazing that only a few dozen people have had to be denied passage in this out of over a million passengers.

That's what the detector looks like--there is a rod on each side, sometimes the rod might be hidden in the wall and the other rod visible. As of now we have made no attempt to hide these from the passengers. Many of the passengers are sophisticated now, and they wink and smile--they know what it is when they see it. Actually this might be a good positive additional deterrent part of the system.

I have a number of other slides of this sort; however I think this will be the last one--this is the goal for the passenger-screening system. Primarily to scare them off, if we can. We hope that if they know that they might be caught, they will never come there in the first place. They will never decide to do it. We hope that if they see these signs they will turn aside and walk away, and they do this frequently. Sometimes they stow their guns and knives in the potplants and in one case even a set of dirty pictures. Eastern has a small arsenal of weapons now that they have picked up from passengers who suddenly saw what was going on and decided to get rid of their weapons.

One final chart--all we can say about this is that Eastern Airlines likes it, and they have published it in one of their articles. You can see during 1969-70 the record of hijacking of Eastern and other airlines in the U. S. It looked as though when Mr. Thomas made his first announcement there, which was that the East Coast and Eastern are going to participate in weapons trials, the hijacking rate fell off. One thing we found--most of these guys are pretty suspicious, they don't really believe what they tell you, they probably thought they are really using it, or something, so you couldn't have been more right in your advice there, that the mere announcement that something had started there, and that trials are beginning would have a deterrent effect. I think it must have had a real deterrent effect.

At the same time other things were happening which might have caused the hijacking rate to drop, but it wouldn't be specific to Eastern Airlines. The fact is that a guy came back and said that they treated him terribly in Cuba. Obviously, they can't expect never to have a hijacking but their record this year is awfully good. I hope that when they have their first that people understand. It is just as though a player had been batting .700 so far this year when he struck out for the first time--so they shouldn't just say, ha, ha, that shows you can't bat. But this does indicate, and I think Eastern Airlines at least said, what they have been doing has been a protection to them.

One final thing, there will be an announcement from New Orleans this afternoon--a press conference there. I don't know what the press coverage will be; there will be some coverage. I guess that for the first time an entire airport is being covered. We found that it seems the best way to build up the coverage on this, in the way of training the people, and so on is to do an entire airport at a time and so the system is being run now by the New Orleans Airport. They bought the equipment, they started it and have the responsibility for it, although the airline personnel are operating it. This is being done by foreign airlines--all airlines operating out of New Orleans. They are running the system and you will get some details on that. We have modified the system somewhat. Instead of having everybody walk through the gate, we don't have them walk through the gate until we have exhausted all other possibilities of clearing them, so it will be very rare that they would have to ask a person to go through the magnetometer, because we apply all the other elements of the system to clear them and keep that for the last, instead of using it early in the game. But otherwise the airport system has the same components and it is exactly the same as the system that we have been talking about.

One final thing. I hope the airlines don't get stampeded into trying an overnight introduction of our system every place simultaneously. Even though we have worked out a very simple practical system that can be taught people very readily, it does require training, it does require systematic introduction, and I think if we were forced into trying to do this overnight, it really would interfere with the effectiveness of the system. We are tooled up, we are going ahead very fast on it and we are well along toward substantial coverage.

FRANKLIN OELSCHLAGER

Thank you, Mr. Cox, Ladies and Gentlemen. I would like to say in the beginning that the airline industry from the day the first hijack occurred has never been complacent. We have worked diligently and hard, devoting thousands of man hours and money to the problem because we have a lot at stake--our entire industry and all the passengers who make it possible.

We view every incident with serious concern. We analyze it, go over it, and enlist the aid and the assistance of every possible person or agency, in order to come up with some program to act as a deterrent.

Our greatest ally in this program has been the FAA. We have worked very closely with the FAA. I leave the accomplishments of that organization to the remarks of Dr. Dailey, but one of the first coordinating groups was organized through the FAA in order to get together the many people who become involved in the problem.

Representatives from the Justice Department, State Department, U. S. Marshal Service, and on through the industry worked together as an FAA Task Force. The Task Force was created as an emergency measure. It is still in existence, and one of the things that the industry would like to have is the Task Force continued on a permanent basis as a working group because, as mentioned previously, the problem is not necessarily limited to hijacking but covers the entire gamut of incidents which may affect the safety and operation of an aircraft.

We have received hundreds of suggestions, both procedural and mechanical in nature. Cooperative efforts by the industry and the FAA have screened them, analyzed them, discarded many and pursued others. This is a constant and continuing program, out of which was developed the magnetometer. It is not the final solution but it is a help.

We have set up procedures of various kinds, both standard operating procedures and emergency procedures. We have this program on a domestic level and on an international level because you have different kinds of situations that are created--different kinds of problems that you have to meet.

On the international level industry efforts through the State Department have contributed to the ICAO discussions. We feel that much can be accomplished between governments. If we can get every government to feel the same as the industry does about the apprehension and conviction of hijackers and the elimination of this type of crime, then we will have accomplished a great deal in combating the problem.

One of the most effective deterrents to the problem, the industry believes, is quick apprehension and conviction with a long, hard sentence in order to make people think twice about committing a hijack, or any other type of incident, which would endanger aircraft.

We feel that our work in this area has been fairly successful so far. I am inclined to agree with Chairman Browne that we have been lucky, but it is gratifying to note that in the first six months of 1970, we have had only one-third the incidents that we had during 1969. We can't be too optimistic, but guardedly we can say that many of the procedures that have been implemented, the publicity that has been received, the sentences that have been meted out, and a few incidents which have been aborted have all helped in reducing the problem.

The industry keeps an open mind. We are receptive to any idea, any invention, any procedure that will help us in combating the entire problem. Thank you.

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CHARLES MURPHY

It may come as some surprise that an area of air piracy exists which falls under the jurisdiction of the state as opposed to the federal government.

Less than a year ago, in my home town of Austin, Texas, an intrastate airline had a flight that landed on a turn-around route from Fort Worth. It was a hot summer day, and the aircraft was not air conditioned. After the passengers and crew had departed the plane, a young man, armed with a shotgun, boarded the craft and closed the door.

When the pilots returned to the plane, the young man advised them that he wanted to be taken to either Cuba or Washington, D. C. It was never quite clear which of the two he preferred.

One of the pilots returned to the terminal building and began calling the police, the sheriff, and the Texas Department of Public Safety, but before the law enforcement officers had arrived on the scene it got so hot inside the plane that the young man had opened the door and surrendered.

I told Jack Cox last night that this might be a solution to the hijacking problem. Let's simply require that all airplanes land in Texas and turn off air conditioning. This will empty an airplane faster than anything yet devised.

A couple of months after this episode another young man chartered an airplane and pilot at a small private airport just outside of Houston. He requested that he be taken for a short flight of less than 150 miles, but shortly after takeoff, he revealed a gun and advised the pilot that his destination was Cuba. The pilot finally convinced the man that there was not sufficient fuel aboard and that the trip would require too many stops. Defeated by the pilot's logic, the young man allowed the plane to return and land. Unfortunately, as General Wilson has previously said, we have no specific law at the state level under which such crimes can be prosecuted.

Admittedly, a multitude of state laws exist which cover such acts, but we need a specific law which would emphasize and clearly define air piracy as a crime at the state level. In the event that a crime occurs which does not fall under federal jurisdiction, I think it is important that immediate prosecution can be forthcoming at the state level.

At the risk of repeating what others have already said, I do want to point out that the nations of the world, at one time, were able to solve the problem of piracy on the high seas. They did it very simply by denying sanctuary to pirates in all the ports of the world.

I would hope that the nations of the present-day world would present a united front to modern-day piracy in the same manner, even to the point of levying sanctions against those nations which refused to cooperate by returning the equipment and the hijackers to the injured nation.

I am sure that the State Department of every nation would react with horror at this last proposal, but the fact remains that such an approach would solve immediately the problem of air piracy.

Whether the nations of the world wish to take such drastic steps depends entirely on how anxious they are to solve the problem. Serious crimes require drastic solutions, and we must soon decide the category in which we are going to place air piracy.

It is obvious to me that our State Department and international relations people must become more involved in this problem before effective solutions will be reached.

I have hopes, and a certain amount of faith, in our electronic and mechanical detecting devices, but I also have doubts that they are going to completely solve the problem. I say this because I believe it is at the political level that the main problem exists.

In our State of Texas, we will be preparing specific legislation, dealing with the crime of air piracy, which will be submitted to the next session of the legislature.

If we are successful in our efforts, we will make these acts available to other states, especially to those larger states such as California, Pennsylvania and New York, where these crimes can occur and not be in violation of federal statutes.

CHARLES RUBY

Thank you, Mr. Cox, Ladies and Gentlemen. I had planned on more of the pilots being here, and Captain Tulley, the first vice president of the association, is present this morning.

An individual of our industry, when looking at sabotage in the first instance, must define the problem in very broad and general terms, and first must consider what are the motivations. The first general area may be defined as an individual or group who has some real or fancied element of dissatisfaction, after which they elect to vent their wrath by some foul means that would attract publicity, in the mistaken belief that it would also improve the stature of the individual, or group, that is dissatisfied.

Secondly, the individual or group feels great personal satisfaction in having wreaked anything from fear to death for their victims. The next broad area generally covers an individual or group who at least in their own minds are in a substandard position within their society, financially, educationally, and even more broadly, inferiority complexes, all of which can lead to a belief on the part of such individuals, that by some drastic action their station in life can be improved.

The third element may generally be classified as directly or indirectly associated with political motivations which can range anyplace from simply being against an individual in power or against the entire establishment for whatever scope was encompassed within their mentality. Fourth, the next element of consideration are those who are emotionally unstable or mentally disturbed, their minds wandering into the development and implementation of dastardly schemes against their fellowmen. It is extremely difficult to separate emotionally unstable individuals from those who are mentally incompetent. Those persons who indulge in the hijacking of aircraft can generally fall within the above listed groupings of saboteurs, but with certain twists that channel their thinking between a sabotage activity as opposed to a hijacking, and in all the foregoing there are always possibilities that certain individuals harboring a belief that in some way they can accomplish a monetary gain.

These problems are not peculiar to the United States. They generally apply to the world at large and with the rapid increase of world population, it is only natural that the percentage of mental misfits may expect to increase, at least proportionately, or possibly, at a greater proportional rate. The next question arises: how can such activity be either stopped or brought under definite control?

The answer is obvious. There is no single solution or pat answer that takes care of every conceivable situation or combination thereof. Piracy at sea dates back many centuries; sabotage also has come through nearly the total era of recorded history, and the world's populace having become more mobile, transportation media are frequently selected as targets, usually because they are more spectacular. It is a more spectacular episode on which such an individual or group elects to attach their mental processes, resulting in their minds at least with a tremendous ego-satisfaction. From the standpoint of air transportation, the entire aviation industry and the FAA, have put forth many hours of effort and research for ways and means to overcome these problems.

It is my view that substantial progress is being made and will continue to be made as more and more effort, as well as research and development, is devoted to solutions of such problems. The ideal situation, of course, is to preclude sabotage material from ever being loaded aboard an airplane, or a hijacker being permitted to board an aircraft in the first instance. Assuming that we are well along the way toward screening out the majority of sabotage materials, in the first instance, or hijackers in the second instance, the remaining requirement then is to deal with the situation for those few items or individuals who escape detection prior to boarding an aircraft, and thus must be dealt with prior to, or after becoming airborne.

It is my view that we are making substantial progress in this area also. It must further be borne in mind that all the effort expended centers around the philosophy of minimal risk to persons on board, as well as the property involved. This philosophy of protection of life and property accounts for the slow and tedious development of solutions to the problems of sabotage and hijacking.

It is further our view that if no publicity whatever occurred following a sabotage or hijacking effort there would be less attention called to the possibility of other people participating in such a venture. Where publicity is really needed is when the saboteur or hijacker is caught, tried, convicted and sentenced to anything from twenty years' imprisonment to death. Such publicity will tend to discourage others from participating in such a venture.

This gets us down to the trial and conviction phase of the subject. Unfortunately, the courts have in many cases freed the hijacker, or imposed an extremely light sentence. The most recent conviction, however, has produced a life sentence. Headlines should have been devoted to such news, not only nationwide but worldwide. There have been instances where an individual has been tried and subsequently freed on ground of mental incompetence, at least during the period in which the hijacking occurred.

The Air Line Pilots Association takes an extremely dim view of the laws or philosophies that are permissive of such decisions by trial courts because this does not change the fact that the hijacker has risked the lives of many people aboard the victim aircraft, but he has also exposed untold numbers of people on the ground in the event that his action produced loss of control of the airplane and a chance to strike the earth in a heavily populated area. The court, or jury, which released such an individual on the grounds of temporary insanity certainly cannot assure us that such an individual will not commit the same crime one or more times. Convicted hijackers should be retained in the penal system for whatever treatment may be desirable when such hijackers have been sentenced under the cloak of mental deficiencies or irresponsibilities (sometimes classified as temporary insanity).

The courts are simply not protecting the public at large when such individuals have been permitted to go free with the liberty to participate in repeat performances. Sabotage and hijacking are essentially worldwide problems, so they must be dealt with legally and technically on a worldwide basis. The International Civil Aviation Organization, an arm of the United Nations, completed a meeting in Montreal on June 30, 1970, in which the overall problem of security was dealt with, and I am pleased to state that I think they are now on the right track.

And if all world governments will participate in approving, participating and supporting without equivocation the legal and technical requirements to deal with saboteurs and hijackers, we will have made great strides forward, in developing solutions for the problems at hand. I believe that the public could be well served to support and make their views known in this instance to the FAA, the U. S. State Department, as well as the International Civil Aviation Organization, stating not only their support but their demand, for prompt legal and technical action on behalf of transportation safety on a worldwide basis. The world society can no longer afford the tolerance of such despicable crimes from those who participate in sabotage or hijacking.

DAVID D. THOMAS

Thank you very much. I will not go into any details of the techniques, or other technical matters that we are concerned with here, because Dr. Dailey, I know, will cover that in his discussion. I only want to leave two thoughts with you that may not be covered in the other discussions. One thought, and I am not sure how far Dr. Dailey will go, but I think we are dealing with, as Secor Browne said, and I will say it a little plainer, we are dealing with idiots; we are dealing with failures; we are dealing with the fringe element of society that would endanger the safety of planes and the lives of others. The hijackers are not heroes here and they are not even heroes in Cuba. Many of those that remain in Cuba, to the best of our information, wind up on agricultural farms at hard labor or prison, or something else disagreeable.

We are not dealing with youngsters who are engaged just in a lark or a big joke. I am very much distressed when I hear some of our best comics and entertainers use the hijacking theme as a joke. I know, with all the things in America that are delicate and privileged, it is hard to find material for comedy programs, but I would certainly urge that we treat hijacking as despicable acts which endanger innocent passengers, rather than as comedy material.

It is to the credit of the airline crews that the hijacking incidents so far have been as successful as they have been insofar as the safety of the passengers are concerned, although we have had death of a crew member, and other crew members have been wounded. Pilots going into strange airports, unknown weather, with marginal fuel supplies on board, and with the psychological and emotional problems that must exist with a gun at their heads or at the head of the stewardess, have done remarkable jobs in saving potentially hazardous trips.

This is my one plea: Let's recognize hijackers as the scum of society, and not treat them as jokesters or heroes, but treat them as the despicable criminals they really are.

* * *

*
The Honorable George P. Miller, Congressman from California, served on the panel. His presentation was on the subject of "Our Nation's Airports," which has been reproduced separately, and is available upon request.

STUDY COMMITTEE REPORTS

During the afternoon of this meeting three study committees, previously formed by APA President Jack Cox, met for over three hours and subsequently developed their conclusions and recommendations for inclusion in this report.

Those participating in these study committees represented the following organizations, departments and associations:

1. Air Line Pilots Association and Federal Aviation Administration
2. Air Transport Association of America and Flight Safety Foundation
3. Airline Passengers Association

AIR LINE PILOTS ASSOCIATION
FEDERAL AVIATION ADMINISTRATION

Chairman: Robert Friedman
Federal Aviation Administration
Washington, D. C.

Recommendations:

1. That the penalty for attempting to or carrying a concealed weapon on board an aircraft be increased from a misdemeanor to a felony and sentences be increased accordingly.

2. FAA be requested to provide an article for the APA magazine on current progress and development in the deterrence of hijacking.

3. Action be initiated to maximize publicity on what is being done in the anti-hijacking area, including penalties or convictions, impact on safety, data on federal penalties, treatment accorded hijackers in Cuba, etc.

AIR TRANSPORT ASSOCIATION
FLIGHT SAFETY FOUNDATION

Chairman: Franklin Oelschlager
Director
Office of Enforcement
Air Transport Association
of America

Recommendations:

1. One of the most effective deterrents to hijacking is swift prosecution with effective penalties. To this end the Department of Justice is now urged to publicly announce a policy that it will take effective steps to urge the federal courts to convene trial proceedings within ninety days of the date of arraignment.

2. For uniform international procedures adopted by all nations for the effective apprehension, prosecution or return of hijackers.

3. For Criminal Division, Department of Justice, to organize a national FAA-Justice Department Strike Force to develop and handle all hijack prosecutions to completion.

4. Develop a public relations program to emphasize the adverse consequences of hijacking an aircraft for deterrent purposes.

Study Committee Reports

AIRLINE PASSENGERS ASSOCIATION

Chairman: Brig. Gen. J. M. Kenderdine
Vice President
Scott Paper Company

Recommendations:

We of APA have five recommendations. This is a very significant opportunity and occasion for a group such as APA, because I believe, really for the first time, this is the first opportunity for the people who really make this whole thing go, to say something in open forum for the overall benefit of the whole commercial aviation industry; so, the five recommendations of the airline passengers are

1. Strive for publicity and emphasis of the apprehension and the prosecution of hijackers. And strive through the media for de-emphasis of the dramatic aspects of the hijacking incidents, and you can read all sorts of things into that very simply stated recommendation.

2. APA recommends prominent and massive distribution of anti-hijacking warning signs that have already been adopted by FAA and that we saw here today. I thought they were quite good. We further recommend that this type of warning sign also be displayed in the restrooms of aircraft, and that a small sign be made, enclosed in plastic, and placed in the seat pockets of aircraft. I believe the history of some of these hijacking incidents has been that the hijacker went into the restroom probably to muster his courage, and then he came out and grabbed the stewardess and held a gun or knife to her and said, "Take me to your captain." Certainly 99.99 per cent of all the air travelers will not be offended by these signs, and we think it is a very valid thing to put such a warning sign in the restroom of the aircraft and in the seat pocket of the aircraft.

   Let's also see that these signs are better displayed in the airports and the ticket counters. I have yet to see one in Philadelphia. I have never seen one in O'Hare; maybe I haven't been in all the corners of O'Hare. I haven't seen one in Dallas; I was in Denver last week; I was in Omaha, Milwaukee...I don't think I have seen a sign; I have seen some here at National but there have been many airports in which I have not seen a warning sign.

3. We recommend to all concerned, and I guess primarily we are talking to the carriers here, to adhere to the existing rules governing carry-on luggage when ticketed. In addition to this loose practice of carry-on luggage being a potential contributor to the hijacking menace, these assorted parcels and packages that the general public are bringing on airliners today are creating a hindrance in the event of an emergency. I know the stewardesses always try to check to see that everything is under the seat, but I submit that on every airliner boarded today and taking off, there is a heck of a lot of stuff not under the seat, because people are just carrying on too much paraphernalia under this loosely-policed policy of carry-on luggage.

4. APA applauds and endorses the progress made by FAA in the field of detection devices. Further, APA recommends that detection systems be installed at all major airports as quickly as possible. If necessary, such programs to be processed on a crash basis. We further urge that FAA continue its research in the detection and deterrent field.

5. APA recommends and supports a full-time funded staff administered by the FAA dealing exclusively with air safety and security. We further recommend that this staff work be aided by an Advisory Council consisting of ALPA, ATA, APA, Flight Safety Foundation, and other elements of the aviation industry which the FAA deems necessary.

AIRPORT OPERATORS COUNCIL INTERNATIONAL, INC.

February 23, 1978

Honorable Abraham A. Ribicoff
Chairman
Committee on Governmental Affairs
United States Senate
Washington, DC 20510

SUBJECT: Comments on S.2236, Omnibus Antiterrorism Act of 1978

Dear Mr. Chairman:

The Airport Operators Council International (AOCI) is the association of the governmental bodies which own and operate the principal airports served by the scheduled airlines in the United States, as well as in many countries abroad. Our U.S. member airports annually enplane more than 90% of the domestic and virtually all of the U.S. international scheduled airline passenger and cargo traffic. In addition, our local government members operate many reliever and other general aviation facilities which supplement the larger airports in their communities and regions. (A listing of our U.S. members is attached.)

It is on behalf of these U.S. members that we take this opportunity to comment on S.2236, the Omnibus Antiterrorism Act of 1978 and on aviation security generally.

The Airport Operators Council International and its member airports are supportive of the on-going air transportation security program because of the recognized need for a concerted effort within the industry to bring hijacking to a halt and to insure the safety of the air traveler.

AOCI believes that, to combat the threat of international air piracy motivated by political considerations, the most effective solution lies in international actions between national governments to eliminate all "safe havens" for hijackers and to assure prompt criminal prosecution when such incidents occur. The United States Government should actively pursue, through multilateral or bilateral negotiations, the prompt development and ratification of international agreements that will deter future criminal acts against civil aviation.

-AOCI Endorses Objectives of the Bill

AOCI is in substantial agreement with the objectives of S.2236 and has no problem with sections of the bill other than 303, 107, and 108. We especially endorse the provisions amending Title 18, United States Code, which are specified in the Bill's

International Headquarters: 1700 K Street, Northwest, Washington, D.C. 20006 Phone: (202) 296-3270 Cable: AOCIHQ

Title IV, Aircraft Sabotage and Piracy.

For years, AOCI has encouraged FAA to work with the Department of Justice to seek more uniform prosecution procedures and more effective results in criminal cases involving acts against civil aviation. Further, we have urged Congress to enact legislation which would amend P.L. 93-366, the Antihijacking and Air Transportation Security Act of 1974 to provide for alternative civil and criminal penalties commensurate with the incident which will be actively processed through Federal Jurisdictions by the Federal Aviation Administration and U.S. District Attorneys. This is not the case at present.

-Provisions Raising Serious Problems for Airports

Section 303 -- While AOCI favors amending P.L. 93-366 to include screening of charter or supplemental air carriers, we believe certain other aspects of Section 303 need to be revised.

First, the wording should be revised to specifically cover only the large group charters which are open to all the public and to preclude the necessity of screening small private groups of one affinity, such as a football, church or other similar group of 40 or more passengers. Many such charters do not depart by boarding through the terminal but rather via a fixed based operator or airport hangar. If a charter screening provision is provided, flexibility should be allowed to permit this situation.

Second, AOCI opposed language which would require any type of commuter screening. There has been only one successful hijacking of a U.S. certificated scheduled passenger operation since January 1, 1973. This incident was the hoax at La Guardia where existing screening measures were not at fault. There has been no hijacking of scheduled commuter operations during that period. Thus the threat potential to this type of operation does not justify the high cost for both airlines and airports to implement a security program for commuter operators.

Third, AOCI is concerned about the use of the word "safety" in Section 303 which, as written, has the effect of extending all existing air carrier airport safety certification requirements to non-air carrier airports. This goes beyond the intent of the bill which we understand to be solely in the area of security.

Sections 107 and 108 -- AOCI also has some concern with the provisions of Section 107 which would establish a list of Dangerous Foreign Airports and of Section 108 which would implement sanctions against airports on the list based on national policy over which individual airports have little or no control.

The inclusion of "safety" deficiencies of a foreign airport is again, in our view, beyond the scope of the bill's security interest and should be removed. Additionally, we are concerned that if such a list were made public, the threat potential at these airports would be greatly increased.

As regards Section 108, we believe that current law already authorizes the President to impose such sanctions, when necessary, incldluing the termination of air service to a country that does not meet ICAO security standards. We therefore question the need for this provision as drafted. We urge that the current law be strictly enforced when necessary.

-Flexibility to Reduce Economic Impact

Any amendment of Title 49, United States Code, must allow for enough flexibility to prevent the creation of a severe economic impact on airport, airline, supplemental, and commuter operations. Unless the possibility of these severe economic effects of the bill are taken into consideration, the entire air transportation system could be adversely affected, especially small community air service.

Sincerely,

Dan Reilly

J. Donald Reilly
Executive Vice President

ATTACHMENT

ROSTER OF UNITED STATES MEMBERS

Alabama
Birmingham - Department of Aviation

Alaska
Alaska - Department of Transportation and Public Facilities

American Samoa
American Samoa - Government of

Arizona
Phoenix - City of

California
Fresno - City of
Kern - County of
Lockheed Air Terminal, Inc.
Oakland - Board of Port Commissioners
Orange County
Palm Springs - City of
Sacramento - County of
San Diego Unified Port District
San Francisco - City and County of
San Joaquin County - County of
San Jose - City of

Colorado
Colorado Springs - City of
Denver - City and County of
Pueblo Memorial Airport

District of Columbia
FAA National Capital Airports

Florida
Broward County - Board of County Commissioners
Dade County - Aviation Department
Daytona Beach Regional Airport
Hillsborough County Aviation Authority
Jacksonville Port Authority
Lee County Airport
Melbourne Airport Authority
Orlando - City of
Palm Beach County - Board of County Commissioners
Pensacola - City of
Sarasota - Manatee Airport Authority

January 26, 1978

Georgia
Albany-Dougherty County Aviation Commission
Atlanta - City of
Savannah Airport Commission

Guam
Guam - Government of

Hawaii
Hawaii - Department of Transportation

Illinois
Chicago - Department of Aviation
Peoria - Greater Peoria Airport Authority
Rockford - Greater Rockford Airport Authority
Rock Island County - Metropolitan Airport Authority of
St. Louis Metropolitan Area Airport Authority
Springfield Airport Authority

Indiana
Fort Wayne - Board of Aviation Commissioners
Indianapolis Airport Authority
St. Joseph County Airport Authority

Iowa
Cedar Rapids Municipal Airport Commission
Des Moines - Department of Aviation
Mason City Municipal Airport Commission

Jamaica
Jamaica - Airport Authority of

Kansas
Wichita - Airport Authority

Kentucky
Lexington-Fayette Urban County Airport Board
Louisville and Jefferson County Air Board
Paducah Airport Corporation

Louisiana
Baton Rouge - Greater Baton Rouge Airport District
Calcasieu Parish - Airport Authority for Airport District #1
Lafayette Airport Commission
New Orleans Aviation Board

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Maine
Bangor - City of
Portland - City of

Maryland
State Aviation Administration

Massachusetts
Massachusetts Port Authority

Michigan
Flint - City of
Kalamazoo Municipal Airport
Kent County Aeronautics Board
Muskegon County Airport
Tri-City Airport Commission
Wayne County - Board of County Road Commissioners

Minnesota
Minneapolis-St. Paul Metropolitan Airports Commission

Missouri
Columbia - City of
Jefferson City - Airport Commission
Joplin - City of
Kansas City - Aviation Department
St. Louis Airport Authority
Springfield Municipal Airport Board

Mississippi
Jackson Municipal Airport Authority

Nebraska
Lincoln - Airport Authority
North Platte Airport Authority
Omaha - Airport Authority

Nevada
Clark County
Reno - City of

New Hampshire
Manchester Airport Authority

New Jersey
Trenton - Mercer County Airport

New Mexico
Albuquerque International Airport

New York
Broome County Airport
Buffalo - Niagara Frontier Transportation Authority
Metropolitan Transportation Authority of New York
New York and Newark - Port Authority of New York & New Jersey
Syracuse - Department of Aviation

North Carolina
Charlotte - City of
Greensboro - High Point Airport Authority

Ohio
Akron-Canton Regional Airport Authority
Cleveland - Division of Airports
Columbus Metropolitan Airport and Aviation Commission
Dayton - Department of Aviation
Kenton County Airport Board
Toledo-Lucas County Port Authority
Youngstown Municipal Airport

Oklahoma
Oklahoma City Airport Trust
Tulsa - Airport Authority

Oregon
Portland - Port of

Pennsylvania
Lehigh-Northampton Airport Authority
Pennsylvania Department of Transportation
Philadelphia - Department of Commerce
Pittsburgh - County of Allegheny

Puerto Rico
Puerto Rico Port Authority

Rhode Island
Rhode Island - Division of Airports

South Carolina
Charleston County Airport District
Greenville-Spartanburg Airport District
Richland-Lexington Airport District

Tennessee
Chattanooga - Department of Public Works
Knoxville - City of
Memphis-Shelby County Airport Authority
Nashville - Metropolitan Nashville Airport Authority

Texas
Austin - City of
Dallas - Department of Aviation
Dallas/Fort Worth Regional Airport Board
El Paso - City of
Houston - Aviation Department of
San Antonio - Department of Aviation

Trust Territories of the Pacific Islands
Mariana Islands - Department of Transportation and Communications

Utah
Salt Lake City International Airport

Vermont
Burlington Airport Commission

Virgin Islands
Virgin Islands Port Authority

Virginia
Norfolk Port and Industrial Authority
Peninsula Airport Commission

Washington
Seattle - Port of
Spokane Airport Board

West Virginia
Tri-State Airport Authority

Wisconsin
La Crosse
Milwaukee County Airport Division

Wyoming
Natrona County International Airport

IFFA
Independent Federation of Flight Attendants
630 Third Avenue, New York, New York 10017
(212) 697-0654
GOVERNMENTAL AFFAIRS COMM.

January 30, 1978

Senate Governmental Affairs Committee,
on International Terrorism
U.S. Senate
Senate Office Building
Washington, D.C.

Dear Honorable Committe Members:

On behalf of all TWA Flight Attendants we support your in your endeavors to combat international terrorism.

We urge your passage of Omnibus Anti-terrorism Act (S2236).

Our organization has adopted the following resolution:

Whereas the Flight Attendants of IFFA have a grave concern for the welfare of their passengers as well as themselves and

Whereas the United States must commit themselves to do everything possible to safeguard air transportation from potential danger of hijacking and

Whereas anyone or any country who aids or harbors a hijacker must be condemned therefore

Be It Resolved the Executive Board of IFFA supports the Senate Bill (S2236) on Anti-terrorism.

Thank you.

Very truly yours,

Richard Wagner

Richard Wagner
Safety Chairperson

RW/fw

PROBLEMS OF COUNTERING POLITICAL TERRORISM

by: Marvin Leibstone

(Submitted for inclusion, record of hearings, U.S. Senate bill S. 2236, the Anti-Terrorism Act, before the U.S. Senate Government Operations Committee, week of 23 January, 1978. Author, Marvin Leibstone, is Security Operations and Research Analyst, Science Applications, Incorporated, Crystal City, Virginia. Material expresses views of author and not necessarily those of employer. Author has participated in several studies of terrorism for the U.S. Army and the U.S. Nuclear Regulatory Commission).

Introduction. The comments which follow deal with aspects of political terrorism, conditions which surround and affect development of countermeasures, and the substance of certain countermeasures which work. Throughout, these comments are within the framework of existing components of S. 2336 or the intent of the Act. They present a foreground of countermeasure needs as perceived by the author, along with suggested concepts for formulae to serve these needs. Specific areas of discussion are (1) problems of definition, (2) problems of policy, (3) crisis management, and (4) development and use of tactical response forces.

Background. The search for a panacea to curb domestic and international political terrorism has been a concern of government executives, legislative authority, law enforcement, industry, the intelligence community and leading political scientists. Studies have been conducted which identify and characterize terrorism, the terrorist, and terrorist operations; they quantify events and infer obvious countermeasures; they

predict future terrorist technology and modus operandi. No doubt, from all this, there have been successful measures in dealing with the problem. By FAA instituting total security at airports in 1971, airplane hijacking was reduced considerably. After Munich, Israel's continuing hard-line "no negotiations/no concessions" policy paid off with severe blows in kind to terrorists operating in Arab countries, and at Entebbe. In 1977, a specially trained West German counterterror force humiliated one of the more fanatical European terrorist groups. Yet terrorism looms high each month, and the fear that terrorists might someday employ nuclear devices remains with us.

There are more than 100 terrorist organizations operating in around fifty countries. Several of these groups have cooperated with one another for the conduct of operations in that they shared intelligence, cached or transported weapons, trained or provided personnel. While there is no formal international terrorist directorate, the effects of one occur, and it is the effects of cooperative terror, not its organizational or theoretical constructs, that we need fear and counter most. The Anti-Terrorism Act, S. 2336, is a step in the right direction because of its sanctions policy and the creation of federal counterterror organizations.

A Working Definition. Defining and measuring political terrorism is not easy. What is political has always been difficult to define and measure, and terrorism, as protest or as revolutionary action, has always been paradoxical. What is political philosophy to one man, is pure science to another and what is terrorism to one is liberation

from illegitimate domination for the other. This problem of explanation, then, is created when the definition stems from the purpose of politics or terrorism, not the effects of such. That is, when we study the effects, a less valued but more scientific version of a term can be reached. For example, there is no denying that political terrorism impacts upon victims innocent of the target of terrorist perpetrators: innocent people are held captive and are sometimes killed as part of the terrorist act. This particular effect is far outside the boundaries of legal violence. Irrespective of what history may tell us, we, as social beings, cannot accept a premise that the innocent must die for a perpetrator's cause if that cause is just or unjust. Thus, political terrorism is, foremost, individual or group behavior; it is, in terms of widest social acceptance, extremely irrational behavior and consequently illegitimate. Political terrorism can then be defined as politically oriented violence that is unlawful regardless of the political persuasion involved. Efforts to understand more about the nature of political terror will go afoul unless this simple or a like definition is accepted. The Anti-Terrorist Act could be a comprehensive bill clarifying for future policy-development a working definition of political terrorism that would be compatible among all U.S. government agencies. Such should make clear to political terrrorists the U. S. interpretation of terrorist acts that nations must avoid to prevent sanctions.

The Uses of Political Terror. Political terror is employed to attain strategic or tactical objectives. Among the former are:

- Acts to help cause the transfer of power.
- Acts to help dissolve and recreate territorial limits.
- Acts to influence national and international decision-making.

Among Tactical Objectives are:

- Acts to obtain worldwide attention to "cause."
- Acts to obtain military weapons and money for future operations.
- Acts to demonstrate faults in the legitimate government.
- Acts to gain legislative demands immediately

Political terror may be only as productive as the fear it instills among policymakers of nations where such terror takes place. Fear, rather than weaponry, comprises the true arsenal of the political terrorist. It is fear (be it fear of death to hostages, or senseless dynamiting of facilities, or of death or wounding of a kidnapped executive or child) which can give the political terrorist parity with the legitimate counterterrorist who has him outnumbered in soldiers and guns. To the American foreign policy maker, this arsenal of fear can be so arranged by political terrorists that the countermeasure options open to the United States are few. Let us examine some rules under which American foreign policy finds itself when confronted with political terrorism either domestically or abroad.

As a democratic nation striving more to do good in a world where favorable attitudes of other nations toward democracy can enhance the survivability of democracy, the United States cannot afford to stray from the moral base that supports the meaning of democratic institutions, especially since President Carter innoculated foreign policy with serum of human rights. On matters of human rights, the U.S. will have to "back its play." Therefore, the political terrorist cannot be ferreted out and incarcerated or liquidated (as might be done in Eastern Europe, the Soviet Union or Latin America) until he has committed the dire act, and even then America must show as much compassion for the perpetrator's right to have a "cause" as the situation will allow. Second, and rightly so, if hostages, kidnappees, or civil works are held captive and their existence threatened, the U.S. must place a higher value on them than on the demands of the terrorist unless the demand is such that more lives are endangered. It is more understandable for hostages of a nation whose very existence is threatened by continued acts of terror (e.g., Israel) to be sacrificed to a "no negotiations/no concessions" policy than for American hostages to be sacrificed for demands that may only cause slight aberrations in policy, a slap in the face of military pride, or a loss in dollars.

The suggestion here is that the U.S. is in no position to make black or white decisions regarding political terrorism. The American policymaker cannot decide that the U. S. will never negotiate or concede, or that no matter what conditions exist the terrorist will be attacked with force. Such a policy would only invite political ter-

rorism. An already specialized tactic of political terrorist organizations is to manipulate a legitimate power into an embarrassing conflict where either way out of the conflict would cause that power to suffer. For example, if during a particular terrorist act the U.S. refused to negotiate or concede and to ignore a hostage-taking incident completely, the world could view this as lack of compassion from which several setbacks in foreign policy would result; conversely, if during the act the U.S. assaulted the terrorists with force and the operation did not succeed in providing safety to all hostages, the counteraction may be viewed as gunboat diplomacy, more so if no negotiations preceded the assault.

Two policy requirements have been implied thus far: (1) America must display compassion for the terrorist perpetrator's right to have a cause as well as for the safety of hostages and civil works, and (2) simultaneously reduce the tensions and far-reaching implications of political terrorism insofar as such may endanger the American way of life. Considering the extortive time-bomb features of political terrorism, and political outcomes of certain counteractions, these are not simple tasks.

The first requirement infers that negotiating be accepted as a policy component. Negotiating expresses only a willingness to listen, to consider, to talk. It does not mean any concessions should be made. In truth, negotiating has often proved to be the most effective counter-terror weapon, if not the only weapon, with which to change the status quo of an event. To adhere to a policy that does not allow for nego-

tiations to occur is to narrow one's options to military force, or to total passivity, in either case risking the lives of hostages. By negotiating with terrorists, several conditions are created which, if cultivated properly, can allow the counterterrorist to take advantage of the terrorist. Significant is the gaining of time. As negotiations take place, the counterterrorist can learn about the terrorist himself, the operational environment, the locations of hostages and their physical condition, the adequacy of assault forces, and risk factors involved in an assault. A policy denying the negotiating option could only be self-defeating. After all, if political terrorists wanted but to destroy or kill, they would not create situations where negotiations could serve to interrupt the act of destroying or killing; they would not take hostages to use as bargaining chips; they would simply murder in the streets..

Willingness to negotiate,expressed as policy also has its drawback; it suggests military force will not be considered, that a perpetrator can create a terrorist incident to be heard, to have his grievances re-dressed. This matter brings us to new questions about policy: Should the United States have an announced anti-terrorist policy? Further, does the United States owe the international community an announced anti-terorrist policy?

Examining the former, effects of an announced policy can be seen to have several negative aspects. It is true that on the positive side an announced tough-minded anti-terrorist policy would persuade many terrorists to keep hands off American targets; but on the negative

side, a tough-minded policy that does not allow the United States to back off from a strong commitment without contradictory appearances may be the very trap the more sophisticated terrorist groups have been waiting for. As an example, in Uruguay, the Tupamaros constructed a campaign of terror deliberately to cause the existing government to enact a vigorous hard-line policy which would appear repressive. It was this repressive quality that eventually caused the regime in power to crumble. Such attempts could take place on an international scale.

One scenario could center around the use of sanctions should the United States impose these upon smaller nations harboring terrorists. If a third party country wished to impede relations between a particular nation and the United States it might consider covert support of terrorism in the particular nation so that the United States would have to enforce its sanctions policy. Effective trade and international politics vis-a-vis the United States and a particular nation as well as observing nations would be hindered from the imposition of sanctions, and political terrorists would have a victory. Thus, a sanctions policy could have a boomerang effect.

The Anti-Terrorism Act suggests the use of sanctions. No doubt, sanctions, when deserved, should be imposed. But when a cause of the sanctions may not be what it seems, or when the results of sanctions outweigh the existing terorrist problem, their use becomes counterproductive and jeopardizes foreign policy. There ought to be some caveat in the Act allowing the use of sanctions on a case-by-case

basis, and it should be clear to the world what criteria the U. S. would apply in making the judgement as to whether sanctions against a particular nation should or should not be imposed.

A flexible policy, although such may appear enigmatic, would serve the anti-terrorism problem best. The field for action is more open and decisionmakers are under fewer constraints. Fair criteria for the use of sanctions, known internationally, would reduce the capability of third party terrorist supporters to turn the sanction policy to their advantage, and an admittance that the U. S. would negotiate, but never concede to irrational terrorist demands, would negate efforts by terrorists to test such a policy and possibly cause the United States to fall prey to the negative outcomes of such a policy. The Anti-Terrorism Act is a product wherein the United States could make it clear to other legitimate nations that sanctions against them will be based only on clear evidence of that government's willingness to support terrorism, not simply the harboring of terrorism; and further, could make clear to terrorists and to national or bloc actors which support terrorism that the United States has a flexible enough anti-terrorism policy to absorb the effects of most any terrorist act with minimum abberation yet maximum options at hand.

The policy of sanctions in the Act deals with but a symptom of the terrorist disease, the 'carrier' so to speak—the second and

third parties who can spread the disease. By adding language to express lucidly a U. S. policy on the matter of "willingness to negotiate, but . . . ," the Act could also speak to the disease itself, the Political Terrorist, and discourage him from acts against American targets.

Crisis Management. The Anti-Terrorism Act mixes policy matters with operational imperatives, although one set is not dependent upon the other. Whether the United States decides to enact a policy of sanctions against nations harboring terrorists or not, the operational aspects of the Act are clearly necessary. Injustice to the Act would result should its operational aspects be negated due to disapproval of the sanctions proposal. Should disapproval of the present Act on the basis of difficulty over the sanctions occur, the Senate would do well to consider new legislation.

Most significant in the Act is language which creates, in the Department of State and Department of Justice, planning and coordinating bodies to implement activities that will cause the developmnt of national and international U. S. actors to deliver measures against political terrorists. Presently, the United Stated government does not have a high-level body or assigned Task Force to manage terrorist crises similar to the Entebbe or Somali incidents. What exists now is a sort of on call contingency element made up of several persons who have little counter-terror experience and who, during a terrorist crisis, would not have

on hand a sufficiently well trained or experienced crisis management staff or a centralized strategic data bank from which to draw needed operational intelligence. That is,the current set-up is a mechanism to manage crises per se but it is not tailored or equipped with personnel or other resources to deal with terrorist events and their sensitive time bomb features. To beat the political terrorist and to reduce the effects of a terrorist event, a highly specialized crisis management body is needed. The Anti-Terrorist Act implies the development of such, and that is a positive value. From the elements the Act would create, there could easily develop the appropriate crisis management body required. Disturbing, however, is that the Act merely "implies" the creation of this body; it does not "direct" it.

Normally, specifying a tactical measure is not the business of legislation; yet, it appears that the urgent need for crisis management is great enough to warrant immediate development via decree. The Act, by directing the creation of "political terrorism crisis management" rather than implying such, would undoubtedly do away with much of the internal debate over its development that would occur in the federal bureaucracy from mere implication. Direction by the Senate could not only establish the requirement for the appropriate crisis management body; it could also cut to a minimum the delay in its creation.

Tactical Response Forces. An operational need that the Anti-Terrorism Act alludes to vaguely is the existence of a force, or forces, to react

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to terrorism immediately on-site with appropriate physical resources. Forces of this nature are military in style and must be able to assault terrorists or terrorist positions with weapons and weapons proficiency in such a manner that least harm is delivered to hostages. Israel and the Federal Republic of Germany have shown that specialized forces of this type can succeed under the most stressful political or tactical circumstances. Currently, the United States does not have as specialized a force, or forces, as Israel or the FRG have in the event of international terrorism. Domestically, the FBI and several metropolitan police agencies do have such elements, but for the more pressing and politically sensitive international events there are no organizations sufficiently trained to do what the Israelis and the FRG have done. While the Office of the Secretary of Defense has ordered the military services to prepare for counterterror missions, what has occurred is the assignment of missions to organizations that have related unconventional warfare duties but which are not tailored, organizationally, to deliver the most severe blows possible to terrorist perpetrators. At first blush, U. S. Army Special Forces Operational Detachments and Ranger Battalions seem right for the task because of their experience and ability in conducting quick penetrations and commando-like raids, and because of this impression they have been assigned counterterror responsibilities. However, neither of these type organizations is tailored or equipped to participate in the operational activities which precede or accompany the tactical assault against terrorists. These activities include human and technical information gathering, sniper activities, assistance to negotiators, and

certain highly specialized target penetration techniques. Harmful to the task as well is the fact that these organizations have other high priority missions which detract from full counterterror training and, further, are subject to reassignment of personnel to other military units and therefore cannot maintain a dedicated counterterror capability for the long term. Were the Anti-Terrorism Act to direct the Office of the Secretary of Defense to establish a specialized counterterror force—one that would be tailored organizationally—to meet the variety of type terrorist events, and which would be dedicated permanently to the counterterror mission, then whatever crisis management body the 'Act would create would have the operational instrument to use if the military option to combat terrorists is selected. As the Act is now written, the development of a specialized tactical response force is, as in the case of the crisis management element, merely implied. Implication in this matter, rather than direction, may sustain the status quo.

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LEGAL ASPECTS OF INTERNATIONAL TERRORISM: THE TREES AND THE FOREST

Alona E. Evans
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As one can gather from a brief glance, the Report on "Legal Aspects of International Terrorism"* is voluminous. In an effort to make the Report more useful to the reader, we have provided in chapter one "executive summaries" of key points raised in the individual chapters of the Report. Moreover, in chapter two we have attempted to summarize the conclusions and recommendations of the Report, as well as their underlying rationales. Admittedly, though, even these summaries are lengthy, perhaps unavoidably so, in light of the magnitude and complexity of the subject matter. At any rate, the purpose of this paper is to give our individual, subjective views as to those conclusions and recommendations of the Report we regard as especially worthy of consideration and, perhaps, action. We hasten to add that we do so in our individual capacities only, and that other members of the working group may, and in some cases surely do, have different opinions.

In thus setting forth our views, we will proceed along the same line as does the chapter in the Report on conclusions and recommendations. That is, we will address ourselves first to general conclusions and recommendations that transcend or cut across the

* "Legal Aspects of International Terrorism," a Study prepared for the Department of State by a Working Group of the American Society of International Law and edited by Alona E. Evans and John F. Murphy (September 1, 1977).

individual manifestations of international terrorism treated in the Report. We will then examine the individual chapters of the Report and attempt to glean from the mass of material contained therein conclusions and recommendations we regard as especially worthy of attention.

GENERAL CONCLUSIONS AND RECOMMENDATIONS

Throughout the Report, a basic issue raised is whether international terrorism should be combated through multilateral or global, bilateral or regional or unilateral means. Ideally, the approach should be multilateral and global, because, by definition, international terrorism violates vital interests of the world community as a whole and the response thereto should be worldwide. Moreover, if ratified, a general international agreement which would define the offense of international terrorism, require states either to prosecute an accused or to extradite him to another jurisdiction for prosecution, make states which fail to comply liable for damages and make those states which condone or cooperate with international terrorists liable for payment of damages to the victims could be a major contribution toward the goal of preventing and punishing international terrorism.

However, the ideal does not necessarily comport with the real. Recent efforts to draft general treaty law on terrorism indicate that the utility of multilateral treaties is likely to be limited, and that the more like-minded (and thus narrower) the class of states participating in such exercises, the greater will be the likelihood of success either in the drafting effort itself or in the actual operation of the legal regime produced.

On the other hand, one should not give up hope that the political milieu may change so as to be more congenial to the conclusion of a general anti-terrorist treaty. Especially shocking acts of international terrorism, such as the events at Dacca and Mogadishu and the brutal murder of Hanns-Martin Schleyer, as well as pressures such as those generated by the threatened international strike of airplane pilots, may result in an atmosphere where new initiatives in the United Nations General Assembly and in other appropriate international organizations may be feasible. The Department of State should closely monitor the current political climate and develop contingency plans in order to be able to take advantage of favorable developments.

As an alternative to general treaties, the United States should encourage regional efforts to develop conventions for the control of terrorism, such as the recently adopted Convention of the Council of Europe. The conclusion of new or the revision of current bilateral agreements also may be useful. The U.S./Cuba Memorandum of 1973 and the U.S./Canadian Extradition Agreement of 1971 may serve as models.

It should be remembered that in this as in any other field, international lawmaking is not limited to treaties. The process of customary international lawmaking may afford some possibilities for overcoming problems created by a lack of pre-existing political consensus on "gut" issues such as sanctuary or the obligation to extradite. Also, to this end quiet and patient negotiations are likely to be more fruitful than the polemical exchanges that all too often characterize meetings on terrorism in international fora.

The usefulness of unilateral or national efforts, taken either by the United States or by other countries, should not be underestimated. Definition of the offense and prescription of penalties for its commission through domestic legislation, development of security measures, such as screening devices at airports, and improvement of law enforcement techniques would appear especially helpful.

One area where legislation would not be useful is that of negotiations with terrorists. Here government officials and other persons involved in the negotiating process need to have maximum flexibility in order to adjust their strategies to rapidly changing circumstances. General policy guidelines and ad hoc decision-making, plus improved law enforcement techniques, should remain the principal methods for dealing with terrorists.

An area of special concern, although one that this project did not examine in detail, is the possible relationship between media coverage and terrorist activities. In the view of the working group, guidelines (non-legal standards, perhaps a code of ethics) should be formulated to govern the nature and extent of media coverage of terrorist activities. Questions that should be addressed would include the need for temporarily withholding publication of a kidnapping or extortion threat until the incident has been resolved; avoiding publication of tactical police information; the relationship between tone and emphasis in media coverage and the encouragement of terrorist activity; and the like.

SPECIFIC CONCLUSIONS AND RECOMMENDATIONS

A. Terrorists' Threats and Societal Vulnerabilities

1. Aircraft and Aviation Facilities

Recent events have graphically demonstrated the overriding importance of rigorous national security measures to the protection of aircraft and aviation facilities against terrorist attacks. Highest priority should therefore be given to intensified FAA supervision of security measures in use in American airports. The x-ray screening devices can become faulty very quickly, and the FAA's current quarterly inspections are not frequent enough to ensure continuous operating efficiency. Airport security programs also should be extended to cover General Aviation at the point where general aircraft meet with public air facilities.

In the same vein, the FAA should pursue with increased vigor its efforts to encourage the improvement of airport security at foreign airports. At many of these airports, security is at present lax or non-existent, as recently evidenced by the apparent lack of effective controls at the Bombay, India and Palma, Majorca airports.

In spite of the failure of the 1973 initiative in ICAO, another effort should be made to conclude a multilateral convention that would be designed to enforce, by sanctions, the Tokyo, Hague and Montreal Conventions and any security convention that might be adopted. This convention would seek to strengthen the obligation to prosecute or extradite offenders of these conventions and to eliminate "hijack havens." The time for such action may be especially propitious in the wake of the shocking incidents at Dacca, Bangladesh and Mogadishu, Somalia and the threats by air pilots to strike if effective action is not forthcoming.

2. Nuclear Facilities and Materials

Perhaps the most striking conclusion drawn from this area is that international cooperation with respect to combating possible terrorist attacks or threats involving nuclear facilities and materials has been almost entirely lacking. Neither the Non-Proliferation Treaty, the IAEA Statute, nor any other treaty covers the subject of physical protection of nuclear facilities and materials. There also is no systematic exchange among states of technical, administrative, or intelligence information concerning physical protection of nuclear facilities and materials or of information concerning terrorist threat potentials. Similarly, to our knowledge, no international organization or international coordinative mechanism has been designated or established to plan for or coordinate plans for the contingency of a theft of nuclear materials from one state to another. In the most extreme cases, where stolen nuclear materials were taken to a state which is unwilling or unable to cooperate in locating and recovering these materials, or where the location of stolen nuclear materials is not known, there is no mechanism through which states could plan or effect an efficient and timely coordinated search.

The primary recommendations in this area flow naturally from the above conclusions. The United States in cooperation with other states should seek to designate an international organization or to establish a formal mechanism to deal with physical protection matters. The United States should also aggressively seek the agreement of states on the principles and provisions of an international convention which would establish (1) the legal basis for national and international physical protection standards that uniformly cover nuclear

facilities and nuclear materials at fixed facilities and in transit, including sanctions which may be imposed against states which fail to comply with such standards; (2) the rights and duties of states to cooperate with other states in the location and recovery of stolen nuclear materials; (3) the institutional mechanisms through which these rights and duties shall be exercised; (4) a crisis management center or mechanism that would operate in the event of a significant act of nuclear related terrorism; and (5) the duty of states to prosecute or extradite individuals responsible for sabotage of nuclear facilities or theft of nuclear materials.

Pending the conclusion of such a convention, the United States should seek through discussions in appropriate fora the agreement of states on the foregoing principles. The United States and other nuclear supplier states should consider making such principles standard provisions of their bilateral agreements for cooperation on nuclear energy and of their trilateral safeguards agreements with nuclear-recipient states and the IAEA.

3. Ocean Vessels and Offshore Structures

Although terrorism on the oceans has to date not been a significant problem, the oceans contain many economic assets which are within the capabilities of terrorists to attack, and which, because of their economic or symbolic value, are potential targets. Allocation of jurisdictional competence over terrorist acts, at both the international and national levels, is a primary problem in this area. The present jurisdictional framework is an inadequate basis for allowing a state to protect assets beyond its territorial sea against terrorism. If an acceptable Law of the Sea Treaty is concluded, it may provide a basis under international law for national action.

As to the national level, in the case of vessels, current United States legislation grants ample authority to enforcement agencies for preventive and enforcement activity. Clarifying legislative amendments are needed, however, with respect to offshore structures, preventive planning is inadequate, and ambiguities regarding allocation of jurisdiction among the several U.S. enforcement agencies should be resolved.

Accordingly, if an acceptable Law of the Sea Treaty should result from the current negotiations under United Nations auspices, the United States should ratify the treaty and enact legislation to extend federal criminal and civil law to all structures within the U.S. economic zone, under the jurisdictional provisions of the treaty. Failing conclusion or the coming into force of a Law of the Sea Treaty containing adequate economic zone articles, the United States Government should consider extending the federal criminal and civil law so it applies to U.S. structures and objects offshore the U.S. coast which are not covered by the Outer Continental Shelf Lands Act (OCSLA) or the Deepwater Port Act. Upon completion of such an extension of U.S. jurisdiction, the Department of State should consider seeking to negotiate bilateral or multilateral treaties requiring either extradition or prosecution for those criminal acts committed on or against vessels or offshore structures.

With respect to the responsibilities of U.S. agencies, the Coast Guard, the Departments of Defense, State, Justice, and other interested agencies should negotiate Memoranda of Understanding clarifying respective areas of jurisdiction. Upon such clarification, the U.S. Coast Guard should complete development of (and make

available to private parties as appropriate) a comprehensive set of contingency plans covering prevention of, reaction to, and follow-up after, acts of ocean terrorism. In the same vein, offshore industries should be required to file their own contingency plans which would include data regarding pipeline cutoffs and other damage control procedures, responses to fire and pipeline rupture, etc. Also, the U.S. Government and private industries and institutions should cooperate in considering the possible vulnerability of offshore structures, deepwater ports and vessels to terrorists, and the cost effectiveness of design modifications to minimize such vulnerability.

Finally, it is important that a low public profile be maintained with respect to the problem of ocean terrorism. The possibility of publicity increasing the potential for attacks on ocean facilities would seem substantial.

4. New Weapons: The Threat to Communications Facilities and and New Technological Systems

A primary conclusion in this area is that there are points of vulnerability in our complex technological infrastructure, as well as weapons that in the hands of a very few people can threaten to disrupt our society and afford opportunities for blackmail by fanatic groups or individuals. However, in terms of their ability to kill large numbers of people, terrorists have generally operated well below their technological ceiling. The apparent reasons for this are manifold. Technical difficulties, especially in the cases of chemical or biological weapons or fissionable nuclear material or other radioactive material, may be a restraint. Political or moral constraints also may be operative here. Terrorists appear willing to kill a few persons to win publicity, to make a point or

to create fear; they have rarely been willing to kill many people to accomplish the same objective, apparently because the public reaction against them would be instantaneous and would enable the government to crack down on them with public approval.

Thus terrorists have exploited the new vulnerabilities of advanced industrial societies in limited and special ways. A primary goal has been to force the government to take security measures that cause inconvenience. Terrorists have bombed transformers, but they have seldom tried to blow up power stations. They have not interfered with water supplies. They have not forced evacuations by igniting fires in chemical manufacturing plants or by blowing up tanks of hazardous chemicals, although the recent publicity given to accidental chemical spills and fires may provide some inspiration in this direction. They have not attacked liquified natural gas facilities or tankers carrying LNG; this is, however, a comparatively new technology. Political extremists have on several occasions recently carried out acts of sabotage at nuclear facilities. The vulnerability that modern terrorists have regularly exploited is civil aviation, primarily because airliners are vulnerable and convenient containers of hostages or a guaranteed number of victims.

The unwillingness of terrorists to kill large numbers of people may erode in the case of terrorists operating internationally if they can reach sanctuary and if governments are prevented by respect for the sovereignty of other states and by political considerations from responding effectively. If a terrorist group is not dependent on a local constituency for support, and can rely on refuge else-

where, it may be less concerned about alienating its target population. The apparent willingness of the Japanese Red Army terrorists to kill 156 persons aboard a hijacked airplane if their demands were not met lends support to this thesis.

The existing framework of liberty in the United States, and the explicit restrictions on the powers of government contained in the First, Fourth, Fifth, Sixth, Ninth, Tenth and Fourteenth Amendments to the Constitution place significant limitations on the kinds of actions that may be taken to protect ourselves from exploitation by terrorists of societal vulnerabilities. Nonetheless, it may be possible to reduce the new risks by holding open non-violent means to effective political action, and by some marginal tightening of legal restrictions on possessing substances with particular potential for politically disruptive effects and on the advocacy of certain kinds of acts.

Specifically, Congress should consider the possibility of amending the U.S. Criminal Code along the following lines:

(1) Unauthorized possession of specified destructive substances for which there is no legitimate private use should be forbidden. Examples might include all guided weapons systems, such as heat seeking missiles, and components specifically manufactured for use in them, nerve gases, non-biogradable herbicides, and biological substances potentially lethal to humans.

(2) Unauthorized interstate trafficking in specified substances which may have legitimate private uses but which also have significant potential use as agents to disrupt essential services or amenities or threaten the life or health of people in any section of the country should be forbidden. Items that could be specified might include explosives of any sort, explosive detonators, and incendiary substances.

(3) Soliciting should be forbidden when that solicitation is likely to produce the unauthorized use of those substances or weapons on targets of high sensitivity. Targets of high sensitivity would include such points of vulnerability as water supply systems, transportation systems, communications systems, energy systems, chemical and biological storage locations, and storage places for radioactive materials. It is recognized that, in the absence of an overt act to carry out a conspiracy, this extension of the criminal law might raise constitutional questions and that these should be exhaustively explored before implementation of this recommendation.

Several initiatives involving international cooperation might be usefully explored. In particular, international agreements that restrict the use of specified weapons (such as chemical and biological

weapons) by states should be vigorously pursued and the widest possible ratification sought. It would help to diminish the likelihood of irresponsible groups gaining possession of some particularly dangerous substances if national stockpiles of these weapons were reduced or eliminated. Foreign countries should be encouraged, perhaps by offers of technical assistance, to enact national legislation to control the possession or use of dangerous substances or weapons by unauthorized individuals or groups within their jurisdiction. Other possibilities that should be explored with other countries are measures to limit or control the sale abroad of weapons, destructive devices and their components and measures to identify certain substances or allow identification of their origin. Some limit on the dissemination of particularly dangerous or sensitive devices or components might be achieved by tagging them with radioactive nucleides or other substances.

5. Protected Persons and Diplomatic Facilities

The United Nations Convention on the Prevention and Punishment of Crimes Against Internationally Protected Persons, Including Diplomatic Agents, which the United States has ratified and which is now in force, has the potential to become a major factor in the effort to combat one form of international terrorism. However, further steps should be taken in order to maximize the Convention's potential. The United States should undertake a worldwide diplomatic effort to convince as many countries as possible to become parties to the Convention. To this end, the United States should work closely with the U.N. Secretary-General. Informal arrangements should be worked out between government officials and appropriate countries to encourage the utilization of the U.N. Secretariat to exchange data and ideas

concerning security measures for the prevention of attacks on diplomats and to urge other parties to the Convention to report to the Secretary-General on the steps they have taken to carry out their obligations under the Convention.

As an alternative or supplement to the U.N. Convention, regional and bilateral international agreements should be concluded or more widely ratified. Regional agreements currently apposite include the O.A.S. Convention to Prevent and Punish the Acts of Terrorism Taking the Form of Crimes Against Persons and Related Extortion That Are of International Significance and the recently adopted European Convention on the Suppression of Terrorism. The United States has become a party to the O.A.S. Convention, but it has not been widely ratified. The European Convention is a major regional initiative toward the prevention and suppression of international terrorism. The Department of State should keep itself fully informed of the status of this Convention and, when appropriate and feasible, consider using it as a model for future agreements or sign and ratify it if it is ever opened to non-European states and likely to become an effective "Atlantic" measure.

As to bilateral agreements, these should be modelled, when feasible, after the U.S.-Canada Extradition Treaty of 1971, which expressly eliminates the political offense exception in the case of an attack upon an internationally protected person. In cases where it is not feasible to eliminate the political offense exception entirely, the 1973 "Memorandum of Understanding" between the U.S. and Cuba concerning the hijacking of aircraft might be employed as a guide and drafted to apply to attacks on diplomats. The first treaty explicitly calls for extradition in cases which would include

attacks on diplomats, and the Memorandum incorporates the principle of aut dedere, aut judicare but goes beyond the U.N. Convention by requiring that the accused person be submitted to trial for the "offense punishable by the most severe penalty" and that signatories prevent the use of their territory as a base for committing the illegal acts covered by the Memorandum.

The Department of State should study the utility of the concept of strict state liability for injuries to diplomats, as both the O.A.S. and U.N. Conventions recognize that diplomats require special protection. Even if developing countries faced a special burden in this area, some form of financial assistance could be considered to ease that burden.

At the national level, high priority should be given to the research and development of technological devices designed to maximize the protection of diplomats and diplomatic facilities. Such efforts would appear especially desirable in light of recent attacks on diplomatic personnel and facilities in New York, Washington, and other major cities in the United States and abroad.

6. "Non-Protected" Persons or Things

The protection of "non-protected" persons or things (i.e., persons or things not enjoying special protection under international conventions such as those covering diplomats or aircraft and aircraft facilities) is one of the most difficult tasks facing the United States Government in dealing with terrorism. In essence the obligation of states to protect persons and things against international terrorism is part and parcel of their larger duty to respect human rights. This duty must include the rejection of general excuses for human rights violations that are couched in terms of "non-innocence,"

national liberation movement exceptions, aggression, worker struggles, and guerrilla warfare. The most effective response states can make to the "ideological war" terrorists are waging against society is actively to support, by word and deed, fundamental human rights and democratic values and the proposition that terrorism is impermissible as a strategy to coerce the attitudes and behavior of others.

Specifically, governments should not use the methods of terrorism to combat or sanction terrorism. Such methods lend credence to terrorist claims concerning the permissibility of using terror as a political weapon and undermine the credibility of governmental protestations. By way of affirmative action the U.S. Government should continue to publicly condemn serious violations of human rights (including use of torture and terrorism) whether engaged in by governments or private parties, and fund and support, consistent with the federal nature of the American system, programs directed at increasing an appreciation of human rights and strengthening institutions designed for the promotion of law and justice in respect of terrorist violence. Domestically, additional support of, and primary responsibility for, such programs should come from state boards of education, bar associations and other governmental or private groups.

7. Personnel and Property of Transnational Enterprises

Terrorist attacks against the transnational business operation have increased substantially over the past few years. The threat of terrorism is forcing the transnational enterprise to rethink its traditional approach to security and to develop new modes of cooperative action with government authorities as well as within the private sector.

In general, the United States Government should adopt policies that are designed to allow enterprises maximum flexibility in dealing with terrorism, encourage cooperative measures among enterprises to combat terrorism, and reinforce the general responsibility of states under international law to protect the personnel and property of all aliens against acts of terrorism. Specifically, the United States Government should consider the following recommendations:

(1) The United States Government should not foster a prohibition of ransom payments by business enterprises in their dealings with terrorists. Nor should it encourage efforts among states to establish such a prohibition.

(2) The United States Government should take the position that hostage insurance is a private business matter to be regulated by supply and demand within the insurance industry. It should neither encourage the use of hostage insurance, for to do so could well increase the ransom expectations of terrorists; nor should it prohibit hostage insurance, because as recommended above, a prohibition of ransom payments should not be applied to the private sector.

(3) The United States Government should not undertake a program to subsidize the security costs of private enterprise.

(4) The United States should support and reinforce, where appropriate, the general responsibility of states under international law to protect the person and property of aliens within their jurisdiction against injury, including injury arising from the acts and threats of terrorists. However, the United States should not attempt to establish a higher or special standard of protection with respect to acts and threats of terrorists directed against transnational business operations.

(5) The United States Government should foster research on a wide variety of subjects dealing with analysis of terrorist activities, their strategies, and lawful means of prevention in respect to transnational business operations. This research should be undertaken both within the government and within the private sector.

(6) The United States Government should establish a data base through which the private sector is kept informed on a current basis, where appropriate, about the activities, movements, and organization of terrorist groups around the world. Such a resource base might be located within the Department of Commerce, but it should have access as needed to the information of the various intelligence agencies of the government.

(7) The United States Government should foster the establishment of a resource center for the private sector which would be owned and controlled by subscribing businesses. While the Center would be located in the United States, it could furnish services worldwide to transnational business operations. Government funding might be necessary in the beginning phase of the Center.

PREVENTION AND CONTROL OF TERRORISM: INTERNATIONAL RESPONSES

1. An International Control Scheme for the Prosecution of International Terrorism: An Introduction

International cooperation with respect to penal matters is minimal and should be increased. The process of extradition, which is cumbersome, is also seriously impeded by the "political-offense exception." Judicial assistance and other forms of cooperation in penal matters are varied and might be useful in this regard; however, they are seldom employed.

With respect to the problem of the political offense exception, the feasibility of a multilateral treaty defining the "exception to the political-offense exception" in extradition should be considered. Such a treaty would list those internationally recognized crimes which are to be excluded from the political offense exception in existing and future treaties, laws, and state practice.

There are other changes that the United States Government should consider with a view to improvements in extradition law and practice. First, it should rely on multilateral treaties as an alternative to

bilateral treaties as a basis for extradition. Second, it should enter into special agreements with states that deny extradition of their own nationals or deny extradition for offenses for which the death penalty could be imposed; in an effort to overcome these obstacles to extradition. These agreements should provide that: (a) the alleged offender shall be returned to the requested state after trial in the United States, whether acquitted or convicted, and, if convicted, that the sentence be carried out in the requested state; (b) the alleged offender shall not be subject to the death penalty.

2. Apprehension and Prosecution of Offenders: Some Current Problems

A kep mandate of the anti-terrorist treaties upon states parties is to extradite offenders or to submit them to prosecution. State practice indicates, however, that deportation is the more common method of rendition of offenders than extradition, but more information in this area is needed. Accordingly, study of contemporary policy and practice of states with respect to the use of extradition, exclusion, and expulsion of international terrorists should be undertaken under private or governmental auspices. The study should determine the extent of use of each method as a means of international rendition of such offenders to states where they are wanted for prosecution, as well as reasons why extradition appears to be used less frequently than exclusion and expulsion as a means of international rendition.

Utilizing information gained through the study proposed in the preceding paragraph, the Department of State should seek to establish by multilateral convention a common standard regarding the use of exclusion and expulsion for purposes of international rendition with procedural safeguards for the interests of the offender as well as

those of the states involved. Once such a common standard has been established, the words "lawful return" should be substituted for "extradition" in the treaty injunction "extradite or submit to prosecution."

Submission of an international terrorist to prosecution is the duty of the state to which he has been surrendered or of the state which, denying rendition, has retained custody of the offender. More information concerning the fulfillment or violation of this obligation by states is needed. Accordingly, a clearinghouse of information regarding instances of prosecution of international terrorists should be established with a view to determining the extent to which such prosecution takes place and the reasons for discrepancies in bringing offenders to trial and in sentencing. Similarly, there is a need for concerted development of a fund of information about policy and practice regarding the criminal justice systems of states. A greater knowledge of the practical operations of the criminal justice systems of various states, coupled with widespread development of judicial assistance procedures in criminal matters, would allay much of the reluctance of states to surrender international terrorists for prosecution or to undertake prosecution themselves. International cooperation looking to the establishment of an international minimum standard of criminal justice is needed before "extradite or submit to prosecution" becomes a widely meaningful formula for the legal control of international terrorism.

A suggested location for the clearing house of information proposed in the preceding paragraphs would be the Criminal Division of the Department of Justice.

The grant of political asylum to an offender is a distinctly separate matter from the obligation to submit an offender to prosecution; it must be considered subsequently to prosecution and on different terms. Therefore, the formula "extradite or submit to prosecution" should be amended to recognize that prosecution is a separate act from the grant of political asylum to an offender after he has been prosecuted.

Last, but by no means least, the Departments of State and of Justice should emphasize the need for widespread development of various methods of judicial assistance and other forms of cooperation in penal matters through bilateral, and, where feasible, multilateral agreements as an inducement to lawful rendition and prosecution of international terrorists by states concerned about the quality of the criminal justice systems in other states.

3. Criminological Policy

It is important to realize that, unlike the common criminal, a terrorist is an ideologically motivated offender, i.e., a person who engages in acts of terror-violence not for personal gain but in order to accomplish a power outcome, and that general criminological policies and practices may therefore be ineffective when employed against terrorist violence. Such a person rejects in whole or in part the social and political system of the society of which he is a member and seeks to overthrow that system by violent means. When a specific target is chosen, the means employed will depend upon the anticipated psychological effects of the violent action. In this regard, the role of the media and its use by terrorists should be recognized as indispensable to the effective

prevention and suppression of terrorism (see the discussion regarding the role of the media in the section on General Conclusions and Recommendations, p. 4 above). Prosecution, followed by imprisonment, can be used to counter terrorism, but the most effective deterrent is preventive law enforcement.

Numerous agencies in the United States are interested in the enforcement of international criminal law; however, their interests and activities are overlapping and uncoordinated. Moreover, the United States is insufficiently involved, at the governmental level, in the international criminal law activities of private or public international organizations.

The United States Government should take several actions, at both the international and national levels, with a view toward the improvement of criminological policy in dealing with terrorists. At the international level, the United States Government should encourage interested countries to harmonize their criminal laws and penalties for terrorist acts as a means of improving the effectiveness of apprehension and prosecution of such offenders. To that end, a United States study of comparative criminal law should be undertaken by a public agency or by private groups or institutions with public funding.

At the national level, the United States Government should be cognizant of the fact that it often cannot avoid, and in some cases might legitimately seek, a role in the development of broad public attitudes toward terrorism and public competence to cope with it. For example, it should avoid overemphasizing the significance of the dangers and threats of terrorism in order to help prevent the creation of a climate of fear and apprehension among the general

population. In order to avoid attracting would-be martyrs, as well as for humanitarian considerations, it should oppose resorting to the death penalty for terrorists. LEAA, HEW and other concerned federal agencies should place more emphasis in dispensing federal funds to appropriate state officials or private entities on the development of programs of education in law with respect to criminal justice, violence, human rights, peaceful resolution of international conflicts, and world public order. The United States Government also should develop new training materials and help prepare qualified instructors to assist U.S. local law enforcement agencies in their efforts to implement new techniques of prevention and control of terrorist activities.

4. Practical Problems of Law Enforcement

In this crucially important area, the primary problem appears to be that law enforcement officials in the United States and in Western Europe are concerned about ambiguities in the scope of their authority to deal with international terrorism. Steps should accordingly be taken to close loopholes in the law enforcement response to terrorism.

Specifically, in the United States and in other countries, statutes and executive orders should be reviewed to ensure that they: (a) provide law enforcement and security officials with appropriate authority to discharge their responsibilities to combat terrorist activities; (b) do not impose unnecessary and undue restrictions on anti-terrorist law enforcement activities; and (c) provide adequate guidelines for officials discharging their responsibilities to combat terrorism.

In the United States, a review of Executive Order 11905 discloses a serious lack of definition of key terms. Both the 1975 Privacy Act and the Freedom of Information Act contain ambiguities of concern to law enforcement officials. The Presidential Memorandum establishing the Cabinet Committee to Combat Terrorism charges the Cabinet Committee with the responsibility to "coordinate, among the governmental agencies, ongoing activity for the prevention of terrorism. This will include such activities as the collection of intelligence worldwide..." However, it is unclear precisely what this memorandum was intended to authorize. In the sensitive area of intelligence, such ambiguity is unwise.

If the recommendation to establish a central data base on terrorism, noted earlier in this paper, is adopted, care should be taken to ensure that the appropriate legal authority has been established for this action and realistic guidelines should be developed defining what information is to be collected, analyzed, and disseminated in order to ensure that this activity is kept within appropriate limits. These guidelines should be developed with guidance and support from the highest levels of the executive branch and in consultation with Congress. Consideration should also be given to establishing judicial or quasi-judicial review for certain threshold decisions, for example, when to start a file on an individual and when to destroy it.

5. State Self-Help and Problems of Public International Law

Measures of state self-help include, in descending order of intensity of coercion, the use of armed force, economic sanctions, international claims, diplomatic protests and quiet expressions of

concern through diplomatic channels. Such measures with respect to states that harbor, or at least do nothing to prevent and suppress the actions of, international terrorists should be employed cautiously. Moreover, when employed, measures of state self-help should normally be of the variety that involve the least intensity of coercion. That is, quiet expressions of concern through the usual diplomatic channels to a state that is hindering efforts to combat international terrorism and demarches to induce that state to cooperate more fully with measures to control international terrorism will normally be more effective than dramatic confrontations subject to the full glare of publicity.

Most particularly, the Department of State should continue to stress the sui generis nature of the incident at Entebbe (which, unlike the 1977 Mogadishu raid, involved the use of armed force on the territory of a state without its consent) and support generally the limitations international law places on the use of force by states against other states in the name of combating international terrorism. To this end, the Department should stress the primary emphasis assigned by the United Nations Charter to avoiding the use of armed force and to settling disputes peacefully.

The Department should not press for the adoption of multilateral or regional conventions enabling states parties to impose economic sanctions against a state that harbors international terrorists, unless all further efforts at international cooperation fail. The United States should first make every effort to induce other states to become parties to and abide by applicable anti-terrorist conventions and to take other steps toward the prevention and punishment of international terrorism. Only if all further

efforts at international cooperation with recalcitrant states fail, should the Department renew and pursue proposals for the application of economic sanctions.

Further in this area of economic sanctions, the United States Government (Congress and the Executive) should evaluate carefully the utility of legislation compelling the President to impose economic sanctions against countries that grant safe haven to terrorists. Past experience indicates that legislation of this type (e.g., the early version of the so-called Hickenlooper Amendment) tends to exacerbate already delicate U.S. foreign relations with the target state and fails to induce it to take action favorable to U.S. interests.

With respect to international claims, the Department of State should as a first step seek to ensure the inclusion in the document on State Responsibility to be ultimately adopted by the International Law Commission of provisions applicable to states that aid international terrorists. These provisions should specify in precise terms the rights and responsibilities of states in this area. The Department should further strongly encourage the ILC to complete its work on State Responsibility on a high priority basis.

The Department should protest vigorously against actions by states which hinder or interfere with the prevention or punishment of international terrorism. Moreover, where standing exists, such protests should be made even if no United States nationals are among the terrorists' victims.

6. Private Measures of Sanction

In the absence of effective responses by governments to individual acts of international terrorism, private measures of sanction have been proposed or employed in order to fill the vacuum. Prominent examples of such measures are the threatened international strike by airline pilots, the use of private police for security purposes or of private armies in retaliation for terrorist attacks, and economic boycotts of states perceived as aiding and abetting terrorist activities. Depending on the nature of the response, and the context in which it is made, individuals, groups and private institutions can respond to terrorism creatively or destructively in terms of serving minimum world order and human dignity. Whether the cumulative effect of private choice will assist in preventing and controlling terrorism and in promoting minimum public order and human dignity may ultimately depend upon popular awareness of and demands for a world of law, justice, and the values of a free society expressed in the human rights instruments of the Twentieth Century.

The ability of the United States Government to facilitate these broad conditions, while limited, is significant. Certainly the government can and should strive to enrich and improve access to the educational process, and employ more broadly an explicit ideological strategy aimed at widening understanding of the humane values that are most threatened by terrorism. At the international plane, this is one of the benefits of the newly invigorated human rights policy of the current Administration.

By way of specific actions, the United States Government should assure that the tactics, equipment and training of private police are within relevant international and domestic legal standards.

The United States Government also should encourage the National Commission on Uniform Laws to consider, in the context of their present and future work, the amendment of federal and state law to assure civil and criminal immunity for persons acting reasonably to aid victims of terrorism, to compensate a victim if the victim is further injured by the person giving aid, and to compensate the individual for losses sustained while attempting to aid a law enforcement officer.

* * * * *

In concluding, we would like to repeat a point made at the beginning of this paper, namely, that the conclusions and recommendations set forth above are only those that appear to us most worthy of attention and do not necessarily represent the views of the entire working group. Moreover, these conclusions and recommendations, as well as others, are developed more fully in chapter two of the Report on "Legal Aspects of International Terrorism" and most fully in the individual chapters which follow. At a minimum we recommend a reading of chapter two. For those with a professional interest in the legal aspects of international terrorism, we urge that the Report be read in its entirety.

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PREFACE

This report identifies and describes the possible attributes of potential criminal adversaries to U.S. nuclear programs, and the characteristics of potential adversary actions, particularly those that might result in serious consequences for public health and safety. It represents a portion of a continuing research project sponsored by Sandia Laboratories, and satisfies the report requirements described in Task 2 of the Threat Analysis Study.

The analysis is based on case materials compiled on various categories of criminal and terrorist activities that might be analogous to future threats against U.S. nuclear facilities. Companion research on the intentions of possible nuclear adversaries is in progress. This report should be of particular interest to agencies whose responsibilities include the security of facilities that house nuclear programs and the safeguarding of nuclear materials.

SUMMARY

This report describes the attributes of groups or individuals who might carry out criminal actions against nuclear programs in the United States. In this context, the term "attributes" refers to the physical resources, planning skills, and methods of operation that the potential adversary might assemble and use. "Actions" refers to criminal actions against nuclear installations or to the theft of nuclear materials. We have assembled this information to help designers of security systems to develop appropriate criteria for protecting nuclear facilities against armed attacks or sabotage, to guard nuclear materials against theft and diversion, or to deal effectively with any such episodes should they occur.

The principal methodological problem in conducting such research is that there have not been a great number of serious actions directed against U.S. nuclear facilities that can be examined. To the best of our knowledge, no nuclear installations in the United States have been attacked, seized, or sabotaged in a way that caused the release of radioactive materials. No nuclear weapons have been stolen or illegally detonated. No nuclear materials have been diverted or taken by force from installations or while in transit and used for blackmail or made into bombs. And no radioactive matter has been maliciously released so that public safety was endangered. Therefore, we have collected and examined several hundred incidents of criminal, terrorist, or paramilitary actions that are in some way analogous to nuclear incidents. The explicit assumption is that the analogs can provide knowledge and insights into the capabilities and modus operandi of various types of potential adversaries of nuclear programs.

ANALOG CATEGORIES

It is realized that important differences in adversary intentions, capabilities, and actions may exist between crimes for personal gain or politically motivated terrorist activities and possible attacks on nuclear installations or the theft of special nuclear materials or

weapons. Still, certain attributes and actions observed in the analog categories would be required of any adversary engaged in nuclear mischief. For example, both criminals and nuclear adversaries gather intelligence, force entry, and assemble assault teams. For these reasons, a great deal of pertinent information can be gained in designing nuclear facility defense systems by studying analog activities. For this study, we selected the following analog categories for examination: (1) task force crimes, i.e., major armed robberies and burglaries; (2) terrorist assaults; (3) military commando raids; (4) industrial sabotage; and (5) symbolic bombings. In addition, we examine and describe a limited number of domestic and foreign nuclear incidents in which there was a serious threat to public safety.

Task force crimes were examined because they represent criminal assaults on well-protected targets or facilities (such as bank vaults, arsenals, and museums), often demonstrating remarkable planning, technical skills, and execution. In the 45 cases reviewed, criminals were able to assemble teams of as many as twenty people (yet remain undiscovered), breach thick walls and vaults and neutralize modern alarm systems, and devote up to 2 years of planning for a single "caper." Task force members often displayed considerable technical competence (e.g., in overcoming electronic alarm systems) but little inclination to accept a high risk of capture or death.

Thirty-four *terrorist assaults* were reviewed because, in general, they involved individuals who were highly dedicated and willing to accept great personal risks. Unlike the professional criminals, terrorists were quick to brandish weapons and explosives. Still, they rarely assaulted facilities when the probability that they might be defeated before they gained their objectives was very great. Terrorists almost always had highly political objectives as a primary purpose for their actions. For this reason, they chose very conspicuous targets that would certainly bring them publicity.

Seventy-five small-scale military and paramilitary *commando raids* were studied because they offered the only incidents in which well-armed, specially trained, and dedicated personnel attacked designated targets, usually with the explicit intent of destroying them. Also,

commando operations provided the only instances of assaults against well-defended targets. They are particularly relevant because they highlight the importance of accurate intelligence and the element of surprise. These two attributes were central in explaining the extraordinary high success rate (close to 80 percent) of the commando raids, which is particularly remarkable because the attacks were against defended targets.

Industrial sabotage against private industry, transportation facilities, and public utilities is an obvious analog. Our examinations showed that the saboteur's objective was the destruction or disruption of facilities or equipment on a significant scale. Industrial sabotage is especially relevant to possible nuclear sabotage because saboteurs typically have privileged information or access. The 40 incidents that we surveyed revealed that the saboteurs had a wide range of motivations (including something as simple as being a disgruntled employee or a rejected suitor) and usually chose unprotected targets. Generally speaking, saboteurs were strongly risk averse and did not deliberately endanger the lives of the general public. Their disproportionately high effectiveness (in terms of accomplishing their objectives), achieved by a limited number of people with minimal means (in one case, literally one person with a few bolts) and at low personal risk, was largely due to an accurate knowledge of the facility's operations and vulnerabilities, as well as access to restricted areas.

Over one hundred cases of *symbolic bombings* are part of our analog data base. A "symbolic bombing" is defined as a deliberate act of violence calculated to express a grievance or to make a political statement; the damage to, or destruction of, the target may be secondary, or even irrelevant to the adversary's aims. We included symbolic bombings in our data base because nuclear facilities are viewed by some as symbols of unwarranted and dangerous technology and might therefore be subjected to such bombings. Our survey showed that bombs were usually placed on unprotected targets. The bombers did not display a great deal of technical expertise or dedication; indeed, they were almost cavalier in their approach to their activities.

Finally, a number of *nuclear incidents* were examined, even though

they are not, of course, analogs. Between 1969 and 1975, there were 288 known recorded threats against, or incidents at, nuclear facilities in the United States. Almost all of these (240) were only bomb threats, but there were 9 actual bombings, 22 cases of arson or suspected arson, and a variety of miscellaneous actions (e.g., felling a meteorological tower or pranks). One serious fire was set at the Indian Point nuclear power reactor. One widely publicized case in which nuclear materials were removed from the controlled area occurred at a fuel fabrication plant in Oklahoma, and that involved only a very small amount. Thus, even though the overall number of nuclear incidents within the United States is quite high, the number of serious threats to the public safety has been very low.

Overseas, however, there has been a larger number of serious nuclear incidents. Perhaps more important, they have been increasing in frequency and possible danger. For example, in France between 1975 and 1976, there were 8 major explosions at French nuclear facilities (such as reactors, processing plants, and uranium mines). In England, 20 uranium fuel elements were stolen from the Bradwell nuclear power station in 1966; the elements were recovered when the culprits tried to sell them. In March 1973, a leftist urban guerrilla group temporarily occupied an atomic power plant under construction at Atucha, Argentina; the reactor had not been installed.

"TYPICAL" ANALOG ACTIVITIES

Using an analytic framework designed jointly by Rand and Sandia personnel, the analog incidents were coded and examined for common features, including adversaries' aims and objectives, their personnel and equipment resources, their means of transportation, access and egress, and the amount of time required to carry out a given action. From these codings, "typical" analog activities were extracted.

A "typical" burglary was one done by two to four professional criminals who were technically skilled and intent on avoiding any confrontation with security forces; they were usually armed but refrained from using their weapons. The members of the team were carefully chosen, both for their technical skills and degree to which they could

be trusted. A "typical" armed robbery team had three to six members who were somewhat less skilled than their burglar counterparts; they were more willing to use weapons, but usually as a means to discourage possible resistance; again, they were highly risk averse. A "typical" terrorist assault team consisted of three to six men armed with automatic weapons, grenades, and explosives; they were highly dedicated to a given political cause; they were well trained but not particularly sophisticated in technical skills. A "typical" military commando raid often engaged large numbers of men (in one case, over 200), but many were carried out with as few as three or four men. The commandos were well armed and well trained (as befits a military operation), had explosives, and carried whatever equipment was necessary to accomplish their mission. They were technically skilled in the use of their equipment. The "typical" industrial sabotage incident was accomplished by either a single individual or a group of six or more people. Saboteurs were rarely well armed, but their access to special information and restricted areas permitted them to identify the critical vulnerabilities of their targets and cause a great deal of damage. Like the burglar and armed robber, saboteurs had little incentive for confronting security systems or gaining personal publicity. A "typical" symbolic bombing was politically motivated and was carried out by one or two people (although there is evidence that they often had the support of a larger organization) who were not particularly skilled in a technical sense. The bombs were generally simple. Some of the bombers were characterized by strong but volatile loyalty and dedication, floating in and out of a number of sympathetic groups. The main purpose of their activities was political recognition; hence, a political written communique usually accompanied their bombs.

COMPOSITE ADVERSARIES

From these "typical" analog incidents and the range of attributes around the modal values, two composite adversaries were constructed: a "typical composite profile" and a "high-level composite." The "typical composite profile" was derived from all the analogs, with the exception of the commando raids. It represents a level of resources

and skills that criminal and political adversaries have commonly been able to assemble and, as such, might be able to assemble were an adversary group to target a nuclear facility. It consists of three to six adversaries, armed with automatic weapons, possessing high explosives and hand and power tools, using a variety of ground transportation modes, having middle- to high-level technical skills, a varying willingness to accept high risks; possessing some inside information or assistance, and displaying a moderate to high degree of ingenuity and careful advanced planning. The typical composite profile represents one reference point on a scale of adversary capabilities.

The "high-level composite" aggregates the high-level attributes thus far observed in real-life episodes, although not necessarily the highest levels. It provides another reference point on a scale of adversary capabilities, obviously much higher on the scale than the typical composite profile. If the typical composite profile summarizes those attributes that are commonly seen, the high-level composite represents something near the upper bounds. The commando raids were not included in the high-level composite because they took place in a wartime environment, and we are concerned here with adversaries who plausibly might appear in a peacetime environment. It should be noted, however, that in most of the attributes the high-level composite resembles the typical commando raid, except that commandos are unlikely to have inside assistance, an attribute that we grant the high-level composite here.

The high-level composite consists of twelve to twenty perpetrators, a wide range of weapons, including light crew-served weapons, possesses high explosives and power tools, and has inside information and assistance, high levels of criminal and military skills, and dedication, ingenuity, and imagination. The high-level composite also has a wide range of modern communications equipment, at least adequate financing, experience in its specialties, and the ability to maintain secrecy and achieve tactical surprise.

It should be emphasized that the appearance of the high-level composite, with all the high-level attributes, is an unlikely event; the simultaneous appearance of all the characteristics has not appeared

in any single adversary in the data base, with the possible exception of a few wartime commando raids. There are several reasons why this is so. First, it is difficult to assemble such a combination of skills and personnel. Second, such a combination might not have been perceived as necessary. Third, some of these high-level attributes are mutually contradictory. For instance, the technical sophistication required to neutralize an electronic alarm system would be less important if the adversary planned to storm a facility with a large number of heavily armed men; similarly, the willingness to risk capture or death stands in partial contradiction to technical expertise, at least as seen in the present data base. This is equally true of the typical composite profile. The fact that such an assemblage has not been observed in any single adversarial group in the past does not imply that such a group could not be assembled in the future, especially given the large payoffs that nuclear facilities or programs might appear to offer to terrorist or criminal elements in terms of personal gain, political statements, or other possible incentives; but it should be reemphasized that nothing approaching the high-level composite has been observed in the peacetime data base.

The high-level composite helps us to identify which capabilities seem the hardest for an adversary to attain, and at what levels he begins to encounter difficulties. We refer to these levels as breaking points. Real-life adversaries have already demonstrated their ability to attain a high level in some attributes; in others they face greater difficulties.

DESIGN OF DEFENSIVE SYSTEMS

The composites suggest a number of implications for the design of a security system for nuclear installations. First, it does not appear that adversaries would have any particular difficulty in obtaining the physical resources needed to assault an installation. The number of men or the availability of weapons, explosives, and special equipment does not seem to be a critical restraint. Moreover, the evidence suggests that a small group of skilled people can be very effective. The adversary's critical constraints do not appear to lie

in the areas of physical resources. Rather, the pivotal attributes determining the success of a venture appear to be the less tangible human factors: imagination and ingenuity; criminal skills; technical knowledge; the willingness to risk capture or death; accurate intelligence and privileged access; the ability to achieve tactical surprise; and the necessary combination of several of these.

It follows, then, that defensive systems might be designed to exploit the critical human factors, i.e., to raise them to or above the adversary's breaking point. It is difficult to collect a group of people who are technically knowledgeable; who are skilled in such things as the operation of weapons, the use of explosives, the circumvention of alarm systems, and the penetration of physical barriers; and who are dedicated to the point of risking their lives but at the same time will maintain the necessary group secrecy. A security system that compels a potential adversary to possess all of these critical human capabilities might deter or thwart a large number of the actions that could be directed against it and the programs it is protecting. It would, in effect, "price most potential adversaries out of the market."

How might such a system be devised? First, it should be realized that physical barriers are sufficient for delaying or hindering the determined adversary but, by themselves, they cannot be expected to defeat him. They require special attention or monitoring if they are to prevent or hinder the adversary from gaining entry. Second, the present data base suggests that the prospect of physical danger does have some deterrent value, certainly to professional criminals and even to some terrorists. Therefore, potential adversaries should be aware that attempts to penetrate sensitive areas of nuclear facilities will require them to risk their lives. Third, the deliberate creation of uncertainty by the security system would appear to present the greatest obstacles to potential adversaries in planning and executing their acts. For example, an armed and trained guard force whose immediate strengths and routines could never be confidently predicted would make it extremely difficult for an adversary to know what levels of attributes he would require, thus forcing him to assemble and employ

effectively all the capabilities and resources of the high-level composite. These measures would, in total, push the adversary toward his "breaking point," thereby making his task increasingly impossible.

A last implication for security systems emerged from the study of terrorist assaults that were characterized by high levels of personal dedication. Terrorists rarely assaulted facilities when there was a high probability that they might be defeated before they gained entry, but they were willing to assume high risks after they had gained entry and barricaded themselves. This finding implies that containment or reinforcement strategies would be less useful against terrorists whose mission, in their eyes, might be accomplished merely by gaining temporary control of a facility. Therefore, to deter nuclear terrorist assaults, the appropriate defenses must be structured to defeat any attack that might occur before the terrorists gain entry rather than by trying to contain the assault after it is discovered.

Finally, this analysis is based on the current political, economic, and social conditions prevailing in the United States. There is little domestic unrest, violent activities have not been directed against U.S. nuclear facilities, and there is no evidence that professional criminals or terrorists are attracted to nuclear materials. Still, in the recent history of nuclear incidents, a subtle escalatory trend may be discerned, especially in light of the growing number of serious nuclear incidents in Europe in the past 2 years. Hence, it is important to recognize that the threat is largely a function of the political and social contexts upon which this analysis is based and that these contexts are subject to change. One cannot confidently predict that nuclear facilities will become a criminal or terrorist target in the future. But at the same time, one cannot ignore the dynamic nature of the threat that requires a continual monitoring and reassessing of the threat as the relevant contexts change over time.

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CONTENTS

1. INTRODUCTION

This report describes the attributes of groups or individuals who might carry out criminal actions against nuclear programs in the United States. The purpose of the study is to assist officials responsible for formulating and designing security measures to protect U.S. nuclear programs by providing an understanding of the attributes of potential adversaries. In this context, we define "attributes" as referring to the physical resources, planning skills, and methods of operation that the potential adversary could assemble and use for some type of action against a nuclear facility or the theft of nuclear materials. This information can be used in the selection, development, and application of security techniques to protect nuclear materials from theft and diversion and to prevent the sabotage of nuclear facilities. This knowledge may be useful for overall emergency contingency planning and even for possible negotiations with adversaries who might have successfully removed nuclear material or seized temporary control of a facility.

SCOPE OF THE RESEARCH

A principal research concern in describing possible adversary *attributes* and adversary *action characteristics* as they relate to potential attacks against nuclear installations has been to avoid speculation and scenarios as to how threatening the adversaries might be or what they might do. Incidents involving nuclear facilities or materials that have occurred to date do not provide an adequate basis for extrapolation to possible future actions against nuclear targets. This has led us to the detailed examination of other kinds of incidents that share some important characteristics with potential nuclear actions. We have examined criminal actions, politically motivated acts of violence, and paramilitary operations that have been carried out in the real world, events that contain elements analogous to potential actions directed against nuclear facilities or illicitly obtaining nuclear materials. These analogs include major armed robberies,

sophisticated burglaries, terrorist assaults and bombings, industrial sabotage, and commando raids. We have also examined incidents involving nuclear facilities or materials in the United States and abroad.

ACTIONS AND AIMS OF POTENTIAL ADVERSARIES

It is realized that there may be important differences in adversary motivation, attributes, and actions between crimes for gain or terrorist activity, such as bombings or assaults, and possible attacks on nuclear installations or the theft of special nuclear materials (SNM) or weapons. Still, adversaries who aim at nuclear mischief of any kind--be it theft, sabotage, malicious release, or destruction--must engage in actions and use methods also found in regular criminal acts: they must obtain extensive prior knowledge of objectives, installations, and routines; they must accomplish unauthorized entry by stealth, force, or deceit; they must successfully cope with alarm systems and armed guards; they may have to assemble teams; and they may have to recruit outside help. (The use of analogs and their link to nuclear incidents is discussed more specifically in Section II, "Methodology.")

The threat to U.S. nuclear programs may be viewed as a spectrum of potential actions with consequences having varying degrees of severity. At the low end of this spectrum are acts such as bomb threats, hoaxes, and token acts of violence. None are aimed at producing serious public casualties or damage, but, if publicized, they could disrupt essential routines, alarm the populace, and discredit nuclear programs and safeguard measures. However, they would pose little direct danger to public safety. We recognize that the alarm created by a publicized nuclear threat or any malevolent action involving any nuclear facility, regardless of the reality of the threat or the degree of direct danger to the general population, could produce the spontaneous evacuation of surrounding off-site areas, panic, and casualties.

Higher on the scale of adversarial actions are those that could result in serious damage to a nuclear facility and endanger on-site personnel, although the acts or their consequences would not necessarily pose a serious threat to the safety of the general public.

Finally, there are actions directed against nuclear facilities that, if successful, could result in clear and serious danger to the public. Whereas actions at the lower end of the spectrum may be more probable and have potentially harmful consequences in terms of cost, alarm, and adverse publicity, it is the last category that most concerns us in this report, i.e., those actions whose ultimate consequences could be off-site civilian casualties, significant off-site material damage, and radioactive contamination. The most serious actions would result in the loss of nuclear weapons or special nuclear material and/or a radioactive release. Examples of this level of malevolent actions include stolen weapons or SNM that could be ransomed back to the original owners for cash or political concessions or sold to some third party on a black market. Stolen SNM also could be used in the construction (or alleged construction) of a nuclear explosive or perhaps dispersed as a toxin. The motivation to extract political concessions or obtain cash could lead to the seizure of a nuclear facility and threats to cause serious damage and radioactive dispersal if the demands were not met.

Neither of these actions--theft for sale or ransom or seizure of a facility--pose by themselves direct danger to public safety so long as they go no further. However, once control over a weapon, SNM, or a nuclear facility has been lost, the potential risk of damage and of concomitant public alarm is so great that we must put these actions in the dangerous threat category. These last two actions clearly would imperil public safety.

Various aims of potential adversaries could lead to acts that could endanger public safety. Such aims could include attacks on government institutions with the purpose of eroding public confidence and exposing the government as unable to protect its citizens; a campaign to undermine public confidence in nuclear power; or simple publicity for an organization, cause, or belief. The adversaries could include political extremists (whose views might be clinically rational and internally consistent although quite different from those of society at large), lunatics, or criminals motivated by the desire for economic gain.

Adversaries' aims could be served either by the theft of nuclear weapons and SNM or by serious damage to a nuclear facility. Each of these tactical objectives could, in turn, be achieved by several means. SNM could be removed by the theft of marginal amounts of nuclear materials over a period of time until a dangerous amount were obtained. An attempt to steal weapons or SNM could be made by an insider acting alone, by burglars (possibly with inside collusion), or by means of armed robbery (overt attack). Serious damage to facilities might be caused by standoff attacks with mortars, bazookas, rocket-propelled grenades, precision-guided munitions, remotely piloted vehicles, or aerial bombardment. Damage could be inflicted by an insider or by persons who had gained illegal entry (as in a burglary), or it might be caused by saboteurs who had seized control of the facility itself. The important point is that there is no single mode of attack but rather a variety of modes by which these tactical objectives could be achieved. Each mode has its own characteristics and each demands different capabilities on the part of the adversary. Each poses different problems for security.

We focus our primary attention in this report on those actions in which the adversaries are usually persons who are not employed in nuclear facilities or who do not have legitimate access to them and therefore must penetrate the facilities or sites to accomplish their mission. Hence pilferage and theft by insiders are not within the scope of this analysis because they involve exclusively or principally the actions of employees using techniques not covered by our current data base. In some ways, the standoff attack mode, which would not require penetration or even close approach by the perpetrators, appears to be the most attractive mode of attack if physical damage to a facility is an objective, because the risks for the attacker are less than in a frontal assault. It is not certain, however, what the effect of this type of attack would be on the targeted facilities. It would depend on the type of weapon used and on the physical features of the facility. These assessments are not within the scope of the present study. Therefore, the standoff mode of attack is not considered here except to identify it as a possible mode of action that merits further examination.

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ORGANIZATION OF THE REPORT

The discussion and analysis that follow are divided into four sections. Section II contains a detailed description of the methodology of the research, particularly the problem of relating the nonnuclear analogs to potential nuclear actions. Section III reviews each of the six categories of analogs. Section IV offers a general overview and analysis of the data base. In it, we extract a number of adversary profiles and discuss how each might be relevant to the issue of nuclear facility safeguards. Section V contains the conclusions drawn from the preceding analysis. These pertain to the capabilities and resources of the potential adversaries, and to the security measures that might deter or defeat an attack or limit possible damage.

II. METHODOLOGY

Certain assumptions about the potential adversaries, their resources, and their methods of operation are prerequisites to the design of effective security systems. These assumptions may be arbitrary--i.e., intentions and capabilities may be arbitrarily assigned to the adversary--or the assumptions may be based on actual data. For example, there are thousands of bank robberies in the United States every year, a sufficient number to allow statistical inferences regarding their frequency, the number of perpetrators normally involved, the weapons and procedures used, the average "take," and other important variables.

It is necessary to make an assessment of the possible intentions and capabilities of potential adversaries of U.S. nuclear programs in order to develop appropriate measures to protect nuclear facilities against armed attack or sabotage, to guard nuclear materials against theft and diversion, or to prepare to deal effectively with any such episodes should they occur. The principal problem in conducting such research is that, unlike the case with bank robberies, a sufficient data base of actions directed against U.S. nuclear facilities does not exist. To the best of our knowledge, no nuclear installation in the United States has been attacked, seized, or sabotaged in a way that radioactive materials were released; no nuclear weapons have been diverted or illegally detonated; no nuclear materials have been stolen or taken by force from installations, or in transit and used for blackmail, or made into bombs; and no radioactive matter has been maliciously released so that public safety was endangered.

A number of bomb threats have been telephoned to nuclear facilities, a now common occurrence in both government and industry. A number of threats to use nuclear material have proved on investigation to be hoaxes. Minor sabotage has been carried out in a handful of cases. In one incident, a minute quantity of SNM was removed from a reprocessing facility. Although a certain amount of nuclear materials is unaccounted for, there is no available evidence that it was stolen or diverted in weapons use. Outside of the United States there have

been a few incidents of more serious potential consequences. Political extremists on two occasions attempted to sabotage nuclear reactors in France, and urban guerrillas temporarily seized control of a nuclear facility under construction in Argentina. These incidents are included in our discussion.

USE OF ANALOGS

In the absence of past major actions directed against nuclear programs, we have selected several categories of conventional crimes and political violence that can be regarded as coming closest in their aims and operations to possible but as yet uncommitted crimes against nuclear facilities or involving nuclear material. The explicit assumption is that a study of these analogs can provide knowledge and insights into the capabilities and the modus operandi of various types of potential adversaries of nuclear programs. Through the study of analogs, evidence may be acquired about methods by which objectives (such as theft, sabotage, or extortion) involving nuclear programs might be achieved.

An extremely important reservation to the use of the analog methodology when extrapolating the results of such a study to possible actions by adversaries against nuclear programs is that the analogous actions selected do not involve nuclear targets. However, sufficient similarities exist between the two types of action to allow certain inferences to be made regarding the attributes of possible nuclear adversaries. For example, while we know of no attempt in the United States to steal a shipment of plutonium or other special nuclear material, there is a richly documented history of well-planned burglaries and armed robberies of other valuable and protected commodities--e.g., cash, jewels, art objects. In many such cases, thieves were able to penetrate multiple and elaborate security systems to gain access and remove the materials. Similarly, an attack on a nuclear installation or the theft of nuclear materials must be conducted either by stealth or deceit, as in a burglary, or by force, as in a robbery. In material terms, the attack would require the adversaries to possess such resources as tools, weapons, transportation, and alarm suppressants;

in nonmaterial terms, it would require these same adversaries to demonstrate such characteristics and attributes as daring, dedication, leadership, knowledge, or experience. The analogs offer examples of the means or assets that could be employed for such actions.

To give another example: Although there have been no publicized seizures or attempts to seize nuclear facilities except for the single incident in Argentina (and there the reactor was still under construction), there have been numerous forcible takeovers of buildings and seizures of hostages by terrorists. While political extremists in the United States have thus far not waged any campaigns of violence against nuclear facilities, they have claimed credit for bombings of government buildings, corporate offices, and public utilities. An examination of all of these actions offers possible insights into the style, dedication, and capabilities of groups that may select a nuclear target at some future date.

THE DATA BASE

Data have been assembled on several hundred incidents of different categories of analogs applicable in some specified ways to potential actions against nuclear programs. The primary criterion for selecting analog categories, or incidents within the categories, was that their attributes were closely analogous--in some instances identical--to what one might reasonably expect from a possible action against a nuclear facility. For this reason, the common street crimes and simple robberies were excluded from the data base. Even though such criminal actions might share some common features with an attack on a nuclear installation or repository, it was decided that the differences were too great to provide useful insights anyway. A system that could defeat the more serious actions we examined would frustrate the lesser actions as well. This data base also helps to link motives or objectives with probable modes of action, and with the attributes of the most likely adversaries in each case. A list of the nonnuclear analogs that are being examined in this study, and their relationships to potential nuclear incidents, is shown in Table 1.

Table 1

ANALOGS BEING EXAMINED IN THE RAND STUDY

Nonnuclear Analogs	Potential "Nuclear Action"
Symbolic bombings and incidents of violence against symbolic targets.	Attempts by political or environmental extremists to carry out acts of symbolic violence against nuclear facilities.
Incidents of industrial sabotage and sabotage of vital systems (electric transformers, transmission lines, natural gas lines, etc.).	Sabotage of nuclear facilities.
Task force burglaries, robberies, and attempts to "spring" prisoners from the outside.	Well-planned penetrations of protected nuclear facilities for the purpose of theft or sabotage; hijacking of nuclear material in transit.
Paramilitary commando raids.	Well-planned heavily armed assaults against defended nuclear targets (unlikely in current political environment).
Terrorist assaults on embassies, government buildings, small settlements, etc.	Armed assaults on nuclear facilities for the purpose of theft, sabotage, or seizing control of nuclear facilities.

An examination of the analogs provides insights into the capabilities that could be mobilized by an adversary in an action against nuclear facilities. It cannot provide assessments of the probabilities of occurrence of any action against nuclear programs, such as sabotage, theft of nuclear materials, symbolic bombings, or terrorist seizures.

It should not be inferred from our emphasis on a data base of analog events that it is possible to use rigorous quantitative methodology to predict or describe the threat. We are not dealing with a large enough data base to allow accurate statistical profiles. The sample is neither complete nor randomly chosen. The scope of the research project limited the coverage of analogous events. In many of the incidents examined, complete information was not available.

Furthermore, we do not have a full accounting of the cases that were deterred, let alone those that failed. We have not attempted to assign numerical probabilities or confidence intervals in the same way that other studies have estimated values of the occurrence of various types of accidents involving nuclear facilities. However, the events chosen are considered to be representative of their categories and adequate for eventually offering judgments about the "comparative likelihood"--as opposed to probability of occurrence--of certain kinds of action.

LIMITATIONS TO THE METHODOLOGY

There are limitations to this methodology. The data base is composed for the most part of incidents not involving nuclear targets. Nuclear targets might attract qualitatively and quantitatively different adversaries. Professional criminals and less dedicated terrorists might be dissuaded from mounting an operation against nuclear targets because nuclear commodities--unlike precious jewels and other normally stolen goods--have no ready street market or because of their expectation that nuclear facilities and material are likely to be better guarded. On the more pessimistic side, nuclear targets could attract adversaries with entirely different motivations and goals, e.g., the disruption or suspension of nuclear programs themselves. Potential adversaries might include those supported by foreign governments or by large well-financed political organizations with more resources than are likely to be possessed by a small band of professional criminals or political extremists. The anticipated gains from the successful theft of nuclear material might be considered so great as to warrant an effort hitherto unseen in the annals of conventional crime. In addition, their motivations could induce nuclear adversaries to assume greater risks than the analog perpetrators discussed in this study. Still, we can cautiously extrapolate the adversaries' capabilities and methods of attack from areas we regard as analogous on the basis of the similarities noted above.

III. DISCUSSION OF DATA BASE

At present, the data base contains descriptions of over 300 incidents of sophisticated or task force crimes (popularly called "capers") that had robbery or burglary as an objective, terrorist assaults, paramilitary commando raids, industrial sabotage, and symbolic bombings. In addition, known incidents involving nuclear facilities or materials in the United States and abroad were examined as part of the data base. However, because they are in fact nuclear incidents, not analogs, they are treated separately.

TASK FORCE CRIMES

The data base in this category is comprised of 45 crimes committed by groups of people, some of whom were highly specialized and skilled. These crimes were chosen because they were generally directed against closely guarded high-value targets and because they were especially well publicized, a feature that facilitated the data-collection effort. The perpetrators assembled for the specific operation and formed "task forces" organized for assaults on well-protected objectives, such as bank vaults, arsenals, prisons, and museums. The prizes sought were substantial, and some adversaries displayed sophisticated technical capabilities. The specialists involved in these crimes included safecrackers, electronic experts, and communications experts. About three-quarters of the task force crimes were committed in the United States and about one-quarter abroad, mostly in Great Britain and Canada. Most of the crimes were burglaries; the remainder were armed robberies, such as the famous Brinks' robbery in Boston, or attempts to "spring" prisoners from prison. Economic gains were the predominant motive. Except for one prison break and an arsenal robbery, both of which involved members of political extremist groups, none of the task force crimes had political overtones.

Almost all the incidents examined here were successful, in the sense that adversaries evaded or overcame the security measures and escaped with the "loot," at least for a certain time. It would be

instructive to examine failures as well, but information on them is difficult to obtain. Failures are generally not as well publicized as spectacular successes, which makes it difficult even to know about them. Unless the perpetrators are apprehended, we have few means of determining what resources they had assembled for their attempt. Moreover, professional criminals appear unwilling to assume major risks. Therefore, our means for determining when security measures deterred criminal acts are scarce, because no crimes were in fact committed. For these reasons, the capers sample must per force deal with crimes that were for the most part successful in terms of entry and escape, although not necessarily in avoiding ultimate arrest.

An examination of the capers shows that alarm systems do not always discourage or frustrate the more ingenious burglars, who may have a considerable capability for overcoming such systems. In one case, burglars drilled a hole in the exterior alarm box and injected into it a mixture of Freon and polyurethane, which formed a hard plastic foam and jammed the clapper on the bell. In another case, a vault's elaborate security system, including 12 television scanners, was penetrated without setting off an alarm. In a third case, thieves cut several 3-in.-thick cables that housed hundreds of wires leading to a communications center for several thousand burglar alarms, thus disarming the alarm systems for an entire area.

Burglars and robbers have often employed commercially available communications equipment, both for keeping in touch with each other during the operation and for monitoring police radio frequencies. During one bank robbery in 1954, the perpetrators isolated the bank by cutting the telephone cables while maintaining contact with the outside lookout via a walkie-talkie. Burglars in another caper monitored policeband radio broadcasts during and between stages of their operation.

The criminals studied here demonstrated the capability and patience required to engage in very long periods of reconnaissance and demanding preparations. Two different capers required 2 years of planning. Three wayward burglars spent 2 months tunneling 136 feet toward a bank's main vault, missing their mark by only 2-1/2 feet.

In most cases, particularly the burglaries, there was no evidence that the criminals were armed; weapons were not needed. However, in those instances in which weapons were considered necessary, the gang members were able to procure a variety of handguns, rifles, shotguns, machine guns, even a 20mm cannon. When the weapons were used, as in armed robbery, the criminals displayed overwhelming firepower, clearly with the intent to discourage resistance. Similarly, they were able to obtain both military and commercial types of explosives when they were needed.

Great attention was seemingly paid to avoiding violence during the execution of most burglaries and armed robberies. In the majority of cases, no violence was used, except that guns were held on the victims. In certain cases, limited violence (e.g., pistol whipping) was used to establish credibility and arouse fear, or possibly to speed up a recalcitrant guard.

Generally speaking, the criminals showed little inclination to risk capture or death. They usually selected lightly guarded targets, choosing to avoid rather than overpower guards. When the situation appeared dangerous, they would back off rather than accept the higher risk. Significantly, in two cases where the motive was political rather than financial gain (an unsuccessful effort to spring inmates from prison and a successful raid on an armory in Canada), the adversaries seemed more willing to expose themselves to violence and to accept the attendant risk. (As we will see in the discussion of terrorist assaults where the motives are primarily political, the adversary was willing to assume a higher degree of risk and generally came prepared to fight if necessary.)

In several of the capers, inside help played an important role. In a $4.3 million robbery of an armored express company in 1974, the alleged participation of a security guard made forced entry unnecessary. In a burglary of the Bank of New Mexico branch at the Sandia facility in 1955, the police suspected that the culprits had an accomplice on the base. In a major airport robbery, the robbers may have had inside information, because, according to the police, they "went right to the shelf where the money was." In a 1975 art museum theft, the five

watchmen unwittingly (or perhaps otherwise) assisted the thieves by turning off the electronic burglar alarm system, "probably to be able to sleep," the museum's director stated.

Impersonation appears to be a ploy often used by robbers and burglars. Very importantly, in *all* cases studied where impersonation was used, it was successful. At an airport robbery in 1974, four armed men in hard hats, posing as telephone workers, gained entrance to a cargo building, handcuffed ten airline employees, and escaped with more than $200,000 in cash. In the Boston Brinks' robbery, the robbers' costumes resembled the uniforms of the Brinks' drivers. In the robbery of a U.S. mail truck in 1972, one of the robbers, dressed as a policeman, successfully flagged down the mail truck.

The number of perpetrators in any of the capers rarely exceeded seven, probably because more were not needed to carry out the act. A second possibility was that problems of recruitment and organization mitigated against larger numbers, as did considerations of dividing the loot and maintaining secrecy. The number of group members seemed to be geared to the various requirements of the crime, with at least one person in the group having a requisite specialty, such as wireman or communications expert. In some cases, tasks were "subcontracted" to nonparticipants (e.g., a locksmith charged with making keys). In most cases, the leader of the caper recruited members of the task force according to particular skills, often drawing upon a reservoir of former fellow convicts he had met in prison. In one instance, the group postponed the execution of their plan until a convict possessing a needed skill was released from prison. In another, participants were recruited from among members of a family.

The perpetrators displayed considerable talent for improvisation. One group used a 20mm cannon to penetrate a vault wall in a cellar by firing more than 30 rounds point-blank while protecting itself against shrapnel with a mattress. In another episode, when a lock from an outside door had to be removed for over an hour so that a duplicate key could be made, the perpetrators, faced with the possibility of arousing suspicion, made and attached a facsimile doorknob while the actual knob was at the locksmith's.

Criminals have created diversions to cause confusion and thus delay police reaction. For example, in one case armed robbers set off explosives in three locations and then carried out their robbery elsewhere.

On the whole, the perpetrators were seldom reckless in their actions. Recklessness is not the same as the willingness to engage in violence; the latter can be used without recklessness, if plans are well laid and well executed.

In sum, capers are analogs to, and offer possible insights for, a potential nuclear theft for a number of reasons. Both may require careful planning, execution, and specialized skills. The reluctance of sophisticated criminals to battle armed guards results in a reliance on deception, a modus operandi that might be used against nuclear facilities. Similar insights might be drawn from the criminals' demonstrated ability to neutralize modern detection and alarm systems.

TERRORIST ASSAULTS

This portion of the analog data base includes 34 terrorist assaults, which represents most of the terrorist assaults committed between 1968 and 1974.* Of these, 24 were related to the Arab-Israeli Middle East confrontation. The targets of many of these incidents were Israeli assets and citizens, including El Al offices and aircraft, diplomatic posts, and personnel outside Israel. Arab assets (e.g., embassies) were the targets of 2 incidents. American assets and citizens were involved in 6 incidents, including the Amman hotel seizure in 1970, the Lod airport attack in 1972, the seizure of the Bank of America in Beirut, and attacks on two parked aircraft in 1973. Three terrorist assaults took place in Latin America and 6 occurred elsewhere: the seizures of a train and the Indonesian Consulate in Amsterdam, the French Embassy in The Hague, the U.S. Embassy in Kuala Lumpur, and the West German Embassy in Stockholm; and an attack on a

*See Brian Jenkins and Janera Johnson, *International Terrorism: A Chronology, 1968-1974*, The Rand Corporation, R-1597-DOS/ARPA, 1975, and *International Terrorism: Supplementary Chronology, 1974*, The Rand Corporation, R-1909-1-DOS/ARPA, 1977.

San Francisco police station. The number of terrorists ranged from a single Arab terrorist in Athens to over 30 in Amman. Sixty-five percent of the incidents involved 2 to 5 actual attackers.

Terrorist assaults are particularly relevant to this study because they include many of the characteristics an adversarial force might employ in an attack against a nuclear facility. Terrorists can generally be seen as highly motivated and willing to assume great risks, two attributes we regard as potentially threatening in some types of possible action against nuclear facilities. (There has been one case of an armed terrorist assault on a nuclear power station by urban guerrillas in Argentina; the reactor was still under construction). Terrorists have been willing to attack in the face of certain armed and often lethal response; the Palestinian raid against Ma'alot is a pertinent example. In many cases, they permitted themselves to be surrounded, using hostages as their primary protection, even when security forces had repeatedly demonstrated a willingness to attack terrorists barricaded with hostages.

Three general features of the terrorists' assaults are particularly relevant to possible assaults against nuclear facilities. First, the terrorists involved were highly dedicated to their objectives and less deterred by the possibility of capture, injury, or death. Some terrorists--especially those operating in the Middle East situation--could be viewed as practically suicidal (e.g., the attack on Lod airport). Again, this willingness to expose themselves to extreme risk should not be confused with recklessness. Missions were usually carefully planned and executed. The terrorists rarely assaulted facilities when there was a high probability that they might be defeated before they attained their objectives. The point at which terrorists were willing to assume high risks was after they had attained their objectives (such as gaining entry and barricading themselves with hostages).

Second, the terrorists showed a strong proclivity to attack very conspicuous and politically significant targets, such as foreign embassies, where they could be assured of maximum visibility, press coverage, and public impact. Their actions enabled them to publicize their existence, cause, and demands to the widest possible audiences

and presented an opportunity to exercise leverage of a magnitude generally beyond the capability of relatively small groups. Five terrorists, claiming to be members of the Japanese Red Army, were able to gain significant concessions by holding hostages in the U.S. consulate in Kuala Lumpur for almost 80 hours. In some recent cases, terrorists holding hostages have barricaded themselves for several weeks.

Third, the terrorists' aims were almost always political. Every terrorist assault in the data base was characterized by demands for publicity, quite often by the publication of political manifestos; in only four (out of thirty-four) cases did the adversary groups attempt to extract money. These political aims call for a different set of security criteria from those assaults whose primary concerns are sabotage or theft. For instance, when the perpetrators of terrorist assaults wished to make their organizations and causes well known, they used threats against life and property, both to gain their demands and to effect their escape.

Several additional points regarding terrorist assaults can be briefly made. The attacking group, whatever its size, was almost always a part of a larger organization with resources the attackers could draw upon. The terrorists generally showed themselves capable of acquiring whatever arms and munitions were needed for their purposes, including automatic weapons, rocket-propelled grenades, and mortars. Similarly, they have been able to recruit sufficient manpower to meet their tactical requirements. Terrorist assaults generally have not demonstrated a particularly high degree of technical sophistication or training, but these skills were not usually required by their missions or aims. Seizing lightly guarded embassies and unprotected schoolrooms are not demanding tasks. Finally, they moved with great speed, often overcoming security measures before the alarm could be spread and defenses deployed. In the attack on the OPEC ministers' meeting in Vienna, a small band of terrorists was able to attack the building, seize their intended hostages, and seal off the area within 5 minutes.

In summary, terrorist assaults have been carried out by groups of highly dedicated people with primarily political aims against highly

visible targets. Often their choice of targets and threatened actions were designed to arouse strong emotions, thereby placing extraordinary pressures on political decisionmakers to accede to their demands; the actions of the South Moluccan terrorists in late 1975 and again in 1977 provide vivid testimony of this strategy. In every case, they achieved their publicity objective and they often gained their political objectives.

COMMANDO RAIDS

Seventy-five small-scale military and paramilitary commando and commando-type raids against a variety of targets and facilities were examined as analogs to assaults on nuclear facilities. These attacks covered the period from 1937 to 1977 and included raids by the Spanish loyalists, British and German commando groups during the Second World War, the Palmach and later Israeli raids, and Viet Cong and American commando raids during the Vietnam conflict. The number of participants ranged from two commandos who attacked parked aircraft during World War II to a group of over two hundred U.S. Rangers who stormed a Japanese-held island in the Pacific; the number of raiders averaged about twenty-seven.

Commando raids were added to the data base for two reasons. First, they offer examples of incidents in which well-armed, specially trained, dedicated personnel attacked designated targets, usually with the explicit intent of destroying them. Regardless of the likelihood, there is some possibility that a U.S. nuclear installation might be subjected at a future date to such an attack mounted by a well-financed and well-led terrorist organization. Second, military commando operations provide the only instances of assaults against well-defended targets. In most of the crimes noted elsewhere in the data base, facilities that were attacked were not well protected. The targets were only lightly defended, and the guards had a restricted capacity for armed defense. In contrast, in the commando raids, the targets were defended by personnel appropriately trained and equipped. Examining commando raids thus provides some insights into what strategies seemed most effective in attacking such facilities. At the same time, it must be noted that

these commando raids all occurred during wartime or severe civil strife, conditions that are not contemporarily extant in the United States. For this reason, the applicability of the commando analog to safeguarding nuclear facilities is limited as long as peacetime conditions prevail.

In reviewing the 75 commando raids, the success of the missions appeared to depend on three critical elements. The first was accurate information about the facility and its defenses. When accurate intelligence was lacking or misused, the mission almost always failed in its primary objectives, and often with the accompanying loss of the commandos. For example, over 60 British commandos, tasked to assassinate German Field Marshal Rommel, were safely landed in Libya in 1941. They successfully located and assaulted the complex where they had been told he would be, only to learn that he was with his troops. However, by attacking the building, they alerted German security forces, and only two members of the raiding party survived to rendezvous with their submarine. Similarly, outdated American intelligence resulted in the failure of the United States to rescue its P.O.W.s during the 1970 raid on the Son Tay prison camp in North Vietnam. In contrast, precise intelligence permitted a handful of Spanish loyalists to gain access to and destroy a Nationalist ammunition dump.

A second critical element contributing to the success of commando raids was careful planning. The destruction of eleven bridges in a single night by the Palmach was a textbook example of thorough planning and precise execution. Planning was essential to the success of British commandos who were able to overcome German defenders and spirit away an entire German radar facility from Bruneval during World War II. Israeli commandos have since accomplished similar acts against Egyptian radar sites.

The third critical element was surprise. In the cases in hand, the advantage of surprise was the decisive difference in determining the success or failure of a mission. Eighty-seven German glider troops surprised and captured a Belgian fortress and its 780-man garrison within a few hours when the German general staff had estimated that a conventional assault might require up to 6 months; similarly, 118

Germans rescued Mussolini from 250 troops even though several of the German gliders crashed. Seven British commandos destroyed the German heavy-water facilities in Norway, largely because the German defenders thought the plant to be unassailable. Operations that proved to be successful once could not be duplicated because a second attack, however well planned, lacked the advantage of surprise. For instance, during the Second World War, German frogmen were able to destroy the Nymwegen bridge in Holland with floating torpedo mines; when the identical tactic was tried 6 months later against the Remagen bridge, the defenders--no longer surprised by the tactic--killed or captured all the German frogmen before they could accomplish their mission.

The critical variables here are more those reflecting human attributes (such as dedication, ingenuity, intelligence) than the numbers of men or material resources. There seems to have been little correlation between the size of the commando group and its success in achieving its objectives. Indeed, one of the major tenets of the British Special Air Services in North Africa was that a few men had a higher probability of infiltrating and destroying their targets than a larger number. Anticipating the targets to be well defended, the commandos themselves were well armed. However, the quantity and quality of weapons and munitions brought to bear seemed to have little influence on the outcome of the encounter. The commandos were often able to inflict devastating destruction with relatively simple weapons and means such as mortars and sapper personnel.

In brief, the commando raids in the data base were coded as successful 76 percent of the time; if one excludes those cases in which the commandos' own shortcomings (such as faulty intelligence or mechanical breakdowns) resulted in the failure of their mission (i.e., the raid was not defeated by enemy defenders or defenses), the percentage of successes rises to 89 percent. A well-planned and well-executed assault, characterized by imagination on the part of the attacker and the advantage of surprise, has almost always succeeded, even in the face of well-armed, trained defenders and formidable physical barriers.

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INDUSTRIAL SABOTAGE

Sabotage against industrial establishments, transportation facilities, and public utilities provides an obvious analog to potential attacks on nuclear facilities. As the term is used here, sabotage comprises acts of deliberate destruction, ranging from simple vandalism to efforts to inflict debilitating damage that would severely disrupt operations, disable a facility, and possibly endanger the public. We exclude deliberate slowdowns by workers or other forms of work interruptions or delay and acts of wartime sabotage.

The examination of sabotage is relevant to this study because it is a mode of adversarial action that could be used against and endanger U.S. nuclear programs. Sabotage has been a proven means of inflicting crippling damage, thereby bringing about work stoppages while arousing public concern. Typically, sabotage has involved persons who were employed by the sabotaged institution or who had inside knowledge of its design and operations, a condition that is of special concern for those designing safeguard measures for U.S. nuclear facilities and materials.

It is difficult to determine precisely how much of a problem industrial sabotage is in the United States. Many acts of sabotage go unreported; in some cases, it may be difficult to determine that an act of sabotage has occurred. A possible sabotage incident may be reported as an accident or employee negligence (e.g., a valve left open or a fire of unknown origin) or go unreported to avoid publicity or inspiring similar acts. In peacetime, few major incidents are known to have occurred, a conclusion reached by the authors of a report on the potential hazard of industrial sabotage in nuclear power plants prepared for the Atomic Energy Commission in 1968.*

The data base for our report contains 40 incidents of sabotage. Although most were single, isolated incidents, a few were part of a campaign of sabotage carried on over a period of time, such as 4

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*C. Rogers McCullough, Stanley E. Turner, and Ray L. Lyerly, *An Appraisal of the Potential Hazard of Industrial Sabotage in Nuclear Power Plants*, Southern Nuclear Engineering for the U.S. Atomic Energy Commission, Dunedin, Florida, 1968.

separate train derailments during an extended strike against the Florida East Coast Railway in 1963-1964. The incidents examined here include a variety of acts, such as blowing up oil wells, severing power transmission lines, destroying newspaper printing presses, opening storage-tank valves to release petroleum products into the ocean, spilling gasoline into a sewer system and igniting it, and jamming a television station's transmission by interfering with its microwave relay tower (using the simple but ingenious expedient of sticking metal scoring pads on the surface of the metal dish). Explosive charges, arson, rifles, and various instruments simply thrown into machinery were among the means employed. Explosives were used in about half of the incidents.

The perpetrators of the sabotage incidents had such diverse characteristics that it is difficult to generalize about them or their motives. More than a third of the incidents, and the most serious ones, were committed by disgruntled employees or strikers. An additional 10 incidents involved persons who can be described as political extremists. The remainder involved foreign agents (for instance, in 1956, Egyptian saboteurs set fire to British oil wells in Libya), hired arsonists, extortionists, or disaffected, angry individuals. In about a sixth of the cases, the saboteurs remained unidentified. In most of the incidents in which the number of perpetrators was known, the act was carried out by a single individual; 9 cases were known to have involved six or more persons. Most of the latter incidents were carried out by groups of employees, people who knew each other because they had previously worked together.

In some cases, acts of sabotage appeared to have been relatively extemporaneous, as when strikers at a printing plant destroyed the presses as the workers walked off the job. In others, the sabotage was seemingly the result of thorough planning and careful execution. Motives underlying acts of sabotage included economic concessions (as in the case of striking workers), extortion, personal animosity or revenge, opposition to the "Establishment," an insurance fraud. In the last case, a band of armed assailants, hired by the company's owner, entered a factory, disarmed the guards, and set off explosive

and incendiary devices. They posed as political extremists to cover their real reason for destroying the plant. Wartime sabotage directed against defense plants and shipping has been excluded from study. However, there are several incidents in which opposition to the Vietnam War was the explicit motive and several more in which it was the apparent motive. Many questions as to motives remain unanswered.

For the most part, the saboteurs selected undefended targets, such as rail lines, transmission towers, relay stations, and power lines that did not require their penetration into guarded facilities. Most of the targets struck were located in remote areas. In only a few incidents did the perpetrators illegally enter the facility they were planning to damage. (The 1968 AEC report cited above makes the same observation.) Employees, of course, would have legitimate access. In only one incident did the saboteurs confront and disarm security guards; this occurred in a case of sabotage for purposes of insurance fraud.

Weapons generally were in little evidence in the incidents examined here; they simply were not needed for the act. For the most part, the saboteurs relied on relatively simple techniques and, in many cases, on inside knowledge to carry out their actions. Their knowledge of the facility's operations and possibly restricted areas made them privy to the organization's critical, vulnerable areas, thus making their acts particularly effective given their limited resources. Their technical expertise also increased their effectiveness.

With a few exceptions--the derailment of trains, for example--the saboteurs did not deliberately endanger the lives of others. The actions carried out by the saboteurs required them to take few risks. Their disproportionately high effectiveness (in terms of accomplishing their objectives), which was achieved by a few people with minimal means (in one case, literally a few bolts) and at low personal risk, was largely the result of access to accurate inside information and restricted areas.

SYMBOLIC BOMBINGS

For purposes of this study, "symbolic bombings" are defined as deliberate acts of violence calculated to express a grievance or make

a political statement. The target is perceived by the adversaries as having symbolic significance for their cause. The damage to the target may be secondary, or even irrelevant, to the adversary's aims.

The study of symbolic bombings is applicable to potential future nuclear incidents because nuclear facilities are viewed by some as symbols of unwarranted and dangerous technology. Indeed, nuclear installations have already been subjected to a number of symbolic bombings in the United States and abroad.

The data base currently contains 110 incidents of symbolic bombing in the United States that occurred between 1965 and 1976. The targets were about evenly divided between commercial facilities (such as corporate headquarters and banks) and government buildings (such as embassies and police stations). A few residences were also targets.

Symbolic bombers were generally motivated by political extremism, opposition to the activities of particular corporations, and anger at public officials or the acts of public agencies. In 1975, the Weather Underground claimed credit for an explosion at the Department of State building in Washington, D.C. A group calling itself the "Anti-Establishment Revolutionary" claimed credit for the bombings of the Chase Manhattan Bank, Standard Oil of New Jersey, and General Motors, all in late 1969. In 1970, "Revolutionary Women" firebombed the home of a police commissioner in New York City. Even though symbolic bombings were usually not intended to kill people, one bomb, clearly intended to kill people, was detonated in the Fraunces Tavern on Wall Street during the lunch hour, killing 4 and injuring 55; total casualties of the bombings in the data base were 4 dead and 69 injured. The Lawrence Radiation Laboratory, the Stanford Linear Accelerator, and the French nuclear generating station in Brittany have all been the targets of multiple bombings.

Although motives are not always clear or easily identifiable, damage for symbolic reasons appeared to have been a significant consideration. Most bombs were planted by stealth and exploded at night. Although the bombings were largely planned by extremist groups, the acts themselves were usually carried out by only a few individuals. Left-wing revolutionary groups--such as the Weather Underground, Red

Guerrilla Family, and the New World Liberation Front--seemed to predominate.

None of the incidents studied required a great deal of advanced planning, although most required at least a moderate amount of prior reconnaissance of the target. The bombers looked for "soft" (i.e., unprotected) targets that had little or no security system. There is no evidence that the adversaries in any of the incidents examined had inside knowledge or privileged information beyond that which would be available from public sources and from observation of the intended targets. Targets, at times, seemed to have been selected partially on the basis of convenience. While the symbolic bombers, by virtue of their actions, must be classified as dedicated to their cause, there appears, at the same time, to be an element of caprice and a degree of casualness in carrying out the bombings; the bombers displayed a minimal expenditure of energy and a minimal exposure to risk in carrying out their symbolic acts.

In most cases, no special equipment was needed in placing or transporting the devices used. Some of the bombs were crudely made; the explosives were easily obtained either by purchase or theft, and required little more than a knowledge of explosives gained by a cursory reading of any of the many publicly available manuals on the market. Some bombings, however, were far more sophisticated and indicated a much higher degree of expertise, intelligence, and care. For instance, some of the bombings claimed by Puerto Rican separatists showed evidence of considerable skill in the design and placement of the explosives.

In summary, for symbolic bombings, the aim was usually abstract--an institution, a condition, or a policy rather than a particular physical target or facility. A symbolic bombing was fundamentally a protest action, chosen because it was a relatively safe, available, and apparently satisfying way for the bombers to express themselves.

NUCLEAR INCIDENTS

As stated earlier, known incidents regarding nuclear facilities and materials have been included as part of the data base. These are

not, of course, analogs; rather they are actual nuclear incidents. They are included to illustrate the range of threats and incidents that have occurred to date involving nuclear programs.

Between 1969 and 1975, there were 288 recorded threats against, or incidents at, nuclear facilities in the United States. The majority of these (240) were bomb threats against government or licensed nuclear facilities. Twenty-two were incidents of arson, attempted arson, or suspicious fires. Most of the apparent arsons occurred in buildings where the Atomic Energy Commission rented offices or were directed against university research facilities, such as the University of California's Lawrence Radiation Laboratory. The Lawrence Laboratory was a frequent target; 10 arson incidents and 5 bomb threats were recorded there. Investigators suspect that the incidents were created either by former employees with personal grievances or militant students opposed to nuclear research being conducted at the university.

The most serious incident of arson occurred at a nuclear generating plant at Indian Point, New York. In November 1971, a fire caused $10 million in damage to the facility, but did not affect the reactor. A subsequent letter to the press claimed that "Indian Point guerrillas" were responsible for the incident and suggested that the action had been motivated by concern for the environment. The arsonist, who was later apprehended when he turned himself in for psychiatric treatment at a local veterans hospital, turned out to be a former employee of the company.

There were 9 bombings in the data base. In one episode, the target clearly was a nuclear program. In December 1971, two bombs exploded near the experimental linear accelerator at Stanford University in California, causing heavy damage to the electronics equipment that controls the facility. A caller later claimed credit for the explosions, but no manifestos were issued and no suspects were ever arrested. The remaining bombs exploded at federal office buildings or university research facilities, but it is not clear if nuclear programs were the target. In addition, there were 4 incidents in which unexploded bombs or explosives were discovered at nuclear facilities. Again, research facilities were the principal target.

In February 1974, an opponent of nuclear power toppled a 400-foot meteorological instrument tower at a proposed nuclear power plant site in Massachusetts. The perpetrator, who surrendered himself to police, claimed in a written statement that his action was motivated by opposition to the future construction of a nuclear power plant at the site and to the danger this would impose on the community.

The remaining incidents consist of forced entries, intrusions, shots fired at guards or at transmission towers, or malicious mischief. In one incident, a college student cut through a fence to gain access to the area around a university research reactor, later stating he had done this simply to prove that it could be done.

A widely publicized incident involving the removal of nuclear material occurred at a fuel fabrication plant in Oklahoma. Controversy still surrounds this case. On the basis of two government reports and various press accounts, it appears that in November 1974, a plant employee, who had previously complained that working conditions at the plant were unsafe, was found to have been contaminated with plutonium and placed on administrative duties. When routinely checked the following day, she was again found to be contaminated. A further check of her apartment also revealed some contamination. She died in an automobile crash 8 days after the first incident. Her autopsy revealed radioactive contamination but not at the higher levels found before her death, which suggests that earlier samples may have been deliberately contaminated. At the same facility a month later, uranium dioxide pellets were found lying on the ground outside the production area. There was no way they could have gotten there accidentally. A plant employee who may have wished to embarrass the company was suspected. While neither incident involved significant quantities of nuclear material, they did raise serious questions about the security of the facility and the possibilities of a more serious diversion.

None of these incidents, with the possible exception of the fires at the Lawrence Radiation Laboratory and the Indian Point nuclear power plant, and the bombing of the Stanford linear accelerator, imperiled public safety. There was only one casualty, which occurred when an intruder entering a nuclear power plant in Vermont wounded a night

watchman. The remainder of the nuclear incidents that occurred in the United States could be classified as minor, such as bomb threats, token acts of violence, and low-level sabotage. Many incidents were directed against only administration facilities--e.g., office buildings, campus science buildings--connected with nuclear programs.

In addition to the 288 incidents mentioned above, several known thefts of radioactive material or devices containing radioactive material have taken place at facilities and institutions not defined as "nuclear facilities." For example, in August 1973, twenty-one capsules of radioactive Iodine-131 were stolen from a hospital in California. In June 1974, an instrument containing Strontium-90, which was used to measure the density of railroad beds, was stolen. The following year, nine radioactive radium needles were stolen from a hospital in California by a night porter who worked at the hospital. It has been reported that burglars involved in these thefts may not always know what they are stealing and may have disposed of the instruments or materials when they were found not to be marketable.

There is no complete record of incidents involving nuclear facilities or material elsewhere in the world. From the reports of the incidents that are known to have occurred, they do not differ markedly from those in the United States and consist mainly of bomb threats, hoaxes, incidents of vandalism, and low-level sabotage. In the last few years, however, several more serious incidents have taken place.

In May 1975, two bombs exploded at a nuclear power station under construction in Fessenheim, France. The explosions started a fire that damaged a peripheral area of the nuclear reactor complex. The reactor itself did not yet contain fissionable material. Shortly before the bombs exploded, a caller identified himself as a member of an unknown group that took its name from two known anarchists. In the months preceding the bombing, there had been local opposition to the construction of nuclear power stations in the area, so it was reported that antinuclear extremists may have used the cover of political extremism to publicize their cause. Two bombs were detonated at other French nuclear facilities in June 1975. Again, a previously unknown group claimed credit for the incidents. One bomb was placed at

Framatome's main computer center in Courbevoir, destroying half of the input terminals; the second bomb was planted at Framatome's workshop in Argenteuil, causing some damage in the valve-testing shops. Again, it was speculated that persons opposed to nuclear power may have been using a political cover to advance their cause.

In August 1975, two bombs exploded at a nuclear power plant in Brittany, France. The bombs caused minor damage to an inlet for cooling water for the reactor and to an air vent on the building on the power station. The reactor itself was not damaged, but was closed down pending an investigation. No one claimed responsibility for the attack, but police suspected that it had been carried out by a Breton separatist group responsible for other recent acts of sabotage in the area.

In early November 1976, a bomb was exploded in the Paris offices of a manufacturer of nuclear fuel elements. The blast caused extensive damage but no casualties. Responsibility for the attack was claimed by a man identifying himself as a member of the Commando d'Opposition par Explosifs a l'auto-destruction de l'univers ("Commando of Opposition by Explosives to the Self-Destruction of the Universe"), forming the French acronym COPEAU. Less than a week after the Paris blast, COPEAU claimed credit for two bombs detonated at a uranium mine in southwestern France. The bombs destroyed four pump compressors, putting the mine out of operation for about 2 months and causing an estimated $2 million damage.

In Sweden, where nuclear power has met similar resistance, 44 pounds of dynamite were found next to a nuclear power station at Ringhals in November 1976. The bomb, defused by police, would have damaged transformers but not the two reactors.

Several serious incidents of theft have occurred abroad. In November 1966, twenty uranium fuel elements containing slightly enriched uranium were stolen from the Bradwell nuclear power station in Great Britain. The theft was carried out by two men (one an employee at the plant) who were later arrested; the fuel elements were recovered. The thieves said that a man in London had offered them money for the elements, but the London connection was never identified.

In April 1974, a uranium-smuggling operation in India was exposed.

Complete details of the incident are not available, but it appears from the rather sketchy press accounts that natural uranium was being removed from a plant in Bihar, India, and smuggled to Nepal. From Nepal, it was secretly shipped to Hong Kong where, reportedly, Chinese or Pakistani agents took delivery. It is suspected that as much as $2.5 million worth of uranium may have been involved. The plot came to public attention when five persons involved in the operation were arrested in India and 3.5 kilograms of uranium were recovered.

There have been 2 incidents abroad involving the use of radioactive material as contaminants. In April 1974, an anonymous caller in Austria warned that some train coaches had been deliberately contaminated with radioactive material. Investigators found substantial but not lethal traces of Iodine-131, a radioactive material normally used for medical diagnosis. The episode received widespread publicity in Austria and provoked a number of hoax calls and threats. The perpetrator, who was later arrested, turned out to have a history of mental illness. He had intended his actions to be a protest against the treatment of the mentally disturbed in Austria.

In October 1974, Italian government officials announced that they had discovered a plot by right-wing terrorists to poison Italy's aqueducts with radioactive waste material stolen from a nuclear research center in Northern Italy. The alleged threat was associated with revelations of a planned assassination and political coup by right-wing elements. An engineer at the research center was named as a conspirator, but the allegations were never substantiated. The case became entangled in legal technicalities. Whether the alleged plot, which gained widespread publicity in Italy, was real or not has never been determined.

A single nuclear incident is known to have taken place in Latin America. In March 1973, fifteen members of a leftist urban guerrilla group in Argentina occupied an atomic power plant under construction at Atucha, 62 miles north of Buenos Aires. They overpowered the guards, painted slogans on the walls, raised their flag over the facility, and stole weapons, but they made no demands and did not attempt to enter the reactor area or damage the facility.

What might we conclude from these nuclear incidents? For the most part, public safety was not imperiled. Like other businesses and industries, the nuclear industry is also susceptible to bomb threats, arson, incidents of low-level sabotage, and occasional bombings. Only a few incidents attracted widespread attention. The perpetrators and their motives were diverse. They included disgruntled employees, common thieves, political extremists, foes of nuclear power, and a few lunatics; their apparent motives included protest, greed, revenge, or desire for attention. The culprits included insiders, external groups, and combinations of both. For the most part, however, they were probably acting alone; only a few incidents involved groups. There is no evidence in the incidents that any criminal or terrorist group has made any attempt to acquire special nuclear material or radioactive waste for use in an explosive or dispersal device. No individual or group has yet demonstrated such a capacity.

IV. ANALYSIS OF DATA BASE

The formal data base used for this report has been structured in such a manner that it compares the five types of incidents--task force crimes or "capers," commando raids, industrial sabotage, terrorist assaults, and symbolic bombings--with respect to a number of key attributes observed in each. This will allow us to aggregate and examine acts of criminal and political violence from the perspective of the various attributes; it represents a "horizontal" aggregation of the data. Later, "typical" adversary acts and typical composite, high-level composite adversaries ("vertical" aggregation) will be constructed. The percentages shown below are computed within each category of analogs based on a total of 45 capers, 34 assaults, 110 bombings, 75 commando raids, and 40 incidents of industrial sabotage.* As noted above, incidents involving nuclear materials or facilities are not included here.

CLASSIFICATION AND CODING

Rand and Sandia personnel jointly designed a Threat Characteristics Outline to provide a framework within which these five types of incidents could be coded on a standardized basis. (This outline is reproduced as Appendix A.) Some incidents fit this framework rather awkwardly. Furthermore, full information for all the incidents was not available, and judgmental choices were necessary in coding the incidents. For these reasons, and to preclude the possibility that the data will be misinterpreted, it is advised that the data presented here not be taken out of the context in which they are presented.

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*The percentages within a category do not add to 100 percent for all attributes. There are some attributes for which more than one answer applies in particular incidents--for example, in some cases access to a target may have been gained by disabling an alarm *and* barrier penetration--resulting in totals greater than 100 percent. There are others for which no category applies--e.g., assaults in which the perpetrator surrendered and no attempt at egress was made--giving totals less than 100 percent.

Aims and Objectives*

Adversaries' aims are considered first. The perpetrators of all the terrorist assaults and bombings are best classified as political extremists with political aims in mind, whereas most of the capers were carried out by criminals whose primary aim was personal financial gain. For the present purposes of classification, the Palmach and Viet Cong commando raids have been considered as having been executed by political extremists, although they carried some of the trappings of national legitimacy.

The objectives for the incidents follow anticipated lines. The tactical objective in all the symbolic bombings appeared to be at least token damage with the aim of disrupting the facility attacked and, in most cases, publicity for a cause. Political demands were made in a few of the bombings, but probably without serious expectation that the demands would be met. In about 90 percent of the capers, the immediate objective was theft; the remainder of the capers were prison breaks, coded as an objective of "disable/disrupt." About 80 percent of the assaults by terrorists were intended to seize and hold a facility with hostages in return for political concessions, and about 30 percent had the objective of creating damage and disabling or disrupting the facility attacked; 10 percent involved both. Over 90 percent of the military commando raids were directed toward the disruption or destruction of the enemy's war-fighting capabilities; the remainder were planned rescues of personnel. Personal anger was undoubtedly a factor in many of the assaults and bombings, but was only clearly identifiable as an important secondary motive in a few cases. In three-quarters of the cases of industrial sabotage, destruction of facilities was identified as the principal objective.

Number of Adversaries

Excluding the military operations, the most frequent number of adversaries observed ranged between two and five persons, with 1 criminal caper and 1 terrorist assault carried out by a lone individual.

*These terms as we have used them are defined in Appendix B.

Roughly a quarter of the capers and a third of the terrorist assaults involved six or more people. The largest caper involved about twenty men; the largest terrorist assault raid involved a group of thirty. The average number of men in commando raids was slightly less than thirty, although several successful raids were conducted by fewer than a dozen men. The estimate of participants in most symbolic bombings was between two and five; this represents a "best guess" or default value because the limited hard data available for this category suggests the low number. Many of the bombs could actually have been placed by one person, although the bombings all appeared to have been planned by groups, rather than by lone individuals. Testimony taken from apprehended bombers indicated that the involvement of two persons--one planting the bomb and the other acting as a lookout--was the mode generally used. Two to five adversaries were also assumed for some of the burglaries in which knowledge of the number of perpetrators was uncertain. The distribution was relatively bimodal for industrial sabotage incidents in which the number of adversaries could be identified; over 40 percent were carried out by a solitary individual while another 25 percent were executed by six or more persons.

The number of perpetrators in all categories--more specifically, the small numbers seen in many of these incidents--appears to have been determined more by operational requirements than by any resource limitations. Most of the assaults and bombings were carried out by groups that potentially had more people available than were actually employed for the given operation.

Armament and Equipment

To the best of our information, no weapons were employed in the bombings (except one), in most of the sabotage incidents, or in most of the capers (such as burglaries). This does not mean that the perpetrators in these cases were unarmed, but rather that they simply had no need to display or use weapons. Most of the armed robberies involved commercially available pistols and shotguns. Submachine guns were used in one case, and a crew-served heavy machine gun in another, and an antitank gun was used in a third one (but, in this study, the

last is classified as a "special tool" rather than a weapon, because it was used solely to penetrate a vault). One of the terrorist assaults was made with pistols, whereas the rest were accomplished with automatic weapons and grenades; in several cases the attackers carried explosives as well. The armament employed in some of the commando raids included light crew-served weapons, such as recoilless rifles and mortars.

Turning to the equipment used by the adversaries, one finds a strong correlation between the different types of incidents and the particular equipment brought to bear. Obviously, explosives (including incendiary devices) were used in all the bombings and, in most bombings, were the only "tools" employed. In half of the cases of industrial sabotage special tools or explosives were used, whereas the remaining incidents were characterized by the use of hand or power tools. No tools were employed in the terrorist assault cases, with one exception in which wire cutters were used to cut through a fence. The military commandos used a full complement of tools and equipment ranging from wire cutters to advanced electronic equipment. In some cases, special equipment was designed to meet specific needs.

As a function of equipment used, the capers may be divided fairly evenly between the three categories: no tools, relatively standard equipment, and very specialized implements. Those capers involving no tools were primarily armed robberies. In the second category, tools and equipment used in burglaries included crowbars, drills, sledgehammers, cutting torches, and explosives. In one case a truck-mounted hoist was used. In the third category, specialized electronics equipment was employed to defeat alarm systems in a number of cases. Communications equipment used by burglars and robbers included radios and wire field telephones. Sophisticated penetration devices included thermic rods. Helicopters were used to fly prisoners out of prison yards in two instances; in one case, the helicopter was rented and abandoned; in the other, it was chartered and the pilot was subsequently coerced at knifepoint.

Access and Egress

In virtually every bombing case, access to the target area or the target itself was accomplished either by legitimate means--e.g., by

entering an area open to the public—or by deception--e.g., gaining entry to an accessible but closed-to-the-public area. Neither tactic required the use of force. Two exceptions involved the penetration of light barriers, such as chain link fences. All the burglaries, and some of the robberies, assaults, and sabotage, involved forced entry of some type. This forced-entry characteristic should not be surprising, because the targeted facilities were designed to prevent unauthorized access. Legitimate access and deception were often combined in practice. However, for coding purposes, it may be impossible to separate them after the fact. For example, when a bomb is left in a corporate restroom, it cannot be retrospectively determined whether the bomb was placed by someone acting as an ordinary member of the public (i.e., legitimate access) or by someone posing as a delivery boy (i.e., deceit or deception).

About 15 percent of the terrorist assaults involved some form of barrier penetration or barrier bypass, and almost half of them, some form of "legitimate" access. The barrier penetrations included such acts as cutting through fences and scaling walls. In the "legitimate" accesses, the culprits overtly entered the target facility (e.g., an airport or embassy) as peaceful members of the public, and then drew their guns and began the assault after they were inside. The line between access gained by legitimate means coupled with armed assault and pure armed-assault access is obviously fuzzy, with the coding depending in part on how the incident was described in the case study. The primary methods of facility access in the capers were armed assault for armed robberies and covert barrier penetration for burglaries and prison breaks. Legitimate access or deception (crooks posing as burglar-alarm repairmen) was employed in about one-third of the capers.

Once the adversaries had gained entry, their tactics were largely dependent on their original objectives and the response of the defensive system. Theft was involved in 90 percent of the capers (all but the prison breaks), but happened in only 1 of the terrorist assaults and in none of the symbolic bombings. The occupation of a facility and the holding of hostages within it occurred in 80 percent of the terrorist assaults and in slightly more than a third of the capers, but in none

of the incidents of sabotage, commando raids, or symbolic bombings. (The capers in this case were armed robberies in which the facility was held briefly while the robbery took place. "Holding" in the case of capers is thus quite different from "holding" in the terrorist assaults.) The creation of physical damage, per se, was intended or occurred in about a third of the assaults and in all but 1 bombing. Over 90 percent of the commando raids were planned with the physical destruction of targets as the primary objective; the only exceptions were 5 raids to rescue prisoners and 2 raids to obtain enemy radar sets.

The method of "egress" from the target following the incident--i.e., the adversary's means of escape after he has accomplished his primary objectives--varied according to the activity. The symbolic bombs were all planted by persons employing stealth or deceit; hence, this was the form of egress in all the bombing incidents reported. In 80 percent of the assaults, the perpetrators attempted to bargain their way to safety, although not always successfully, and in two incidents, they outran the response. In the remaining assault incidents, no egress was attempted; the perpetrators either surrendered or were killed before any attempt at bargaining or other avenue of escape could be instituted. The capers were about evenly divided between stealth--which was used for most burglaries--and attempts to outrun the response--which occurred in armed robberies, prison breaks, and some burglaries. In close to 90 percent of the incidents of industrial sabotage, the perpetrators escaped either by stealth or by outrunning the system's response mechanisms. With the exception of the seemingly suicidal Viet Cong attack on the U.S. Embassy in Saigon, commandos also favored stealth or outrunning the response, although in many cases an armed retreat was necessary.

Duration

The time necessary to conduct any of these operations is an important characteristic of the action. We do not have complete information on the time required to execute all the incidents in the data base. Those for which we do have information indicate that such operations can be executed with remarkable speed. The slowest events to unfold

were burglaries in which the burglars were forced to penetrate strong physical barriers, such as stationary bank vaults; such operations usually required between 5 and 10 hours. When the burglars were able to use deception or inside assistance to gain entry to a secured area, or managed to obtain keys and combinations to gain access to a vault, the crimes took less than 10 minutes. Armed robberies were often carried out with remarkable speed. The famous Brinks' robbery in Boston was carried out in less than 20 minutes, including the time needed to load a million dollars in cash. Speed, of course, is a necessary characteristic of a commando raid. Likewise, terrorist assaults are carried out with great expedition. The time involved in bombing is irrelevant, since the bomb is planted at the adversaries' convenience and later detonated by a timing device. Similar logic is applicable in cases of industrial sabotage. Thus, one can credit the adversary with the ability to carry out whatever action is contemplated in a relatively short time.

PROFILES

We have drawn on the data base to examine the various adversary attributes, such as numbers, equipment, arms, transportation, intelligence, dedication, aims and objectives, training, imagination, and ingenuity that have characterized these actions and their perpetrators. (A list of adversary attributes appears in Appendix C.) In addition, aggregate profiles of "typical" actions in each category can be compiled from the data base. It is important to realize that the following profiles are composites; as with any composite representation, individual cases will vary from the profile. However, the profiles do represent "typical" cases of each category of analogs and are exemplary of real-life actions. In most cases, the capabilities displayed by the adversaries were sufficient to achieve their desired objective. They do not manifest the upper limits of the resources available to the perpetrators involved. Rather, they represent the baseline capabilities commonly found in the various categories of successful crime and politically motivated violence examined here.

"Typical" Analog Profiles

A "typical" *terrorist assault* team consisted of three to six men armed with automatic weapons, grenades, and explosives. They were trained, although not extensively, in the use of weapons, explosives, and elementary tactics. They were sufficiently dedicated to their cause to accept a high risk of capture or death. They were not likely to possess extensive technical skills, but in most cases, such skills were not a requisite to the success of the mission. Their transportation included cars, trucks, boats, aircraft, or movement on foot, basically whatever was required to arrive at a given target. Their objectives ranged from seizing and holding a facility and its occupants as hostages in exchange for political concessions to attacking a facility or people. The operations normally were conceived and planned by a larger organization, i.e., a "parent" group with sufficient resources to support extensive intelligence collection, planning, and training. The degree of imagination and ingenuity shown in such operations ranged from moderate to high.

A "typical" *burglary* task force consisted of two to four men. The men were professional criminals;* they were both skillful and careful. One of them was likely to be an expert in overcoming complex electronic alarm systems. Their intention was to obtain maximum profits with minimum risks and their motivation was economic gain; their target was usually cash or high-value merchandise that was relatively easy to dispose of. To these ends, the tools, explosives, and the special equipment necessary to penetrate significant physical barriers of steel and reinforced concrete and to neutralize alarm systems were readily available. Transportation was by automobile, truck, and occasionally aircraft, depending on the size and weight of the loot. Burglars often had inside information (particularly concerning the alarm system and routines of any guard force), and usually surveyed the target area carefully while planning the job. They were armed, but generally did not

*We do not mean that they were necessarily a part of organized crime, but that they were professional in the sense that they had experience and expertise in these types of activities and had made their living primarily in this fashion.

use their weapons, seeking to avoid confrontation with security forces rather than to prevail by force of arms.

The members of the task force were carefully selected, as much for their trustworthiness and reliability as for their specific job skills, because they had to be trusted not to reveal the group or its plans, either before or after the operation, even if apprehended. Characteristically, they planned carefully, estimated their chances of success, and took every precaution to minimize risks. Thus, the "typical" caper group may have rehearsed their operation many times to enhance their chances of success. They may actually have scheduled the theft several times but delayed their caper because they sensed that their chances for success were in some ways significantly compromised. The degree of imagination and ingenuity shown was quite high.

A "typical" sophisticated *armed robbery* team consisted of three to six men. Robbers were usually professional criminals who were possibly less skilled (or their crimes may simply require fewer skills) and somewhat less averse to taking risks than burglars. They were sufficiently well armed--generally with handguns and shotguns that were clearly visible--to give them a substantial advantage over anticipated security forces. The criminal team preferred to avoid violence but was willing to display weapons and, when necessary, to use them. The display of superior force was to discourage possible resistance and a potential shootout. Transportation was via car or light truck. As in the typical burglary, the target was usually cash or high-value merchandise or material in a facility, or possibly in transit. The degree of planning was usually moderate, but occasionally very extensive. Some inside knowledge, particularly about shipment schedules and security, was frequently used. The degree of imagination and ingenuity displayed varied but, on occasion, was high.

A "typical" *symbolic bombing* was politically motivated. It usually involved the planting of dynamite, or other explosive with a timing device, in a government building or corporate headquarters. The evidence suggests that only one or two people generally participated in the actual planting of the bomb, but others may have been involved in planning, building the bomb, and other related activities. The

total membership of the larger group appears to have ranged from ten to thirty. For the most part, the perpetrators seemed to have been largely self-trained through publicly available literature on guerrilla warfare and explosives; they were moderately skillful in the design and fabrication of the devices. The bombers were characterized by strong but volatile loyalty and dedication, floating in and out of a number of sympathetic groups. Their transportation included cars, light trucks, and public transit. The targets were chosen for high political impact at minimum risk to the group. Few attempts were made to confront a significant security system. The imagination and ingenuity were only moderate, possibly because only a moderate amount of ingenuity was generally required. The target was usually property, not people; indeed, attempts were often made to avoid casualties. The explosives in most cases were set to explode at night, usually preceded by telephone warnings to the building, the news media, and/or the police.

The explosions in symbolic bombings were frequently followed by a written communique. The aim of the bombing, often stated in an accompanying communique, was to make a political statement, possibly related to some current or recent political events. The communique was a critical element in the bombing; it provided the perpetrators with access to the media and the opportunity to "educate" the public to their cause. Planning and preparation prior to the emplacement of the bomb were often extensive, partly because the planning exercise itself was an important social and political activity for the political activist group.

The *commando raids* were conducted by professional soldiers or guerrillas who were, generally speaking, highly skilled and specially trained for their duties. Their aims were the disruption of the enemy's war-fighting capabilities, with the noted exception of those missions to obtain enemy equipment or to rescue captured comrades. The men were highly motivated, undertaking actions that often came close to being suicidal and occasionally extracted a heavy toll of life. Prior planning was often extensive, including practice raids on mock facilities in a few cases. Intelligence information, when erroneous, almost always defeated the purpose of the mission.

It is important to note that commando raids were carried out against protected targets whose defenders usually outnumbered the raiders and were at least as well armed as the commandos, conditions that would hardly seem to bode well for the raiders. Yet, with the advantages of greater flexibility and tactical surprise, the raids succeeded almost three-fourths of the time and against some targets whose defenses could have prevailed against much larger forces; if one excludes those failures that were not due to enemy action, the commandos were successful almost 90 percent of the time. This rate of success speaks highly for the professional skill and ingenuity of the raiders, and particularly for their use of surprise. (It also bodes ill for the use of mathematical engagement models in which force ratios determine the outcome.)

A "typical" incident of *industrial sabotage* was either carried out by a solitary person or a group of more than six. Approximately a third of these cases were attributed to political extremists, and another third were attributed to disgruntled persons. Their objectives always centered around the destruction or disruption of facilities or equipment, quite often on a significant scale. They rarely appeared to have firearms. Their primary equipment was the material or tools of their chosen methods of sabotage. The saboteurs were sufficiently motivated to carry out their acts but generally chose those that did not require them to take extreme risks, such as being confronted or captured.

The saboteurs used conventional means of transportation. Perhaps the critical characteristic is that they generally had inside contacts or privileged information not available to the general public. This gave them relatively easy access to their selected targets, which--as they knew from their information--were invariably the critical or exposed points in the targeted facility. They were well trained, if not in techniques of destruction, then in the workings of the facility so that they could effectively disable it.

A major difference between incidents of industrial sabotage or burglaries/armed robberies and the rest of the categories is that the perpetrators of the former incidents usually had little desire to have their identities known or widely publicized; sabotage and crime are almost always carried out to satisfy individual objectives or personal

gain. The identification of the perpetrators hardly serves--indeed, defeats--their purposes. While political bombers and terrorists usually prefer to keep their individual identities secret, they publicize their group affiliation.

Typical Composite Profile

Table 2 summarizes the adversary attributes displayed in these six "typical" types of actions. We have further consolidated the attributes by creating a "typical composite profile," shown in Table 3. This latter profile is a compendium of the equipment, skills, and other attributes that have been brought to bear against the analog targets. It represents a level of resources and skills that criminal and political adversaries have been able to assemble and, as such, might be able to assemble were an adversary group to target a nuclear facility. (The typical composite profile does not include the commando raids.) A composite of the typical attributes seen in all categories of crimes surveyed consisted of three to six adversaries armed with automatic weapons possessing high explosives and hand and power tools, using a variety of ground transportation modes, having high technical skills and a willingness to accept high risks, possessing some inside information or assistance, and displaying a moderate-to-high degree of ingenuity and careful advanced planning.

One must be extremely guarded in interpreting and applying this typical composite profile to the nuclear situation. What is presented as the typical composite profile is *not* an assessment or depiction of the potential adversary of U.S. nuclear programs. It is a description of attributes that have been frequently displayed by adversaries in other, analogous circumstances. Based for the most part on successful operations, the profiles show what attributes and characteristics the adversaries found were necessary in order to have a high probability of achieving their goals.

The typical composite profile represents a reference point on a scale of adversarial capabilities. This point has not been determined solely as a function of the resources available to criminals and terrorists, but also by what is required for their success, which, in turn,

Table 2

COMPOSITE SUMMARIES OF ADVERSARY ATTRIBUTES AND CHARACTERISTICS DISPLAYED IN SIX "TYPICAL" ACTIONS

"Typical" Action	Number of Perpetrators	Weapons	Tools	Transport	Technical Skills	Dedication (willingness to risk death or capture)	Inside Assistance	Planning	Ingenuity and Imagination
Terrorist Assault	3-6	Handguns, automatic weapons	High explosives	Foot, commercial vehicles, air	Medium	High	No	Medium to high	Medium to high
Robbery	3-6	Handguns, shotguns	None	Foot, commercial vehicles	Medium	medium	Information	Medium	Medium to high
Burglary	2-4	Weapons usually not displayed	Hand and power tools, high explosives	Foot, commercial vehicles	High	Low to medium	Information	High	Medium to high
Bombing	1-2	None	Hand tools, explosives	Foot, commercial vehicles	Low to medium	Low	No	Medium	Low to medium
Sabotage	2-5	Usually none	Hand and power tools, explosives	Foot, motor vehicles	Low to medium	Low	Information and access	Medium	Medium to high
Commando Raid	20-30	Automatic and light crew-served weapons, explosives	Hand tools, explosives	Foot, air, ship, and motor vehicles	High	High	Information	Medium to high	Medium to high

Table 3

TYPICAL COMPOSITE PROFILE OF ADVERSARY ATTRIBUTES AND CHARACTERISTICS

Adversary	Number of Perpetrators	Weapons Used	Tools Used	Mode of Transportation	Technical Skills	Dedication (willingness to risk death or capture)	Inside Assistance	Planning	Ingenuity and Imagination
"Typical" Composite	3-6	Automatic weapons, grenades, shotguns, explosives	High explosives, hand and power tools	Foot, commercial vehicles, limited use of aircraft	Medium to high	Medium to high	Information or other assistance from one insider	High	Medium to high

is determined by the level of societal tolerance for their successes. Armored express companies, banks, criminal justice agencies, insurance companies, and the society at large have, in effect, decided that the occasional criminal successes are not sufficiently damaging to warrant using the additional resources required to reduce substantially the occurrence of such crimes. In other words, society tolerates a certain number of criminal successes. If this were not so--i.e., if society were to demand their reduction--the resources required to carry out such crimes successfully would correspondingly increase. The demand for a reduction in airline hijacking, the resulting more stringent airport inspection measures, and the subsequent decrease in sky-jacking incidents are good examples of a change in societal tolerance of a type of criminal activity and of the increased resources dedicated to public safety demands. If society were to mandate a change in the public safety environment, the reference points would necessarily be altered.

The High-Level Composite Profile

Table 4 shows a "high-level composite" profile of adversary attributes and characteristics, which aggregates high-level attributes so far observed in real-life episodes, although not necessarily the highest levels seen. The choice of high but still plausible levels, based on the authors' judgments, seems clearly preferable to positing a more speculative adversary and his capabilities predicated on the highest levels observed.

The high-level composite helps to identify which capabilities are the hardest for an adversary to attain, and at what levels he begins to encounter difficulties. We refer to these levels as breaking points. For example, our research indicates that in the mobilization of manpower and the acquisition of weapons, an adversary can in fact attain the high levels shown in Table 4. On the other hand, the recruitment of persons possessing specific technical skills who are also willing to risk their lives seems to pose somewhat of a greater obstacle.

The high-level composite provides another reference point on a scale of adversary capabilities, obviously much higher on the scale than the typical composite profile. If the typical composite profile

Table 4

HIGH-LEVEL COMPOSITE PROFILE OF ADVERSARY ATTRIBUTES AND CHARACTERISTICS

Adversary	Number of Perpetrators	Weapons Used	Tools Used	Mode of Transportation	Technical Skills	Dedication (willingness to risk death or capture)	Inside Assistance	Planning	Ingenuity and Imagination
High-level composite	12-20	Anything up to and including light, crew-served weapons	High explosives, power tools	Foot, commercial vehicles, air, sea	High[a]	High[a]	Information and help	High	High

[a]High dedication *and* high skill are not generally seen in a single "typical" group, with the notable exception of many commando raids.

summarizes those attributes commonly seen, the high-level composite represents something near the upper bounds. The commando raids were not included in the high-level composite because they took place in a wartime environment, and we are concerned here with adversaries that plausibly might appear in a peacetime environment. It should be noted, however, that in most of the attributes, the high-level composite resembles the typical commando raid, except that commandos are unlikely to have inside assistance, an attribute we grant the high-level composite.

The high-level composite adversary is hypothesized to possess the following attributes:

- *a full range of motivations.* These range from monetary gain to the extortion of political concessions; they include blind anger and the desire to embarrass a corporation, an industry, or even the national government.
- *between twelve and twenty perpetrators.* This represents a reasonable upper limit for the number on the adversary's personnel resources. More are possible, but unlikely in the absence of serious civil disorder or war.
- *Inside assistance.* This could assume the following forms: information on facility layout, personnel, and security systems; diversionary actions; disabling of systems; assistance in the penetration of the security system and in its operations; and, of course, actual acts of sabotage.
- *Weapons and explosives.* Those observed in the data base include pistols, shotguns, automatic weapons, grenades, devices constructed for specific destructive purposes, and light crew-served weapons. Adversaries have used a variety of explosives, including military, commercial, and homemade explosives. Weapons and explosives are available on the illicit market to any determined and well-funded adversary. What the adversary can carry and use during the actual operation, rather than what he can obtain, appears to be the main constraint on the amount of arms and explosives the adversary may bring to bear.

- *Tools and equipment for penetrating barriers and vaults.* These include hand and power tools, sledgehammers, jackhammers, cutting torches, thermic rods (burn bars), saws, drills, some cordless power tools, and modern electronic equipment.
- *Sophisticated tactical communications equipment.* Specific instruments observed included citizens band radios, military walkie-talkies, and field telephones.
- *Various modes of transportation.* Cars, vans, trucks, helicopters, and a limited number of fixed-wing aircraft have been observed in incidents in the peacetime data base.
- *Adequate finances.* These become a serious consideration when a group of adversaries must be maintained together over a period of time, but are unlikely to prove a critical restraint. The larger terrorist groups do not appear to have been unduly hampered by lack of funds. Possible means of financing violent acts are bank and other robberies, ransom payments, financial support from sympathetic parties, extortion, and personal funds.
- *A high degree of technical knowledge.* Technical skills are varied and multiple, including weapons and tactics skills, breaking and entering capabilities, the knowledge and ability to falsify credentials, the ability to manufacture and use explosives, and a knowledge of smuggling techniques.
- *Experience.* The high-level composite adversary can be expected to have previously conducted similar activities; he will not be a novice, especially as the difficulty of the operation increases.
- *High degree of imagination and ingenuity.* In a large number of incidents, the adversaries were able to overcome imposing obstacles by mounting ingenious attacks and deceptions.
- *Willingness to risk capture or death.* This was particularly apparent in the terrorist assaults and commando raids and conspicuously lacking in the symbolic bombings, sabotages, and capers.

- *Ability to devote adequate time.* In some cases, adversaries were able to dedicate a great amount of time to planning the action and securing the necessary resources. Very few cases were characterized by extemporaneous action.
- *Rapid execution.* Once under way, the adversary executed his plan with remarkable speed, in some cases in only a matter of minutes.
- *Ability to maintain secrecy.* This includes the ability to maintain intragroup discipline as well as conceal the group's plans from the authorities.
- *Ability to achieve tactical surprise.* This was a key to almost every successful incident, especially where security forces were lax because of the belief that their system was secure.

Implications of the High-Level Composite Profile

A combination of all the high-level attributes (see Table 4) in a single adversary is unlikely. The individual attributes or characteristics have been seen in the data base, but the concurrent appearance of all the characteristics has not been observed in any single adversary. Some of them actually appear to be mutually contradictory. For instance, the combination of a large, well-armed assault force, the capability to defeat modern alarm systems, and the ability to keep the operation completely secret are not attributes that normally occur together. The ability to neutralize alarm systems is used to penetrate a target without detection; in that case, a well-armed assault force would not be required. In fact, a large force would be counterproductive because it would raise the probability of premature detection. Conversely, if armed assault by a sizable force were planned, a technical capacity for alarm circumvention is unnecessary.

The highest degree of technical sophistication exhibited in any of the analogs has been observed in some of the burglaries, which involved circumventing electronic alarm systems and penetrating physical barriers. The burglars involved in these crimes were careful, cautious men, concerned with turning a profit without being captured. In most

cases, they were highly averse to taking risks. The burglaries, then, fall into the area in the lower right of the curve in Fig. 1. Similar observations may be drawn regarding the incidents of industrial sabotage, where the perpetrator is often likely to possess inside knowledge and specialized skills. In the terrorist assault, on the other hand, the situation is reversed. The perpetrators in terrorist assaults generally were more highly dedicated, sometimes to the point of suicidal fanaticism (such as that displayed in a few of the hostage incidents), and were often willing to risk death for their cause if called upon to do so. They were well trained as soldiers, not technicians, and the degree of technical skills they displayed was low. The terrorist assaults would generally fall at the upper left of Fig. 1. Any combination of these two attributes corresponds to some point on the curve; the greater degrees of technical skills fall further to the right of the origin, and a greater willingness to accept risk is higher

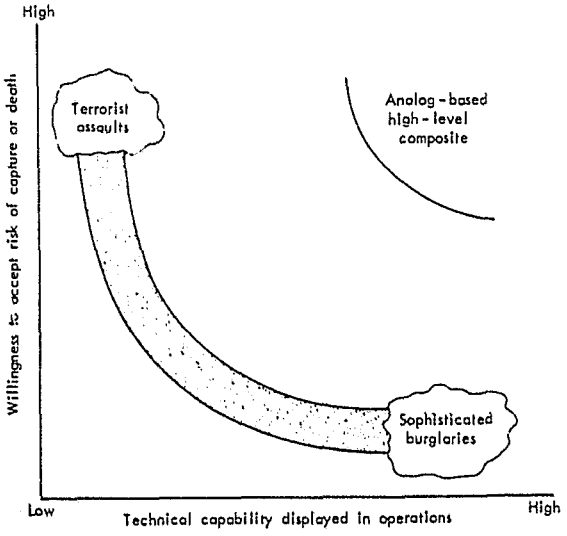

Fig. 1 — Likely combination of adversary attributes

above the horizontal axis. We can thus see that in practice this pair of attributes stands in opposition, i.e., one would not expect to find an adversary simultaneously exhibiting or possessing high levels of both.

We must caution the reader in the interpretation of this observation. It may well be that the hypothesized inverse relationship between technical sophistication and willingness to accept risk (Fig. 1) is not entirely a function of adversary capabilities. Rather, it may reflect the requirements of the task involved. For example, terrorists have shown little technical sophistication in their assaults because there was no perceived need; seizing an embassy or hotel lobby requires little technical skill. However, the terrorists in the incidents examined were, in many cases, members of larger groups with access to technical skills.

Contrary to most acts of terrorism, the capers examined that required a high degree of technical competence also required that the criminals avoid exposure; i.e., overriding dedication was not a typical attribute within this category. Burglars and armed robbers needed to escape with their loot to succeed, whereas terrorists were able to achieve part of their objectives if apprehended or even killed during their assault; indeed, their political aims required publicity, both for their cause and, occasionally, themselves.

Although it is not inconceivable that one might encounter adversaries in peacetime operations who are both technically skilled and willing to risk their lives, we have not found such optimal examples in the recent history of crime and political violence. Such a concentration of skills, motivations, and performance in an attack would represent a quantum jump from the previously displayed capabilities. It is conceivable, however, that if the objective appeared worthwhile to the potential adversary, he might be able to assemble a coalition that has clusters but not all the critical high-level composite attributes. These clusters might, for example, group great fire power, dedication, and planning, or technical sophistication, highly advanced tools, and ingenuity. Such clusters of attributes can be observed for a few adversaries in the data base. Again, the exception lies in commando

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raids on well-defended industrial targets during war or similar periods of political stress.

In sum, the high-level composite represents an unlikely combination of high-level capabilities, with the exception of the commando raids, for three reasons. First, to date, adversaries have either lacked the necessity, the will, or the ability to assemble the materials, personnel, and skills that would make up the high-level composite. Second, some of the requisite attributes, if not contradictory, are at least incongruous in combination. Third, in the incidents reviewed, the necessity for assembling the high-level composite attributes was simply not present. The purpose of the high-level composite is not to depict a realistic nuclear adversary. As we have said before, it is merely a reference point. If the defense system can compel the adversary to possess the attributes of the high-level composite, it probably will have "priced most potential adversaries out of the market."

V. CONCLUDING OBSERVATIONS

While the analysis of the analog data base does not permit us to anticipate every type of adversary or every mode of threatening action, it does enable us to make a number of observations that are particularly relevant to the defense of nuclear facilities and to safeguarding nuclear programs. These include the critical attributes that a potential nuclear adversary might possess or be able to mobilize, their implications for security systems, and the dynamic nature of the threat.

CRITICAL ATTRIBUTES

In an effort to determine what limitations a potential adversary might possess, we have identified and examined the attributes and levels we judge to be especially critical if an adversary is to achieve success. By determining the requisite levels of these attributes needed, we can estimate the adversary's potential "breaking points," i.e., the points or levels at which the adversary seems to begin to encounter serious difficulties in assembling resources. Real-life adversaries have already demonstrated their ability to attain a high level in some attributes; in other attributes they face greater difficulties. This level or these breaking points are not determined by quantitative analysis. They are explicitly based on one reading of the current data and past Rand studies of criminal and political violence.

We first consider the number of persons who might participate in an actual theft or assault. The size of the force a potential adversary can deploy has received considerable attention from the security planners: It is a critical parameter in many engagement models used to establish the size of the guard force and other defensive requirements. One of the major lessons to be learned from the study of the analogs concerning the number of perpetrators is that, up to a certain limit, the size of the force employed by a determined adversary appears to be more a function of the requirements of the job than the adversary's capability to recruit. The fact that we have not seen many operations beyond the twenty-man level suggests that this may indeed

be a breaking point, although one cannot be entirely sure that weaker numbers were not seen merely because the job did not require them. This predicament is inherent in the use of historical analogs as a basis of describing as yet nonexistent (or not yet active) adversaries. Still, the analog methodology affords greater reality and precision than mere scenarizing or speculation.

Theoretically, of course, it is possible that the adversary could assemble a hundred men to attack a nuclear site, just as it is theoretically possible that he could mobilize a hundred men to attack a bank. Moreover, since the type and motivations of persons or groups attacking nuclear targets might be different, the number of participants may also be different from those encountered to date in criminal pursuits. However, in realistic terms, there do seem to be some upper limits on the size of a potential adversary force. In today's world, the number of subnational groups able to mobilize large numbers of people for a single criminal operation is limited to a few major criminal organizations and to some of the larger terrorist groups based abroad.

Regardless of the strength and resources of a supporting group, there appear to be good reasons why most adversary groups in the 300 incidents we examined limited their numbers to less than eight participants. Recruiting capable and reliable specialists is a problem. Specialized training may reduce this problem, but it enlarges the scope of the operation even more. Security is a problem; the more people involved in the preparation, the greater the risk that somebody will reveal the operation and its members to the authorities or even that an informant from a security agency may be included. Operational problems increase (and chances of success diminish) with larger numbers; e.g., coordination, communication, command and control, transportation, and withdrawal problems become more diffused and difficult. Hence, the successful outcome of the operation becomes increasingly diminished as the number of participants grows. Moreover, the data base demonstrates that small groups of skilled people can be very effective. Large numbers are not necessarily needed. Single saboteurs and bombers have produced significant amounts of destruction and, in a few cases, small groups of commandos have succeeded where larger, more powerful groups have failed.

The implication is important: *Defense capabilities cannot be pegged to a predetermined number of postulated adversaries.*

Weapons and explosives are readily available in the United States and from abroad. Large numbers of automatic and even more destructive weapons (possibly remotely controlled weapons) have been stolen from military stocks and are available on the illicit market. Devices that may be used to debilitate the defense personnel, such as smoke and tear gas grenades, are similarly available. Explosives are obtainable commercially or by theft, and the information necessary to manufacture explosives from readily purchased materials is easily available. It must be assumed, therefore, that a determined adversary will have access to automatic weapons, munitions, and explosives if he requires them; in other words, he will acquire whatever he thinks he needs. The primary constraint on his arms and munitions capabilities will not be on what he can acquire but more likely on what he can carry and use.

Likewise, the availability of tools and equipment, such as power drills, cutting torches, and radios, should pose no problem to a well-organized, motivated adversary. Denying or restricting the availability of weapons or equipment is beyond the scope of the defense system. Hence, the system should be prepared to deal with a well-armed and well-equipped adversary.

The critical attributes determining the success of a venture seem to be the less tangible human factors: imagination and ingenuity; criminal and military skills; technical knowledge; the willingness to risk capture or death; inside assistance or privileged access; a capacity for maintaining group discipline and secrecy; the ability to achieve tactical surprise; and the necessary combination of several of them. These attributes are not susceptible to easy quantification and display on a chart. They are qualities that one talks about in terms of "they have it or they don't." Although it is more difficult to design defensive systems against them, it is not impossible. However, they require a different set of security requirements. Even if potential adversaries were accorded the numbers and resources seen in typical burglaries, robberies, sabotages, and assaults, their success or failure would largely depend on their possession or lack of ingenuity, technical

skills and knowledge, and the willingness to accept risk. It would be extremely difficult for any single potential adversary to possess high capabilities in all of these human quality attributes. Whether or not a successful assault on a nuclear facility for the purpose of theft or sabotage would be sufficiently attractive to cause a band of criminals or political extremists to surpass all levels of previously displayed talents and dedication depends very much on the nature and size of payoff they would anticipate and their own estimate of feasibility. This, however, involves the question of intention rather than capability, a topic that is the focus of companion Rand research in the context of nuclear safeguards.

POSSIBLE IMPLICATIONS FOR SECURITY SYSTEMS

It is not the intention of this report to specify the performance requirements or the design of security systems to protect nuclear programs and installations. However, analysis of the data base does reveal certain strengths, strategies, and preferences on the part of the potential adversary that the designers of effective security systems should take into account, as well as certain vulnerabilities or aversions on the part of the adversary that might be exploited.

Armed robberies, terrorist assaults, and commando raids all show that *an open, overt assault on defended facilities is likely to be avoided*. In all cases, the perpetrators wanted to gain entry before confronting the defensive force. In most of these three types of incidents, there was no shootout with guards; more important, in those in which shots were exchanged, few were fired by the adversary attempting to fight his way in. When shooting did occur, it was often a diversionary tactic. It can therefore be assumed that by the time weapons are displayed by the adversary, his operation is likely to be well under way; i.e., insiders may have already done their part, alarms disabled, and the facility's defenses violated. Professional criminals and saboteurs are interested in avoiding armed combat altogether; even well-armed terrorists and commandos attempt to approach and penetrate a target without resorting to arms. It was often observed that once the initial defenses were compromised, a display of superior force by the

intruders and a neutralization of the initial defense response occurred. Again, an open, frontal assault on a facility's defenses generally seems to be an unlikely mode of approach and attack. An effective security system must therefore be alert to and guard against the nonviolent ways in which the system might be defeated.

In view of the fact that the mobilization of manpower up to a certain limit and the procurement of arms seem to pose little or no problem to the adversary, it appears that the defensive system should focus on exploiting the "human capabilities" (e.g., dedication and ingenuity) of the adversary. An adversary would have great difficulty assembling people who are technically knowledgeable, experienced in such skills as the operation of weapons, the use of explosives, the circumvention of alarms, the penetration of barriers, and dedicated to the point of risking their lives. A security system that compels a potential adversary to possess all of these critical human capabilities will deter or thwart a large portion of the actions that might be directed against nuclear programs.

In general, it appears from our data that *physical barriers* were sufficient in terms of delaying or hindering the adversary but not sufficient by themselves to defeat him. Thick walls of concrete and steel were breached if the operation went undetected. Penetration was more rapidly effected with the use of high explosives if the operation did not need to be covert, or quickly and quietly with the use of inside confederates. Incidents in the data base confirm that barriers, by themselves, do not appear to provide adequate security. They require special attention or monitoring if they are to be effective.

On the basis of our analysis, the prospect of *physical danger* did appear to have some deterrent value, especially if confronted while entering a facility. This was certainly true for professional criminals and even for some terrorists who seem to prefer undefended targets. Potential adversaries should be made aware that attempts to penetrate the sensitive areas of nuclear facilities will require them to risk their lives. Even then, there still may be small numbers of adversaries willing to go against armed defenses if the perceived rewards are high enough.

Terrorists have rarely assaulted facilities when a high probability existed that they might be defeated *before* they gained entry. But they were willing to assume great risks *after* they had gained entry and barricaded themselves (often with hostages). This suggests that *standard containment or reinforcement strategies would be less effective against terrorists*. A security system that would permit an adversary to carry out such barricade or barricade-and-hostage tactics would enable him to achieve his objectives by providing him with a highly visible public platform from which to publicize his political objectives and aims. To deter nuclear terrorists, it is essential that the defenses be structured to defeat a possible attack *before* the terrorists gain entry, rather than by trying to contain it after it is discovered.

Professional criminals have frequently tried and have often been able to recruit a person working inside the facility to provide them with some form of assistance, e.g., *privileged information or access*. Saboteurs often have internal assistance and information. Hence, the security system, indeed the entire facility, should take precautions to guard against the potential compromise of the installation by any single employee or member of the security force. Some measures have already been instituted, including rigid employee clearance procedures. The effectiveness of security clearances should be re-examined in this context. Because internal sabotage or assistance to a terrorist group poses a serious threat to the security systems of nuclear facilities, internal security measures regarding employees should be regularly evaluated and, if necessary, upgraded.

Because, in many instances, *deception and diversion* have been used successfully by adversaries--both criminal elements and political extremists--considerable emphasis should be placed on how to deal with these two common ploys in designing security systems and in formulating appropriate security and training procedures to defeat them.

Finally, *the creation of uncertainty* by the defender would appear to cause potential adversaries the greatest difficulties in planning and executing their acts. Uncertainty as a protective device could be enhanced by a security system designed to exploit it--e.g., by a security system having an armed and trained guard force whose immediate

strengths and routines could never be confidently predicted; or having multiple layers of defenses whose nature was shrouded in secrecy, perhaps reinforced by deliberate disinformation, or even decoy targets. In conjunction with strong, monitored physical barriers and a well-trained and well-equipped guard force, the use of uncertainty in planning a defense system would make it extremely difficult for a potential adversary to know what levels of attributes he would need. Faced with this uncertainty, he would be forced to assemble and effectively employ all the capabilities of the high-level composite--and he would still be uncertain of his probability of success, even based on a generous definition of what constitutes success. These requirements, then, should serve to defeat an adversary before he even poses a physical threat to the installations.

DYNAMIC NATURE OF THE THREAT

This analysis is based on prevailing political, economic, and social conditions in the United States and, of course, is subject to change if these conditions change. The United States is currently in a period of relative domestic tranquility, marked by occasional incidents of low-level terrorist violence that could conceivably become somewhat more serious in the future. With few exceptions thus far, foreign terrorist groups have not carried out operations in the United States. Domestic political extremist groups have not conducted extensive, violent activities against U.S. nuclear programs. Task force crimes do occur regularly in the United States, but there is no evidence indicating that professional criminals are attracted to nuclear materials or terrorism.

However, in the recent history of nuclear incidents, a faint escalatory trend may be discerned. More incidents appear to have occurred recently, although possibly this may simply be due to better reporting in the case of bomb threats and low-level incidents. It also may be due to the fact that there are now more nuclear facilities. Still, especially in light of the series of nuclear incidents in Europe

(1975-1977), these incidents do appear to be both increasing and more serious than anything previously reported.*

New political or economic conditions could alter the potential threat. For example, domestic political disorder might be accompanied by a proliferation of potential adversarial groups. Renewed American involvement in wars abroad might increase domestic dissent and the probability of sabotage against nuclear weapons assembly and storage sites. Even assuming no change in the current domestic political climate, it is possible that some individual or some group of criminals or political extremists could successfully carry out an action against nuclear targets here or abroad inspiring others, perhaps setting off a series of nuclear incidents similar to the airline hijackings that suddenly proliferated in the late 1960s. Moreover, nuclear plants are very newsworthy and, as such, fulfill the general high-visibility criterion important to many terrorist groups. It is not, therefore, farfetched to assume that they could be potential targets for terrorist activities and thus warrant careful protection. Yet, one should be cautious not to extrapolate from this observation and predict outright that nuclear facilities will be a terrorist target.

Lastly, the threat must be regarded as dynamic because we can expect that potential adversaries will continue to improve their technical skills, learn how to penetrate, overcome, or circumvent increasingly complex security systems, and acquire new weapons capabilities (for example, man-portable, precision-guided munitions) that may be useful for sabotage or theft operations. Similar improvements can be predicted in the defensive systems.

All the above factors suggest a continuing requirement for monitoring and reassessing the potential threat as it changes over time.

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*Nigel Hawkes, "The Antinuclear Movement Takes Hold," *Science*, Vol. 197, No. 4309, September 16, 1977, pp. 1167-1169, discusses the increasing violence in the European antinuclear movement.

Appendix A

THREAT CHARACTERISTICS OUTLINE

1. WHO
   - A. Political extremists
   - B. Disgruntled employees
   - C. Criminal elements
   - D. Lunatics
   - E. Antinuclear extremists
   - F. Disgruntled public (anti-utility)
   - G. Foreign agents (not included in our incidents)
   - H. Mercenary

2. MOTIVES
   - A. Economic gain
     1. Theft for sale or use
     2. Extortion (includes economic pressure)
   - B. Anger (revenge)
   - C. Political concessions (including publicity)
   - D. Damage (symbolic) destruction
     1. Nuclear per se
     2. Nuclear incidental
   - E. Other (e.g., irrational, insane, prankster)

3. ADVERSARY ATTRIBUTES
   - A. Number of attackers
     1. One
     2. Two to five
     3. Six or more
     4. Unknown
   - B. Armament
     1. None
     2. Commercial firearms
     3. Auto weapons, grenades, explosives

4. Crew-served weapons
5. Armor, missiles
6. Clubs, etc.
7. Unknown

C. Knowledge
1. Publicly available
2. Criminal casing
3. Casual intelligence
4. Complete
5. Unknown

D. Operational training
1. None
2. Military
3. Criminal
4. Special military
5. Unknown

E. Equipment
1. Hand and portable power tools
2. Special tools and explosives
3. Heavy equipment
4. Unknown

F. Transportation
1. Cars and commercial trucks
2. Special vehicles
3. Aircraft
4. Unknown

G. Dedication
1. Sustained labor/discomfort
2. Injury/severe pain
3. Suicidal
4. Unknown

H. Technical training
1. None
2. Practical
3. Technical

4. Specialized
5. Unknown

I. Planning
1. None or little
2. Planning without rehearsal
3. Planning with rehearsal
4. Unknown

4. TACTICAL OBJECTIVES

A. Within system
1. Steal material
2. Seize and hold facility/hostages
3. Disable/disrupt facility/operations
4. Hijacking

B. Outside system
1. Seize hostages--kidnapping
2. Hoaxes/disinformation
3. Inflict casualties

5. MODES OF ACTION

A. Intelligence
1. Public sources
2. Inside knowledge
a. Willing
b. Unwilling
3. Reconnaissance
4. Unknown

B. Access to Facility
1. Armed assault
2. Barrier penetration
3. Deception
4. Inside assistance
5. Disable alarm
6. Legitimate access
7. Barrier bypass, e.g., lock pick, window entry

C. Access to target
   1. Armed assault
   2. Barrier penetration
   3. Deception
   4. Inside assistance
   5. Disable alarm
   6. Legitimate access
   7. Barrier bypass, e.g., lock pick, window entry

D. Removal of material
   0. None or not applicable
   1. Diversion
   2. Theft
   3. Bookkeeping manipulation

E. Occupation and holding of target
   0. None or not applicable
   1. Hostages
   2. Gunpoint
   3. Barricade without hostages

F. Creation of damage
   0. None or not applicable
   1. Cause physical damage
   2. Misuse control mechanism

G. Neutralize people
   0. None or not applicable
   1. Yes

H. Egress
   1. Armed retreat
   2. Outrun system or response
   3. Stealth
   4. Bargain
   5. Deception

I. Publicize
   0. No
   1. Yes

6. CONSEQUENCES

A. Success

B. Partial success

C. Failure

7. CHARACTERISTICS OF THE OPERATION

A. Casualties (dead and/or wounded)

0. No casualties

1. 1-10

2. 11-20

3. 21-30

4. Over 30

B. Demands

0. None

1. Release of prisoners

2. Safe conduct

3. Release of publicity

4. Other political

5. Money

C. Outcome

1. Prisoners released

2. Safe conduct granted

3. Other political granted

4. Surrender or capture of terrorists

5. Assault by security forces

6. Terrorists escape (not via hijacked aircraft)

D. Duration

1. Minutes

2. 1-24 hours

3. 1-3 days

4. More than 3 days

E. Time of Attack

1. 8:00 a.m. to 5:00 p.m.

2. After 5:00 p.m., before 10:00 p.m.

3. After 10:00 p.m., before 8:00 a.m.

Appendix B

GLOSSARY

In this report, we have employed some terms the reader may not be familiar with, or we have used them to convey some very specific meanings. The following glossary has been compiled to facilitate the reader's understanding of certain words as they are used here.

Access: Methods or means employed by an adversary to enter a facility or to reach a target within a facility. Methods of access considered in the study include armed assault, legitimate access, barrier bypass or penetration, deception, inside assistance, and disabling of alarms. Multiple methods of access may be employed during a single incident.

Action: An illegal or violent action involving nuclear material or a nuclear installation, or an analogous type of action against some other type of target. Nuclear actions are of primary interest in the study, whereas analog actions are studied as a way of understanding the possible characteristics of future nuclear actions.

Adversary: A person or group of persons responsible for actions against nuclear facilities or involving nuclear material.

Aims: The longer-term or broader interests and objectives of the adversary, such as world revolution, elimination of nuclear weapons or nuclear power plants, or adherence to the word of God as he understands them from the voices in his head. The term is used in contrast to shorter-term tactical objectives associated with particular actions, such as gaining publicity for a cause or destroying a particular installation.

Analog action: A criminal or political act chosen for study because of its relevance to potential future nuclear actions.

Armed assault: A method of access involving the use of armed forces to subdue or overcome defenders. The term is taken to include cases in which weapons are employed only to threaten and subdue, but are not actually fired. This type of assault is frequently used in armed robberies, for example, and in some terrorist seizures of facilities, such as embassies.

Attributes: The physical characteristics, planning skills, and operational capabilities a potential adversary might possess.

Barrier by-pass: Circumvention or "end-running" of a physical protective barrier without actually engaging and defeating the barrier. Examples would be entry through an unsecured skylight or gate, or by climbing over the top of a fence or wall. The term is used in contrast to barrier penetration.

Barrier penetration: The defeat of a physical barrier by penetration of that barrier. Examples include tunneling, blowing open a safe or vault, cutting a fence, or breaking down a door. This term is used in contrast to barrier by-pass, in which the barrier is not directly engaged.

Capability: A quality not solely definable in terms of an adversary's equipment, numbers, or other material resources, or solely in terms of human capabilities (such as *technical* skills, dedication, or intelligence). It is a combination or sum of all of these.

Dedication: The intensity with which an adversary goes about his job and the risk and sacrifice he is willing to accept in its performance.

Egress: Getting out of a facility that has been penetrated and/or away from the immediate vicinity of the action. Methods of egress identified in the study include armed retreat, outrunning the response, stealth, deception, and bargaining. As with methods of access, one or more types of egress may be employed in combination in a single action.

Facility: A building or installation housing the target of interest to an adversary. In the burglary of a bank vault, for example, the bank itself is the facility and the vault within the bank is the target. In some cases, there is a clear distinction between facility and target, and access to one is no guarantee of access to the other. In other cases, the two may be essentially synonymous, at least from the point of view of access. This is true, for example, when the objective of the action is to seize and hold a facility, such as an embassy.

Hostage: Someone held by the adversary against his will, usually as a bargaining chip of some kind. Hostages are often taken in seizures

of a facility to deter a counterassault action by the facility's security system to retake the facility and to aid in bargaining for safe release. Hostages may also be kidnapped and held in unknown locations, sometimes as a means of coercing insider assistance.

Inside assistance: Persons who assist the assailants with information, force, or in other ways. Any attack by stealth or force, designed to accomplish any of a range of adversary aims, may involve inside help. These inside helpers may be voluntary accomplices who have infiltrated the installation ab initio for the purpose of the crime, or they may be employees who were subsequently recruited. Assailants may also obtain inside assistance by coercion, either directly, perhaps by means of threats against the individual himself, or indirectly, as by holding a family member.

Inside job: The inside *job* is distinguished from inside *help* in that it is planned and carried out primarily by insiders.

Intent: Purpose of the adversary activity. It encompasses both the immediate tactical *objectives*, such as theft of special nuclear materials or destruction of a facility, and the *aims*, such as obtaining publicity or money, mobilizing public opinion against the nuclear industry, discrediting the government, or attaining other goals.

Motivation: Differs from intent in that it describes the psychological mainsprings of the adversary activity. This may take the form of frustration, anger, a search for grandiosity, or political or antinuclear beliefs, or a number of other psychological factors. It is used to describe intrapsychic phenomena.

Nuclear action: An illegal generally violent action involving nuclear weapons or a nuclear installation.

Objectives: The specific tactical purpose of an action designed to serve the longer-range aims of the adversary. For example, the destruction of a nuclear power installation would be an objective; the aim would be to discredit the nuclear program or possibly to force political change.

Professional criminal: A person who makes his living primarily through criminal activity. In the process, he may have "professionalized" certain skills needed to carry out his crimes. He may or may not be a member of organized crime.

Symbolic attack: Deliberate acts of destruction or violence, often bombing, calculated to express a grievance or to present a political statement. The target is perceived by the adversary as having symbolic significance; the damage to the target may be secondary or even irrelevant to the adversary's aims.

Target: The thing the adversary is after--money or valuable material in a robbery or burglary; the object he wants to destroy in a bombing or other destructive act; a weapon; etc. For some types of actions, the target and the facility involved may be the same, and no distinction between the two is necessary. This is true, for example, when seizure of a facility is the objective of the action. For other types of actions, such as burglary, the distinction between the target and the facility that contains it is a natural and useful one.

Appendix C

ADVERSARY ATTRIBUTES

NUMBERS

- o Number of people independent of other factors

EQUIPMENT

- o Hand tools
- o Power tools
- o Explosives
- o Heavy equipment
- o Specialized

ARMS

- o Small arms
- o Explosives
- o Automatic weapons
- o Tanks

TRANSPORT

- o Foot
- o Car or truck
- o Aircraft
- o Special

KNOWLEDGE

- o Casual
- o Public research
- o Criminal
- o Intelligence and insider

DEDICATION

- o Casual
- o Discomfort

- o Injury
- o Loss of life

TRAINING

- o Planning level
- o Degree of training
- o Tactics

THREATS OF VIOLENCE AND ACTS OF VIOLENCE
TO LICENSED NUCLEAR FACILITIES
(1969 - 1975)

	Date	Facility	Incident
1.	5/4/69	Illinois Institute of Technology	Pipe bomb found near reactor building
2.	9/11/70	Kansas State University	Bomb threat
3.	9/70	Wisconsin Michigan Power Co. (Point Beach)	Dynamite found
4.	10/27/70	Commonwealth Edison Co. (Dresden)	Bomb threat
5.	11/10/70	Idaho State University	Bomb threat
6.	2/16/71	Yankee Atomic Electric Co. (Yankee-Rowe)	Bomb threat
7.	6/23/71	Purdue University	Bomb threat
8.	8/17/71	Duke Power Co. (Oconee)	Bomb threat
9.	9/18/71	VEPCO (Surry)	Bomb threat
10.	10/18/71	VEPCO (North Anna)	Bomb threat
11.	1/20/72	VEPCO (Surry)	Bomb threat
12.	3/13/72	General Electric Co., San Jose, CA	Bomb threat
13.	4/72	Florida Power Co. (Crystal River)	Bomb threat
14.	4/72	Duquesne Light Co. (Beaver Valley)	Bomb threat
15.	4/28/72	VEPCO (North Anna)	Bomb threat
16.	5/5/72	VEPCO (North Anna)	Bomb threat
17.	5/11/72	VEPCO (North Anna)	Bomb threat
18.	5/12/72	VEPCO (North Anna)	Bomb threat
19.	5/12/72	Duquesne Light Co. (Beaver Valley)	Bomb threat
20.	5/72	Florida Power Co. (Crystal River)	Bomb threat
21.	6/2/72	Iowa State University	Bomb threat
22.	6/30/72	Babcock & Wilcox Co. (VA)	Bomb threat
23.	7/4/72	Colorado Public Service Co. (Fort St. Vrain)	Bomb threat
24.	8/1/72	Gulf-United Nuclear Fuels Corp, Elmsford, NY	Bomb threat
25.	8/72	Southern California Edison Co. (San Onofre)	Bomb threat
26.	8/1/72	VEPCO (North Anna)	Bomb threat
27.	8/10/72	VEPCO (North Anna)	Bomb threat
28.	8/10/72	VEPCO (North Anna)	Bomb threat
29.	8/11/72	VEPCO (North Anna)	Bomb threat
30.	8/14/72	VEPCO (North Anna)	Bomb threat
31.	8/15/72	VEPCO (North Anna)	Bomb threat
32.	9/25/72	Metropolitan Edison Co. (Three Mile Island)	Bomb threat
33.	10/6/72	Nebraska Public Power District (Cooper Station)	Bomb threat
34.	10/20/72	Southern California Edison Co. (San Onofre)	Bomb threat
35.	10/31/72	General Atomic Co., San Diego, CA	Bomb threat
36.	12/72	Atomics International	Bomb threat
37.	12/29/72	Consumers Power Co. (Palisades)	Bomb threat

	Date	Facility	Incident
38.	2/5/73	Gulf-United Nuclear Fuels Corp. Elmsford, NY	Bomb threat
39.	3/15/73	Duke Power Co. (Oconee)	Break-in at fuel storage building (No material taken)
40.	3/23/73	Metropolitan Edison Co. (Three Mile Island)	Bomb threat
41.	5/3/73	Babcock & Wilcox Co., Lynchburg, VA	Bomb threat
42.	5/8/73	Babcock & Wilcox Co.	Bomb threat
43.	6/19/73	Southern California Edison Co. (San Onofre)	Bomb threat
44.	11/5/73	Metropolitan Edison Co. (Three Mile Island)	Bomb threat
45.	11/16/73	Florida Power & Light Co. (Turkey Point)	Bomb threat
46.	1/6/74	Florida Power Corp. (Crystal River)	Bomb threat
47.	1/17/74	Rochester Gas & Electric Corp. (Ginna)	Bomb threat
48.	1/22/74	Florida Power Corp. (Crystal River)	Bomb threat
49.	3/11/74	Maine Yankee Atomic Power Co.	Bomb threat
50.	3/13/74	Pacific Gas & Electric Co. (Diablo Canyon)	Bomb threat
51.	4/17/74	Westinghouse Electric Corp., Columbia, SC	Bomb threat
52.	5/3/74	Consolidated Edison Co. (Indian Point)	Bomb threat
53.	5/17/74	Consolidated Edison Co. (Indian Point 1)	Bomb threat
54.	5/29/74	Baltimore Gas & Electric Co. (Calvert Cliffs 1)	Bomb threat
55.	5/30/74	Connecticut Yankee Atomic Power Co. (Haddam Neck)	Bomb threat
56.	7/15/74	Alabama Power Co. (Farley)	Bomb threat
57.	7/24/74	Southern California Edison Co. (San Onofre)	Bomb threat
58.	8/11/74	Commonwealth Edison Co. (Zion)	Bomb threat
59.	8/16/74	Consolidated Edison Co. (Indian Point)	Bomb threat
60.	8/26/74	Boston Edison Co. (Pilgrim)	Incendiary device detonated in public area
61.	9/4/74	U. S. Nuclear Corp., Oak Ridge, TN	Attempted fence breach
62.	9/7/74	Carolina Power & Light Co. (Brunswick)	Bomb threat
63.	11/1/74	Connecticut Yankee Atomic Power Co. (Haddam Neck)	Bomb threat
64.	11/4/74	Boston Edison Co. (Pilgrim)	Bomb threat
65.	2/20/75	Pacific Gas & Electric Co. (Diablo Canyon)	Bomb threat
66.	2/23/75	Nuclear Fuel Services, Erwin, TN	Fence breach (No theft)
67.	2/25/75	Alabama Power Co. (Farley)	Bomb threat
68.	3/8/75	Commonwealth Edison Co. (Zion)	Bomb threat
69.	3/14/75	Mallinckrodt Chemical Works, St. Louis, MO	Bomb threat
70.	4/1/75	Philadelphia Electric Co. (Peach Bottom)	Bomb threat

	Date	Facility	Incident
71.	4/4/75	Wisconsin Michigan Power Co. (Point Beach)	Telephone line cut by rifle or pistol fire
72.	4/10/75	Northeast Nuclear Energy Co. (Millstone)	Bomb threat
73.	4/14/75	Baltimore Gas & Electric Co. (Calvert Cliffs)	Bomb threat
74.	4/16/75	Consolidated Edison Co. (Unspecified plant)	Bomb threat
75.	5/6/75	Jersey Central Power & Light Co. (Forked River)	Bomb threat
76.	5/13/75	Northeast Nuclear Energy Co. (Millstone 3)	Bomb threat
77.	5/27/75	Commonwealth Edison Co. (Zion)	Two shots apparently fired at security guard
78.	6/10/75	Georgia Power Co. (Hatch)	Bomb threat
79.	7/2/75	Kerr-McGee Nuclear Corp., Oklahoma City, OK	Attempted forced entry
80.	7/4/75	General Electric Co., (Vallecitos)	Bomb threat
81.	7/14/75	Carolina Power & Light Co. (Brunswick)	Bomb threat
82.	7/23/75	Nuclear Fuel Services, West Valley, NY	Possible arson - equipment storage barn
83.	8/21/75	Consolidated Edison Co. (Unspecified plant)	Bomb threat
84.	8/22/75	Northeast Nuclear Energy Co. (Millstone 1)	Bomb threat
85.	9/1/75	Commonwealth Edison Co. (Zion)	Bomb threat
86.	9/23/75	Carolina Power & Light Co. (Brunswick)	Bomb threat
87.	9/25/75	Massachusetts Institute of Tech.	Attempted forced entry
88.	9/26/75	Consolidated Edison Co. (Indian Point)	Bomb threat
89.	10/14/75	Westinghouse Electric Corp. Columbia, SC	Bomb threat
90.	10/17/75	Boston Edison Co. (Pilgrim)	Bomb threat
91.	11/3/75	General Atomics, Inc., San Diego, CA	Bomb threat
92.	11/4/75	General Atomics, Inc., San Diego, CA	Bomb threat
93.	11/8/75	Boston Edison Co. (Pilgrim)	Bomb threat
94.	12/2/75	Consumers Power Co. (Palisades)	Bomb threat
95.	12/8/75	Arkansas Power & Light Co. (Arkansas Nuclear One)	Bomb threat
96.	12/11/75	Allied-General Nuclear Services (Barnwell)	Bomb threat
97.	12/23/75	Duke Power Co. (Oconee)	Bomb threat
98.	12/23/75	Long Island Lighting Co. (Shoreham)	Bomb threat
99.	12/31/75	Jersey Central Power & Light Co. (Oyster Creek)	Bomb threat

THREATS OF VIOLENCE AND ACTS OF VIOLENCE
TO LICENSED NUCLEAR FACILITIES
(1976 - December 31, 1977)

	Date	Facility	Incident
1.	01/19/76	B & W Naval Nuclear Fuel Lynchburg, VA	Bomb Threat
2.	01/22/76	Massachusetts Institute of Technology (MIT)	Bomb Threat
3.	01/23/76	MIT	Bomb Threat
4.	01/27/76	Three Mile Island 1 & 2 Metropolitan Edison Co. Goldsboro, PA	Intrusion
5.	01/30/76	MIT	Bomb Threat
6.	02/03/76	Westinghouse Nuclear Fuel Facility Columbia, SC	Bomb Threat
7.	02/04/76	Susquehanna Units 1 & 2 PA Power & Light Berwick, PA	Bomb Threat
8.	02/26/76	Diablo Canyon Pacific Gas & Electric Co. Diablo Canyon, CA	Intrusion
9.	03/05/76	Brunswick 1 & 2 Carolina Power & Light Co. Southport, NC	Bomb Threat
10.	03/05/76	Susquehanna Units 1 & 2 Pennsylvania Power & Light Co. Berwick, PA	Bomb Threat
11.	03/08/76	Susquehanna Units 1 & 2 Pennsylvania Power & Light Co. Berwick, PA	Bomb Threat
12.	03/09/76	Turkey Point Florida Power & Light Co. Florida City, FL	Bomb Threat

13.	03/15/76	Sequoyah Nuclear Plant TVA Daisey, TN	Bomb Threat
14.	03/16/76	Sequoyah Nuclear Plant TVA Daisey, TN	Bomb Threat
15.	03/25/76	Purdue University West Lafayett, IN	Bomb Threat
16.	03/25/76	Diablo Canyon Unit 1 Pacific Gas & Electric Co. Diablo Canyon, CA	Bomb Threat
17.	04/06/76	Millstone Units 1 & 2 Northeast Nuclear Energy Co. Waterford, CN	Bomb Threat
18.	04/22/76	St. Lucie Unit 1 Florida Power & Light Co. Hutchinson Island, FL	Intrusion Threat
19.	04/23/76	Turkey Point Units 3 & 4 Florida Power & Light Co. Florida City, FL	Bomb Threat
20.	04/23/76	Grand Gulf Mississippi Power & Light Port Gibson, MS	Bomb Threat
21.	04/26/76	Grand Gulf Mississippi Power & Light Port Gibson, MS	Bomb Threat
22.	05/04/76	North Anna Units 1, 2, 3 & 4 Virginia Electric & Power Co. Mineral, VA	Bomb Threat
23.	05/06/76	Diablo Canyon Units 1 & 2 Pacific Gas & Electric Co. Diablo Canyon, CA	Bomb Threat
24.	05/07/76	North Anna Units 1, 2, 3 & 4 Virginia Electric Power Co. Mineral, VA	Bomb Threat

25.	05/12/76	Zion Units 1 & 2 Commonwealth Edison Co. Zion, IL	Intrusion Threat
26.	05/31/76	General Electric Wilmington, NC Fabrication Plant	Bomb Threat
27.	06/02/76	Pilgrim Unit 1 Boston Edison Co. Plymouth, MA	Bomb Threat
28.	06/03/76	Susquehanna Units 1 & 2 Pennsylvania Power & Light Berwick, PA	Bomb Threat
29.	06/03/76	Nuclear Power Plants	Bomb Threat
30.	06/07/76	Nuclear Power Plants in MA	Bomb Threat
31.	06/23/76	Duane Arnold Energy Center Iowa Electric Light & Power Co. Cedar Rapids, IA	Bomb Threat
32.	06/23/76	Nuclear Power Plants in States of Oregon or Washington	Bomb Threat
33.	07/01/76	Joseph M. Farley NPP Alabama Power Company Dothan, AL	Bomb Threat
34.	07/03/76	Peach Bottom Philadelphia Electric Co. Peach Bottom, PA	Bomb Threat
35.	07/14/76	Northern States Power Co. Minneapolis, MN	Bomb Threat
36.	07/16/76	Beaver Valley Duquesne Light Co. Shippingport, PA	Bomb Threat
37.	07/18/76	Zion Units 1 & 2, IL Commonwealth Edison Co.	Automobile Intrusion

38.	07/24/76	Prairie Island Units 1 & 2 Northern States Power Co. Redwing, MN	Intrusion Attempt
39.	07/26/76	Farley NPP Alabama Power Co. Houston County, AL	Bomb Threat
40.	08/03/76	Dresden Units 1, 2, & 3 Commonwealth Edison Co. Morris, IL	Bomb Threat
41.	08/12/76	Turkey Point Florida Power and Light Co. Florida City, FL	Bomb Threat
42.	08/22/76	North Anna Units 1 & 2 Virginia Electric & Power Co. Mineral, VA	Bomb Threat
43.	08/25/76	Limerick Units 1 & 2 Philadelphia Electric Co. Pottstown, PA	Bomb Threat
44.	08/31/76	North Anna Power Station Virginia Electric & Power Co. Mineral, VA	Bomb Threat
45.	09/01/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
46.	09/02/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
47.	09/19/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
48.	10/03/76	Zion Unit 1 Commonwealth Edison Co. Zion, IL	Intrusion
49.	10/06/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat

50.	10/06/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
51.	10/06/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
52.	10/07/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
53.	10/13/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
54.	10/14/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
55.	10/15/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
56.	10/15/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
57.	10/15/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
58.	11/03/76	North Anna Power Station VEPCO Mineral, VA	Bomb Threat
59.	11/03/76	Waterford Steam Electric Station Unit No. 3 Louisiana Power & Light Co. Taft, LA	Bomb Threat
60.	11/03/76	Waterford Unit No. 3 Louisiana Power & Light Co Taft, LA	Bomb Threat
61.	12/10/76	Calvert Cliffs, Units 1 & 2 Baltimore Gas & Electric Co. Lusby, MD	Bomb Threat

62.	01/26/77	SC Electric & Gas Co., V.C. Summers Nuclear Station Unit No. 1 Summer, SC	Bomb Threat
63.	02/06/77	U.S. Nuclear Corporation Oak Ridge, TN	Weapons Discharge
64.	02/10/77	Westinghouse Electric Corp Columbia, SC	Unspecified Threat
65.	02/15/77	Arizona Public Service Corp. Palo Verde, AZ	Bomb Threat
66.	02/22/77	Georgia Power Co. Hatch Baxley, Georgia	Weapons Discharge
67.	03/03/77	Connecticut Light & Power Co. Millstone Waterford, CN	Bomb Threat
68.	03/23/77	Arkansas Power & Light Co. Arkansas Nuclear One Russellville, AR	Bomb Threat
69.	03/23/77	Arkansas Power & Light Co. Arkansas Nuclear One Russellville, AR	Bomb Threat
70.	03/30/77	Pacific Gas & Electric Co. Diablo Canyon Diablo Canyon, CA	Bomb Threat
71.	03/31/77	Louisiana Power and Light Co. Waterford Taft, LA	Three Bomb Threats
72.	04/01/77	Louisiana Power & Light Co. Waterford Taft, LA	Bomb Threat
73.	04/06/77	Salem Nuclear Generating Station Salem, NJ	Bomb Threat
74.	04/19/77	Public Service Co. of Colorado Ft. Saint Vrain Platteville, CO	Intrusion

75.	04/29/77	Long Island Lighting Co. Shoreham Brookhaven, NY	Bomb Threat
76.	05/10/77	Long Island Lighting Co. Shoreham Brookhaven, NY	Bomb Threat
77.	05/18/77	National Bureau of Standards Gaithersburg, MD	Bomb Threat
78.	05/19/77	South Carolina Electric & Gas Co. Summer Broad River, SC	Bomb Threat
79.	05/24/77	Allied Chemical Co. Metropolis, IL	Bomb Threat
80.	06/01/77	Washington Public Power System Washington Nuclear Power Project Richland, WA	Bomb Threat
81.	07/17/77	Consumers Power Co. of Michigan Palisades South Haven, Michigan	Weapon Threat
82.	08/03/77	Consolidated Edison Co. of New York Indian Point Indian Point, NY	Bomb Threat
83.	08/15/77	Commonwealth Edison Co. Braidwood Braidwood, IL	Bomb Threat
84.	08/18/77	Rochester Gas & Electric Corp. Ginna Rochester, NY	Intrusion
85.	09/30/77	Mississippi Power & Light Co. Grand Gulf Port Gibson, MS	Bomb Threat
86.	10/08/77	Vermont Yankee Nuclear Power Corp. Vermont Yankee Vernon, VT	Intrusion
87.	10/10/77	Visitors' Center at Trojan Nuclear Power Plant Prescott, Oregon	Bomb Explosion

88.	10/29/77	Westinghouse Columbia, SC	Bomb Threat
89.	11/04/77	Consolidated Edison Co. of New York Indian Point Indian Point, NY	Bomb Threat
90.	11/06/77	Peach Bottom Atomic Power Station Peach Bottom, PA	Bomb Threat
91.	11/14/77	Westinghouse Columbia, SC	Bomb Threat
92.	11/22/77	Consolidated Edison Co. of New York Indian Point Indian Point, NY	Bomb Threat
93.	11/25/77	Trojan Nuclear Power Plant Prescott, OR	Intrusion
94.	12/13/77	Quad-Cities Station Cordova, IL	Bomb Threat
95.	12/23/77	Commonwealth Edison Braidwood Braidwood, IL	Bomb Threat

THREATS OF VIOLENCE AND ACTS OF VIOLENCE
TO UNLICENSED NUCLEAR FACILITIES

	Date	Facility	Incident
1.	3/24/69	Lawreuce Research Lab., Berkeley, California	Arson Attempt
2.	5/15/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
3.	5/17/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
4.	5/19/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
5.	6/9/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
6.	6/16/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
7.	6/17/69	Lawrence Research Lab., Berkeley, California	Arson Attempt
8.	4/22/70	United Nuclear Corporation, New Haven, Conn.	Bomb Threat
9.	6/12/70	Sandia Corp., Livermore, California	Bomb Threat
10.	6/12/70	Goodyear Corp., Portsmouth, Ohio	Bomb Threat
11.	8/6/70	Dow Chemica Rocky Flats, Colorado	Bomb Threat
12.	11/4/70	United Nucle Corporation New Haven, Co	Bomb Threat
13.	11/13/70	Dow Chemical, Rocky Flats, Colorado	Bomb Threat
14.	12/23/70	Battelle-Northwest, Richland, Wash.	Bomb Hoax
15.	1/12/71	Lawrence Research Lab., Berkeley, California	Bomb Threat
16.	1/13/71	Lawrence Research Lab., Berkeley, California	Bomb Threat
17.	2/15/71	Goodyear Corp., Portsmouth, Ohio	Bomb Threat
18.	2/24/71	Bendix Corporation, Kansas City, Mo.	Bomb Threat
19.	3/23/71	Lawrence Research Lab., Berkeley, California	Arson Attempt
20.	4/15/71	General Electric Corp., Valley Forge, Penna.	Bomb Threat
21.	4/23/71	Lawrence Research Lab., Berkeley, California	Bomb Threat
22.	5/12/71	Donner Laboratory, Berkeley, Calif.	Arson Attempt
23.	6/14/71	Sandia Corp., Albuquerque, N. M.	Bomb Threat
24.	6/19/71	Bendix Corp., Kansas City, Mo.	Bomb Threat
25.	8/23/71	Westinghouse Astronuclear, Large, Pa.	Bomb Threat
26.	10/13/71	United Nuclear Corporation New Haven, Conn.	Bomb Threat
27.	10/25/71	Lawrence Berkeley Lab., Berkeley, California	Bomb Threat

	Date	Facility	Incident
28.	10/31/71	Lawrence Berkeley Lab., Berkeley, California	Bomb Threat
29.	11/5/71	National Accelerator Lab., Weston, Illinois	Bomb Threat
30.	11/15/71	Los Alamos Scientific Lab., Los Alamos, New Mexico	Bomb Threat
31.	2/5/72	Dow Chemical, Rocky Flats, Colorado	Bomb Threat
32.	4/1/72	Monsanto Research Corp. (Mound Lab) Miamisburg, Ohio	Bomb Threat
33.	4/13/72	Oak Ridge Operations Office, Knoxville, Tennessee	Bomb Threat
34.	5/17/72	Lawrence Berkeley Lab., Berkeley, California	Bomb Threat
35.	5/30/72	Babcock & Wilcox Corp., Lynchburg, Virginia	Bomb Threat
36.	8/9/72	Savannah River Plant, Aiken, S. C.	Bomb Threat
37.	12/7/72	Union Carbide Corp. (Y-12 Plant) Oak Ridge, Tennessee	Bomb Threat
38.	3/8/73	Lawrence Berkeley Lab., Berkeley, California	Bomb Threat
39.	3/29/73	General Electric, Knolls Atomic Power Lab., Niskayuna, N. Y.	Bomb Threat (2)
40.	4/16/73	Fast Flux Test Facility, Richland, Washington	Bomb Threat
41.	4/22/73	General Electric, Knolls Atomic Power Lab., Kesselring Site, West Milton, New York	Fire
42.	5/30/73	Sandia Laboratory, Livermore, Calif.	Bomb Threat
43.	6/25/73	General Electric, Knolls Atomic Power Lab., Niskayuna, New York	Bomb Threat
44.	9/21/73	Stanford Linear Accelerator Center, Oakland, California	Bomb Threat
45.	10/16/73	Bendix Corp., Kansas City, Mo.	Bomb Threat
46.	10/21/73	Operations Office, Rocky Flats, Colo.	Bomb Threat
47.	10/28/73	General Electric, Nuclear Energy Div., San Jose, California	Bomb Threat
48.	12/31/73	General Electric Corp., Kesselring Site, West Milton, New York	Bomb Threat
49.	2/20/74	Sandia Lab., Albuquerque, New Mexico	Bomb Threat
50.	4/9/74	General Electric, Knolls Atomic Power Lab., Niskayuna, New York	Bomb Threat
51.	4/11/74	Lawrence Livermore Lab., Livermore, California	Bomb Threat
52.	4/17/74	Oak Ridge Operations Office (K-25 Area), Oak Ridge, Tennessee	Anonymous Letter Bomb Threat
53.	4/24/74	Iowa State University, Ames, Iowa	Anonymous Letter Bomb Threat Bomb Threat

	Date	Facility	Incident
55.	4/30/74	Babcock & Wilcox Corp., Mt. Vernon, Indiana	Bomb Threat
56.	5/21/74	Atomics International, Canoga Park, California	Bomb Threat
57.	8/7/74	Washington Public Power System (#2 Site), Hanford, Washington	Bomb Threat
58.	2/15/75	Sandia Corporation, Livermore, Calif.	Bomb Threat
59.	4/4/75	Dow Chemical Corp., Rocky Flats, Colorado	Bomb Threat
60.	5/16/75	General Electric Corp. (Kesselring Site), West Milton, New York	Bomb Threat
61.	6/9/75	Lawrence Berkeley Lab., Berkeley, California	Bomb Threat
62.	6/13/75	General Electric Corp., Nuclear Energy Division, San Jose, Calif.	Bomb Threat
63.	7/23/75	Lawrence Livermore Lab., Livermore, California	Bomb Threats (2)
64.	8/1/75	Laurence Livermore Lab., Livermore, California	Bomb Threat
65.	8/5/75	Airesearch Corp., Torrance, Calif.	Bomb Threat
66.	8/6/75	Union Carbide Corp. (Y-12 Plant) Oak Ridge, Tennessee	Bomb Threat
67.	8/9/75	Allied Chemical Corp., Idaho Lab.	Bomb Conversation Report
68.	9/1/75	Fermi National Lab., Batavia, Ill.	Bomb Threat
69.	9/20/75	General Electric Corp., San Jose, California	Bomb Threats (3)
70.	10/1/75	General Electric Corp., San Jose, California	Bomb Threat
71.	10/3/75	General Electric Corp., San Jose, California	Bomb Threat
72.	10/18/75	Monsanto Research Corp. (Mound Lab) Miamisburg, Ohio	Bomb Threat
73.	10/24/75	Westinghouse Corp., Bettis Lab.	Bomb Threat
74.	11/29/75	General Electric Corp., San Jose, California	Bomb Threat
75.	12/5/75	General Electric Corp., San Jose, California	Bomb Threat
76.	12/15/75	Monsanto Research (Mound Lab), Miamisburg, Ohio	Bomb Threat

	DATE	FACILITY	INCIDENT
77.	1/5/76	Fast Flux Test Facility, Richland, Washington	Written Bomb Threat
78.	3/18/76	General Electric, Knolls Atomic Power Lab, Windsor, Connecticut	Telephonic Bomb Threat
79.	3/24/76	Lawrence Berkeley Laboratory, Berkeley, California	Telephonic Bomb Threat
80.	7/2/76	Rockwell International, Rocky Flats, Colorado	Telephonic Bomb Threat
81.	7/2/76	Sandia Laboratory, Albuquerque, New Mexico	Telephonic Bomb Threat
82.	1/27/77	Rockwell International Rocky Flats, Colorado	Telephonic bomb threat that did not materialize
83.	2/23/77	Union Carbide Oak Ridge, Tennessee	Possible pipe bomb outside of confines of facility
84.	3/30/77	FERMI Laboratory	Anonymous telephonic bomb threat that did not mater
85.	4/28/77	Los Alamos Scientific Laboratory, Los Alamos, New Mexico	Anonymous telephonic bomb threat that did not materi
86.	4/28/77	Rocky Flats ERDA Facility near Boulder, Colorado	Anonymous telephonic bomb message received by Distri Attorney, Boulder, Colorad that did not materialize
87.	7/8/77	Rocky Flats ERDA Facility near Boulder, Colorado	Anonymous telephonic bomb threat that did not mater
88.	7/28/77	General Electric, San Jose, CA	Anonymous telephonic bomb threat that did not materia
89.	8/31/77	Teledyne Wah Chang Plant, Albany, Oregon, subcontractor to B&W, Lynchburg, VA	Anonymous telephonic bomb threat that did not materia
90.	9/13/77	Teledyne Wah Chang Plant, Albany, Oregon, subcontractor to B&W, Lynchburg, VA	Anonymous telephonic bomb threat that did not materia
91.	11/8/77	General Electric, San Jose, CA	Anonymous telephonic bomb threat that did not mat

TOTAL of DOMESTIC TERRORIST ACTS from JANUARY 1, 1977 to DATE Dec. 31, 1977

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Bombing	3	6	6	4	3	2	1	7	9	10	2	1	54
Attempted Bombing					1		2	3	1	2	1		10
Firebombing	4	7	8	3	1			3		1	1		29
Attempted Firebombing		1	1										2
Hostage			1										1
Shooting			1			1							2
Arson				1		1							2
Bank Robbery	1	1											2
Recovery							1	1					2
Hoax							1	1					2
TOTAL	8	15	17	8	5	4	5	15	10	13	4	1	106

DATE	TYPE	TARGET	LOCALE	GROUP
1/4/77	Bank Robbery	U.S. National Bank of Oregon	Portland, OR	George Jackson Brigade
1/19/77	Letter/Firebomb	Gov. Carlos R. Barcelo	Puerto Rico	CRIA[1]
1/19/77	Letter/Firebomb	*Pres. Ford	NYC, NY	CRIA
1/19/77	Letter/Firebomb	*Pres. Carter	NYC, NY	CRIA
1/19/77	Letter/Firebomb	*FBI: NY Office	NYC, NY	CRIA
1/19/77	Bombing	Pacific Gas and Electric Company	Sausalito, CA	NWLF[2]
1/22/77	Bombing	Pacific Gas and Electric Company	Olema, CA	NWLF
1/27/77	Bombing	Pacific Gas and Electric Company	Monte Vista, CA	NWLF
2/4/77	Bombing	Volvo Station Wagon	San Francisco, CA	NWLF
2/4/77	Bombing	Federal Office Bldg.	San Francisco, CA	NWLF
2/7/77	Bank Robbery	U.S. National Bank of Oregon	Wilsonville, OR	George Jackson Brigade
2/9/77	Letter/Firebomb	Unknown	NYC, NY	CRIA
2/9/77	Letter/Firebomb	*FBI: NY	NYC, NY	CRIA
2/9/77	Letter/Firebomb	*Gov. Carlos R. Barcelo	NYC, NY	CRIA
2/9/77	Letter/Firebomb	*Pres. Carter	NYC, NY	CRIA
2/18/77	Bombing	Texaco Touring Center Office	NYC, NY	FALN[3]

DATE	TYPE	TARGET	LOCALE	GROUP
2/18/77	Bombing	Gulf and Western Bldg.	NYC, NY	FALN
2/18/77	Bombing	Merchandise Mart	Chicago, IL	FALN
2/18/77	Bombing	U.S. Gypsum Co.	Chicago, IL	FALN
2/23/77	Letter/Firebomb	*Banco de Popular de Puerto Rico	NYC, NY	CRIA
2/23/77	Letter/Firebomb	*Banco de Popular de Puerto Rico	NYC, NY	CRIA
2/24/77	Attempted Letter/ Firebomb	*Banco de Popular de Puerto Rico	NYC, NY	CRIA
3/9-11/77	Hostage	Islamic Center District Building B'nai Br'ith	Wash., DC	Hanafi Muslims
3/11/77	Letter/Firebomb	*P.R. economic office	NYC, NY	CRIA
3/11/77	Letter/Firebomb	*P.R. tourism office	NYC, NY	CRIA
3/12/77	Letter/Firebomb	*P.R. agency office	NYC, NY	CRIA
3/12/77	Bombing	Ideal Roller and Graphics Company	Marlboro, MA	Sam Melville Jonathan Jackson Unit
3/16/77	Shooting (air rifle)	Private Residence	Watsonville, CA	ELF
3/20/77	Bombing	Whelan Drug Store	NYC, NY	FALN
3/20/77	Bombing	American Bank Note Co.	Bronx, NY	FALN
3/21/77	Bombing	Private Residence	San Francisco, CA	NWLF
3/28/77	Bombing	Ticket Office of Mexican and Venezuela Airlines	San Juan, P.R.	Cuban Commandos (El Condor)

DATE	TYPE	TARGET	LOCALE	GROUP
3/28/77	Letter/Fire Bomb	*FBI: Newark	NYC, NY	CRIA
3/29/77	Bombing	Pacific Gas and Electric Company	San Francisco, CA	NWLF
3/29/77	Letter/Firebomb	*Gov. Carlos R. Barcelo	NYC, NY	CRIA
3/30/77	Letter/Firebomb	*Banco de Ponce de Puerto Rico	NYC, NY	CRIA
3/30/77	Letter/Firebomb	*Pres. Carter	Wash., DC	CRIA
3/31/77	Letter/Firebomb	*Puerto Rico Economic Development Admin.	NYC, NY	CRIA
3/31/77	Attempted Letter/ Firebomb	*Puerto Rico Immigration Department	NYC, NY	CRIA
4/9/77	Firebombing	Macy's Dept. Store	NYC, NY	FALN
4/9/77	Firebombing	Gimbel's Dept. Store	NYC, NY	FALN
4/9/77	Firebombing	Bloomingdale's Dept. Store	NYC, NY	FALN
4/9/77	Bombing	Social Security Admin. Off.	San Francisco, CA	NWLF
4/11/77	Arson	4 Parked Trucks Owned by PG & E Company	Mountain View, CA	NWLF
4/14/77	Bombing	Pacific Gas and Electric Company	Oakland, CA	NWLF
4/17/77	Bombing	Pacific Gas and Electric Company	Sonama, CA	NWLF
4/26/77	Bombing	Private Residence	Hillsborough, CA	NWLF
5/1/77	Firebombing	5 helicopters at Municipal Airport	Salinas, CA	ELF
5/12/77	Bombing	Rainier National Bank	Redmond, WA	George Jackson Brigade

DATE	TYPE	TARGET	LOCALE	GROUP
5/12/77	Attempted Bombing	Rainer National Bank	Bellevue, WA	George Jackson Brigade
5/16/77	Bombing	Social Security Office	San Francisco, CA	NWLF
5/25/77	Bombing	Mackey International Airlines Executive and Reservation Office	Ft. Lauderdale, FL	Cuban Commandos
6/4/77	Bombing	City-County Building	Chicago, IL	FALN
6/7/77	Arson	Chase Manhattan Bank	NYC, NY	JAR 5
6/14/77	Shooting	Yugoslavian Mission to the U.N.	NYC, NY	Croatians
6/14/77	Bombing	Cuban Mission to the U.N.	NYC, NY	Omega-7
7/4/77	Attempted Bombing	Puget Sound Power and Light Company	Olympia, WA	George Jackson Brigade
7/14/77	Bombing	Coors Distributing Co.	San Jose, CA	NWLF
7/21/77	Recovery of Explosives		Phila, PA	MOVE 6
7/27/77	Attempted Bombing	Coors Distributing Co.	Cordelia, CA	NWLF (Lucio Cabanos)
7/30/77	Hoax Device	Private Business	Orlando, FL	National Socialist Liberation Front
8/1/77	Attempted Bombing	Publishers Paper Co.	Oregon City, OR	ELF (Environmental Control)
8/3/77	Bombing	Dept. of Defense	NYC, NY	FALN
8/3/77	Bombing	Mobil Bldg.	NYC, NY	FALN

DATE	TYPE	TARGET	LOCALE	GROUP
8/7/77	Attempted Bombing	Coors Distributing Co.	Aurora, CO	NWLF (Ludlow Brigade)
8/8/77	Recovery of Device	Amax Corp. Bldg.	NYC, NY	FALN
8/12/77	Bombing	San Mateo Times Newspaper Bldg.	San Mateo, CA	ELF
8/14/77	Firebombing	Motor Vehicle	NYC, NY	JAR
8/14/77	Bombing	Venezuelan aircraft	Miami, FL	Cuban Commandos
8/17/77	Attempted Bombing	Coors Distributing Co.	Nevada City, CA	NWLF (Lucio Cubanas Unit)
8/17/77	Bombing	Coors Distributing Co.	Auburn, CA	NWLF (Lucio Cubanas Unit)
8/23/77	Firebombing	Coors Storeage Warehouse	Hollister, CA	NWLF
8/24/77	Bombing	Residence	San Francisco, CA	NWLF
8/25/77	Hoax Device	Radio Shack Co.	NYC, NY	KKK
8/28/77	Firebombing	Motor vehicle	NYC, NY	JDL
8/29/77	Bombing	PG & E Co.	Sausalito, CA	NWLF
9/1/77	Attempted Bombing	Pacific Union Club	San Francisco, CA	NWLF (Lucio Cubanas Unit)
9/2/77	Bombing	Olympic Country Club	San Francisco, CA	NWLF
9/7/77	Bombing	Open area near White House	Wash., DC	Cuban Commandos (Luis Boitel Unit)
9/7/77	Bombing	Aeroflot Office	Wash., DC	Cuban Commandos (Luis Boitel Unit)

DATE	TYPE	TARGET	LOCALE	GROUP
9/9/77	Bombing	S.F. War Memorial Opera House	San Francisco, CA	NWLF (Tom Hicks Unit)
9/15/77	Bombing	Presidio Wall	San Francisco, CA	NWLF (Tom Hicks Unit)
9/19/77	Bombing	Dupont Plaza Hotel	Miami, FL	Cuban Commandos
9/19/77	Bombing	Eden Roc Hotel	Miami, FL	Cuban Commandos
9/19/77	Bombing	Fontainebleau Hotel	Miami, FL	Cuban Commandos
9/19/77	Bombing	Sheridan Four Ambassadors Hotel	Miami, FL	Cuban Commandos
10/2/77	Firebombing	Residence of Edward Joseph Derry	Atherton, CA	Gay Liberation Front
10/3/77	Bombing	Residence of Stanford Shaw	Los Angeles, CA	Armenian Group of 28
10/10/77	Bombing	Visitor's Center, Trojan Nuclear Power Plant	Ranier, OR	NWLF - Environmental Assault Unit
10/11/77	Bombing	Mobile Oil	Puerto Nuevo, PR	Comandos Revolucionari Del Pueblo (POPR)
10/11/77	Bombing	Esso Caribbean, Inc.	Puerto Nuevo, PR	Comandos Revolucionari Del Pueblo (POPR)
10/11/77	Attp. Bombing	Post Office, Main	Chicago, IL	FALN
10/11/77	Attempted Bombing	59th & Madison Ave. near General Motors Hq.	New York, NY	FALN
10/11/77	Bombing	Macy's Department Store	New York, NY	FALN

CONTINUED

7 OF 13

DATE	TYPE	TARGET	LOCALE	GROUP
10/11/77	Bombing	Gimbel's Department Store	New York, NY	FALN
10/11/77	Bombing	New York Library	New York, NY	FALN
10/12/77	Bombing	PG & E Sub-station	Monta Vista, CA	NWLF - Tom Hicks-Bill Blizzard Unit
10/13/77	Bombing	Savidge Auto Dealership	Seattle, WA	George Jackson Brigade
10/15/77	Bombing	B.B.C. Dodge Company	Burien, WA	George Jackson Brigade
(omission) 6/7/77	Firebombing	Coors Distributing Co.	San Francisco, CA	Gay Liberation Front
11/1/77	Bombing	Phil Smart; Mercedes-Benz car dealership	Bellevue, WA	George Jackson Brigade
11/10/77	Bombing	Union Oil Co., San Francisco Refinery	Rodeo, CA	NWLF-Tom Hicks-Bill Blizzard Unit
11/15/77	Attempted Bombing	Madison Ave., near Union Carbide Bld.	New York, NY	FALN
11/21/77	Attempted Firebombing	Ohrbachs Dept. Store	New York, NY	FALN
12/24/77	Bombing	Automobile loaded on railroad car	Kent, WA	George Jackson Brigade

FOOTNOTES

[1]CRIA - Comandos Revolucionarios Independtistas Armadas

[2]NWLF - New World Liberation Front

[3]FALN - Fuerzas Armadas de Liberacion Nacional Puertorriquena

[4]ELF - Environmental Life Force aka, Environmental Control

[5]JAR - Jewish Armed Resistance

[6]MOVE - Unknown

[7]JDL - Jewish Defense League

Compiled by the Terrorist Research and Bomb Data Unit, Domestic Security, Terrorism Section; Criminal Investigative Division.

These statistics are substantially accurate although some inaccuracy is inevitable due to the numbers involved and the varied sources from which they were compiled.

*Indicates the intended targets although the incendiary devices ignited in Post Offices in New York City, Washington, D.C. and San Juan.

	1971	1972	1973	1974	1975	1976	1977***
Total Terrorist Activity*	244	195	124	72	129	116	106
Total Terrorist Bombings** Add Bms.&F.Bms.pg 1.	110	93	38	49	90	65	83
%age of Bombings to Total Activity	45%	48%	31%	68%	70%	56%	78%

* Firebombs, arson, snipings, shootings, ambush, caches, bombings, others
**Actual bombings---attempts or hoaxes not included
***Up to and including Dec. 31, 1977

THESE STATISTICS ARE SUBSTANTIALLY ACCURATE ALTHOUGH SOME INACCURACY IS INEVITABLE DUE TO THE NUMBERS INVOLVED AND THE VARIED SOURCES FROM WHICH THEY WERE COMPILED.

4- Oregon
4- Puerto Rico
40- New York
32- California
4- Illinois
5- DC
1 Massachusetts
7- Washington
7- Florida
1- Colorado
1- Pennsylvania

[From the Washington Post, Jan. 23, 1978]

A Nuclear Guardian's Unalarmed View

Does President Carter know that the man he appointed as the final guard at the gate to ensure that peaceful nuclear exports won't be diverted into bombs is a cold-blooded engineer inclined to rate the risks of nuclear proliferation as somewhat less alarming than the chance of being hit by a car when you step off a curb?

I learned this about Joseph M. Hendrie, chairman of the independent Nuclear Regulatory Commission, when he dropped by the paper the other day and agreeably answered questions on the record for an hour and a half. A physicist from the Brookhaven Nuclear Laboratory, Hendrie, 52, came to the five-member NRC as chairman last August.

He has, in the eyes of his peers, substantial technical and scientific credentials. What came through at our lunch, however, was a sense of the particular ideological or emotional framework in which he weighs, as the law instructs the NRC to weigh, whether a proposed export of nuclear fuel or equipment is "inimical to the common defense and security of the United States." That is, of course, not a scientific question but a political one.

Hendrie identified three levels of nuclear anxiety. The first is a Soviet-American nuclear war—a "donnybrook"—which he regards as a greater than 1 in 100 probability. To avert this calamity, he said, it would be worth doing anything and everything by way of limiting nuclear power, if that would help. So far so good.

On the second level of his concern lies a nuclear exchange between two small countries. Hendrie offered two illustrations, a "mythical" war in which Switzerland delivered, say, 17 bombs on Spain and Spain hit Switzerland with 7, and a conflict between Israel (which is thought to possess at least a nuclear capability) and Libya (whose current leader publicly pines for a bomb). Hendrie explained his relative equanimity toward outbreaks like these by saying that he did not think they would affect his children, as a Soviet-American holocaust surely would.

As for the manufacture or theft of a nuclear bomb by terrorists, this prospect was on the third level. If, for example, terrorists took out Washington and Chicago, Hendrie said, it would be bad for those who happen to live there but not necessarily for their children.

Someone at lunch suggested that it would be a disaster "beyond history," Hiroshima and Nagasaki aside. Hendrie replied that the threat of a major earthquake in California actually was greater. He went on to note that it was dangerous to cross the street, too.

Now, I am trying hard to be fair. Hendrie talks engineer talk: He approaches in a tone of familiarity and routine, matters that others address differently. No question has so far been publicly raised about the nuclear-export decisions in which he has participated. He was offering what he called his "personal views," and he provided no grounds for us to suspect he was not doing his duty as he sees it at the NRC.

Nonetheless, I found it appalling that someone who tends a crucial valve in the nuclear-export pipeline has such a mechanical and seemingly indifferent attitude toward the proliferation threat, which the NRC is charged with helping to diminish. On close calls, where a conscientious person would find it difficult to determine if a given export were "inimical," what would one expect from someone who is relatively at peace with the notion that the Israelis and Libyans might have a nuclear go or that terrorists might obliterate Washington and Chicago? Rationality unleavened by a measure of alarm appropriate to the nuclear peril is scary.

Should Hendrie be running the Nuclear Regulatory Commission? We didn't discuss that at lunch but Hendrie had a relevant proposal, and that is to remove from the NRC the statutory responsibility to pass upon peaceful nuclear exports. His argument is that the NRC is essentially an agency to regulate the safety of the domestic nuclear-power industry and that it has neither the broad expertise nor the "nose to steel" access to information to judge exports to foreign countries.

Whether it's wise to dispense altogether with the NRC's capability of providing independent *technical* advice, I'm not sure. But certainly it's so that the export question touches considerations of international relations, diplomacy, intelligence and weaponry that the NRC is not competent to deal with. It is not beyond the wit of Congress to confine the NRC to the task it performs best. Hendrie proves the point.

[From the Washington Post, Jan. 13, 1978]

Watching Over Nuclear Exports

Stephen S. Rosenfeld's Jan. 13 op-ed piece ["A Nuclear Guardian's Unalarmed View"] does not fairly represent my views on nuclear export and proliferation matters. The essence of our difference is that Mr. Rosenfeld objects to my attempts to approach these urgent and difficult problems in a rational and quantitative ("cold-blooded," he says) way. He seems to want a more emotional approach and is upset I did not talk that way. I am upset that he would think such a state of mind a fit one for dealing with my responsibilities.

The problem of nuclear proliferation continues to be one of the most pressing and important matters before the nation and the world community. I am deeply concerned about this problem and to characterize my view as rating the risks of proliferation "as somewhat less alarming than the chance of being hit by a car" is absurd.

The President has taken a series of strong and positive steps to control proliferation and I support these fully. The Nuclear Regulatory Commission has the important duty to license commercial nuclear exports, including reactors and fuel. I base my vote on these export applications on a full and careful consideration of the record laid before the commission. I try to make a rational determination on them, in the best interests of the United States. Mr. Rosenfeld seems to find this a "mechanical and seemingly indifferent attitude" on proliferation. I disagree.

In our discussion, I pointed out that the NRC asks the executive branch for its views on nuclear-export applications. Where the executive branch favors the export, we receive a statement culminating in a finding that the export is "not inimical to the common defense and security of the United States." That is a considered finding on behalf of the President and the executive departments—State, Defense, Energy and other agencies. It also is the finding the commission is required to make under the law in granting an export license.

In my view, the "common defense and security" finding is much more a foreign-policy matter than a technical one, and the President and his executive departments are in a much better position to conduct the foreign policy of the United States than an independent regulatory agency. I suggested, then, that it might be worth considering whether the NRC should continue to have the final say on nuclear exports. Pending legislation would give the President authority to override an NRC export-licensing determination. Whether the commission's responsibilities remain as they are, or a new role is assigned us in this area, I will continue to bring to my part in the process a total commitment to the welfare of this country, and the most rational and careful judgment I can muster. And it is not now and never will be "mechanical" or "indifferent."

In discussing proliferation risks, I said the overwhelming one, because of the catastrophic consequences, is a full-scale U.S.-Soviet nuclear war. I do not see much argument about that. There are also the risks of a smaller nuclear exchange not involving the United States and of terrorist use of stolen nuclear-weapon material. The first has an important connection to the full-scale war risk because there is some chance the United States and the Soviet Union might be drawn in. Barring a subsequent full-scale war, the latter two events would leave the United States functional as a nation, although at terrible human cost. Mr. Rosenfeld's column makes it sound as though my attitude in trying to sort out these grim matters amounts to "Aw, hell, earthquakes and automobiles are risky, too, so why worry." That is a bum rap, and I reject it. His attitude, to treat it as simplistically as he has mine, seems to be that if you have to think about two bad things, it is wrong to attempt to quantify the difference between them because bad is just bad, period.

On proliferation matters, I am as concerned, and occasionally terrified, as he may be. I bring all that depth of feeling to my decisions, but I try not to make those decisions in a purely emotional manner.

I thoroughly regret one aspect of our discussion. In talking about the effects of a nuclear exchange between two other nations, I started to talk about "Country A" and "Country B." One of my hosts challenged me to stop being mythical and make it concrete by naming some countries. Unfortunately, I did so, thinking my off-hand choices were preposterous enough to be seen equivalent to the mythical countries. I offer my profound apologies to those nations, which I will not further offend by naming here. It was unthinking and totally unjustified on my part.

THE VICTIM OF TERRORISM--PSYCHIATRIC CONSIDERATIONS

(Presented at the International Seminar on Terrorism, Evian, France, June 1, 1977, by Frank M. Ochberg, M.D., National Institute of Mental Health)

The following pages introduce the fourth international seminar on terrorism sponsored by the Centre International de Criminologie Compararee. Previous conferences have considered the history of terrorism as a political device, its use by government and by dissident groups, definitions, theories of etiology, responses by police and military, and the impact on the operations of the criminal justice system. During the last several years when these academic discussions were occurring there were also legislative hearings on terrorism, State Department conferences, FBI symposia, and various inter-governmental attempts to illuminate the phenomenon. Our charge in the current seminar is to examine the role of the victim of political terrorists. While broad enough to fill volumes, this charge is quite narrow when compared to the vast scope of subject matter encompassed in the definition of "terrorism." The reason for narrowing our boundary is obvious: a broad but necessarily superficial consideration of terrorism has occurred with sufficient regularity in the past three years to give persons of different disciplines, different roles, and different nationalities a common set of concepts and reference points. Every successful restatement of these common concepts has led to a recommendation to focus attention on one or more areas which has been relatively underexplored. Focusing permits deeper exploration and such deep digging may unearth new nuggets of value to all of us. The reason to concentrate on psychiatric aspects of the victim's experience may not be so clear. Victimization is nothing new. Coping with the stress of captivity has been studied in consider-

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able detail during and after World War II. But to our knowledge there has never been an attempt to assemble world experts on stress, on coping, and on captivity in order to explore the phenomenon of victimization by political terrorists, and to do this exploration in the company of those charged with combatting terrorism. Since the victim of terrorism is often a symbol of the government under siege, and since hostages released by terrorists have an immense audience provided by the media in the aftermath of a dramatic incident, these victims have an impact on public opinion and public sentiment which may be profound. A public which overreacts in outrage against the victims' helplessness may precipitate harsh, simplistic counter-terrorist measures. A public which joins the victim in identifying with the terrorist-aggressor may undermine the morale and confidence of police. A public perplexed and alienated by the entire process may interfere with the bond of trust between government and governed which is necessary for the survival of democratic institutions. But, on the other hand, a public that is reasonably well aware of the repertoire of human responses which are effectively used by men and women under stress - even under the stress of terrorist threat and captivity - such a public will be able to participate in rational decisionmaking about national policy on terrorism.

There is another obvious reason to consider the victims of terrorism. They suffer. And their suffering may be misunderstood, or neglected when the tumult and drama of the notorious event has subsided. There

are medically sound approaches in the diagnosis and treatment of such suffering which can and should be brought to bear on these cases. Since terrorists' victims are often the unwitting and unwilling proxies for assault on the state itself, the state might well concern itself with reparation, provision of free care, support to family members, and vigilant attention to the possibility of delayed psychiatric disability. Israel does. Holland does not, but is vigorously debating the issue. The U.S.A. has not yet broached the subject formally, but undoubtedly will. In fact, the deliberations of the conferees at this seminar may well advance the search for an appropriate role for government with respect to these victims.

The clinical method of inquiry often begins with a close look at a single illustrative case, and we shall do so here. Although there are unfortunately many to choose from, none could be better than the experience of Mr. Gerard Vaders, a mature, sensitive, newspaper editor who was held for 13 days on that ill-fated train from Groningen in December 1975. The point in presenting Mr. Vaders' story is to raise general issues about the hostage situation, about the role of the victim, about stress, coping, and psychological effects. It is not my intention to diagnose or psychoanalyze Mr. Vaders' behavior. I am grateful to him for the time he took to tell me his story, and for the courage he showed in taking the notes which permitted a detailed published account of this bizarre experience.

The Moluccan Train.

The basic facts of the siege are well known. At 10:00 AM on December 2

the train from Groningen to Amsterdam was boarded and stopped by seven masked gunmen on a flat, dreary piece of land near Beilen. The engineer was shot and during the ensuing period of negotiation under duress two hostages were executed. One terrorist and a hostage were injured when an automatic rifle discharged accidentally. The assaulting group were of the Free South Moluccan Youth Movement, and their cause was the separation and independence of their homeland from Indonesian rule. Their demands included release of political prisoners from Dutch and Indonesian jails, publicity of their cause, policy changes in Holland regarding Moluccan independence, and safe passage out of the country. They held 72 hostages at the outset, but allowed the number to dwindle to 23. Their weapons included pistols, automatic rifles, and sham explosives which were taped menacingly to all exit doors.

One year later the Moluccan terrorists were in prison beginning 17-year sentences, and Mr. Vaders was back in his bustling newsroom, telling me the story he would rather forget.

"How do I feel now? It is complicated. I know I need to get back to this life, and to leave that other. But there are many who are still sitting on that train, waiting. Waiting for Godot.

"From the beginning it was different for me. I recognized the situation. The moment the Moluccans came in I felt back in the war. I was thinking, 'Keep your head cool. Face the crisis.' I knew there would soon be choices. Times to take risks. For instance, it was risky to sit there taking notes. That destroys your anonymity. I made the choice and took notes."

At this point I asked if the feelings at the beginning of the siege were like any others.

"There was an early experience. I must have been 17. I was sleeping in the room with my brother and all of a sudden the SS were standing there with machine pistols. They were on a reprisal raid because the resistance had murdered a Dutch collaborator. We were sent to a concentration camp in Holland. Every morning we had hours of 'appel' - lining up in freezing weather. But I was young looking and had fair hair. I came to the attention of the SS officer in charge. He asked my age and I lied, 'Sixteen.' I remember him saying, 'My God, are we fighting children?' I was released the next day.

"There was also a time of similar feeling during the Ardennes offensive, when I came under fire... "And in 1948 in Indonesia two hand grenades were thrown at me and I saw them at my feet. Neither one exploded."

We returned to the train: "...they threw the door open. There were two or three of them wearing black woolen balaclavas. I knew they were South Moluccans. The others thought P.L. O. But on their rifle butts you could see the colors. I recognized it from Indonesia.

"Although the memories are vivid, it wasn't so much a memory as a realization that I would have to mobilize reflexes like in the war.

"I still have guilt over the war. I did nothing bad, but not enough good. Not enough for the Jews. My sister did more and was in Dachau. Then I chose not to take too many risks.

"But on the train I did risk. I decided to write and to do it openly.

"For the first ten minutes I felt cool. Cooler than usual. I was even looking for humor in the situation. December 5th is our Santaklaus holiday when we give poems as presents. I was thinking how I wouldn't have to write poems this year.

"The others on the train were either sitting still or following orders. The Moluccans had us tape paper over the windows and many were doing that. One man seemed a little too aggressive. That was Mr. DeGroot.

"I was taping windows, too. I asked them if anyone was hurt. They said the driver wanted to be a hero and was shot. I asked if an ambulance should be called. They said, 'No. He's dead.' But he wasn't dead yet, we later found out. I sat down and took notes.

"They saw me writing and didn't say anything, but tied me up with my hands behind my back and they tied me by the arms to the doorway so that I was like a curtain. I faced away from the passengers and toward the pool of blood from the driver. People could walk past me, under my arms. I knew they were planning to execute hostages...

"For a second I thought Mr. DeGroot was the Minister for Underdeveloped Countries who had come to negotiate our release. But that was a mirage.

"Then I thought that they executed DeGroot. We all did. One Moluccan was weeping and quoting the bible and saying, 'There is a time to kill...I do not hate you but I have to do it.' Actually, Mr. DeGroot escaped, but we never learned this until much later. At that time I was talking to them as much as possible.

"One terrorist told me he couldn't hate the Dutch, that he was married to a Dutch girl. (That was a lie.) They must have wanted us to like them.

"On the first day while I was hanging there they killed a soldier. (The first terrorist demand said hostages would be shot every thirty minutes until their request for a bus, a plane, and political recognition was granted.) I could see one of them shooting and hear a howl like a dog.

"They let me down in the afternoon. Prins (a fellow hostage who had convinced everyone he was a doctor) massaged my arms for an hour. This was my first contact with another hostage during the ordeal. I tried to keep up the contact.

"The first night I began shivering. They had used my coat to mop up the blood of the driver. Then one of the passengers finally gave me another coat. Afterward I learned it was the coat of the dead soldier.

"The next morning I was full of fear. Sweating. Cramps in the stomach. Fighting away panic.

"Now I took notes by stealth.

"On the second night they tied me again to be a living shield and left me in that position for seven hours. The one who was most psychopathic kept telling me, 'Your time has come. Say your prayers.' They had selected me for the third execution.

"I had different impulses. One was to reason with them. But I suppressed that. I thought that would strengthen their resolve. The second impulse was to flee. I would have had to untie both hands, feet and the door. I had one hand slightly free, but I would not have had time to do the rest.

"I was preparing for execution. Making up a balance. My life philosophy is that there is some plus and some minus and everyone ends up close to zero. Some say that is pessimistic. I think it is realistic. I was fifty years old. It had not been a bad life. I'm not happy with my life, but satisfied. I had everything that makes life human."

"But you weren't executed," I said. "How did you feel?"

"You won't believe this. Disappointed.

"I had the impulse to say, 'Let that man go and let me go in his place,' but the words stuck...

"I felt... I feel guilty." (He had a sad look then.)

"In the morning, when I knew I was going to be executed I asked to talk to Prins, to give him a message for my family. I wanted to explain my family situation. My foster child - her parents had been killed - she did not get along too well with my wife, and I had at that time a crisis in my marriage just behind me. I hoped my wife would get a new purpose in her life by concentrating on that child. There were other

things, too. Somewhere I had the feeling that I had failed as a human being. I explained all this and the terrorists insisted on listening. Dr. Mulders and Dr. Bastiaans think that saved my life." (I do also. He was no faceless symbol any more. He certainly was no hero. All his human flaws were exposed and the Moluccans could not execute him.)

"After that they didn't isolate me any more. They said, 'We have others to kill.' I was sitting next to this woman and across from a young man named Bierling (a 33 year old father of two). They came and pointed to Bierling and led him away and shot him."

That must have been the point of maximum horror for Mr. Vaders. Considering his feelings of guilt and shame from previous "survivals," this one must have been excruciating.

"The days went by and we somehow knew there would be no more executions. Only Eli, the psychopathic one, wanted a fourth killing, but the others talked him out of it. I was worried when Paul left. He was sensitive and intelligent and he seemed to balance out Eli. But Paul was wounded when a gun went off and had to go to the hospital.

"There was a growing sense that the authorities were mishandling the situation. They sent us food, but no utensils. The mayor of Beilen made a stupid announcement.

"And you had to fight a certain feeling of compassion for the Moluccans. I know this is not natural, but in some way they come over human. They gave us cigarettes. They gave us blankets. But we also realized that they were killers. You try to suppress that in your consciousness. And I knew I was suppressing that. I also knew that they were victims, too.

In the long run they would be as much victims as we. Even more. You saw their morale crumbling. You experienced the disintegration of their personalities. The growing of despair. Things dripping through their fingers. You couldn't help but feel a certain pity. For people at the beginning with egos like gods - impregnable, invincible - they end up small, desperate, feeling all that was in vain."

I asked about after effects and learned that Mr. Vaders lost a great deal of weight and had a long illness which went undiagnosed from the summer of 1976 until a gallstone operation in November brought relief. His relationship with his wife improved dramatically. There was much discussion, reconciliation, and a decision to spend far more time together.

He wrote some stories which were critical of the government and these aroused a great many threatening calls and letters. The government claimed he was sick, several colleagues spread rumors that he made a deal with the Moluccans to spare his life in return for a favorable press, and a police dossier emerged claiming that he had Communist connections. He drank more and smoked more, then cut it all out precipitously.

His daughter had a great deal of difficulty watching all the aggression leveled at him, dropped out of school, and needed some psychological support.

He had no dreams and no fantasies that he can remember during the siege, but beginning one week after release he had nightmares for one week in which he was threatened by guns. These have not recurred.

His negative feelings about the way the government handled the case have abated, and he is willing to help develop future policy. (He sits on a national committee for this purpose.) But he notes that the Ministry of Justice is very sensitive to criticism. "They think they do their best and that we should just express gratitude."

Significant Points in the Case.

Gerard Vaders is a human being, alive today because he overcame the natural inhibitions which shroud intimate life details, and he displayed his true self to committed executioners. Ironically, this display of humanness could only occur after Mr. Vaders reconciled himself to death. Of course there can be no certainty in conjecture about precise reasons for the Moluccans' change of heart, nor can we know definitively why they chose him for execution in the first instance. As a note taker and newsman (he told the Moluccans that much but never admitted editing the largest paper in north Holland), he stood out from the crowd. As a living curtain, suspended between compartments of the train, he was the nearest thing to an inanimate object. Disposing of curtains is easier than disposing of persons.

Mr. Vaders told me that he insisted on telling Mr. Prins all the details which should be conveyed to his wife and family, and he gave

a great deal of background so that Mr. Prins could understand the message. The Moluccans tried to hurry this process at first, but Mr. Vaders was quite resolute and managed to overcome their objections. This is reminiscent of Judge DiGennaro, who was kidnapped by Italian terrorists, and told me, "I gave up all hope of life and I was free to be brave." Bravery did not mean attempting escape (he was bound and blindfolded throughout) but rather telling the captors exactly what was on his mind. Vaders showed a certain blend of courage and resignation which may have reminded the Moluccans of themselves.

His initial response to danger was classical. There was a period of arousal in which he felt cool, assessed the threat, and made physical and mental preparations. He was not particularly aware of bodily needs, visceral changes, or the falling temperature in the train during this beginning phase. However, he did suffer a collapse of sorts after the first night ended. There are phases in stress responses. Mr. Vaders may have entered what Hans Selye calls the "stage of exhaustion" (see below). Several other hostages in different settings have reported striking changes in their ability to function smoothly after dawn of the second day, or after the first period of sleep. The phenomenon is recognized; the mechanisms are not fully understood.

Mr. Vaders' response to danger was also idiosyncratic. Stress researchers have emphasized that both physiological and psychological

patterns show striking individual differences, related to life history rather than the form or intensity of the threatening stressor. The other victims on the train were showing varied patterns of activity, emotion and interaction throughout the siege.

To cope with captivity and the threat of death, Mr. Vaders employed several familiar devices. Researchers in this field, such as Drs. David Hamburg and Richard Lazarus, call these "coping mechanisms." First, Mr. Vaders assumed a familiar role. He became a journalist. In this role he could concentrate his attention, conserve his energy, and feel a certain amount of professional self-esteem. Preserving self-esteem is often more important to the individual than preserving life - a striking finding in the examination of these hostage incidents. Furthermore, Mr. Vaders gathered information throughout his ordeal. Good copers do this. Others may constrict their view of events in order to ward off threatening perceptions. Although denial of overwhelmingly negative input may be necessary to preserve the ego, one's ability to scan the environment, to perceive quickly and accurately, to gain further knowledge from a peer group in a similar plight, are all critical mechanisms for coping with stress. Mr. Vaders employed these mechanisms. Moreover, Mr. Vaders affiliated with his fellow captives. The ability to form and preserve affective bonds is necessary for normal human development, is adaptive in negotiating the usual life crises, and is critical in extreme situations such as captivity. Dr. Leo Eitinger and others who have studied concentration camp survivors have documented and developed this point.

Mr. Vaders had a mild case of "Stockholm syndrome." Named for the dramatic and unexpected realignment of affections in the Sveriges Kreditbank robbery, this syndrome consists of a positive bond between hostage and captor, and feelings of distrust or hostility on the part of the victim toward the authorities. In Mr. Vaders' case, the negative display toward government was more intense than the affection for the Moluccans. Both feelings began in the early days of the siege, crested in the immediate aftermath, and diminished over time. Some positive feeling toward the kindlier of the captors remains; negative feelings toward the government officials have abated. This is by now a recognized feature of hostage situations. It does not occur in every instance, but is frequent enough to be considered by police in the management of protracted negotiations.

Finally, Mr. Vaders suffered a series of physical and emotional aftereffects which are characteristic of such situations. His weight fell markedly, not only during the period of captivity and restricted intake, but afterward. His protracted abdominal distress may or may not have been due to gall bladder disease. Gastrointestinal dysfunction after prolonged stress is not uncommon. A variety of mechanisms and target organs may be involved. Changes in eating, drinking, and smoking habits bridge the processes of physical and emotional re-equilibration. For instance emotion affects appetite, appetite affects nutrition, nutrition affects physical health, which in turn affects appetite and emotion. Mr. Vaders did rather well psychologically, and as noted, his marriage emerged stronger than be-

fore the event. In several other cases victims have described feelings of "rebirth" and returned to family and friends with new resolve to place relationships on firmer ground. The fact that Mr. Vaders' daughter had difficult days is, sadly, a common occurrence. Loved ones do suffer by extension of the trauma into their lives, and they may not be protected by the mobilization of support which occurs within and around the victim. Mr. Vaders' nervous system was activated, his coping skills were employed, his friends were rallied. This is not unlike the patient at death's door with a serious illness who ends up comforting his distraught relatives.

Having identified these factors in Mr. Vaders' situation, let us turn to a consideration of the general areas which have been raised. These are stress, coping, the Stockholm syndrome, and the delayed effects of captivity. These subjects will merely be introduced in this paper, but will be expanded by Drs. Roth, Tinklenberg, and Eitinger, and discussed in depth at the seminar in June.

Stress:

The father of modern stress research is Hans Selye, who began major publications in the 1950s and remains active today. Selye and his followers use the term, stress, to include all those responses common to organisms which are provoked from a state of equilibrium into disequilibrium. Stress is not the provocation, but rather the condition of the organism in response to provocation. There are many "stressors" or provocations, such as cold, disease, or threat of death. As an

aside, it is interesting to note that policemen in counter-terrorist situations are often immune to threats of physical harm, but extremely stressed by fear or failure. The whole world is watching. In particular, their peers and senior officers are watching. They have been trained and conditioned to remain poised in the face of considerable danger, and this they do magnificently. But their training does not extend to insulation against the judgment of fellow officers.

There is a definite rhythm and tempo to the human organism's stress response. Although this varies from person to person, Selye has defined a general pattern and labeled it G.A.S. - General Adaptation Syndrome. Stage I is Alarm. At first the body's resistance is lowered (shock phase) and then resistance is raised as physiological defenses are mobilized (countershock phase). Stage II is Resistance, during which maximum adaptation occurs. The pounding heart and nervous excitability of the alarm stage will have diminished, but the adrenal glands are enlarged and the body is prepared to function with major organ systems at peak output. Should the state of stress persist until reserves are depleted, a final state of Exhaustion will be entered.

More recent research has attempted to tease out specific circuits for aspects of stress responses. At one time it was generally believed that body and mind were aroused together from a state of tranquility to one of readiness for action in the face of stressful stimulation. But as more sophisticated psychological and physiological measures

were made, it became clear that dissociation of arousal occurs. To put it rather simply, the thinking circuits may be on high output while the autonomic (automatic fight-flight) circuits are on low, or vice versa. Obviously, understanding these mechanisms has relevance to siege management. The authorities may feel that their attempts to manipulate food, water, light and heat, or even to administer sedatives, will bring hostage-holders to the stage of physiological exhaustion. But in fact, they may be diminishing the capacity for rational thought by reducing Central Nervous System arousal, while disinhibiting the visceral and autonomic systems. The result is a finely tuned animal, unfettered by reason, dangerously coiled and ready to spring.

Dr. Benjamin Weybrew, of the U.S. Navy Medical Department has attempted to explain relationships among psychological and physiological factors in stress states. His diagram, displayed on the following page, is included here simply to illustrate the complex array of human components which must be considered in any detailed explanation of stress. Individuals vary with respect to each of these components, and also with respect to the way these components impact on physical and emotional systems within the person. Weybrew draws our attention to predispositional factors which determine an individual's pattern for responding to various stressors. These patterns are shaped by previous external events (primary stressors) and are stimulated by current provocation (secondary stressors). The outcome of all of these processes will either be a compensatory adjustment to stress, or decompensation.

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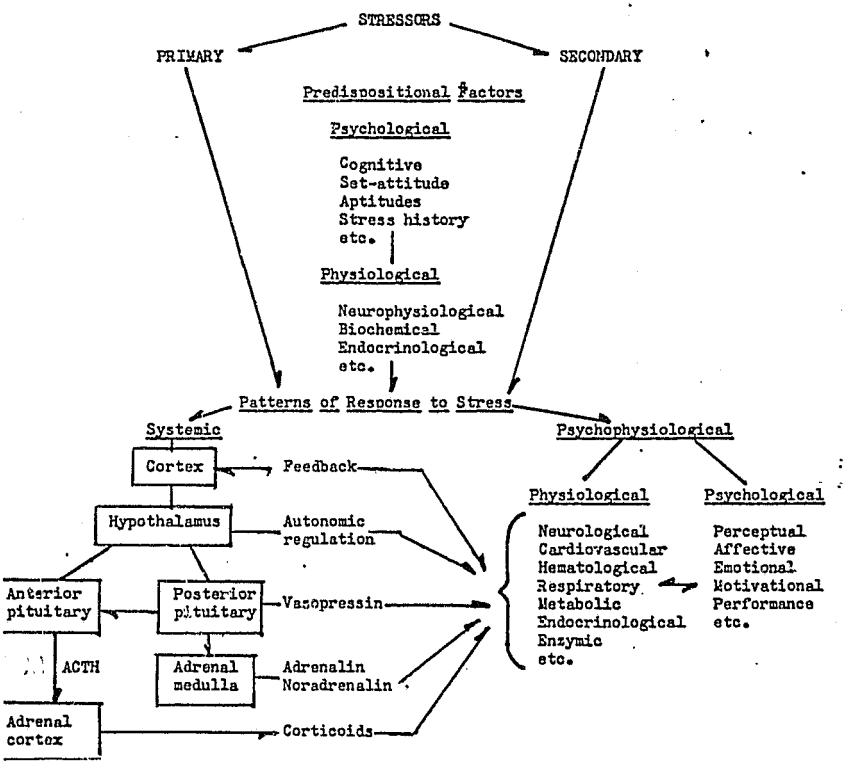
Schema of variable interactions affecting adjustment to stress —Weybrew



At a Canadian symposium on psychological stress, over a decade ago, the co-chairmen summed up the voluminous studies in the field with a series of eight general observations that hold true today. Mortimer Appley and Richard Trumbull wrote, "1. Stress is probably best conceived as a state of the total organism under extenuating circumstances rather than as an event in the environment.

"2. A great variety of different environmental conditions is capable of producing a stress state.

"3. Different individuals respond to the same conditions in different ways. Some enter rapidly into a stress state, others show increased alertness and apparently improved performance, and still others appear to be 'immune' to the stress-producing qualities of the environmental conditions.

"4. The same individual may enter into a stress state in response to one presumably stressful condition and not to another.

"5. Consistent intra-individual but varied inter-individual psychobiological response patterns occur in stress situations. The notion of a common stress reaction needs to be reassessed.

"6. The behaviors resulting from operations intended to induce stress may be the same or different, depending on the context of the situation of its induction.

"7. The intensity and the extent of the stress state, and the associated behaviors, may not be readily predicted from a knowledge of the stimulus

conditions alone, but require an analysis of underlying motivational patterns and of the context in which the stressor is applied.

"8. Temporal factors may determine the significance of a given stressor and thus the intensity and extent of the stress state and the optimum measure of effect."

Coping with Stress:

In general, psychiatry deals with failure: failure to develop normally, failure to think rationally, failure to tolerate life crises. But it is at least as important that both psychiatrists and non-psychiatrists deal with the opposite of failure. Humans have various methods and styles of succeeding as well as failing. These coping devices, when they are successful, result in four positive achievements. First, whatever task or crisis or stressor is currently being faced is met and brought to resolution. Secondly, anxiety is kept within tolerable limits. Thirdly, self-esteem is maintained. And finally, relationships with significant others are preserved. Dr. David Hamburg developed this formulation after studying people facing wide varieties of stressful situations: parents of leukemic children at the National Institutes of Health, high school students gearing up for the transition to college, disfigured and dying patients in the Army Burns Center, doctors sweating out qualifying exams. Although intelligence certainly helps an individual cope with crisis, and neurotic traits often interfere, coping is quite distinct from brainpower and sanity. Among persons of average and low intelligence there are

those who cope well and those who cope poorly. The same may be said for neurotic and even psychotic individuals. Some cope better than others. What then are the methods employed by "good copers?" As noted in Mr. Vaders' instance, the ability to assume a familiar role in a novel situation, to lead from strength, as it were, is one device. Copers also will frequently rehearse a new role, or fantasy the role, trying it on for size, if actual rehearsal is impossible. For instance, most of the high school students who made a good adjustment to college away from home had visited on their own, had imagined awkward or demanding situations before they actually encountered them, and in general prepared themselves for a role apart from their parents and their familiar friends. The USIA has a training program for embassy staff which promotes rehearsal for the role of political hostage. More than simply taking security precautions, such rehearsal involves actively imagining seizure and captivity, in order to familiarize oneself with one's own range of emotional reactions.

Copers learn from peers. In negotiating the usual life crises, such as moving away from parents, marriage, loss of loved ones, retirement and physical decline, they will assimilate almost intuitively the successful strategies of age-mates and of those slightly older. This does not mean that the coper is merely imitative. A fair amount of creativity, and even risk-taking behavior characterizes their style. But they do learn well from others.

Learning occurs in other modes: attention to the environment, to books, and to internal cues. Occasionally one can be overwhelmed by negative, albeit accurate, input. This was often the case with burned patients and the parents of children with leukemia. Those who endured such devastating stress with the more favorable outcomes seemed to make good use of denial. That is, they unconsciously refused to perceive and comprehend the total situation at first. Then, as they built up sufficient psychological reserve to stand the full impact of their tragedy, they assimilated more and more until the whole truth was laid bare.

Good copers manage to hear constructive criticism, but not to allow a negative appraisal to damage their self esteem. They devalue the impact of failure. Should a promotion not come through, they would be likely to think, "I'll get it next time," or "The boss didn't see me at my best," or "I really wasn't too interested in that job anyway." They might decide improvement was warranted in certain areas, but they would not think, "I'm no damn good." There is a continuing process of adjusting expectation to reality. Mr. Vaders did that as he philosophized about the balance sheet of life.

Obviously, those of us concerned with victims of hostage-taking-terrorists will want to learn more about successful coping devices in this particular circumstance. There is evidence from other cases of victimization that the greatest area of vulnerability is one's self-esteem. Feelings of humiliation, debasement, depression and

alienation are found when one does not cope successfully. Perhaps all of us in our own fields can contribute to successful victim coping. Israel lionizes its war heroes and considers victims of terrorism to be soldiers of the state. New Scotland Yard includes ex-hostages in the training seminars for police negotiators. This contributes to the victims' sense of worth, even though the motive is not one of therapy for the hostage. And the Netherlands has several victims on the national terrorist crisis committee. Moreover, the Dutch have task forces to study the effects of victimization and to offer clinical assistance.

Many victims cope remarkably well. As government officials realize this, and make better use of the experience and skills of ex-hostages, relationships between victims and the authorities should improve. As noted above, these relationships are often strained, particularly when hostages cope by identifying with their captors, rather than their would-be liberators.

The Stockholm Syndrome:

We defined the Stockholm Syndrome above as that unholy alliance between terrorist and captive, involving fear, distrust or anger toward the authorities on the outside. Many of us have been asking ourselves who is prone to this syndrome? When does it form? How long does it last? And why does it occur? Persons of all ages and both sexes have described surprisingly positive feelings towards their

captors. Men in their fifties such as Dr. Herrema and Sr. DiGennaro use paternal phrases when comparing their emotions to the warmth they feel for their own grown children. One of the hostages from London's Spaghetti House siege told me he would like to give Frank Davis (the gang leader) a pack of his favorite cigarettes, then shake a finger at him and say, "You know, Frank, you did a bad thing." It was a parental wish, full of kindness and concern.

The original Stockholm victim was a young woman who apparently had intimate relations with the robber, Olsson, in the vault, and lasting affection for him afterwards. Similar affections with or without sexual relationships have been described in kidnappings and sieges. The data available to us will not support conclusions about particular personality types who identify with captors.

Sir Geoffrey Jackson, England's former Ambassador to Uruguay, exemplifies one type who does avoid the Stockholm syndrome by identifying with government throughout captivity, and maintaining as much distance and dignity as circumstances permit. His account of 244 days in a Tupamaro prison is now a classic -"Surviving the Long Night."

The positive bonds do not form immediately, but seem well established by the third day. In half a dozen recent interviews with ex-hostages I had difficulty establishing the onset of the syndrome because time sense was such a blur. No victim described the course of growing af-

fection in detail. Once aware of the feeling, it was there, more or less, for the duration of contact. Fond memories remain as long as two years, which is as long as any of my interviewees have been free after captivity.

Various theories have been proposed to explain the phenomenon. A colleague at Tavistock wonders if we aren't seeing the pseudo-intimacy of any marathon group experience. It is common in group psychotherapy, encounter groups, and "sensitivity training" to have sudden, superficial feelings of closeness which occasionally result in long term relationships. That small group phenomenon might be a contributing factor, but wouldn't account for the strength of feeling between captive and captor, as opposed to other possible diads. The term "identification with the aggressor" is often used. This of course refers to the psychoanalytic concept of identification with a punitive parent-figure and incorporation of his aggressive qualities. But these victims do not necessarily incorporate the terrorists' violence. There have not been recent examples, to my knowledge, of torturing fellow captives in the manner of SS guards, as occurred in Nazi camps when prisoners did take on the character of their wardens. It seems rather that hostages successfully deny the danger engineered by the terrorists. Having separated this from awareness, they are overwhelmingly grateful to the terrorist for giving them life. They focus on the captors' kindnesses, and not his acts of brutality. Intellectual appreciation of the terrorists' cause may be related to this irrational affection, but the relationship is not complete. That is, one can love a captor and not his cause, and vice versa.

Factors which seem to promote the Stockholm syndrome are the intensity of the experience, the duration (but after three or four days, duration has little meaning), the dependence of the hostage on the captor for survival, and the psychological distance of the hostage from government. Ambassador Jackson had little distance, Mr. Vaders had more, and Kristin in the Kreditbank was quite distant.

When the Stockholm syndrome is blatant, it has considerable significance to all concerned. Police negotiators cannot confide in the hostages if an assault is planned and a warning could be delivered in advance. The prosecution has lost its star witness. The terrorist cause may be promoted. And trust between government and the public at large is strained if not undermined. But, on the other hand, life is spared. The positive bond protects both hostage and hostage-taker. And insofar as life is spared, all parties come out ahead.

Delayed Effects:

There are four clusters of negative psychiatric sequelae which have been described by these victims, and which correlate with similar post-traumatic reactions. First are the anxiety responses. These tend to be seen soon after the event, although they may be triggered by anniversaries and incidents which stir memories long afterward. Nightmares, nightsweats, startle reactions to loud noises, inability to

concentrate, and other symptoms of uncontrolled anxiety are not uncommon. As mentioned above, this degree of emotionality may lead to unfortunate self-medication, drug abuse, alcoholism, and dietary changes detrimental to health. Symptomatic treatment is indicated, and is important. In addition, the clinician should consider earlier traumata which may have been awakened by the latest episode. Dr. Jan Bastiaans has noted this in his treatment of concentration camp survivors, and now again in victims of terrorist sieges.

Physical and psychophysiological complaints form the next cluster. Exactly how physical ailment is connected to psychological stress is still debated. It should be remembered that there is a great deal of physical stress in the captivity situation as well. There may be head injury, dehydration, contaminated food, frostbite, and a host of other stressors. Thorough medical examination and re-examination is indicated.

Depression has been described although not labeled as such by several interviewees. In the concentration camp literature an anhedonia is often mentioned, a pervading joylessness which lasts decades and seems impervious to therapy, to reunion with loved ones, and to successes in any sphere of life. I have not seen this extreme form, even in relatives of victims who were killed, but others may have. There is a hint that depression deepens as the memories and positive feelings associated with the dramatic event fade. This is

a loss like any other, and reactive depressions often follow losses, particularly when one has felt ambivalent about the person or object which is lost, and normal grief is inhibited.

Finally, there is a paranoid pattern, in which negative feelings are projected and victims feel watched, threatened and persecuted. There may be a grain of truth in these feelings. The ex-hostage is suddenly a public figure, and his story is known by strangers. If he speaks ill of his captor, he may fear reprisal on very rational grounds. But for some victims, and family members as well, the fear is out of proportion to reality and takes on the characteristics of a delusion - a fixed, false belief.

There are two schools of thought about prevention of negative consequences in all of these cases. One is to let the victim forget, to be as unobtrusive as possible, to keep medical intervention to a minimum and avoid any suggestion that psychiatric care could be beneficial, unless it is specifically requested by the victim or the family. There is a lot to be said for this position. Few countries have the resources to treat victims adequately, so vigorous case-finding may raise expectations for therapies which are unavailable. Many victims cope perfectly well without professional help, seek only the support of family and friends, and do not want the additional burden of a medical or psychiatric label interfering with their attempts to readjust to work and home.

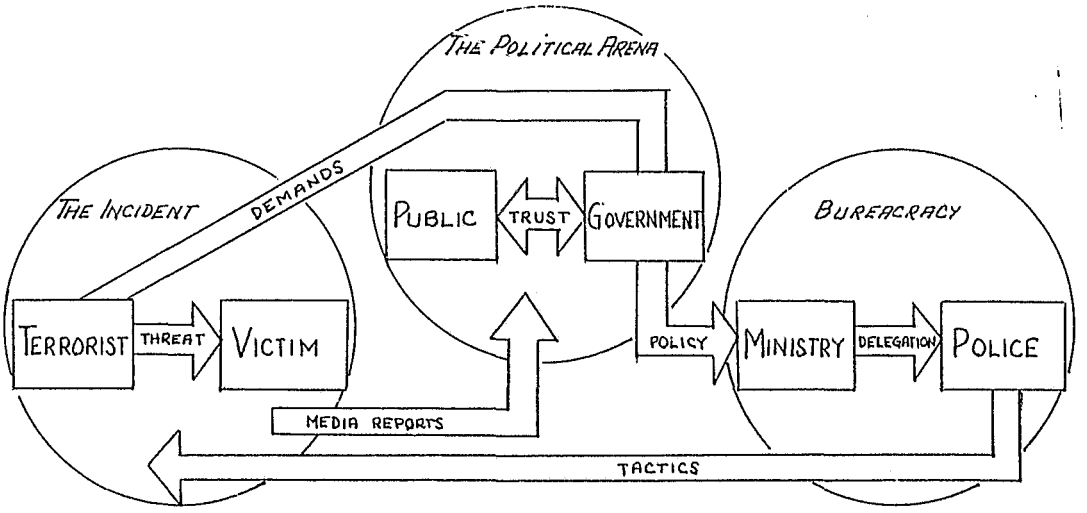
Obviously, the other viewpoint holds that victims of intense and protracted sieges are at high risk for further pain and problems, that

the government owes them at least an opportunity for diagnosis and care, and that good care can be found, and should be found. Not only is it medically proper and humane to proffer this care, but it is politically prudent. They have suffered as symbols of the state; they can heal at state expense and, one hopes, contribute symbolically and substantively to the lawful improvement of the society which the terrorist was unlawfully assaulting.

The Spectacular Context:

From a medical point of view the victims of modern terrorism are not very different from other victims of trauma and threat. Medical expertise in this field derives from the general studies of stress and coping, which have been briefly mentioned here, from the more specific studies of wartime stress, concentration camps, and POWs (for an excellent recent review see Julius Segal, et al, "Universal consequences of captivity: stress reactions among divergent populations of prisoners of war and their families," Int. Soc. Sci. J., 1976), and from the emerging field of victimology. This latter field concerns itself with all victims and amalgamates the insights of doctors, lawyers, police, academicians, and persons who have been victimized. Emilio Viano edits an international journal, scarcely one year old, which is devoted to victimology.

Any one of these fields of study - stress, coping, captivity, victimology - is a springboard for analyzing the particular plight of the victim of terrorism. But in certain respects, the current wave of terrorism is unique, and the victim must be considered in the context which is specific to this new wave. The epitome of terrorist techniques is the planned siege. Hostages are held in a public place and threatened with execution. Demands are made of government, either for payment, publicity, passage, prisoner release, or policy change. The press is always part of the picture, broadcasting events to the public at large, and showing every decisionmaker struggling with impossible choices. Those terrorist groups which have as a long range objective the destabilization of a society and the fall of the regime in power are pleased when the public watches its governing officials squirm. Some revolutionary theorists hold that the authorities will eventually crack under the strain of humiliating harassment, will turn repressive to an intolerable degree, and will fall in a popular revolt (e.g., Marighella). Others feel that publicity will arouse world sympathy and their ultimate goals will be realized through political and diplomatic channels. When the stakes are this high, involving the stability of governments and the relationships among nations, it is tragically easy to forget about the victim in the siege room. The chart below illustrates some of the factors and forces which interrelate in the terrorist siege, and which form the context for viewing each victim:



THE HOSTAGE INCIDENT FLOW CHART

The three circles in the diagram represent three distinct arenas of action. On the left is the actual incident. Here the terrorist holds and threatens the victim. However, the victim is seldom the real target of the terrorist. Targets are outside of the siege room, often in the political arena. Through demands made of government officials (sometimes publicized and sometimes not) and through the extensive media coverage which brings the events of the incident before the public at large, the stage is set for political drama. As the public perceive the unfolding action, they will increase or decrease confidence in government. And this confidence, or trust, between government and governed is a two-way street. Leaders can mistrust or trust the populace just as a population can have more or less faith in its leadership. Western democracies are founded on this corridor of trust. This is not the place to explore the history and psychodynamics of such trust, but we should remind ourselves that trust is a basic component of human behavior, forged in infancy at a primitive, unconscious level, but reinforced in adulthood by the realistic fulfillment of expectations. Trust in the political arena like trust among family members will depend in part upon emotional factors, and in part upon objective assessment of behavior.

Obviously the media play a major role in shaping public opinion which in turn affects government options. The government, well aware of public opinion, translates politics into incident management through the formulation of policy and the delegation of decisionmaking authority within the

bureaucracy. These functions are pictured at the right of the chart. Governments vary considerably with respect to negotiation policy, use of assault teams, and crisis management in general. Prior experience with terrorist incidents invariably affect a nation's choice of policy, strategy, and tactics. Certainly the effectiveness with which police implement tactics, be they negotiation or assault, will have profound impact on outcome, opinion, trust, and future policy. Hence the three arenas of action depicted in the diagram are interrelated. And the link of greatest significance within this chain of events is that vulnerable bond of trust between government and governed.

While the chart was drawn with the hostage incident in mind, it could logically extend to any case in which public sentiment is stirred by a politically motivated crime against innocents. The hostage case pits the government against the terrorist in a battle of wits while known lives hang in the balance. Threats to unleash diabolical weapons affect potential victims, but still place the government in jeopardy, making decisions under duress. Bombings and assassinations affect innocent victims, polarise public opinion, and force consideration of potentially unpopular measures, but they do not bring government directly into the incident with options to capitulate, negotiate or assault as in the overt siege.

Although the events described here are quite complex, they evoke primitive emotions and cries for simplistic solutions. It is unfortunate that the channel of communication from victim to public is open for so brief a time, and in the presence of competing concern about police tactics, negotiations with terrorists, and all the other elements on the

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diagram. The stress which these victims endure, the coping mechanisms they display, the human interaction they achieve in the face of death should give an anxious public the patience to consider policy carefully and dispassionately. Just as terrorists find it easier to vent their rage at victims who are mere symbols (a curtain rather than a man) the public may treat victims of sieges, and the whole spectacle, as characters in a novel who elicit passion rather than thought. Any effort to reduce sensationalism and to promote a detailed exchange of information between victims and those who are capable of caring about victims should help society as a whole cope with terrorist threat.

Summary:

Terrorism is a special crime: deadly, difficult, and staged for a world audience. Motives and patterns vary through time, and there are many variations of terrorism occurring at this moment. We have focussed on one pattern: the siege-with-hostages, and on one element within that pattern: the victim. That victim feels stress, copes with stress, and endures a host of physical and psychological maladies. Our understanding of his experience is based on several scientific disciplines and several recent fields of study. The disciplines include, among others, medicine, psychiatry, psychology, sociology, criminology, and law. The fields of inquiry include stress, coping, captivity, and victimology. None of these disciplines and none of these related research areas is sufficient to embrace the topic under consideration. For the hostage-victim must be seen in the singular, dramatic context which character-

izes modern terrorism. This involves a free press, trust between government and governed, world interdependence, sophisticated technology, vulnerable targets, and passionate, sometimes primitive, people.

The exploration of a new field, and this is in many respects a new field, requires considerable patience and understanding. There are no true experts, but there are many whose expertise in closely related areas will advance our knowledge and improve our capacity to act. Those who have the responsibility to develop government policy or to implement authorized strategy are, of necessity, developing their own expertise. Obviously, each of us brings a different viewpoint, a different idiom, a different set of experiences to the topic. Hopefully we will hear each other and learn with each other. The victim of terrorism represents our own vulnerability in this modern age. As he copes, we cope. And as we reconcile our differences and pool our abilities, we survive.

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MARCH 25, 1966

ATOMIC ENERGY COMMISSION

SUMMARY NOTES OF BRIEFING ON SAFEGUARDS AND DOMESTIC MATERIAL ACCOUNTABILITY

Monday, February 14, 1966, 11:30 a.m., Room 1113-B
D. C. Office

Commissioners

Glenn T. Seaborg, Chairman
John G. Palfrey
James T. Ramey
Gerald F. Tape

General Manager

R. E. Hollingsworth

Associate General Counsel

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GROUP 1
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Briefing on Safeguards and Domestic Material Accountability

Mr. Brown began with the general observation that the Commission should approach the Nuclear Materials and Equipment Corporation (NUMEC) situation in the context of the present system of domestic material accountability. To an extent, the NUMEC losses were traceable to features of that system for which it would be unfair to make the firm a "whipping boy". Nevertheless, the case had convincingly demonstrated that fulfillment of a financial responsibility requirement might not really satisfy the AEC's interest in special nuclear materials unaccounted for. Although the criterion remained valid in the sense that good SNM management was also good business, an accountability system based wholly on this criterion was, pari passu, also based on a presumption of honesty. In this framework the Commission's safeguards and material accountability system could be characterized as reasonably good. If, however, the presumption of honesty were removed the system did not present itself in the most credible light. This was a policy question which the Commission might desire to address.

Mr. Brown reviewed in detail the specific features of the NUMEC situation. He noted the following data:

Total Plant (8 Years)		
Total Losses	178	kgs. U
Total known losses	84.2	kgs. U
Unknown	93.8	kgs. U
Reported losses	149	kgs. U
Additional	29	kgs. U
Total	178	kgs. U

WANL Contract	
Received from WANL	1012 kgs. U
Product returned	713 kgs. U
Scrap	206 kgs. U
Inventory	32 kgs. U
Total	951 kgs. U

1012
-951
61
+ 32
93 = $1.1348 million

In explaining this materials loss, Mr. Brown noted that in November 1965, AEC Materials Management staff had performed a further detailed survey of NUMEC and as a result had determined that of the 178 kgs. of uranium lost over the company's 8 years of operation, 84.2 kgs. could be accounted for through known loss mechanisms. During this period, NUMEC had reported the loss of 149 kgs. and had made appropriate financial restitution for much of it. Following the April 1965 and November 1965 surveys, AEC staff had determined that NUMEC had lost an additional 29 kgs. over the 8 year period which had not been reported, and possibly not realized by NUMEC.

Mr. Brown stressed there was no way specifically to relate the losses ascribed to the WANL contract to the total plant figures over the period. He reviewed the WANL data for the Commissioners noting the company had been billed $1.1348 for the 61 kgs. of unaccounted-for material plus the 32 kgs. in inventory. He reiterated that although the 61 kilogram loss under the WANL contract was part of the total plant loss of 178 kgs., it was impossible precisely to establish the relationship between the two sets of data. The material received from WANL had all been 93 percent U-235. The 178 kgs. total included material of various degrees of enrichment.

Mr. Brown noted the Commission could anticipate questions on this matter from the Joint Committee in the forthcoming Authorization Hearings. The General Manager said Mr. Conway had informed him he planned to raise it first in the Executive session devoted to the production program.

In answer to questions by Commissioner Ramey, Mr. Brown said NUMEC management had now agreed to adjust its own books to the results of the AEC November survey.

Commissioner Ramey asked if staff possessed data on the amount of material shipped abroad by NUMEC during the past eight years. Mr. Brown indicated staff did have such data but that it was based only on NUMEC records; that the present safeguards system did not provide for, or require independent AEC physical checks of shipments. He noted in this regard that if collusion between a shipper and a foreign government were assumed it would be theoretically possible to ship material abroad in excess of the amounts indicated in the company's records. Because it was based upon a presumption of honesty and financial responsibility, the AEC material accountability system might not reveal a deliberate and systematic attempt to divert material in this manner. In addressing the system, however, Mr. Brown said it was important to bear in mind that the presumption of honesty was not a mindless assumption. Specifically, the Atomic Energy Act provided severe criminal penalties for violation of accountability procedures. The deterrent value of these penalties had been considered fundamental to the entire system of domestic safeguards. Analogously, the international safeguards system relied upon formal sovereign guarantees of

of foreign governments. These principles - the concept of deterrence through severe penalty, financial responsibility, and the solemn nature of international instruments -- had provided the basis for the Commission's accountability systems.

There was general discussion during which Mr. Brown noted that relative to other U.S. companies NUMEC shipped rather small amounts of material abroad. The Chairman observed that Westinghouse and General Electric tended to concentrate on shipments of slightly enriched material. Commissioner Ramey observed that most of the NUMEC material had gone to France, Japan, and Australia.

Mr. Kratzer discussed the differences between the domestic and foreign accountability systems. A point which to him seemed important was that in order for domestic industry successfully to divert material, substantial numbers of presumably loyal citizens would have to be deceived. Moreover, collusion between a U.S. and a foreign firm would also necessarily require collusion between the foreign plant management and the foreign government.

Mr. Brown raised the matter of the probable line of questioning the Joint Committee would take. The basic Commission position should be that AEC had no evidence or suspicion that diversion had occurred; neither could the Commission say unequivocally that the material had not been diverted. Staff did, though, have a theory to support its lack of suspicion. Specifically, staff had determined during its two surveys of NUMEC that the company had consistently underestimated its actual process losses. Additionally, the

difference between actual and estimated losses appeared to have been passed on from completed jobs to new jobs. Thus the losses attributable to the WANL contract probably included an accumulation of deferred losses over an eight year period. There was evidence to support this theory. The book inventory at NUMEC carried values of material in residue and on filters higher than those which resulted from physical analysis. For example, NUMEC reflected in its inventory estimates of approximately 31 grams of U-235 per filter. Gamma spectrometry of over 700 such filters, verified by chemical analysis of samples, supported only an average of about 12 grams per filter. NUMEC estimated that more than 50 kilograms of U-235 were contained in equipment and various combustible wastes which had been discarded in burial grounds. In connection with staff examination of the burial pits NUMEC incinerated and analyzed representative samples and concluded that only 5 to 6 kilograms would be recovered from these burial pits. Independent analysis by AEC confirmed this lower estimate. Additionally, the consistently high rate of return on scrap recovery contracts contributed to the theory that NUMEC did not take full account of losses as they occurred and compounded them through successive contracts. In short, NUMEC now appeared to be suffering from inadequate attention to generally recognized materials management methods.

Following a question by Commissioner Ramey, Mr. McDowell of the Division of Nuclear Materials Management, commented in greater detail on the procedures described by Mr. Brown. He agreed with Mr. Brown's conclusion that NUMEC simply had never taken the time and trouble to develop methods

adequate to determine the amounts of material being lost through fabricating processes.

In answer to a question by the Chairman, Mr. Brown said the WANL contract had been for the fabrication of uranium-carbide fuel elements for the NRX (Rover Program). He noted that this was an extremely difficult job and was generally indicative of the complexity of the jobs for which NUMEC made it a practice to bid.

The Chairman asked about the comparison between NUMEC's total losses and losses typically experienced in AEC plants. Mr. George said AEC process losses during the fabrication of fuel elements averaged between [redacted] of inventory. In absolute amounts the largest single loss had been the loss of [redacted] of uranium in one month at Y-12. This, however, still represented both less than 1 percent of the material on hand and less than 1 percent on a "throughput" basis. As was evident from the data noted by Mr. Brown, NUMEC's total losses were approximately 1.2 percent. In other words NUMEC's losses over the eight year period were high but not exorbitantly high. The percentage loss under the WANL contract was of course substantially higher. It was however, staff's theory that this contract had become the "banker" for the other losses.

Mr. Brown circulated to the Commissioners a security report on NUMEC.

Mr. Brown next turned to the general question of why AEC had "permitted" such a condition to persist at NUMEC.

A satisfactory answer was not easy. An attempt to deal with the question had to be made in recognition of the circumstances which had pertained when the procedures had been established. At the time AEC had possessed a plethora of material. There had been a real desire to accelerate the development of peaceful uses of nuclear energy both at home and abroad. Particularly with regard to the latter, the "peaceful atom" had been seen as an important, even vital, element of U.S. foreign policy. And most significantly, proliferation of a military nuclear capability had not been a decisive consideration. However, both circumstances and personnel change. There was, for example, now practically universal acknowledgement of the seriousness of the "Nth" country problem. Additionally, within the AEC there did appear to have been a possible misconception by staff of the Commission's intent with regard to the financial responsibility criterion. The record did not fully support the contention that financial responsibility alone had been thought at the time of the adoption of the policy to have been a sufficient basis for the domestic system. It had nevertheless apparently been assumed to have been such at various levels. The record would support that.

Another anomaly was the significant difference between the security standards adopted for material under AEC control and that held by fixed-price contractor licensees. The former had systematically been transported under armed escort. Such an escort was not a requirement for licensee held material. In short, the Commission's accountability procedures had been ambivalent and even now were not completely understood, As a result, clear answers to really searching questions were not always obvious.

Commissioner Ramey asked if staff had considered the desirability of interviewing the personnel at NUMEC who had been responsible for material accountability during the past eight years.

Mr. Brown said staff had given some thought to this possibility. A number of individuals had over the years performed this function for NUMEC. All but one or two had left the Company's employ. However, staff, was prepared should the Commission decide it desirable, to interview these individuals. Mr. Brown's personal belief was that the yield of such interviews probably would be low. Commissioner Ramey agreed, but said they might be marginally helpful. There was further brief discussion of this matter during which Mr. Brown indicated he would work out a suitable procedure with Mr. Hollingsworth to conduct the interviews. The Chairman indicated his agreement noting the Joint Committee would be informed of the Commission's intention.

The Chairman also commented on the desirability of stressing, to the JCAE, staff's theory in support of the belief that no diversion had taken place at NUMEC. The General Manager agreed.

Mr. Brown said a second procedure the Commission might wish to consider would be to request NUMEC to allow the Commission to examine the Company's confidential financial records. Such an examination would give staff some degree of additional confidence that diversion had not occurred. An objection to this procedure was that the impact on both NUMEC itself and the nuclear industry in general would, to say the least, be traumatic.

Commissioner Palfrey suggested that Mr. Brown might informally suggest to Mr. Shapiro, President of NUMEC, that if the Company offered to make its financial records available to AEC, the entire situation might be put in a more favorable light. The General Manager agreed. Mr. Brown said he would telephone Mr. Shapiro.

Mr. Brown summarized staff's views on the NUMEC situation. The theory under which it appeared the losses could be accounted for made it, in Mr. Brown's opinion, unnecessary to involve the FBI formally in the matter. With regard to the more general picture of the Commission's safeguards and accountability procedures, staff intended, on the basis of lessons of the NUMEC experience and a prior concern about the credibility of our total safeguards systems to to study measures to tighten the system and make recommendations to the Commission.

Commissioner Palfrey asked about the status of the study he understood to have been undertaken by a committee chaired by Mr. Labowitz. Mr. Ink noted the study was in advanced stages of completion and would be circulated to the Commission shortly.* The final report would be more in the nature of a factual outline of the system than an analysis and not an evaluation of the system's overall defects and strengths.

The General Manager said the NUMEC experience raised substantial policy questions. As increasing numbers of reactors were built and as the nuclear industry continued to burgeon, the problems of accurate and efficient accountability would multiply. The prospect of private ownership of SNM added another complex factor to the situation.

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*See AEC 213/107 - Draft Report on Procedures Relating to Accountability and Safeguard of SNM and
AEC 213/108 - Commission Policy on the Control of Special Nuclear Materials

In general, continued Mr. Hollingsworth, it was clear that AEC had three major interests in nuclear materials. The agency had a direct financial interest, an interest based upon public health and safety, and an interest in preventing diversion of material in such a manner as to constitute a threat to the national security. He believed it could be fairly argued that AEC's present system was not completely responsive to the latter interest. The Commission must not, though, permit itself to be forced into hasty or ill-considered action on the basis of the NUMEC situation alone. The matter demanded methodical and detailed consideration.

Mr. Henderson noted that Regulatory Staff had been in the process of developing procedures to tighten certain parts of the accountability system. A staff paper regarding reporting of losses and transfer of privately owned material would be submitted for Commission consideration in the near future.* He believed Regulatory Staff was moving away from sole emphasis on the financial responsibility concept.

In answer to a question by Commissioner Palfrey, Mr. Henderson said AEC was on record in connection with the 1964 private ownership hearings, that this change would not lessen AEC's interest in special nuclear materials.

Mr. Ink commented that the Joint Committee would doubtless express an interest in a system which included physical checks of material. In this regard physical inspection had, in theory, always been part of the Commission's international safeguards system. Even here, however, problems had developed.

*See AEC-R 123/1 and AEC-R 123/2 and Minutes of Meeting 232 held on March 7, 1966.

In particular the Euratom safeguards system had never been completely commensurate with the general theory under which international safeguards had been established. This disparity had been recognized at the time and accepted in the context of what were considered sufficiently overriding political considerations. On both the international and the domestic fronts the Commission was vulnerable to the criticism that there was substantial disparity between the provisions of its accountability systems and procedures in practice outside of direct AEC operations.

There was general discussion of the attitude various members of the Joint Committee might be anticipated to take on the matter. There was also brief discussion of the possibility that a premature leak of the NUMEC situation could lead to sensational and probably inaccurate press reports. The Chairman suggested the desirability of a prepared statement for contingency use in the public authorization hearings should the NUMEC matter arise. The General Manager observed he had been informed by Mr. Conway that the staff of the Joint Committee had placed strict limitations on the correspondence regarding NUMEC. Mr. Conway intended to bring the matter up in Executive Session, but stressed that any Committee member could, if he desired, raise the matter in a public hearing.

The Commission agreed it would be desirable to have an appropriate contingency statement. After brief discussion of the points that should be covered in such a statement, the Commission thanked Mr. Brown for an informative presentation.

W. B. McCool
Secretary

ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

AUG 4 1966

Mr. John T. Conway
Executive Director
Joint Committee on Atomic Energy
Congress of the United States

Dear Mr. Conway:

This is in response to your query of July 29, 1966 concerning the possible disposition of the 178 kg U-235 total cumulative normal operational loss and material unaccounted for as of October 31, 1965 at NUMEC, and any subsequent losses reported to the Commission.

For the period November 1, 1965 to April 30, 1966, NUMEC has reported additional losses of 36 kg U-235.1/

In reference to your inquiry as to the possible disposition of the 178 kg U-235 loss, NUMEC records support the loss of 84.2 kg by known loss mechanisms (e.g., liquid waste effluents, stack gas losses, etc.), leaving 93.8 kg as material unaccounted for. Some significant portion of this material unaccounted for quantity may be assignable to other known or determinable losses. Technical bases have not been developed for identifying or determining the extent of such possible loss mechanisms (e.g., equipment and building contamination, measurement uncertainties or biases in discards, sewers, etc.) that may have contributed to this material-unaccounted-for quantity.

1/ The actual reported quantity by NUMEC was 67 kg U-235; however, of this quantity, 31 kg U-235 had already been identified, by the AEC's November 1, 1965 inventory, as loss on the NAML contract (Westinghouse Purchase Order No. 59-NP-12674 for Rover-Nerva fuel). Thus, subsequent losses (November 1, 1965 to April 30, 1966), based on NUMEC's report, equate to 36 kg U-235 (67 minus 31). The evaluation and disposition of this subsequent 36 kg U-235 loss between normal operational loss and material-unaccounted-for will be determined by the AEC at the time of its next survey of NUMEC, scheduled for next month, September.

Secretarial

27-428 O - 78 - 46

AUG 4 1966

With respect to the matter of diversion, it should be noted that NUMEC has over the years followed practices that would minimize the likelihood of material being diverted. Special nuclear material, except that in process, is stored in secured areas under lock and key, and is the responsibility of a vault custodian. Access into and from the plant is through a small waiting room which is monitored by a receptionist or a guard. All visitors are required to sign a register upon entering or leaving the plant. Of particular note is the fact that there have been no instances of reported missing identifiable items such as cylinders of UF_6 or containers of uranium products awaiting shipment or other uranium compounds.

It may also be noted that representatives of the Atomic Energy Commission have visited the Apollo facility on a number of occasions and have had extensive contact and discussions with NUMEC operating and supervisory employees at all levels. For example, during the past four years representatives from the Division of Compliance have made ten inspections involving some 46 man-days at the Apollo facility. These inspections always involved some review of how the licensee controlled his material. More recently during the period November 1965 through February 1966, the Oak Ridge Operations Office had an inspector at Apollo observing the operations on a selective shift basis. Earlier this year numerous AEC representatives were present at various stages of the exhumation process and witnessed the recovery of material from the burial pits. No evidence of possible diversion was noted by any of these people during any of these visits.

In March 1966 representatives of the Divisions of Security, Inspection and Nuclear Materials Management interviewed a number of former employees of the NUMEC Corporation and specifically inquired into the matter of possible diversion of material. None of the persons interviewed suggested that any material might have been diverted. The former employees interviewed were selected on the basis of their connection with the control process when they had been employed by NUMEC.

In light of the foregoing, we have no reason to believe that any of the material had been diverted to unauthorized use.

Sincerely yours,

(Sgd) R. E. Hollingsworth.

General Manager

DISTRIBUTION:
Chairman (2)
Comm. Ramey
Comm. Tape
Comm. Johnson
Comm. Nabrit
GM (2)
AGMA
Secretary (2)
OGC
OCR (2)
Harold Price, REG
Kratzer, DIA
George, NMM
Security
Inspection

NMM:McDOWELL NMM:GEORGE AGMA DGM GM OCR
dhk

The following is a list of foreign governments and private firms with which NUMEC has either contracts, agreements or has had preliminary discussions, in the field of nuclear energy.

1. NUMEC and Societe d' Applications Industrielles de la Physique (SAIP) have formed NUMEC Instruments and Controls Corporation (NUMINCO). The firm is a Pennsylvania corporation and is located in Monroeville, Pennsylvania. It is established to manufacture and market nuclear instrumentation and instrumentation and process-control equipment (principally nuclear). NUMEC and SAIP each hold a one-third interest, with the remaining interests being held by a group of private investors. SAIP will manufacture most of the products and NUMEC will be responsible for management, technical back-up and marketing. Some of the products to be manufactured are transistor scalers, liquid scintillation spectrometers, neutron, beta and gamma detectors, criticality alarm systems, density-gauging systems, etc.

2. NUMEC, in connection with NUMINCO, represents the Commissariat a l'Energie Atomique (French AEC) BP #6, Fontenay-Aux-Roses, France to manufacture and sell isotopic sources.

3. The A. Johnson Company, Strueplan 3, Stockholm, Sweden, represents NUMEC in that country and other Scandinavian countries for the sale of NUMEC products.

4. Electronucleonica, S.P.A. Via Bisleri 19, Milan, Italy, represents NUMEC in the sale of instruments and neutron sources.

5. NUMEC is a sales agent for the Government of Israel through its Ministry of Defense, Division of Supplies, 830 Third Avenue, New York 22, New York. In this connection, NUMEC has an arrangement with the Israel Atomic Energy Commission to do biological work on insect control; and assist in establishing facilities for the irradiation and preservation of citrus fruits. In this latter connection, NUMEC and the Government of Israel (represented by the Israel AEC) have formed a company in Israel called Isotopes and Radiation Enterprises Ltd (ISORAD) which is an organization to do experimental and commercial work in irradiation processing of foodstuffs and other commodities, such as medical supplies. NUMEC and the Government of Israel are equal partners in this venture.

6. NUMEC is now completing a contract with the Japan Atomic Fuel Corporation, 2-7 Hirakawa, Cho, Chiyoda - ku, Tokyo, Japan, a wholly-owned subsidiary of the Japanese Government for the design and supervision of construction of a Plutonium Laboratory at Tokai-Muru.

7. The Eldorado Mining and Refining Company, Ltd., Port Hope, Ontario, Canada - NUMEC purchases natural uranium from Eldorado.

8. NUMEC recently completed a contract with the Australian Government to supply that government 330 Plutonium-Aluminum fuel elements.

9. Renee Schurmans Company of Brussels, Belgium, is a NUMEC sales Representative in the Common Market nations.

10. NUMEC is now completing manufacture of two small 3-watt terrestrial SNAP generators for the Government of Israel.

11. NUMEC has discussed with cognizant Spanish officials the possibility of a joint venture in food irradiation.

12. NUMEC is exploring with Mitsubishi International the possibility of sales representation in Japan for NUMEC - designed SNAP generators.

13. NUMEC has initiated discussions looking toward the purchase of the Dow Chemical Company's 30% interest in ALKEM, a German company. Discussions are very preliminary.

14. NUMEC is exploring with International Research and Development Ltd. the possibility of manufacturing and selling in the United States a laser ophthalmoscope, a device for retina welding.

GENERAL

According to Dr. Zalman Shapiro, NUMEC has filled, and continues to fill, orders for the manufacture of fuel materials and devices incorporating special nuclear materials for foreign companies and governments. In each case, assurance is sought with respect to the existence of an effective Agreement for Cooperation with the nation in question and on appropriate inter-governmental contract. All shipments are duly licensed, as required, by the U. S. Atomic Energy Commission.

Memorandum

Prospects for Further Proliferation of Nuclear Weapons

DCI NIO 1945/74
4 September 1974

Copy No 157

Prospects for Further Proliferation of Nuclear Weapons

1. In the 1980s, the production of nuclear weapons will be within the technological and economic capabilities of many countries. The once formidable barriers to development of nuclear weapons by nations of middling size and resources have steadily diminished over time. They will continue to shrink in the years ahead as plutonium, enriched uranium, and technology become more widely spread. Some countries will consider nuclear weapons largely in terms of military utility. The principal determinant of the extent of nuclear weapons proliferation in coming years will, however, be political considerations—including the policies of the superpowers with regard to proliferation, the policies of suppliers of nuclear materials and technology, and regional ambitions and tensions.

3. We believe that Israel already has produced nuclear weapons. Our judgment is based on Israeli acquisition of large quantities of uranium, partly by clandestine means; the ambiguous nature of Israeli efforts in the field of uranium enrichment; and Israel's large investment in a costly missile system designed to accommodate nuclear warheads. We do not expect the Israelis to provide confirmation of widespread suspicions of their capability, either by nuclear testing or by threats of use, short of a grave threat to the nation's existence. Future emphasis is likely to be on improving weapon designs, manufacturing missiles more capable in terms of distance and accuracy than the existing 260-mile Jericho, and acquiring or perfecting weapons for aircraft delivery.

4. Several other countries—including West Germany, Sweden, Canada and Italy—could have fabricated nuclear devices more easily, from a technological and financial point of view, than India and Israel.

They have refrained, and they are unlikely to be much influenced by weapons acquisition in countries like India. The inhibitions facing each of them are strong. In all, popular opinion is strongly opposed to the acquisition of nuclear weapons, both on emotional grounds and because such weapons would entail substantial risks—of provoking attack, of offending vital allies and of destroying existing mutual security arrangements. It would require very fundamental changes, such as the breakup of major defense alliances accompanied by a substantial increase in strife and tension throughout the world, to induce countries like West Germany, Sweden, Canada and Italy to exercise their near-term capability.

5. The Director of Central Intelligence, the Deputy Director of Central Intelligence representing the Central Intelligence Agency, the Director of Intelligence and Research representing the Department of State, the Director, Defense Intelligence Agency, and the Assistant Chief of Staff for Intelligence, Department of the Army believe that Japan's situation is very similar to that of the other advanced Western nations just mentioned. They believe Japan would not embark on a program of nuclear weapons development in the absence of a major adverse shift in great power relationships which presented Japan with a clearcut threat to its security. The Assistant Chief of Staff, Intelligence, Department of the Air Force and the Director of Naval Intelligence, Department of the Navy, however, see a strong chance that Japan's leaders will conclude that they must have nuclear weapons if they are to achieve their national objectives in the developing Asian power balance. Such a decision could come in the early 1980s. It would likely be made even sooner if there is any further proliferation of nuclear weapons, or global permissiveness regarding such activity. These developments would hasten erosion of traditional Japanese opposition to a nuclear weapons course and permit Tokyo to cross that threshold earlier in the interests of national security. Any concurrent deterioration of Japanese relations with the Communist powers or a further decline in the credibility of US defense guarantees would, in their view, further accelerate the pace of nuclear weapons development by Japan.

6. Less sweeping changes could induce one or another of the less advanced nations to mount the sort of nuclear effort India and Israel have made. Some states, such as the Republic of China, Argentina and South Africa, will be much influenced in their decisions not only by the

general course of proliferation but by such factors as growing feelings of isolation and helplessness, perceptions of major military threat and desires for regional prestige. In each of these cases, any weapons capability probably would be small and delivery probably would depend on aircraft, though there is some possibility that one or another might be able to purchase a nuclear-capable missile system from a foreign supplier.

7. Taipei conducts its small nuclear program with a weapon option clearly in mind, and it will be in a position to fabricate a nuclear device after five years or so. Taipei's role in the world is changing radically, and concern over the possibility of complete isolation is mounting. Its decisions will be much influenced by US policies in two key areas—support for the island's security and attitudes about the possibility of a nuclear-armed Taiwan. Taipei's present course probably is leading it toward development of nuclear weapons.

8. Argentina's small nuclear program is being pursued vigorously with an eye toward independence of foreign suppliers. It probably will provide the basis for a nuclear weapons capability in the early 1980s. Argentina has no apparent military need for nuclear weapons, but there is strong desire for them in some quarters as a way to augment Argentina's power vis-a-vis Brazil. Over time, in the absence of strong international pressures that stop nuclear weapons acquisition elsewhere, there is an even chance that Argentina will choose to join the nuclear club in a small way.

deposits, and it apparently has developed a technology for enriching uranium that could be used for producing weapons-grade material. South Africa probably would go forward with a nuclear weapons program if it saw a serious threat from African neighbors beginning to emerge. So serious a threat is highly unlikely in the 1970s.

10. Other candidate countries—Spain, Iran, Egypt, Pakistan, Brazil and South Korea—would need at least a decade to carry out a nuclear weapons development program. One or another might detonate a demonstrative device earlier—perhaps considerably earlier by using purchased materials or by obtaining extensive foreign assistance. Each of

these countries is subject to a different set of motivations and pressures. Some have enemies already making efforts in the nuclear weapons field; all will be concerned with such efforts on the part of neighbors or potential antagonists. Some will be interested in nuclear weapons for their presumed prestige value. Unless countries opposed to proliferation—particularly the US and the USSR—find ways to stop the spread of nuclear weapons programs before these candidate countries are in a position to go forward, at least some of them will be motivated to join the nuclear race. The strongest impulses will probably be felt by Pakistan and Iran; Egypt and Brazil now appear to fall into a second category of likelihood.

11. France, India and Israel, while unlikely to foster proliferation as a matter of national policy, probably will prove susceptible to the lure of the economic and political advantages to be gained from exporting materials, technology and equipment relevant to nuclear weapons programs. And most potential proliferators are on good terms with one or all of them.

12. It is theoretically possible for a country capable of developing a nuclear weapon to do so covertly, up to the test of a first device. And a test is not absolutely necessary. In practice, indications of such a program are virtually certain to reach the outside world. But most countries will seek to maintain the tightest possible security with regard to any military nuclear activities, and information is likely to be intermittent and inconclusive. Indigenous ballistic missile delivery systems, on the other hand, would be readily identifiable early in the development cycle, and missile systems obtained abroad would not remain undetected for any significant period.

13. Governments backward in the nuclear field and anxious to acquire a token capability quickly are more likely to try to steal weapons than fissionable materials, despite the fact that the latter are less well protected. A country capable of developing and producing its own nuclear device is highly unlikely to try to steal weapons, but one might seek fissionable materials by theft or diversion. Competently done, diversion might go undetected.

14. Terrorists might attempt theft of either weapons or fissionable materials. They could see the latter as useful for terror or blackmail purposes even if they had no intention of going on to fabricate weapons.

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

NUMEC

AUG 4 1966

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Executive Director
Joint Committee on Atomic Energy
Congress of the United States

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D-4-c.

AUG 4 1966

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(Sgd) R. E. Hollingsworth

General Manager

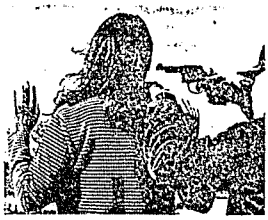
DISTRIBUTION:
Chairman (2)
Comm. Ramey
Comm. Tape
Comm. Johnson
Comm. Nabrit
GM (2)
AGMA
Secretary (2)
OGC
OCR (2)
Harold Price, REG
Kratzer, DIA
George, NMM
Security
Inspection

NMM:McDOWELL NMM:GEORGE AGMA DGM GM OCR

dhk

Defusing Human Bombs—

HOSTAGE NEGOTIATIONS



By
LT. JOHN A. CULLEY
Office of the Chief
of Detectives
Police Department
New York, N.Y.

"Just as we would send only trained bomb squad personnel to defuse a bomb, so too, we should send only trained negotiators to deal with these emotionally explosive hostage situations."

A detective (in business suit) begins negotiations in a simulated hostage situation.

In the early evening of January 19, 1973, four armed men entered a sporting goods store in the Williamsburg section of Brooklyn, N.Y., and attempted a robbery. One of the proprietors activated a silent alarm, and uniformed officers from the local precinct and emergency service division responded in patrol cars. During an exchange of gunfire which ensued, one police officer was killed and two others wounded. One suspect was also wounded. The felons, thwarted in their escape, seized 12 persons who were in the store at the time and held them as hostages. The store was practically impregnable and contained a wide variety of weapons and ammunition. This marked the beginning of a tense drama which was to last 47 hours and become known as "The Siege of Williamsburg."

In overall command of police personnel engaged at the scene was Chief Inspector Michael J. Codd, who was appointed police commissioner in January 1974. Just prior to the Williamsburg incident, Chief Codd had reviewed and approved plans for handling hostage situations, plans which he had been working on with various units of the police department since September 1972. The primary purpose of these plans was the preservation of the lives of hostages, officers, and captors.

Upon responding to the scene, Chief Codd assessed the situation and ordered immediate implementation of the hostage plan. No hypothetical case, the plan was going to receive its "baptism under fire" and be put to a true test. As it turned out, the policy of "waiting" provided time for the hostages to escape, and ultimately the four felons surrendered with no further bloodshed. Greater loss of life was prevented through careful planning, coordinated efforts, and great restraint on the part of all the police officers at the scene. The plan had worked.

Hostage incidents have been increasing since 1972; therefore, law enforcement agencies throughout the country have to concern themselves with this trend. Since human lives are

(Published by the Federal Bureau of Investigation, U. S. Department of Justice)
Reprinted from the FBI Law Enforcement Bulletin, October, 1974

at stake, the challenges facing police officers in such situations are delicate and critical. If there is no proper planning and training, or if police actions are impulsive or uncoordinated, lives may be lost unnecessarily.

Initially utilized in the formulation of the New York City hostage plan were the standard patrol, detective, and emergency service units of the police department. Then the newly formed Psychological Services Unit was called upon to supply a new and valuable adjunct to the department's existing methods for combating hostage situations, namely a psychological understanding of the hostage-taker.

The success of any hostage plan hinges on a team approach, good communications, and coordination of tactical maneuvers under one commander. In all hostage situations occurring in New York City, the on-the-scene commander is the uniformed patrol area commander. (New York City is divided into seven patrol areas, each commanded by an assistant chief.) The rationale for this is that he is the senior officer most familiar with the locality involved and the one who, when the incident is over, will still be left to deal with community reaction to the handling of the situation. Once the initial confrontation is over and the situation is contained,

Lieutenant Culley

". . . the newly formed Psychological Services Unit was called upon to supply . . . a psychological understanding of the hostage-taker."

the patrol area commander is the only person who can authorize the discharge of weapons except in emergency self-defense situations such as the felons attempting to charge a containment team.

The New York City Police Department's plan consists of three phases with patrol, emergency service, and detective units responding and carrying out predetermined, specifically delineated duties and responsibilities. Phase I, the containment phase, occurs at the initial location when the hostage is first taken. Phase II, the mobile phase, goes into effect if a demand for a vehicle or other means of escape is made by and granted to the felon. Phase III, the relocation phase, is principally a duplication of Phase I, but at a new location.

The Detective Bureau's responsibilities under this plan are to provide specially trained detectives for negotiations during Phase I, to provide escape and chase vehicle operators for Phase II, and to function as containment teams during Phase III pending arrival of the special emergency service containment teams. This article deals primarily with the role of the detective negotiator in hostage situations.

Why Negotiate?

In addition to its overriding concern for the preservation of human life, the New York City hostage plan contains a unique innovation that is a departure from the traditional police response to such situations—buying time through the use of detectives specially trained in psychological techniques for hostage negotiations. Det. Harvey Schlossberg, a New York officer who possesses a Ph. D. in clinical psychology, researched the existing psychological writings on hostage-takers and found little on the subject. Working in conjunction with other members of the department, he developed profiles of the typical hostage-taker. They fell into three categories:

> The professional criminal who has his escape blocked during the commission of a crime,
>
> The psychotic with a depraved mind, and
>
> The terrorist or fanatic with a cause.

A methodology of crisis intervention was developed for such situations in order to ease anxieties and tensions, and if possible, to allow the felon to assess the situation rationally. This is done by our detective hostage negotiator engaging the abductor or felon in conversation.

Time is a most important factor working for the police. As a general rule, Dr. Schlossberg notes, the more time the felon spends with the hostage, the less likely he is to take the hostage's life, because they become acquainted and develop feelings for one another.

Commissioner Michael J. Codd

"As a general rule . . . the more time the felon spends with the hostage, the less likely he is to take the hostage's life . . . ."

In addition to allowing this transference of feelings to take place, the passage of time also gives the police an opportunity to prepare for different eventualities and permits the felon to make a mistake. Mistakes by the criminal, when the police are prepared for them, are the "luck" you read about when a hostage situation is brought to a successful conclusion. As someone once observed: "Luck is the residue of careful planning and proper preparation."

Why Detective Negotiators?

It takes a singular type of individual to deal unarmed, face to face, with an armed felon holding a hostage. He must be cool, resourceful, mature, and most of all, effective in verbal communication. Successful detectives have developed these attributes through their experience in dealing with the public, interviewing witnesses, and interrogating suspects.

Selection

The following criteria were used to select the members of the Detective Bureau Hostage Negotiating Team:

Volunteers only,
Good physical condition,
Mature appearance,
Good speaking voice,
Skilled interrogator, and
Representatives of various ethnic and racial groups with, if possible, the ability to speak a foreign language.

The 63 members of the Detective Bureau who were finally selected and trained as hostage negotiators consisted of 1 lieutenant, 3 sergeants, and 64 detectives, 2 of whom were women. This group included 12 blacks, 12 Hispanics, and 44 Caucasians. The languages spoken by the group included Italian, Spanish, German, Hebrew, Yiddish, Greek, Polish and Ukranian. In addition four members of the department who are not members of the group speak Arabic and are available as translators.

Training

The group underwent an intensive 4-week training course which was conducted at various locations throughout the city as well as in the classroom. Training consisted of the following subjects:

Psychology. The greatest emphasis was placed on intensive psychological training to prepare team members to analyze various situations and develop strategies using psychological techniques rather than force to obtain the safe release of hostages. The point of the training was to provide a basis for understanding and anticipating the hostage-taker's moves as well as his possible reactions to police tactics.

Physical Training. This encompassed general upgrading of physical condition as well as weapon-disarming methods and techniques of unarmed self-defense.

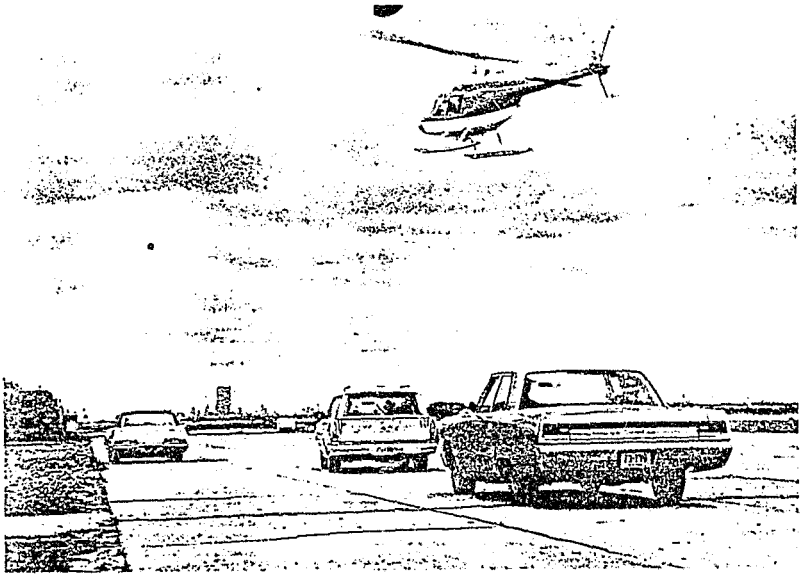
Firearms. Firearms training included the .38 caliber revolver, 9 mm submachine gun, .223 caliber sniper scope rifle, shotgun (double barrel and pump), 37 mm tear gas launcher, .25 caliber automatic, and .22 caliber Derringer. Candidates wore bulletproof vests during the firing of all weapons.

Electronic Equipment. All members were familiarized with and had to qualify in the use of a miniphone wireless transmitter and recorder and in the use of electronic tracking devices which utilize range and relative bearing features that can be quite valuable in Phase II.

Emergency Rescue Ambulance. Each team member learned to operate the emergency rescue ambulance, a full-track armored personnel carrier. This training also included the use of its auxiliary equipment, that is, the public address system, intercom, radio equipment, fire-fighting system, and first aid gear. In the Williamsburg siege, this vehicle was used to rescue officers and civilians who were pinned down by gunfire from the felons. It also served as a safe base for the start of negotiations.

Vehicle Operation. Instruction was given in the operation of the specially equipped escape and chase vehicles, including auxiliary equipment. Special attention was paid to those streets and routes from various locations in the city to airports or other destinations which would offer us the best tactical advantage.

Liaison. Hostage team candidates received 2 days of training with Agents of the Federal Bureau of Investigation on jurisdictional matters and cooperation with other agencies including the Federal Aviation Administration. One day of training was held at John F. Kennedy International Airport and La Guardia Airport with the Port of New York and New Jersey Authority Police. We integrated our plan with their emergency programs.



Police helicopter and cars (foreground) follow felons with hostage in automobile.

Retraining. In addition to this initial program, debriefings are scheduled to critique every significant hostage situation that takes place anywhere. During such critiques, "Monday morning quarterbacking" and speculation are encouraged. From the situations under study, officers gain new insights and learn new techniques.

Working Detectives

Members of the Detective Bureau Hostage Negotiating Team are working detectives assigned to various squads throughout the city. Once their training as hostage negotiators is completed, they are returned to their permanent commands and resume their normal investigative duties. They are placed in predetermined slots in the duty chart for adequate coverage, and their names are entered on a roster for primary response to a hostage situation within their borough of assignment. At the beginning of each tour of duty, the detective area command ascertains which members performing duty within the borough are trained negotiators. Should a hostage situation occur during the tour, the detective area command will notify such members to respond. Seven negotiators are dispatched to the scene of each hostage incident. If there are not seven negotiators on duty within the borough, the adjacent boroughs are notified to dispatch their negotiators.

The reason seven negotiators are utilized is that two are needed as communicators—one member is the primary communicator whose responsibility it is to establish rapport and voice identification with the felon, and the second member assists in developing patterns of questions, analyzes the entire situation, and communicates with the command post—and the other five members are assigned as follows:

As reliefs,

As secondary negotiators should the first team be unsuccessful at establishing rapport,

To operate escape and chase vehicles if necessary, and

To function as a containment

". . . the negotiator should . . . not portray himself as the ultimate decisionmaker. The felon should be made to understand that there is someone over the negotiator."

team at a new location should the felon move the hostage.

Negotiating Techniques and Policies

Since no two hostage confrontations are alike, there can be no standardized format for negotiations. Each situation is treated individually. However, the following techniques have been developed as a result of our experiences.

The negotiator should have a mature appearance so that he will be perceived by the hostage-taker as a person of authority. During the negotiations, the negotiator should command the respect of everyone, but he should not portray himself as the ultimate decisionmaker. The felon should be made to understand that there is someone over the negotiator. This allows the negotiator to defer decisions and buy time. It also allows him to maintain rapport with the felon when demands are delayed or turned down because he is not the one who is denying the felon's requests.

Usually the easiest type of hostage-taker to deal with is the professional criminal. He is considered a relatively rational thinker who after assessing the situation and weighing the odds, in most cases, comes to terms with the police and refrains from unnecessary violence or useless killing.

The psychotic individual, on the other hand, presents a different and somewhat more complex problem. He tends to be irrational and, therefore, less predictable. His actions, the words he uses, and the demands he makes are often valuable clues to his mental condition. The psychotic harbors great inner frustration and conflict. He may even feel a degree of pleasure from his precarious predicament, as he now finds himself important and the center of attention, a position which may be unique in his life. Time works for the police in this instance because the psychotic is emotionally tense and expends a great deal of physical and psychic energy which eventually wears him down.

The fanatic or terrorist group creates an even more difficult hostage situation. In a sense, they can be viewed as a group of psychopaths with a cause, all under the leadership of one of the group. When caught in a criminal act, many of them rationalize their behavior by claiming to be revolutionaries who are merely seeking social justice. During the Williamsburg siege, just such a position was taken by the four stickup men. In these situations, the resolve to die for their cause may deteriorate with the passage of time, and time allows for mistakes to be made.

In any of these cases if the felon kills one of several hostages during negotiations, action should be taken to save the lives of the remaining hostages, because once he kills one hostage he is likely to kill more.

Practically all demands are negotiable but one—supplying weapons. If the felon is bluffing with an unloaded or bogus weapon, giving him a gun would truly create a real danger.

Conclusion

If an analogy might be made, a hostage negotiation situation can be compared to a "bomb scare." Just as we would send only trained bomb squad personnel to defuse a bomb, so too, we should send only trained negotiators to deal with these emotionally explosive hostage situations. The training of bomb squad personnel stresses what makes a bomb tick and how to defuse it; the psychological training we give our detective hostage negotiators stresses what makes a hostage-taker tick and how to neutralize him.

To date, the services of the negotiators have been utilized in more than 15 hostage situations. Several of these incidents had resulted in the taking of human life during the initial crime; however, in every case, once negotiations had begun the situation was successfully terminated with the hostage released unharmed and the abductors apprehended.

THE LEGACY OF CARLOS MARIGHELLA

"Terrorism almost always involves violence. . . . But the urban guerrilla can use almost any activity . . . that is designed to disrupt the functioning of government or the 'establishment.'"

By
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The influence of urban guerrilla theories developed in other countries during the past several decades on would-be terrorists in the United States is considerable. To understand the development of urban guerrilla activity in this country, it is necessary to examine its historical and geographic antecedents. This examination helps focus on the peculiar nature of this genre of revolutionary activity as it is practiced here and illuminates some of the dilemmas encountered by the urban guerrilla in the United States.

Such an examination requires, first, a definition of terms, although the media uses "terrorist," "urban guerrilla," and "revolutionary" almost interchangeably. In the context of today's political world, urban guerrilla warfare can be defined as criminal conduct for revolutionary purposes. Terrorism, on the other hand, is usually violent criminal activity designed to intimidate for political purposes. The distinction is in goals sought, and only sometimes in methods used. The guerrilla is working toward revolution. The terrorist acts to focus attention on a particular grievance.

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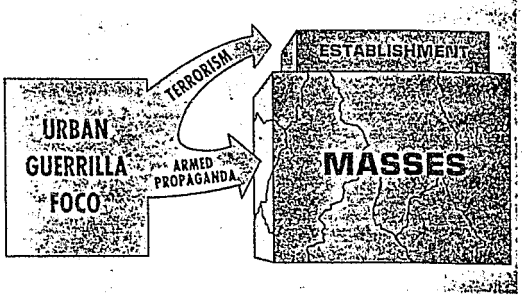
THE URBAN GUERRILLA THEORY OF REVOLUTION



A word on the distinction between urban and rural guerrillas: While the difference would appear to be simply geographic, there exists an argument between proponents of the two types of guerrilla warfare. Part of this dispute lies rooted in interpretations of Marxist theory and it has not affected advocates of guerrilla warfare in this country nearly so much as have the practical considerations that (1) power of all types—governmental, political, economic—lies primarily in America's urban centers, and (2) most of those who have become guerrillas in the United States are individuals with urban backgrounds. They would be "fish out of the sea" operating in a rural area. Rural communes have been used as guerrilla hideouts in this country, particularly by New Left-type revolutionaries, but these rural commune dwellers have not mounted their guerrilla operations in rural areas.

While the primary difference between the terrorist and the guerrilla is in the accomplishment sought—overthrow of the government in the case of the guerrilla or a more limited political goal, such as discouraging support for Israel by attacking targets believed supportive of Israel on the part of the Arab terrorist—the distinction is sometimes confused when urban guerrillas use indiscriminate terror as a tactic. Bombings are historically the most common instrument of the terrorist, as the unsuspected bomb, especially when used against civilians, is well calculated to instill fear. Witness the worldwide letter bomb campaign against Israeli officials and sympathizers that followed the XX Olympiad, and then the letter bomb campaign directed against British establishments, part of the Northern Ireland situation.

Robert Moss, who has written extensively on the topic of urban guerrilla warfare, put it succinctly: "The terrorist has a political tool; the urban guerrilla has a strategy for revolution. . . ." [1] The matter of violence is sometimes of assistance in delineating terrorism and urban guerrilla warfare. Terrorism almost always involves violence; bombings, assassinations, kidnapings, and airplane hijackings all involve force or the threat of force. But the urban guerrilla can use almost any activity, violent or not, that is designed to disrupt the functioning of government or the "establishment." The tactic of supporting revolutionary activity through expropriation has been used as justification by some Weatherman types in this country for various frauds involving traveler's checks and stolen credit cards. Without violence, the "establishment" is still disrupted—through "ripoffs."

The expropriation tactic itself may serve to indicate whether terrorism or urban guerrilla activity is involved. The urban guerrilla must be indigenous to create a revolution. But his tactics are not those of the orthodox Marxist revolutionary, thus he does not receive financial support from Marxist countries and must rely on expropriation, or other usually indigenous assistance, for funds. The political terrorist is often involved in third country operations, is not physically present in his ultimate target country, and often receives support from still other countries or individuals sympathetic to his aims.

Dr. Stefan T. Possony, however, would include urban guerrilla warfare as defined here within an overall concept of "strategic terrorism" on the part of revolutionaries aiming to defeat a hostile state. Private terrorism is then differentiated as criminality.[2] Dr. Possony later notes that there are distinct forms of strategic terrorism—described in this article as urban guerrilla warfare and political terrorism—and that the planner needs a typology of the distinct forms in order to counter them.

Urban Guerrilla Activity in the United States

While this country has not seen sustained or unified urban guerrilla activity on the scale of the Tupamaros of Uruguay, nonetheless there have been a significant number of attacks

on police, bombings, and expropriations by revolutionaries of this type in the past 3 years. Two primary movements have been involved in these activities--the Weatherman-type revolutionary of the New Left and the Panther-type black extremist.

The Weatherman group grew out of the Students for a Democratic Society (SDS), itself reorganized in 1962 at the height of student civil rights activity in the South. Involved in the early stages of the antiwar movement, the organization began moving toward a violent revolutionary posture in 1967. An SDS member was convicted of attempting to bomb ROTC facilities and another was charged with sabotage in dynamiting power transmission lines. An SDS faction, calling itself the Weatherman ("You don't need a weatherman to know which way the wind blows" was a line in a then-popular song), split from the parent group in 1969 over the advocacy of revolutionary violence.

In February 1970, the Weatherman group closed its national office in Chicago, discontinued its newspaper, and went underground into collectives and communes. The group's strategy was proclaimed in a letter to the press, received on May 21, 1970:

> "Now we are adapting the classic guerrilla strategy of the Vietcong and the urban guerrilla strategy of the Tupamaros to our own situation. . . ." [3]

A series of bombings followed, claimed by the Weatherman group in letters or calls to the news media, including the March 1, 1971, bombing of the U.S. Capitol Building and the May 19, 1972, bombing of the Pentagon. Other groups with revolutionary goals, and outlandish labels such as the Purple Sunshine Clan, the Proud Eagle Tribe, the New Year's Gang, The Perfect Park Home Grown Garden Society, the Quarter Moon Tribe, and the Smiling Fox Tribe, also claimed bombings directed against the "establishment." In 1974, the Weatherman group claimed bombings in San Francisco and Los Angeles.

But this half of the guerrilla movement in this country remained:

> "structurally fragmented, decentralized, loosely organized, with little direct leadership. Among its components (were) the original Weatherman elements, bolstered by occasional recruits. Then there (were) Weatherman-type individuals and groups not organically linked with the Weatherman but allied in mood and motivation." [4]

New Left-type guerrilla warfare in the United States is seen as part of a "clearly discernible trend" in the world. Edmund Demaitre described the phenomenon of:

> "highly educated, occasionally highly gifted, middle class and upper-middle-class intellectuals slowly succumbing to a revolutionary mystique that incites them not only to condone violence as a means of political struggle but also to participate personally in terrorist actions. . . ." [5]

Indeed, the first Tupamaro manifesto, issued in 1965, justified a Montevideo bombing as a protest against U.S. involvement in Vietnam.

The other half of the urban guerrilla movement in this country is the Panther-type black revolutionary—also a fragmented and loosely organized movement. In February 1971, the Black Panther Party split into two factions, one headed by Minister of Defense Huey P. Newton and the other by Minister of Information Eldridge Cleaver, a fugitive then residing in Algiers. The Cleaver faction quickly took the lead in advocating violence, especially violence against police officers. The Newton faction, to distinguish itself from the Cleaver followers, emphasized political activity rather than revolution now, while, in the Panther publication Babylon (November 1–14, 1971), Eldridge Cleaver asserted:

> "the absolute right of the Afro-American people to take up arms and wage war against their oppressor . . . by taking the initiative and actually attacking the pigs (police) with guns, and killing them."

The primary vehicle for Panther urban guerrilla activity has been the Afro-American Liberation Army, better known as the Black Liberation Army. The public activities of this group began on May 19, 1971, when two New York City police officers, pursuing an apparent traffic violator, were wounded in a hail of machinegun bullets. Two days later, another two New York policemen were shot and killed by black assailants. Letters to the news media, signed "Black Liberation Army," claimed credit for these attacks.

Since then, the Black Liberation Army has been linked to a continuing series of attacks on police—2 officers were killed and 17 were wounded in 1973 shoot-outs alone—in addition to other urban guerrilla actions, particularly armed expropriations. Scores of weapons, including machineguns and hand grenades, have been seized from Black Liberation Army arsenals. The organization was described in the February 29, 1972, issue of the newspaper Right On!:

> "The purpose of the Black Liberation Army is the same as that of the Tupamaros in Uruguay, Frelimo in Mozambique, and all the other liberation forces. The Black Liberation Army is simply brothers and sisters who have gone underground to put all the revolutionary rhetoric and theory into

practice. The difference between the Black Liberation Army and the aboveground politico-apparatus, the Black Panther Party is that the Black Panther Party (is) organizing and politicizing in the open by whatever means necessary and advantageous and the Black Liberation Army moves in a military manner to carry the politicizing to its logical extension—action."

One of the newest urban guerrilla groups, the Symbionese Liberation Army (SLA), has claimed credit for the November 6, 1973, murder of Oakland, Calif., school superintendent Dr. Marcus Foster and for the February 4, 1974, kidnaping of Patricia Hearst. The group demanded ransom in the form of a multimillion dollar food giveaway program in California. Leaders of the Symbionese Liberation Army were identified in an April 15, 1974, California bank robbery; some of these leaders died in the subsequent shoot-out with authorities in Los Angeles.

The apparent catalyst in forming this "army" was visits to black prison inmates in California by revolutionary white youths. The group's strategy is set out in its "Declaration of Revolutionary War" which calls on "all revolutionary black and other oppressed people within the Fascist United States to . . . fight in the forces of The Symbionese United Liberation Army." Specific goals of the group, taken from this declaration, include: Destruction of the capitalist state; control of industry by the "people"; formation of communes; children to be the "responsibility of the community"; destruction of the prison system; seizure of state and capitalist-owned land, to be given to the "people"; total destruction of the rent system; and "destruction of racism, sexism, ageism, capitalism, fascism, individualism, possessiveness, competitiveness."

Marighella's Influence

Carlos Marighella's "Minimanual of the Urban Guerrilla," called the "Holy Writ" of modern guerrillas by one writer, has had as much influence on the theories and tactics of urban guerrillas in this country as any writing in the field. An early indication of this is seen by comparing Marighella's statement that "[t]he principal object of the ambush tactic is to capture enemy arms and punish him with death" [6] with Stokely Carmichael's writing. Carmichael, who lectured to American college audiences on urban guerrilla warfare in 1970 before he traveled to Africa as the late Kwame Nkrumah's protege, cited Marighella's tactic on capturing weapons in his talks and included it in his book in this form:

> ". . . when the guerrilla kills a member of the occupying army, he not only takes the gun that's around his waist, he opens up the door and he takes a 12-gauge shotgun." [7]

This tactic was adopted by the Cleaver faction of the Panthers. Right On! (February 15, 1972, p. 10) called for urban guerrilla units to act as "Revolutionary Executioners of the gestapo pigs (police) mainly to capture weapons from the enemy. . . ."

But there are no immutable laws in urban guerrilla warfare tactical manuals. When Panthers in the Black Liberation Army took weapons from officers they killed, they found these weapons a deadly link in a chain of evidence tying them to the slayings. Soon, guerrilla notes were found that advised:

> "We do not need to take weapons from iced (killed) pigs, specially those that have been righteously baconized. There are better places to rip-off weapons—not where they can be linked to butchered hogs."

Marighella was a longtime Marxist. He held office in Brazil as a member of the Communist Party after World War II. By the 1960's, Marighella was a top leader of the orthodox Communist Party of Brazil, but his theories of urban guerrilla warfare finally led to a break with the Party. His view of the class struggle holds to the necessity of armed struggle by the urban guerrilla, with two primary objectives:

> "a) the physical liquidation of the chiefs and assistants of the armed forces and of the police;
> b) the expropriation of government resources and those belonging to the big capitalists . . . with small expropriations used for the maintenance of individual urban guerrillas and large ones for the sustenance of the revolution itself." [8]

And these primary objectives—a "disposition" to kill police as Marighella calls it, and financing guerrilla activities (especially for the maintenance of individual guerrillas) through expropriation—have been adopted in toto by the Panthers and their Black Liberation Army. On February 15, 1972, the Panther newspaper Right On! (page 10) called for ". . . armed revolutionary violence. . . . [r]ipping off money from banks. . . ." and executing police. Members of the Black Liberation Army have ambushed and killed police officers and have robbed banks—and messages from these guerrillas have boasted of these activities. "Communique No. 1," published in Right On!, April 5, 1971, page 17, signed by the Attica Brigade of the Afro-American Liberation Army, claimed those who threw a hand grenade under a New York City police car on December 20, 1971, were on a mission to "rip off funds for the Afro-American liberation struggle." Marighella's primary objectives were most succinctly expressed in a "Message from the Black Liberation Army," pub-

lished by Right On!, April 5, 1972, page C: "The police have the guns and the banks have the money."

The act of expropriation is, of course, not a new technique. The Bolsheviks used robberies of Czarist banks to finance their activities; Joseph Stalin gained an early reputation in Russia as a bank robber for the communists. But Marighella's overall theory of revolution differed from that of orthodox Marxists. Instead of an uprising by politically indoctrinated masses led by an indigenous communist party, the urban guerrilla's theory of revolution is to demonstrate that the government is incapable of fulfilling its primary purpose, that of providing a stable and ordered society. If this basic function of government is eroded in practice, then the masses will reject the government in power. Rejection will come about through revolution, which will come to fruition when the most visible symbol of government, law enforcement, is shown to be impotent in battling the guerrilla. Hence, the primary objective of attacking police officers: If the police cannot protect themselves, how can they protect the citizenry—their basic function?

The "Minimanual of the Urban Guerrilla" has been extensively circulated in this country, by the Panthers and by other guerrilla groups. It has been included in most of the collections of revolutionary literature found in the possession of Black Liberation Army members and other revolutionaries. It has served as a textbook for formal "political education" classes. Excerpts have been serialized in the Panther newspaper Right On! and portions of the "Minimanual" have appeared in the so-called underground press. Field Marshal Donald Cox, a Panther fugitive who joined Eldridge Cleaver in Algerian exile, dedicated his pamphlet "On Organizing Urban Guerrilla Units" to Marighella. Cox freely quotes Marighella in his "little red book" on guerrilla tactics and weapons.

The Symbionese Liberation Army may have followed three of the "action models" set out in the "Minimanual of the Urban Guerrilla": Execution, kidnaping, and expropriation—tactics common to Latin American and other guerrilla groups. Marighella defined execution as the "killing . . . of a fascist personality in the government involved in crimes and persecutions against patriots." [9] "Communique No. 1" from the Symbionese Liberation Army, in which the group claimed the murder of Dr. Foster, was in the form of a "warrant" from the "Court of the People" which accused Dr. Foster of "taking part in crimes committed against . . . the people." (These "crimes" were the proposed introduction of guards and identification cards into Oakland schools.)

According to the "Minimanual" the kidnaping of well-known, but apolitical, persons "can be a useful form of propaganda for the revolutionary. . . ." [10] The ransom in this case included a demand for the publication of several Symbionese Liberation Army propaganda tracts, and the media was warned that "attempts to confuse the public by withholding or omitting sections of the tape or S.L.A. documents jeopardizes the prisoner." But this type of kidnaping differs from that of a political personality or a police agent, according to Marighella. It must be "handled so that the public sympathizes with it and accepts it." [11] Hence, the ransom demand of food for others rather than cash for the kidnapers.

Following the example set by Algerian rebels, the Weatherman group, the Black Liberation Army, and the Symbionese Liberation Army in this country, have used the now classic guerrilla term "communique" for their message. The Symbionese group has posted its message ("Communique No. 1" in a different format) on telephone poles and has sent it to a variety of community organizations, both techniques recommended in the "Minimanual." A copy of Marighella's book was among the urban guerrilla documents found in a Symbionese Liberation Army pad.

As an organizational outline and a tactical handbook, Marighella's book has gained him a measure of immortality in guerrilla circles. He was killed in a gun battle with police in November 1969, just a few months after the appearance of the "Minimanual." The biographic note in the 1970 New World Liberation Front edition (copied from the Tricontinental translation, January–February, 1970), notes that the "Minimanual" will become "one of the principal books of every man who . . . takes the road of armed rebellion." It has.

Differences in New Left Strategy

The Weatherman type of New Left urban guerrillas has not opted for Marighella's theories to the degree that black extremists have. Expropriations, yes, even bank robberies, but these primarily white revolutionaries eschew the "macho" masculinity syndrome evident in Panther gunfights with police. The anarchist's bomb is their weapon, and the "establishment" in general (and law enforcement only as a part of the establishment) their target. While Weatherman members (later called Weatherpeople, or collectively, the Weather Underground, in response to male chauvinism charges from the ranks) advocate revolution through urban guerrilla warfare, in common with other such revolutionaries around the world they have not presented specific ideologies to replace the structures of government they would topple.

Robert Moss highlighted this lack of a "single coherent statement of

ideology" on the part of any urban guerrilla group:

> "along with an indifference to the normal forms of political agitation and a virtual silence about social conditions, that makes most urban guerrillas 'Blanquists' in the sense that Lenin defined the term: military conspirators with a tactic rather than a political philosophy." [12]

Mr. Moss notes that Marighella's "Minimanual" comes closest to formulating a strategy, yet it "offers more instruction about simple weaponry than about the kind of society he wanted to create." [13]

Kwame Nkrumah does present a strategy and specific objectives—"Nationalism, Pan Africanism, and Socialism" [14]—along with basic techniques of guerrilla warfare. But, although Stokely Carmichael has recently propagated Nkrumah's objectives in lectures at various U.S. colleges, Nkrumah was not an urban guerrilla, nor have Panther-type urban guerrillas in this country yet adopted his philosophy. In this respect, one could say none of the urban guerrillas in this country have any strategy much beyond revolution for its own sake. Still, there are theoretical antecedents for New Left-type urban guerrillas. These are primarily the military writings of Che Guevara, Regis Debray, Stalin, and Lenin.

Guevara, for a time a folk hero to many members of America's commune society, was a rural guerrilla. He wrote that the countryside is the battleground in underdeveloped (Latin and South) America and that a "suburban guerrilla band," if one developed, would be subordinate to direction from rural guerrilla chiefs. Glossing over this element of Guevara's philosophy, the New Left seized upon his thesis that "[i]t is not necessary to wait until all conditions for making revolution exist; the insurrection can create them." [15] Despairing of recruiting masses of U.S. "workers," or even a significantly large number of U.S. students, as required by Marxist doctrine then extant, this "foco" theory was the denouement sought by the elitists of the New Left. Instead of organizing the masses as a whole, per Marxist dictates, they decided that "a small group of armed insurgents . . . can act as a focus for the various discontented elements. . . ," in the words of Brigadier Kitson, the British Army counterguerrilla expert.[16]

"Foco" is used in a second sense as the first, and leadership, unit of the "liberation army." In the "classic" guerrilla mode, as explained by Regis Debray, the military pyramid of the liberation forces in Latin America "tends to be built from the apex down—the permanent forces first (the *foco*), then the semiregular forces in the vicinity of the *foco* . . . ." [17] This dualistic use of "foco," both as a theory of revolution and as the name of an initial guerrilla group, has not facilitated the grasp of the concept and in this country "foco" has become a glib catch phrase for the intellectual fringe rather than a working guerrilla concept.

This Cuban, or Guevara, influence also extends from the theoretical down to the tactical level. A diagram showing how to launch a Molotov cocktail from a rifle or shotgun, on page 55 of the Vintage Books edition of "Guerrilla Warfare," was copied on page 99 of "The Anarchist Cookbook," by William Powell (New York, 1971). "The Anarchist Cookbook" (the title stems from the chapter on recipes incorporating marihuana or hashish) covers guerrilla organization and technique, and has become quite popular among student revolutionaries here. Another "how to" book for guerrillas, emanating from Cuba, is "150 Questions for a Guerrilla" by General Alberto Bayo, "The Man Who Trained Castro." A detailed manual on sabotage and explosives, "150 Questions" was circulated by New Left groups in this country as early as 1968. General Bayo was a Marxist veteran of the Spanish Civil War, who, like Abraham Guillien, settled in South America and drew on his experience in Spain to write on guerrilla warfare. Guillien, author of "Philosophy of the Urban Guerrilla" and other works, may have had considerable influence on Carlos Marighella.

"Armed propaganda" is another concept adopted from abroad by urban guerrillas in this country. As Regis Debray explains it:

> "The destruction of a troop transport truck or the public execution of a police torturer is more effective propaganda for the local population than a hundred speeches." [18]

Debray claimed that during at least one 2-year period of warfare, Castro did not have any political rallies in his zone of operations. This tactic, added to the "foco" theory, was ideally suited to U.S. revolutionaries whose speeches, after some initial successes on the campuses, took on some of the irrelevance of other periodic campus fads. Action, or propaganda of the deed, would replace the sterility of revolutionary oratory.

And "Propaganda of the Deed" was even the subtitle of "Underground Manual Number 3," one of the first handbooks of guerrilla military techniques to circulate in the United States. (There were no manuals numbered one and two.) This booklet was first circulated by the New Left and was then picked up by the underground press. The material on homemade explosives, booby traps, and incendiaries, such as thermit and napalm, was also irresistible to the Panthers. They circulated the pamphlet, too, but in an unusual gesture of circumspection, cloaked it in an

innocuous cover, that of a Department of Agriculture bulletin. But the Panthers, as popularizers of the slogan "pig" for police officers, picked a bulletin on processing pork for their cover.

Part of armed propaganda, according to Debray, includes the tactic of demonstrating the vincibility of law enforcement, similar to Marighella's "disposition" to shoot police:

> "In order to destroy the idea of unassailability—that aged-old accumulation of fear and humility vis-a-vis the . . . policeman . . .—there is nothing better than combat." [19]

This element of armed propaganda was an obvious early success of the Panthers, who gained much stature in some circles with their armed invasion of the California legislature. Indeed, the initial armed Panther confrontations with police were designed to show their ability to stand up to, and face down, law enforcement officers.

Certain writings of Lenin and Stalin were used extensively, if selectively, in a thesis advocating urban guerrilla warfare on the part of the recently disbanded Venceremos group, itself a splinter of the Revolutionary Union, a national Maoist organization. This "military strategy" paper presents the dilemma of "dual errors of adventurism" (premature action) and "social pacifism" (agreeing to armed struggle, but only at some distant time in the future). A sophisticated political document, the Venceremos statement recognizes the split aborning among Marxists over the "foco" theory, revolution from the apex of a sociological pyramid, with its emphasis on the gun, or propaganda of the deed. It is interesting to note that a sociologist author of a fictional scenario of urban guerrilla revolution in America (who describes himself as a democratic radical) feels that "[a] revolution cannot be artificially induced. . . . To attempt to induce it prematurely . . . is adventurism. . . ." [20]

The Venceremos paper uses certain of Lenin's writings—"The Black Hundreds and the Organization of an Uprising," "From the Defensive to the Offensive," "To the Combat Committee of the St. Petersburg Committee," and "Tasks of Revolutionary Army Contingents"—written during the 1905 Revolution as evidence of the need to "begin military action as soon as possible." Even Stalin's "Political Report of the Central Committee to the 16th Congress of the CPSU" is used to support the thesis that the time is right for organized urban guerrilla warfare. Parenthetically, the primarily white Venceremos group recognizes the divergent courses taken by white and black guerrillas here, and calls the problem "white chauvinism." Venceremos notes: "Somehow, white skins are assumed to be too valuable to sacrifice to a pig's bullet, while Black and Brown minds are seen as unable to cope with the theory of Marxism-Leninism."

Conclusion

Without question, Carlos Marighella, Che Guevara, and Regis Debray are among the primary lineal progenitors of the urban guerrilla theories and tactics practiced in the United States today. Their influence on causation of this phenomenon in this country is rather more within the purview of the sociologist/historian, however. Behind Marighella and company is more than a century's development of Marxist doctrine, for these theorists of urban guerrilla warfare were first Marxists. The non-Marxist observer may delineate them as the first of a new breed, their philosophy a climacteric in the development of Marxist revolutionary thought. The orthodox Marxist sees them as "adventurists," and repudiates them. The lack of true communist uprisings in recent history, as opposed to "revolutions" with the Soviet military as surety, coupled with the Cuban experience, would seem to weigh toward the judgment that perhaps these "wars of the flea" in urban settings are, indeed, the wars of the future.

In the United States, of course, we have just the embryo of such a war, and an unorganized embryo at that, though deadly to Marighella's first target, the policeman. While recent history has shown that not all urban guerrilla campaigns succeed, it could be argued that the disruptions of even embryonic urban guerrilla warfare may be a self-generating catalyst, leading to further serious revolutionary activity. One interpretation of Marxism takes just such a view. However, the irregular pulsation of urban guerrilla activity in America during the past half decade almost defies anything better than an "if, then" prognosis, tempered by a multitude of economic and sociological factors.

FOOTNOTES

[1] *Urban Guerrilla Warfare* (The International Institute for Strategic Studies, London, 1971), p. 3.
[2] "Terrorism, A Global Concern," *Defense/Foreign Affairs Digest* (January 1973), p. 4.
[3] "Outlaws of America, Communiques from the Weather Underground," *The Liberated Guardian* (New York, 1971), p. 3.
[4] J. Edgar Hoover, "Extremist New Left Violence," *The University of Maryland Law Forum*, Spring 1972.
[5] "Terrorism and the Intellectuals," *Washington Star and Daily News*, April 15, 1973.
[6] Carlos Marighella, *Minimanual of the Urban Guerrilla* (New World Liberation Front, 1970), p. 25.
[7] Stokely Carmichael, *Stokely Speaks* (New York, 1971), p. 213.
[8] Marighella, *Minimanual*, p. 6.
[9] Ibid., p. 30.
[10] Ibid., p. 31.
[11] Ibid.
[12] Robert Moss, "Urban Guerrillas in Uruguay," *Problems of Communism*, September–October 1971, p. 15.
[13] Ibid.
[14] Nkrumah, *Handbook of Revolutionary Warfare* (New York, 1969), p. 24.
[15] Che Guevara, *Guerrilla Warfare* (New York, 1969), p. 1.
[16] Frank Kitson, *Low Intensity Operations* (London, 1971), p. 33.
[17] Regis Debray, *Revolution in the Revolution?* (New York, 1967), p. 51.
[18] Ibid., p. 53.
[19] Ibid., p. 52.
[20] Martin Oppenheimer, *The Urban Guerrilla* (Chicago, 1968), p. 173.

THE SOCIOPATH - A CRIMINAL ENIGMA

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THE SOCIOPATH

On a warm day in 1964, a tall 15-year-old boy regarded by his classmates as well-mannered but a shy lone wolf, calmly shot his grandmother to death with two bullets to the head. When his grandfather returned from the grocery store, the youth murdered him in similar fashion. He then telephoned his mother and reported his activity. His explanation was, "I just wondered how it would feel to shoot grandma."[1] After six years of penal and psychiatric institutionalization and treatment, he was released. In September, 1972, two psychiatrists reported, "He has made an excellent response to treatment."[2] One was so convinced that he said, "I see no psychiatric reason to consider him a threat to himself or any other member of society." Tragically, four days before this psychiatric evaluation, he had murdered a 15-year-old girl. Before his capture in May, 1973, and after the above psychiatric evaluation had succeeded in sealing his juvenile record of double murder, he murdered and dismembered six young girls. Three days prior to confessing to these murders, he bludgeoned his mother to death with a hammer and strangled one of her friends. A total of ten human lives were taken by Edmund Kemper before his personal reign of terror ceased.

A common thread runs through the lives of Kemper, Charles Manson, Gary Steven Krist, Herman Goering, and "The Great Impostor" Ferdinand Waldo Demara, Jr. All these people have been diagnosed as being sociopathic.[3] They appear to be different.

DIAGNOSTIC PROBLEM

The sociopathic, psychopathic, or antisocial personality are all closely related and have been defined as types of personalities exhibiting a form of abnormal behavior.[4] Depending on the authorities quoted, the sociopath may reflect 35 percent of the population of our prisons,[5] or as stated in a recent Dallas, Texas, study, "though the sociopath comprises 40 percent of the criminal population, he is responsible for 80 to 90 percent of all crime."[6] If these statistics are even close to reality, it would follow that most police officers deal on a daily basis with sociopaths.

Under the traditional test for insanity as a legal defense in the criminal law, the sociopath is sane. He certainly knows the difference between right and wrong and understands the nature and quality of his act.[7] Generally, if one is legally insane he would be classified as suffering from some form of psychosis, a serious mental disorder wherein one loses contact with reality and commits a crime as a result of a mistaken belief.

One outstanding criminal psychologist discusses the problem of the sociopath and sex offenses as follows.

> A major concern and interest of mine over the years has been the study of the psychopathic offender It seems evident to me that there is an increasing number of offenders coming into our institutions with definite sociopathic or psychopathic traits. Of the many kinds of offenders that might be identified, in my opinion, this is the most dangerous, the most damaging, and the most difficult to identify and treat. Of the psychopathic offenders who commit sexual offenses we are faced with a kind of disorder whereby the individual is not psychotic, is not neurotic, is not mentally retarded and frequently appears not only normal, but hyper-normal. While these individuals often commit crimes of the most dispicable nature, they frequently are not transferable to the Department of Mental Health and the best minds in the country have attempted to put together a treatment program for this kind of behavior problem without notable success.
>
> Some of the essential traits of this kind of mentally disturbed offender is a lack of concern, anxiety, remorse or guilt feelings relative to the crimes that they may have committed. Frequently it appears that their actions have been brought about not by hostility toward women that is so characteristic in other kinds of sexual offenses, but by virtually no feelings at all for the victim and by being impelled to assault, sometimes very viciously, for nothing more than a whim. The inability to learn from experience, the superficial charm, the intelligence, and the almost total lack of concern about what their actions will bring about dictates that this particular kind of offender should be scrutinized and perhaps deserving of a classification unique in itself.
>
> Once the psychopathic offender has been identified, particularly if the individual has a history of violence and dangerous crimes, the possibility of release must be carefully weighed until there is sufficient evidence that this particular kind of offender is not going to repeat his previous violent activities.[9]

The American Psychiatric Association classified the psychopath or sociopath as the antisocial personality.[10] This term is reserved for those whose behavior pattern brings them repeatedly into conflict with society. They are incapable of significant loyalty to individuals, groups or social values. They are grossly selfish, callous, irresponsible, impulsive, and unable to feel guilt or learn from experience or punishment. Their frustration tolerance is low; they tend to blame others or rationalize their deviant behavior.[11] However, the law generally considers them responsible for their criminal acts. This category of individuals may also include unprincipled businessmen, dishonest lawyers, high-pressure salesmen, imposters, plus a great assortment of violent criminal types.[12]

Fortunately, about 80 percent of the population of the U.S. are classified as normal. The remaining 20 percent can be categorized as follows: (These figures are approximate and based upon the 1970 U.S. Census.)

Psychotic individuals - 1% or about 2 million

Criminals - 1% or about 2 million

Abnormal children - 3% or about 6 million

The mentally retarded - 3% or about 6 million

The neurotic - about 5% or 10 million

The personality disorders are the largest maladaptive group at 7% or about 15 million[13]

This last group includes not only the sociopathic personality but drug addicts and alcoholics. However, even the most conservative estimate of the number of antisocial personalities or sociopaths to be found in the United States exceeds four million or about 2% of our population. One authority claims that there are about ten million sociopaths in our population.[14] This 2 to 5%, though a small number of the total, is disproportionately represented in our criminal population. A study in New York in 1963 indicated the sociopath accounted for 35% of the inmate population of Sing Sing.[15]

CHARACTERISTICS OF THE SOCIOPATH

An especially frustrating characteristic of the sociopath is his ability to avoid punishment or incarceration. He is frequently charming and, time and again, deceives police, judges, juries, hospital authorities, employers, wives, and psychiatrists into accepting his argument that the latest incident was a mistake. He may often feign repentance or tearful self-denunciation. This counterfeit remorse disappears as soon as the immediate objective (freedom or forgiveness) has been attained.[16] He seems to possess a sixth sense which enables him to tell people what they want to hear.

His behavior pattern or life style may be characterized as follows.[17]

1. The most lucid psychological explanation of the sociopath is his feeling that any type of attachment to or affection for other people are traps.[18] He fears loss of freedom if he becomes in any way dependent on others, so this is to be avoided at all costs. His acts are in fact "normal" for one who has absolutely no concern for others.[19] All his other characteristcs; need for immediate gratification, failure to learn from punishment, lack of guilt feelings, etc., stem from, and are the natural result of, his lack of concern for others. In other words, he acts in a perfectly rational manner for one who considers others as insignificant, chattels to be used or abused to suit his priorities.
2. He tends to be antisocial and does not make friends in a normal manner. He has no qualms about betraying his associates to gain personal recognition, advancement or self-satisfaction and he enjoys the suffering of those he has "defeated."
3. Given the first two characteristics one can see that the sociopath has an inability to feel guilt even though he understands guilt and can feign guilt readily,

but his behavior pattern belies his expressions of remorse. Commission of a crime brings no remorse.

4. He is impulsive, and lives only in the present; the future is now. Unlike other criminals who develop a criminal speciality and stick with it, such as burglary or forgery, the sociopath can, and sometimes will, engage in varieties of crime, from sodomy to armed robbery.[20] Many rapists are sociopaths.[21] Because of an inherent, emotionally immature need for immediate gratification, and the belief that he is above the law, his crimes may be extremely unpredictable. When engaged in a robbery he may well shoot nonresisting victims or witnesses just to experience the stimulation of killing.

5. The sociopath is not one who will benefit from incarceration. He is a recidivist. Many check-writers fit this personality pattern. This perhaps serves to explain, at least in part, why the checkwriter so often returns to prison. To the sociopath the penal institution is truly an institution of higher learning. His adjustment to prison life is good; he usually has a "respectable position," not just a job while incarcerated.

Authorities agree that most correctional institutions only further criminalize inmates; this is especially true of the sociopath.

6. This person is unable to engage in a meaningful, loving relationship with a member of the opposite sex. Through life he satisfies his sexual desires by impulse. He is frequently bisexual and is given to sexual experimentation.

A sociopath who is married and caught in an extramarital relationship would probably convince his wife that it was all a mistake.

7. He is very dependent; he must be in contact with people to constantly prove to himself that he is better than others. He copes with anxiety by abusing people. In fact, one authority believes that within 24 hours of a stressful experience, an experience which the sociopath considers threatening (ego threatening), he will commit an antisocial act.[22] Whenever one sociopath and his mother would argue, he would leave home to seek out and kill a female - any female.

8. Finally, most authorities state the sociopath is an extrovert. He is stimulated by his interaction and abuse of others. He has a warm and friendly disposition and makes an excellent first impression but lacks the

emotional maturity to follow through with commitments that are not self-serving. He thrives on social stimulation--a swinger. The most common criminal activity of this individual is the confidence game, though he is, due to his impulsive nature, capable of any antisocial act.

The sociopath is generally above average in intelligence.[23] Characteristically, sociopaths are between the ages of fifteen through forty. Theoretically the sociopath will discontinue his criminal activities and "burn out" sometime around age forty.

CAUSATION THEORIES

Their are numerous causation theories regarding the sociopath. The tradit l psychiatric theory is that early childhood and family exp iences shape the personality for deviant or nondeviant behavior, and behavior after these early childhood years is merely acting out tendencies formed at that time.[25]

Although there are many models, Sigmund Freud, the father of modern psychiatry, conceived a three-part human personality consisting of the id, ego, and superego. The functions of these components as conceived by Freud are as follows:

> The id is man's expression of instinctual drive without regard to reality or morality. It contains the drive for preservation and destruction, as well as the appetite for pleasure.
>
> The ego functions to satisfy the basic forces of the id in practical ways or tolerates the id drive until such times as these drives can find realistic expression.
>
> The superego dictates to the ego how the demands of the id are to be satisfied. It is in effect the conscience usually developed by parental ideals and prohibitions formed during early childhood.[26]

Crime, for the psychoanalyst, is the result of the conflict between the id, ego, and superego. The drives of the primitive id are not under sufficient control by the ego and come into conflict with the restrictions of society. The proper interactions of these three components are usually learned prior to the child's 5th year. Since every man is born with criminal potential in the sense that he is selfish, hateful, spiteful, and mean, being under the control of the id, his early experiences must be loving, kind, and sympathetic in order to develop the proper ego structure. If this is not accomplished in early childhood, antisocial behavior is the result.[27]

There is also considerable recent evidence of early organic brain damage. Dr. George L. Thompson, former Chief of the Neuro-Psychiatric Unit of the L.A. County Hospital, is convinced that a form of childhood encephalitis is a cause.[28] This disease leaves the victim - the future sociopath - with minimal organic brain damage. Other authorities report an

80 to 90% incidence of irregular, abnormal, brain waves reflected in EEG tests administered to individuals previously diagnosed as sociopaths. (Holbrook,[29] Coleman,[30] Cleckley[31])

AWARENESS OF THE PROBLEM

The law enforcement officer should be aware of the sociopathic personality and his criminal potential. Some methods of identification are complicated, such as the Galvanic Skin Response (GSR).[32] The experienced polygraph operator will certainly recognize the sociopath because of his flat reaction and lack of anxiety while being tested.

Most police, parole or probation officers may be able to tentatively classify an individual as a sociopath by reviewing his arrest record. The record of the sociopath reflects a variety of antisocial, impulsive acts which frequently include rape. The variety of offenses is perhaps the best indication in most instances. The best key for the officer on the street is the ability to recognize the glib, con artist style of conversation coupled with the inability to follow through or engage in any behavior that is not self-serving.

The modern trend in corrections seems to be the halfway house or the community treatment center. Many feel that the convict should live near, and have contact with, non-criminals on the theory that he must learn to deal with the outside world prior to his release. Toward this end we have

seen the establishment of work release and early release programs and liberalized parole and probation. Any concept which involves the isolation of the prisoner from society is felt to be "about as destructive a policy as could be devised and goes against every conceivable principle of rehabilitation." Further we hear "that the community must become more involved with our prisons and our prisoners must have some opportunity to become involved with the community."[33] This concept may well be true with the normal criminal but corrective treatment, or rehabilitation, has not been effective with the sociopathic personality. (Wilson,[34] von Hirsch,[35] van den Haag,[36] Bailey,[37] and Schwartz[38]) Many methods both sociological and psychological have been tried and to date all have failed largely because the roots of the malady are not understood. Fortunately even the most cautious reading of current trends in criminology indicates that at long last society is recognizing what most police officers have known for years. Time and time alone "cures" the Sociopath. Unfortunately time in the recent past has been free time, time the criminal has spent in society. Dr. Richard A. Schwartz, M.D., strongly advocates this time factor as a "cure"...however, he is also concerned with the protection of society.

> Although it may seem at first glance excessively cruel to imprison a convicted 18-year-old rapist or armed robber for 22 years, the statistical likelihood of such a first offender committing at least one additional serious crime is so high that it is certainly

> arguable that it is even more cruel to the potential victim of a subsequent violent crime not to remove the offender from society until the aging process has diminished his criminal drives. Emerging from prison at age 40, the released offender would still be a relatively young man and could expect to have ample years available to him to rebuild his life and pursue vocational or family goals.[39]

Until the cause and cure is found for the behavior of the sociopath which so adversely affects our society, the law enforcement community must learn to identify, predict and control his antisocial behavior.

FOOTNOTES

[1]Statements made to California authorities by Edmund Emil Kemper III, as reported by Newsweek Magazine, June 4, 1973, p. 69.

[2]Statements of two court-appointed psychiatrists who examined Kemper, as reported by Newsweek Magazine, June 4, 1973, p. 69.

[3]Alan Harrington, Psychopaths, Simon and Schuster, New York, 1972, pp. 19, 35.

James C. Coleman, William E. Broen, Jr., Abnormal Psychology and Modern Life, 4th Edition, Scott, Foresman and Co., Glenview, 1972, pp. 368, 369.

[4]Leland E. Hinsie, M.D. and Robert J. Campbell, M.D., Psychiatric Dictionary, 4th Edition, Oxford University Press, New York, 1974, pp. 617, 705.

[5]Coleman, op. cit., p. 396.

[6]Planning and Research Section, Dallas Police Department, The Dallas Repeat Offender Study, Dallas, Texas, January, 1973, pp. 10, 11.

Wayne R. Lafade, and Austin W. Scott, Jr., Criminal Law, West Publishing Co., St. Paul, Minn., 1972, p. 274.

[8]M'Naghten's Case, 8 Eng. Rep. 718 (1843).

[9]Robert E. Hardin, The Rapist and the Victim, pp. 1, 2.

[10]American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 2nd Edition, Washington, D.C., APA 1968, p. 43.

[11]Ibid., p. 43.

[12]Coleman, op. cit., p. 366.

[13]Coleman, op. cit., p. 10.

[14]Harrington, op. cit., p. 24.

[15]Coleman, op. cit., p. 16.

[16]Harrington, op. cit., p. 16.

[17]Hermann, Mannheim, Comparative Criminology, Houghton Mifflin, Boston, 1965, p. 264.

[18]Seymour L. Halleck, Psychiatry and the Dilemmas of Crime, Harper and Row, New York, 1967, p. 103.

[19]Ibid., p. 106.

[20]Richard M. Suinn, Fundamentals of Behavior Pathology, John Wiley and Sons, Inc., New York, 1970, pp. 273-4.

[21]Coleman, op. cit., p. 471.

[22]Planning and Research Section, Dallas Police Department, op. cit., p. 10, 11.

[23]Planning and Research Section, Dallas Police Department, op. cit.

[24]Coleman, op. cit., p. 375.

[25]Marshall B. Clinard, Sociology of Deviant Behavior, 3rd Edition, Holt, Rinehart & Winston, Inc., New York, p. 175.

[26]Calvin S. Hall, "Freudian Psychology," World Publishing Co., Cleveland, Ohio, 1954, pp. 34-46. (See also: Caldwell, Criminology, pp. 204-211.)

[27]Ben Karpman, The Individual Criminal: Studies in the Psychogenetics of Crime, Nervous and Mental Diseases Publishing Co., Washington, D.C., 1935, p. ix.

[28]James M. Reinhardt, The Psychology of Strange Killers, Charles C. Thomas Pub., Springfield, 1953, p. 193.

[29]Harrington, op. cit., p. 10, 11.

[30]Coleman, op. cit., p. 372.

[31]Hervey Cleckley, The Mask of Sanity, C. V. Mosby Co., St. Louis, 1964, p. 453.

[32]Planning and Research Section, Dallas Police Department, op. cit., p. 11.

[33]Halleck, op. cit., pp. 345-6.

[34]James Q. Wilson, Thinking About Crime, Basic Books, New York, 1975.

[35]Andrew von Hirsch, Doing Justice: The Choice of Punishments, Report of the Committee for the Study of Incarceration, Hill and Wang, New York, 1976.

[36]Ernest van den Haag, Punishing Criminals, Basic Books, New York, 1975.

[37]Walter C. Bailey, "Correctional Outcome: An Evaluation of 100 Reports," Crime and Justice, ed. Radzinowicz and Wolfgang, Vol 3, p. 190.

[38]Richard A. Schwartz, "Psychiatry and Crime Control" Diseases of the Nervous System: The Practical Journal for Psychiatrists, Neurologists and Neurosurgeons, Vol. 36 No. 2, February, 1975.

[39]Ibid, p. 58.

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The Terrorist Organizational Profile: A Psychological Evaluation

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CONTINUED

8 OF 13

One of the most spectacular police shootouts in recent years occurred on May 17, 1974, when a rather odd mixture of young people calling themselves the Symbionese Liberation Army decided to make a suicidal stand against the Los Angeles Police Department and the Federal Bureau of Investigation. Their ill-chosen fortress was a rather delapidated frame house in a seedy section of Los Angeles. Their fate was predictable; all six perished in the flames of the burning house steadfastly refusing to surrender and firing their weapons defiantly at police until the end. All but one of those who died in this incident were educated young people from comfortable middle class backgrounds who had been loved by their parents and nurtured on the American dream. As a comrade these young people had chosen an escaped convict with a long criminal record. All of them died together having made a vow the day before to fight to the death against the "oppressive establishment." They planned to defeat the Los Angeles Police Department and continue to "Fight for the rights of needy people." Their goal was to "Kill the facist insect who preys upon the life of the people."[1]

WHY?

It is essential not only for law enforcement in general, but for ourselves in particular to try to understand something of the dynamics of the terrorist personality.

The SLA differs only slightly from other terrorist organizations. If some insight can be gained through an examination of the dynamics of the SLA, this knowledge would be applicable to terrorists in general.

PROFILE OF THE TERRORIST: A THEORETICAL DESIGN

The Symbionese Liberation Army exemplifies the various personality types in terrorist organizations. Three distinct types are immediately obvious in the SLA prototype:

1. The Leader, an example of paranoia, a trained Marxist.
2. The Activist-operator, an example of the anti-social personality, frequently a former soldier or ex-convict, an Opportunist.
3. The Idealist, most nearly normal, usually the University drop out, the minor functionary.[2]

These three psychological types emerge clearly in most terror groups.[3]

THE LEADER

In the leftist groups this Leader is frequently a female, e.g., Nancy Ling Perry in the SLA, Bernadine Rae Dohrn of the Weather Underground, Ulrike Meinhof of the German leftist Baader-Meinhof terrorist gang[4] or Fusako Shigenobu of the Japanese Red Army.[5] Broadly speaking these are paranoid personalities,[6] occasionally bordering on the psychosis

paranoia. This personality is rigid, overly suspicious, one which projects personal faults and inadequacies onto others and ascribes evil motives to them. The development of this disorder is gradual and reflects an insidious, intricate, complex and elaborate delusional system. The Leader sees himself as unique with superior ability and knowledge.[7]

The true paranoiac is the supreme egotist; his primary defense mechanism is projection, and to a lesser extent denial and rationalization as a means of overcompensating for his basic feelings of inadequacy.[8] Because of his basic insecurity he specializes, i.e., he knows a lot about a very little. When engaging him in conversation he is generally rational. However, he will ultimately steer the conversation to his "favorite subject" which will enable him to demonstrate his superior knowledge and thereby control the conversation, and to a point, control others. He is the perfectionist; he is too insecure to tolerate error. His life is planned down to the last detail lest he fail.

PSYCHOLOGICAL DEVELOPMENT

Paranoia is a gradually developed delusional system sustained by perceptions of events which are interpreted to support the basic thought patterns. This definition, though seemingly circular, describes the disorder which is also

circular and insidious. His mind is made up not to be confused by facts. Only his interpretation of events is correct, i.e., he is o.k. and others, unless they totally agree with him are not o.k.

> Basically they are bitter and hostile against the world with a tendency to be suspicious of the motives of everyone.[9]

> Paranoia is a poison of suspicion that infuses the total psychic life of its victim.[10]

These individuals, in the extreme, exhibit an obsessive preoccupation with a well integrated delusion. In his later years the French philosopher Rousseau developed a classic case of Paranoia.[11] He believed there were numerous plots against his life generated by secret enemies. While visiting England he became panicky and fled leaving his luggage and money at the hotel hoping to return to France before his enemies. However, when he arrived at the coast unfavorable winds precluded his immediate departure, which was an indication to him, of the determination and strength of his enemies.[12]

The paranoid state begins early in life and is agitated by the normal perils of living.[13] People who are normal, develop a basic trust in others and consider the world to be a safe place in which we can freely interact with our fellow man.[14]

The paranoiac never learns to communicate effectively.[15] As a child he is forced to retreat for security into himself. His view of the world becomes gradually distorted and undergoes a period of incubation. Then a sudden "insight" or illumination reveals that the fragmented suspicions he has always harbored are really part of an elaborate plot. Once the plot is discovered a host of previous experiences and current suspicions are selectively integrated into his sense of reality.[16]

Most professional writings on paranoia deal with the psychosis which is characterized by a well developed delusional system with beliefs of unique and superior ability.[17] These people are insane, their false belief is so bizarre that they are clearly out of touch with reality. They are best characterized by such historical figures as Adolph Hitler[18] and the French philosopher Jean Jacques Rousseau.[19] This psychosis is, graphically, at one end of a continuum with the personality disorder paranoia at the other. This personality disorder is characterized by unwarranted suspicion, excessive self-importance, rigidity and a tendency to blame others and ascribe evil motives to them.[20]

The personality of the terrorist group leader lies along this continuum between these two extremes. He is more delusional than the personality disorder yet not endowed with unique and superior ability, ability which the psychotic

thinks he "possesses."

Although the evidence the paranoiac presents to justify his beliefs may be inconclusive he is unwilling to accept any other explanation. Argument and logic are futile. In fact, any serious questioning that challanges the authenticity of his explanation convinces him that his interrogator has sold out to his enemies.[21]

> Many paranoiacs become attached to extremist political movements and are tireless and fanatical crusaders...[22]

Aside from his delusional pattern or system of logic, the paranoiac appears quite normal. Hallucinations, word salad, depression and other usual signs of abnormal behavior are missing.[23] The symptoms of paranoia

> "are confined to the development of a delusional system. ...Falsification of reality is restricted to misinterpretation of events; what happens is correctly perceived, but peculiar inferences are drawn from it. Except for the delusional system the patient is perfectly oriented and perfectly normal in his conduct. The personality does not become disorganized and interest in the environment is substantially preserved...Paranoia is a restricted psychosis, sufficiently circumscribed so that it does not invade and disintegrate the personality as a whole.[24]

Frequently the paranoid personality develops his delusional pattern around a grain of truth. Given the thought communists want to control the world, an example of his paranoid predicate reasoning would be as follows:

"Karl Marx was a Jew, the Rosenburgs were Jews, all three were Communists...therefore all Jews are Communists...therefore anti-semitism is really a Jewish plot to prevent honest Americans from engaging in anti-Communist activity. The present maltreatment of the Jews by the USSR is just a facade to fool us. Russia is really a strong ally of, and does supply, the Israeli army. But, to fool the world they give the weapons to the Arabs. When all of the arms have arrived in Arab hands a war develops. Everyone knows that the Jews will defeat the Arabs in any battle, capture their supplies and bingo, they get the arms from the Soviets free because the Arabs have paid for them. Those Commies and Jews are smart."

ROLE IN GROUP

Generally this forceful paranoid personality emerges as the leader. He is, on the surface, self-confident. He has all the answers to the problems of life.

SLA PROTOTYPE

In the SLA the leader, Nancy Ling Perry, was the "brains" of the organization. She wrote and or edited the many pronouncements of the others.[25] Ms. Perry, called Fahizah by the SLA, was an intelligent young woman, a graduate of University of California with a degree in English

Literature. When engaged in graduate work in Chemistry, she became involved in the Black Cultural Association at the California Adult Authority facilities at Vacaville and Folsom. Typical of the terrorist leader she was intelligent, a college graduate, single, no children, and underemployed, she became involved in radical political activity which predated her criminal endeavors.

LAW ENFORCEMENT

Police involvement with this person is infrequent as he is behind the scenes, i.e., a policy developer. He may occasionally venture out with the group to show them how to accomplish a particular task. If apprehended he is generally bright enough to maintain his silence. However, should he begin to talk, the general superior attitude and the assured discussion of his conspiracy theory will begin to evolve. This is especially true if the leader thinks the interrogator is a possible convert.

THE OPPORTUNIST

This is generally a male role, one whose criminal or occasionally military activity predates his political involvement. Psychologically the classification that most closely approximates his life style is that of the Anti-social personality also known as the psychopath.

> These terrorists are disturbed and unstable impulsive individuals with backgrounds worlds apart from the movements leaders. The leaders are middle class; the opportunist is from the lower class.[26]

> The Opportunist personality is not mentally ill, crazy, he is oblivious to the needs of others and unencumbered by the capacity to feel guilt or empathy.[27]

> To sum up his personality he is basically unsocialized and his behavior pattern brings him repeatedly into conflict with society. He is incapable of significant loyality to individuals, groups or social values. He is grossly selfish, callous, irresponsible, impulsive, and unable to feel guilt or to learn from experience and punishment. Frustration tolerance is low. He tends to blame others or offer plausible rationalizations for his behavior.[28]

He is O.K., the world is out of step.

PSYCHOLOGICAL DEVELOPMENT

There is considerable disagreement in psychiatric circles on how this personality develops. The causation theories are numerous. The traditional psychiatric theory is that early childhood and family experiences shape the personality for deviant or nondeviant behavior and behavior after these early childhood years is merely acting out tendencies formed at that time.[29]

> One study reports a high incidence of psychopathic personalities - particularly fathers - in the families of children who later manifest psychopathic behavior.[30]

> Another authority suggests the psychopath was rejected or cruelly treated or may have

> suffered early brain damage. He strikes back at the world with aggressive, unrestrained, attention-drawing behavior. Since conscience is instilled by early love, faith in the adults closeby, and the desire to hold their affection by being good, the child unrewarded with love grows up experiencing no conscience. Uncared for, he doesn't care, can't really love, feels no anxiety to speak of, does not worry about whether he's good or bad, and literally has no idea of guilt.[31]

RECRUITMENT

The Opportunist is recruited generally from the prison population, by the Leader or the third functionary in this organization, the Gofer. The intelligence of the Opportunist varies, the brighter he is, the more of a threat he poses to the Leader. There is a possibility of the Opportunist taking over the group; therefore, to maintain control the Leader becomes more and more paranoid. This relationship is extremely sensitive...internecine war is inevitable.[32]

An intelligent Leader will function in the shadow, if his personality will allow this, and be the power behind the throne allowing the Opportunist to take his ego trip as the seeming leader. This was the situation in the SLA with Perry as the thinker and DeFreeze as the talker.[33]

Recruitment of the Opportunist is relatively easy, especially today with the influx of well intentioned college students working in various prison educational programs.

The Opportunist is seeking "easy time." He is to be found in every prison in great numbers; by some estimates he represents 40% of all criminals who commit 80% of all crime.[34]

As he does time he must sooner or later face the issue that he is not O.K.; he was wrong, stupid or something less than his self concept will allow, otherwise he would not be here, incarcerated with the "common" criminal. The mind set of the psychopath is such that he is always O.K., i.e., life mistreats him, or people do not recognize his latent ability or some other rationale for his seeming failure. The student, politically oriented toward the left offers the perfect rationale. He tells the inmate, "Mr. Convict, you are innocent; you are O.K.; you are not a criminal; you are a political prisoner." "You are right. The system is wrong." "He was framed." This idea of being a victim of oppressive, discriminatory political system fits perfectly. Now he can add political rhetoric to his vocabulary, excuse his predicament, and impress his fellow inmates who, for the most part, are politically ignorant. A mutually supportive relationship develops; each gives and takes; each needs the other. The convict needs the rationale for his situation. The movement needs his muscle.[35]

ROLE IN GROUP

The middle class student tells the convict his

misdeeds were political and he is O.K., directly and indirectly admiring his masculinity, his machisimo and gradually bringing him into the political fold as the strong arm type. The prisoner, in turn, is playing the game by engaging in political rhetoric and sees the opportunity upon release to live a hedonistic life with support from an organization he views as naive and within his control.[36] The organization will provide his needs, e.g., psysiological, safety, love, esteem, self-actualization, and in some instances drugs,[37] in exchange for his criminal knowledge and daring. He is not frightened by violence, in fact he is intrigued by this excitement.[38] Contrary to his middle class associates his focal concerns are trouble, toughness, smartness, and excitement not law abiding behavior, verbal adroitness, hard work, and delayed gratification.[39] Given his penchent for aggressive behavior, his criminal experience and his anti-social orientation he is perfectly suited f r the responsibilities of terrorist group field commander.

SLA

The SLA example of this personality type was Donald David DeFreeze. DeFreeze was a school dropout at age 16. After his 15th felony arrest he provided information in an attempt to plea bargain his sentence. After his last conviction, he bargained himself into a soft, trustee type

assignment and walked away from the California Correctional Training facility at Soledad on March 5, 1973, not to be heard from again until mid-February, 1974, when he surfaced as General Field Marshall Cinque. He was to become the field commander of the SLA and the strong arm of Nancy Ling Perry.

This is clear from the SLA tapes featuring DeFreeze as General Field Marshall Cinque. In those tapes he read words he did not understand. On one tape he read the words coup (as in Coup d'e tat) as coop (as in chicken coop). He was intellectually over his head when he listed on another tape "some Pacific factors" and plans to alleviate the "current suffering they are now under." Later, in April, 1974, his tape set out the battle plan of the SLA saying that "No prisoners will be taken prisoner." Psycholinguistic evaluation of Donald David DeFreeze showed him to be merely parrotting words and phrases outlined by a more intelligent, white female.[41]

Cinque manifested an unconscious need for significance, power and acceptance. He was the central personality of the SLA. He was the action focus of the group; he was the doer not the thinker. He was intellectually inferior to Jalena (Angela Atwood) who was second in the group pecking order. His ability to conceptualize was sparse. He had difficulty in conceptualizing complex political theory and had a rather single dimensional outlook. Clearly he looked

to Jalena, who was the scribe for Nancy Ling Perry, for his intellectual support.[42] His function in the group was to provide the terror that the others only talked about.

Before DeFreeze, the SLA only spoke of revolution. The Opportunist's presence and expertise provided the group with its action arm. The Opportunist had the experience and willingness to demonstrate that actions speak louder than words. This is evidenced by the killings, kidnapings and robbery the group engaged in with their assistance. When SLA members ventured into criminal activity without these trained criminal types, they could not even succeed in shop lifting. The arrest and death of this element, the Opportunist, reduced the SLA to rhetoric until other Opportunist's could be recruited.

LAW ENFORCEMENT APPLICATION

Without the Opportunist a group is radical only in rhetoric. He provides the terror to the terrorist group.[43]

The Opportunist is familiar to the police officer. Even the officer who has limited experience has met this Personality Disorder many times in the form of the vicious con artist type or the good informant, the individual who is meek as a kitten when cornered yet vicious when he has the upper hand. Most rapists fit into this classification.[44]

The most common easily visible guide is his arrest record. Generally he will have a variety of offenses, rape

included, and will give the impression of being "constantly" in and out of trouble.

The opportunist will be an old, familiar face to the police officer. His act will be the same, only his rhetoric will have changed. He will turn under pressure. He is out only for himself. He is the key; his removal will defuse the terrorist group and his glib tongue will identify the members.

GOFER

The last personality in the group is almost normal. The most charitable diagnosis for the Gofer would be political naivety, the spoiled or perennial sophomore. Most adolescents rebel; some turn toward delinquency; very few join terrorist groups. He is initially an innocent sort who is dedicated to a better world. His innocence is exploited and radicalized by the strong personality of the Leader and subverted by rhetoric that sounds so perfect. At the extreme the Gofer borders on the Inadequate Personality classification.[45] Between the terminals of political naivety and inadequate personality is the personality described in Eric Hoffer's book The True Believer. According to Hoffer:

> "He's a guilt ridden hitchhiker who thumbs a ride on every cause from Christianity to Communism. He's a fanatic, needing a Stalin (or a Christ) to worship

> and die for. He's the mortal enemy of things-as they-are, and he insists on sacrificing himself for a dream impossible to attain."[46]

As a college student from a middle class family he feigns poverty in his life style, perhaps as an expression of guilt. A few generations ago he was called the "Againer." He is against whoever is in power; the terminal malcontent.

PSYCHOLOGICAL DEVELOPMENT

There are many explanations for the development of this personality. A current explanation is set forth in Ms. Midge Decter's book, Liberal Parents, Radical Children. She discusses the misdirected youthful idealism that seeks to achieve the perfect world his parents labored so hard to achieve, yet fell short of the mark. They are taught from youth that everything that frustrates them is an injustice that must be altered.[47] This is an international phenomenon.[48]

The Frustration-Aggression theory of revolution set forth by Gurr provides a viable explanation for the violence of the middle class student.[49] In his futile attempt to remake the world as a land of milk and honey he meets with frustration at every turn. Though his thoughts and desires are laudable, his frustration increases. Certainly the vast majority redirect their efforts toward more realistic goals and make part of the world a better place in which to live. However, for those few who cannot, the frustration mounts

and in some cases finds expression in political violence, a teenage tantrum, orchestrated by the Leader, directed by the Opportunist.

Anarchy and revolution is fulfillment of his need, born from the impatience of youth. As one matures time seems to fly; to the young time drags. He cannot wait; to wait is to die. He can see no other course of action but to strike out.

The terrorist group gives these individuals the answers they seek to the problems of the world. Such phrases as, "Everything must go, the system is so corrupt we must start from scratch" or "Death to the facist insect that preys upon the life of the people," or their call for "Participatory Democracy," exemplify the type of sophomoric political rhetoric which might be heard.

GROUP FUNCTION

Their role in the group is the soldier who reconnoiters buildings prior to bombings, follows the Opportunist into the bank, carries the messages and is generally the cannon fodder for the revolution. They are expendable and are expended as the SLA demonstrated.

SLA EXAMPLES

Angela Atwood, a former school teacher who worked in

San Francisco as a waitress, was a young, idealistic, divorcee who engaged in political activity prior to her criminal involvement. Camilla Hall, a college graduate, social worker also from the mid-west who worked as a gardner and park attendant in San Francisco, was another true believer who hitched her wagon to the wrong group and paid for this decision with her life. William Wolfe, the most intelligent of the SLA Gofers was an early leader of the organization until a stronger personality, Nancy Ling Perry, took over the reins. She put the group together using her close associate, Donald David DeFreeze, as the muscle to forge this association. Wolfe, the son of a professional family, was involved in programs for the betterment of his fellow man but lost his patience and life in his quest for a quick solution.

The SLA, with its many generals, played a fanciful game with selfmade intrigue and persistent paranoia. They made vain attempts to give meaning to their empty lives, status for their weak egos and claimed positions they would not be qualified to hold in any moderately well functioning society. The problem is, of course, that they play their immature games with dynamite, gasoline bombs, automatic weapons and human lives.

LAW ENFORCEMENT

Perhaps Terrorist groups are examples of Freud's

death wish.[50] Their rhetoric is heavy with statements of protracted wars of national liberation. They look with pride upon the Chinese example of the Long March and reflect a martyr intellect.

Those dealing with the Gofer will recognize the lack of depth in his rhetoric. He parrots pet phrases in answer to questions of motivation. "If only everyone will love, then the world will be wonderful" is an example of his answer to international problems.

These are the group members most likely to change sides. However, he is unlikely to become an informant. Under pressure he may become, in his eyes, a martyr and thus elevate his status amongst his peers, the only people he trusts and cares for. He is not a successful person. His self-concept is poor. He views his life only as a member of the group. Without their emotional support and recognition, he is a loser, a nothing. Only they, not his parents or our society, can give his life meaning.

Of the three levels in terrorist groups the Gofer is most salvageable. Given time he may outgrow his revolutionary role. It is a phase through which he passes. One need only look at the stock brokers, attorneys and teachers of today who were the Gofers of the 1960's, the cannon fodder of the various groups that played their game for headlines a

few years ago.

When in custody he cannot initially turn on those who have given his empty life purpose, recognition and status to his weak ego. If he can be persuaded that the group has deserted him, or is actually counterrevolutionary and hypocritical, then the Gofer is left with little security and may be ripe for conversion to another cause that offers him the warmth and recognition that he has just lost. His dependency needs must be met; as long as the terrorist group does this adequately, he is loyal.

OTHER GROUPS

This paper has dealt with the SLA as a prototype. We will now look at one foreign group along with several domestic ones fitting this profile. In addition, let us examine some groups that differ from the profile and consequently, differ from the SLA in their method of operation.

An examination of the Emiliano Zapata unit of the Red Guerrila Family, arrested by the FBI in Richmond, California, on February 21, 1976, reflects a table of organization similar to the SLA. They proclaimed their revolutionary rhetoric in the Berkeley Barb and placed one-half dozen bombs in the Bay Area. Since March 27, 1975, they claimed credit for

explosions and were finally convicted of bombings in the San Francisco area. Laurence Allen Kisinger, their leader,[51] was the oldest though not the most educated of the group. The opportunist was Gregg Daniel Adornetto and the others were the gofers.[52]

In Northern Ireland we see a similar profile in the Irish Republican Army. Long before this paper was written, the New Scotland Yard labeled the IRA functionaries as Grand Counsel (Leader), Godfathers (Opportunists) and Bullyboys (Gofers).[53]

Right wing groups in the United States generally lack the Opportunist and, therefore, his criminal expertise and activity. The American Nazi Party, the Minutemen and the California Rangers to name a few, are Right Wing and generally function with the Leader and Gofer spreading their propaganda and engaging in less violent deeds of revolution or death to their fellow man. These groups, though they may possess firearms which they generally secrete away, are content with propaganda, picketing, parades and long-winded speeches. The absence of the Opportunist precludes overt violence. They do not kill, kidnap or bomb as do the leftist groups who place the Opportunist in the role of field commander.

Right wing groups have been the personal militia of their leader. There is no second in command because his personality will not tolerate any competition. Therefore,

when the Leader is killed or incarcerated, as George Lincoln Rockwell, the leader of the American Nazi Party was in 1967[54] or the leader of the Minutemen, Robert Bolivar DePugh was in 1969,[55] the groups fold.[56] Generally, they remain inactive or disappear until a new leader, their charismatic Fuehrer, arrives on the scene.

The Gofers in these groups tend to be middle class with the Nazi organizations attracting younger people than the Minutemen. The Gofers in the Nazi organizations are usually former military enlistees who generally have less than honorable discharges.[57] Perhaps they sense a lack of masculinity, as evidenced by their inability to adjust to the military as their fathers did, and now seek to establish their manhood by activity in right wing groups. One also notices a lack of female involvement in such groups; they are reactionary and certainly "anti-lib."

Over the years we have seen groups alter their complexion from non-violent to violent. An examination of the change in leadership personalities frequently sheds light onto the reason for this policy change. Two groups clearly exemplify this change.

In the early 1960's on the campus of any University in the United States one heard of the Student Non-Violent Coordinating Committee. This group was large, dedicated to peace through non-violence and followed the teaching and

practices of the great Hindu leader Mohandas Karamchad Gandhi. The leadership of SNCC, and many of the followers, were Quakers or other religious people of good character. In the late 1960's this changed. The militants and the opportunists, took over and publically changed its name to the Student Violent Coordinating Committee.

A similar change is seen when one examines the American Indian Movement. In the 1960's AIM was established in Minneapolis-St. Paul to assist the American Indian who chose to leave the reservation and try a new urban life. By its charter, the Bureau of Indian Affairs was unable to assist the Indian once he left the reservation. Local agencies could not meet the need; therefore, a need existed and AIM was created. Initially, AIM was a middle class, self-help, altruistically oriented group that took as its name the Concerned Indians of America. However, as time passed the more militant, criminal minority in the American Indian population gained influence, altered the name, goals and factions of the group.[58]

The 1950's and 1960's gave rise to many legitimate civil rights groups within the United States. Most of these groups retained their middle class values and leadership. They have avoided the opportunist or neutralized him if he joined. By effectively dealing with the opportunist, these

civic minded groups do effectively contribute to a better world for us all. The better world the terrorist group talks about but destroys by the influence and activity of the opportunist. "...terrorist feed on problems without solving them."[59]

SUMMARY

Terrorist groups are fluid, task-oriented gatherings of individuals. Individuals change; roles remain. When two Leaders appear in a group, one must go. The displaced Leader becomes a Gofer or starts his own group. These three roles are seen in terrorist groups throughout the world. The hostage (particularly in a kidnap-imprisonment situation) is likely to encounter all three types of terrorists. The activist operator (Opportunist) seizes him; he is interrogated by the trained Leader and finally encounters the Gofers who guard and feed him.[60]

Though the SLA and Foreign groups[61] fit the Terrorist Organizational Profile, a question yet to be answered is, does this psychological profile of terrorist roles fit all other groups? This is presently the subject of continuing research.

Knowledge of the roles of various functionaries in terrorist groups will not prevent terrorism. However, it does give us a better picture of our adversaries. We can

better judge their capacity for violence, better interview them when they are in our custody, and effectively defuse the group by knowing who the activist members of each organization are and by determining who is functioning in which capacity.

If terrorism is a new form of warfare, then a new counterstrategy will be needed to effectively combat terrorism. The Terrorist Organizational Profile may be a beginning in understanding our enemy.

FOOTNOTES

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[4]"Year of Terror," Newsweek Magazine, January, 1976, p. 27-28.

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[53]Personal Interview, Commander James F. Nevill, Commander Anti-Terrorist Squad, New Scotland Yard at Los Angeles, California, October 1, 1976.

[54]Post (Washington), August 25, 1967, p. 1.

[55]Times Journal (New York), July 14, 1969, p. 25.

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ANATOMY OF A SIEGE

BY

Donald F. Cawley

(The Police Chief, January, 1974)

The widely reported Williamsburg incident began at 5:30 p.m., January 19, 1973, as a thwarted holdup of a sporting goods store that cost the life of one police officer and the wounding in the early minutes of two others. It ended 47 hours later with the surrender of the four gunmen as a model seige operation. That it turned out this way was no accident. Rather, it was the result of meticulous planning and skilled execution by the New York City Police Department.

For many months prior to the incident, the department had been concerned with developing techniques to deal with the complex problems created by armed, barricaded criminals holding hostages. The primary consideration in such circumstances is to secure the lives and safety of the threatened hostages, the police officers, innocent bystanders, and the criminals themselves. The very nature of this type of criminal activity - the desperation of the participants, the imminent peril of the hostages, the immediate likelihood of gunplay, and the inevitable gathering of crowds of the curious - makes the conduct of a siege a very difficult police operation.

It was for this reason, and because of the recent prevalence of incidents such as prison riots and plane hijackings, invariably involving hostages, that the department, after considerable study and extensive research, developed elaborate contingency plans, including a Recommended Guide to Handle Seized Hostages. Special training programs were also installed for all the command ranks of captain and above, for lieutenants, sergeants, and the police officers assigned to patrol commands, and for Emergency Service personnel. The contents dealt with criminal psychology, control of firepower, deployment of personnel, clearing areas of civilians, transportation of hostages, etc. - much of it presented as part of simulated siege exercises.

It is, of course, impossible in preplanning and training to anticipate every eventuality and to provide for every set of conditions, but it is possible to formulate general guidelines and specific instructions regarding police procedures. This is what we did, and we believe that the successful outcome of the Williamsburg incident is largely attributable to that preparedness.

The following is a chronological account of the major events which occurred during the 47 hours of the Williamsburg incident.

THE SCENE

John and Al's Sporting Goods Store, 927 Broadway, Brooklyn, is located within the boundaries of the 90th Precinct. The neighborhood is known as Williamsburg. The store occupies all of a three-story corner building. Next to it and across the street are other stores. Overhead, running along Broadway, is an elevated train line. The immediate area is commercial, with run-down retail stores lining the still busy thoroughfares of Broadway and Myrtle Avenue. The surrounding side streets are residential, the decaying tenements housing mostly Hispanics and blacks.

THE FOILED ROBBERY

1730 - Four black men in their early twenties entered the store and seconds later announced a holdup. One was armed with a sawed-off shotgun; the others carried handguns. One of the store owners, Samuel Rosenblum, triggered a silent alarm

1732 - A signal 10-30 (robbery in progress) was broadcast over the police radio. Several radio motor patrol cars in the vicinity picked up the call and headed for the scene.

1733 - Police Officers Henry Lik and John Brady were the first to arrive. As they approached the store, one of the gunmen ordered Mr. Rosenblum to lock the front door and indicate that the store was closed. The officers noticed the young men inside and remembered that the store did not usually close until 1900 hours. Immediately, sizing up the situation, they decided to back away, keep the store under surveillance, and await reinforcements. They judged that taking action on their own at this point might result in gunfire which would endanger innocent bystanders in the store and on the street

1734 - More radio car crews arrived. Police Officers Paul Paulson and William M. Wahl, observing Officers Lik and Brady covering the front entrance, went to cover the side door. Other officers, led by Sergeant Edward J. McKiernan, began to surround the building and two of them ran to the roof of the adjoining building to prevent a rooftop escape. Sergeant McKiernan decided that no rushing action was to be taken. He put in a call for Emergency Service personnel. Within the next few minutes, three units from Emergency Squad Number 8 responded.

1754 - The side door opened and Mr Rosenblum emerged with his hands over his head. Behind him, from the doorway, the gunmen opened fire on the officers in the street. Officer Jose Adorno was shot in the right arm. The officers returned fire, apparently hitting one of the gunmen in the abdomen. Mr. Rosenblum, who had been moving along the wall, was helped to safety by an officer. Their escape foiled, the gunmen retreated into the store. Their attempt to shoot their way out showed that they meant to resist capture. It was the beginning of the siege.

THE SIEGE

1810 - The gunmen suddenly opened fire on Emergency Service Squad (ESS) personnel who had donned bulletproof vests and taken up defensive positions in the street. Police Officer Stephen Gilroy, crouched behind an "El" pillar, was shot in the head and fatally wounded. Police Officer Frank Carpentier was shot in the right leg as he attempted to move a radio car into position as a barricade for Officer Gilroy. With gunfire still coming from the store, ESS personnel set up a covering barrage to allow rescuers to remove the stricken officers. There was no further gunfire by any police officer after this cover operation. Six other officers and one civilian remained pinned down behind parked cars and "El" pillars. In addition, many civilians trapped in stores opposite 927 Broadway where they had sought refuge were in the line of fire.

1840 - Assistant Chief Inspector Michael E.J. Lonergan arrived on the scene and assumed command of all field forces. He conferred with Deputy Chief Inspector Simon Eisdorfer, commanding officer of the Special Operations Division, regarding conditions, developments, and the coordination of plans.

The plans at this point were to: (a) contain premises 927 Broadway, (b) control firepower, (c) rescue trapped officers and civilians in the exposed stores, and (d) seal off area, establish perimeter control, and evacuate all non-Emergency Service police personnel from the inner perimeter. With respect to 927 Broadway itself, it was now known from information given by Mr. Rosenblum that a number of customers and employees were being held as hostages - nine men and three women. The presence of hostages presented a grave problem. It precluded any direct assault on the premises at this time and dictated a holding action.

Chief Lonergan immediately ordered that no shots be fired by any officer unless directed by a supervisor. All non-Emergency Service personnel were ordered from the immediate area and Emergency Service sharpshooter teams equipped with bulletproof vests, appropriate weapons, and radios were assigned to six containment locations. Barriers were brought in to seal off the area from vehicle and pedestrian traffic. The Tactical Patrol Force was ordered in to assist in crowd control outside the frozen area perimeter. Power was shut off on the elevated BMT subway line and trains were detoured. Street lights not already shot out were turned off. Police spotlights were withdrawn after they became targets. A rooftop survey was conducted and ladders positioned.

1905 - A request was transmitted for the immediate dispatch to the scene of the Emergency Rescue Ambulance (ERA) located at Floyd Bennett Field. This armored personnel carrier would be used to rescue the officers trapped in the street and the civilians trapped in the stores.

1945 - Chief Inspector Michael J. Codd and Chief of Patrol Donald F. Cawley arrived at the command post, a temporary headquarters located in a realty office storefront at 921 Broadway. As the siege dragged on, these two top commanders, as well as many subordinate commanders and key personnel, adopted alternating twelve-hour tours of duty. This policy provided a single field Commander who would be responsible for command decisions and a rested team and so minimized the errors often traced to fatigue. Police Commissioner Patrick V. Murphy had gone directly to the nearby 90th Precinct station house as soon as he had received word that three police officers had been shot. There he saw Police Officer Adorno, who had been shot in the arm, and later he spoke to the widow of Police Officer Gilroy, expressing his sympathy and the sumpathy of the department.

2000 - A female hostage, Hispanic, age 20, was released. This was in response to a police appeal, by bullhorn, to release one of the hostages for possible negotiation. (The bullhorn was used at this time because the store telephones were inoperative. It was later learned that the gunmen had ripped out the wires in annoyance over the constant ringing.) The frightened woman brought out a verbal message: "We mean business and we'll kill all the hostages unless we're allowed to escape." She also reported that the wounded gunman was lying on the floor and appeared to be seriously hurt.

2100 - The gunmen shouted for the police to send a doctor inside to treat their wounded confederate. This was their reply to the numerous repeated appeals to them, still by bullhorn, to surrender and come outside where immediate medical attention would be given. Their request was denied.

2105 - The ERA arrived. Its first priority was the rescue of the six police officers and one civilian pinned down in the street behind parked cars and "El" pillars. Then the vehicle rescued the fifteen civilians who were in the stores directly across the street, in the line of fire. After that, forty persons were rescued from the stores immediately adjacent to 927 Broadway. During this operation the gunmen fired volley after volley of shots at the ERA. A total of forty hits on the vehicle was recorded. There was no damage. Other shots landed in the stores across the street. Since the ERA was equipped with loudspeakers, it was also used - even after other communication was later established over walkie-talkie and field telephone - to bring police officials and concerned civilians close to the front of the store from where they tried to persuade the gunmen to surrender. These appeals were usually answered by another volley of shots at the vehicle. The formidable look and grating noises of the ERA also apparently had some psychological value. After the siege, the hostages told police that each time the vehicle approached, their captors became preoccupied with it to the exclusion of everything else.

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0050 - Another hostage, male, white, 38 was released. He brought out a handwritten note which had Arabic letters near the top. The note made reference to Allah and called for the unity of all Muslims and the oppressed peoples of the world. It also requested medical supplies and food.

0400 - The Reverend Roy Brown of the Pilgrim Baptist Church addressed the gunmen from the ERA and asked to be admitted inside to talk with them. He received no response.

0440 - Three Muslim ministers - Abdullah Rahman, Hasain M. Abdullah, and Abdullah Salan, all associated with the Ya-Sim Mosque, Brooklyn - responded to a request by police and exhorted the gunmen to surrender. One minister requested to enter, asking them to flash the front store light twice if they agreed. The light flashed twice and he was admitted. After about five minutes inside, he came out and reported that they would not heed his advice to release the hostages and surrender. They said they were willing to die for Allah.

0735 - Representatives of utility companies were at the scene. Some thought had been given to the idea that depriving the gunmen of heat, light, and water might possibly hasten their surrender. However, this plan was not put into effect.

0800 - Deputy Commissioner Benjamin War, in charge of police department community relations, assigned all available black and Hispanic members of the department performing community relations work to mingle with the crowds and keep an open dialogue with local residents. They disseminated correct information to preclude the spread of false rumors and they obtained feedback on opinions being expressed by community members. They also assisted in evacuating some families in nearby buildings.

0925 - The three Muslim priests who had volunteered their services earlier again entered the ERA and attempted to establish contact with the gunmen but received no answer. They then spent their time circulating through the community to help dispel rumors and prevent disorderly acts.

1030 - An associate of Dr. Thomas Matthew, director of Interfaith Hospital, Queens, and the head of NEGRO (National Economic Growth and Reconstruction Organization), telephoned police headquarters to advise that Dr. Matthew was willing to offer his medical services and was standing by at his hospital with an ambulance. (Dr. Matthew, a black physician, had been at times a vocal critic of the police.)

1115 - A walkie-talkie on a special frequency, obtained from the mayor's office, was placed in front of the store. A hostage was sent out by the gunmen to pick it up. (Earlier, a bullhorn had been so placed, and picked up and taken inside by a hostage, but it proved ineffective. A police frequency radio could not be furnished because it would enable the gunmen to overhear police messages.)

1140 - Deputy Commissioner Ward made radio contact with a person inside who identified himself as a hostage. Shortly after the Commissioner asked to speak to one of the four gunmen, the walkie-talkie was hurled out onto the sidewalk. A few minutes later, the bullhorn came flying out too.

1235 - A police vehicle was dispatched to escort Attorneys Sanford Katz and Gerald Lefcourt from their Manhattan law office to the scene. Both men, well-known as defense lawyers for black militants, had volunteered to help the police.

1445 - Katz and Lefcourt, after being briefed by Chief Cawley and Commissioner Ward, entered the ERA and appealed to the gunmen, offering to represent them. Six gunshots at the ERA was the response. The attorneys urged the gunmen to pick up the walkie-talkie that would be placed near the front door once again. After the ERA backed down the street, the gunmen sent out a hostage to pick up the walkie-talkie.

1515 - Radio contact was again made with the gunmen. They repeated their demands for food and medical supplies. They were told they would receive an answer in a half hour.

1545 - The gunmen were advised that food and cigarettes would be placed in front of the store within an hour but that medical supplies would not be provided. The decision to grant food reflected our concern for the hostages. Withholding medical supplies was intended to pressure the gunmen to surrender, or at least negotiate.

1600 - Dr. Matthew arrived and volunteered to enter the store and render medical aid.

1635 - The gunmen were notified of Dr. Matthew's presence and urged to surrender and bring their wounded man out for treatment. They then offered to release one hostage if Dr. Matthew came inside. They also promised to release him when he finished the treatment. After careful consideration of the offer - and the risk of Dr. Matthew's being held hostage - it was decided to accept it.

1705 - Dr. Matthew entered the store and a hostage (the third), male, Hispanic, 38, was released. The doctor remained inside for forty minutes. He came out with the names and telephone numbers of the remaining nine hostages

1730 - Food and cigarettes were deposited in front of the store.

1830 - A planning command post ("Think Tank") was established in the 90th Precinct station house, about a half mile from the scene of action. Police Commissioner Murphy had decided on the idea several hours earlier. From now on, the "Think Tank" was to remain in operation continuously until the end of the incident. The "Think Tank" was made up of top department officials and other key personnel. Outside experts, including psychologists, were called upon; Mayor Lindsay and some mayoral assistants were also present at times. Liaison was established with other governmental agencies for their assistance as might be required and with the FBI in the event the gunmen and hostages were to leave the jurisdiction. The "Think Tank" was a tool for the field commander. It provided behind-the-scene research and staff resources to aid in decision making at the scene. It developed possible strategies and attempted to anticipate every possible contingency. It considered issues such as: (a) nonlethal means of securing the release of the hostages, (b) identification of the gunmen, (c) securing the inner and outer perimeters of the siege area, (d) establishment of command control if the gunmen used the hostages in an attempt to escape, (e) ensuring unified command control if the gunmen requested transportation from the scene to another jurisdiction, and (f) effects on the community of a drawn out siege of several days or more.

A walkie-talkie on the temporary headquarters' frequency and a special telephone line were set up for instant communication between the "Think Tank" and the command post.

2000 - Dr. Matthew reentered the store with medical supplies, milk and orange juice. The nurse accompanying him was refused admittance.

2140 - Dr. Matthew's nurse was admitted to the store. She carried in a field telephone provided by the New York Telephone Ccompany. The batteries for the walkie-talkie had begun to drain. The telephone insured continuing communication.

2310 - Dr. Matthew and his nurse came out of the store. He stated that the wounded man, who had a single gunshot wound of the left mid-abdomen, was conscious, but was dehydrated and had a fever of 100.4°F. The gunmen told him that they had killed the police officer in retaliation for the wounding of their comrade. They appeared to range in age from 20-24. He said that although apparently conciliatory, they might kill hostages if provoked. Dr. Matthew also brought out a handwritten note which

had Arabic letters at the top of the first page. The note urged all oppressed peoples to unite and fight all who opposed them.

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There was no telephone conversation with the gunmen during the night.

0300 - Barbed wire was ordered placed across Melrose Avenue at Broadway to prevent an escape down Melrose Avenue from the front of the store.

0400 - A department helicopter was ordered to take aerial photographs of the entire area at the earliest possible time.

0745 - Gunmen opened fire from inside the store. Nine shots were fired. Two stores across the street and an abandoned RMP car were hit. No persons were injured. Calls over walkie-talkie and telephone to ascertain the reason for firing were not acknowledged.

0930-1130 - Chief Cawley met with members of the "Think Tank" to discuss plans to storm the store should that become necessary. Technicians had been studying the blueprints and the group had evaluated and rejected many alternative courses of action. The building, by the nature of its contents - guns, ammunition, volatile fluids, etc. - and by the nature of its construction - an open balcony inside that commanded the front entrance, and sheet metal-covered windows outside - was virtually a fortress. The use of tear gas, tunneling, a "payloader," and even a demolition ball were possibilities which received careful and in-depth discussion. It was clear, however, that an assault on the store would cost the lives of hostages and police officers. Additionally, two other kinds of special fire department and army apparatus to force entry were also under consideration but these would first require exploratory probes of the inside wall adjoining the furniture store, to ascertain its thickness and exact type of construction. Emergency Service personnel began moving equipment into the basement of the furniture store for these preliminary probes.

1100 - Dr. Matthew and his nurse entered the store with medical supplies to treat the wounded gunman. They came out at 1150 with another letter which was essentially the same as the first.

1245 - One of the hostages, Jerry Riccio, a co-owner of the store, persuaded the gunmen to allow the hostages to move to a darkened corner of the second floor balcony, on the pretext that they would be out of the line of fire there. That corner, Riccio knew, was at the base of a stairway leading to the third floor. The stairway, long unusued, was sealed off by a half-inch plasterboard.

1247 - On hearing the police drilling in the basement of the furniture store, the gunmen mistakenly thought the noise was coming from the third floor and, distracted, relaxed their watch over the hostages. Led by Mr. Riccio, the hostages tore away the plasterboard, scrambled up the stairway to the third floor, ran to the back, climbed a ladder to a roof skylight, and broke through to freedom. When the three able-bodied gunmen discovered the loss of the hostages a few minutes later, they fired several shots through the roof with no effect. They could not get up to the third floor earlier because they had previously barricaded the regular staircase in defense against a possible police break-in from the roof.

1250 - Captain Dennis J. Healy of Emergency Service, in charge of the surveillance position on the roof of the adjoining building, was startled at the sight of the first persons emerging onto the roof below. He quickly realized they were the hostages, lowered a ladder to them, and assisted them up to his position. Then, after crossing this roof, they were helped down other ladders to the roof of 931 Broadway, and finally to the street.

1310 - Five shots were fired from the building.

1315 - Three shots were fired from the building.

1325 - Even though the hostages were no longer inside, the decision not to rush the building continued in effect. There was no need to endanger the lives of police officers unnecessarily. With the hostages safe, we could afford, even more readily, to outwait the gunmen. The firm strategy now was to "talk" the gunmen out. Commissioner Ward entered the ERA and appealed to the gunmen to surrender. He made it clear that the police had no intention of storming the store.

In addition to appeals by the police, several relatives of the gunmen were brought in to plead with them to surrender peaceably. District Attorney Eugene Gold of Kings County also spoke to the gunmen, as did Attorneys Katz and Lefcourt. A key communicator during the next few hours was William T. Johnson,

a special community relations assistant to Commissioner Murphy. He succeeded in establishing a feeling of trust, while trying to convince the gunmen that in order to fight the oppression of minorities they must first stay alive.

1642 - The first gunman came out with his hands up and surrendered. The other two followed, carrying their wounded comrade on a cot. Waiting detectives took them into custody.

1645 - Near the bottom of the command roster for January 21, 1973, I penned these words: "The Williamsburg ordeal over at 1645 hours this date."

RECAPITULATION

Over 500 members of the service took part in this huge operation. Personnel were drawn from Brooklyn precincts and from the department's special forces, such as the Emergency Service Section, Tactical Patrol Force, Special Events Squad, Highway Patrol Unit, Detective Bureau, Intelligence Division, and Community Relations Division.

Precinct personnel, after the first response and containment phase, were returned to patrol duties outside the immediate area. Emergency Service personnel took over the inner perimeter, manned the containment positions and conducted all close-in operations. The Tactical Patrol Force and Special Events Squad were used for crowd and traffic control. Highway Patrol officers patrolled the frozen area, assisted with crowd and traffic control, constituting a mobile reserve force. Detectives made investigations to identify the gunmen, questioned released hostages, and they were also assigned toman beeper-equipped chase cars and to take the gunmen into custody after surrender. Intelligence Division officers arranged for Arabic translators, provided night-viewing equipment, mingled with the crowds, and gathered data about the possible connection of the incident with the activity of militant groups. Community relations officers talked with the community people, gave current information in Spanish and English over bullhorns, formed evacuation teams, provided persons unable to be relocated with food and other necessities, and took charge of relatives and friends of the hostages. Aviation Unit officers in a department helicopter maintained general surveillance, took aerial photographs, and were ready to follow and track in the event of an escape. Department medical, legal, and information officers were at the scene at all times, as well as technicians from the Communications Division, Firearms Unit, and Photo Unit.

The command, direction, and coordination of this small army of men and its many diverse activities - inside and outside the established perimeter - were conducted from a temporary headquarters command post and six satellite temporary headquarters. The command post was located in a realty office; the others were in a beauty salon, restaurant, movie theatre, bank, catering establishment, and the department's temporary headquarters truck. All were in close proximity to the focal point of the emergency and each police subdivision had its own headquarters which enabled the units to function with a minimum amount of confusion.

CONCLUSION

Police operations during the forty-seven hours were distinguished by a series of critical decisions made under heavy pressure by personnel at all levels. From the first officers on the scene who decided to await reinforcements lest innocent bystanders be endangered, to the sergeant who decided against any rushing action and called for the Emergency Service specialists, to the command level decisions on the control of firepower, the use of the ERA, the use of influential members of the community, the novel and rational "Think Tank" approach, the patient waiting to allow time to operate in police favor - as it did - all these decisions show a pattern of consistent professionalism. All reflect the department's governing doctrine, imparted again and again in its training programs, that in any police action the life and safety of civilians and police officers must always be the overriding consideration.

During the forty-seven tension-filled hours our personnel demonstrated admirable poise under pressure. One officer had been killed and two wounded. Still, restraint was exercised throughout. After the "no further firing" order was given, not a single police shot was fired. Although there were some minor disorders and some hostile bottle-throwing spectators among the crowds, only five arrests were made outside the perimeter.

Leadership, discipline, courage, and intelligent judgment avoided many pitfalls and prevented a bad situation from becoming worse. The hostages' escape was a stroke of good fortune, but it was our strategy of waiting that gave the gunmen time to make the mistake that allowed it to happen. Clearly amoung the lessons to be learned from Williamsburg are these: be prepared, be rational, and be patient.

THE POLITICAL ASSASSIN

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Over the past decade, scenes which have seared most permanently the consciousness of millions of Americans include: a prancing, riderless black horse, boots lashed backwards in the stirrups, a mule-drawn casket, and arrogant fanatics firing weapons at national leaders. These events were trapped on merciless television screens as Americans watched the unfolding tableau again and again in total disbelief.

Shock, grief, anger and helplessness characterized the private emotions of the American people over the assassinations or attempted assassinations of presidents and other political and civic leaders. These emotions resulted in speculation concerning a possible tragic flaw in the American character - a streak of uncontrollable violence which must vent itself in the periodic national trauma of political assassination.

Public reactions to these incidents varied. There was a sense of profound shock, not only in the United States, but throughout the world. The killing of Martin Luther King resulted in rioting in some cities. However, one factor remained constant: the inability of large segments of the public to accept that the act of assassination was the work of a single, usually insignificant individual.

To many it was more satisfying and indeed more logical to believe the crimes were the act of a highly intelligent, uniquely evil conspiracy, perhaps directed by a foreign power or some subversive domestic group bent on overthrowing the government. It was difficult to accept the grace of a Kennedy, the oratory of Martin Luther King, or the force and energy of a George Wallace being extinguished by any but the most powerful and evil of forces. It was even more tragic and grotesque when the perpetrators of such acts were an Oswald, a Ray, and a Bremer.

Unwillingness to accept the fact that insignificant little men can be the instruments of such profound tragedy is demonstrated by the debate concerning the alleged conspiracy in the assassination of Abraham Lincoln. This debate has continued for over 100 years, as will the arguments over the deaths of John F. Kennedy and Martin Luther King.

One can only speculate concerning the course of American history had Lincoln, McKinley, and the brothers Kennedy not been slain. What can be said about the men who conceived, planned and carried out these truly devastating acts? What did they look like? Who were they? A study of the assassins or attempted assassins of Andrew Jackson, 1835; Abraham Lincoln, 1865; James A. Garfield, 1881; William McKinley, 1901; Theodore Roosevelt, 1921; Franklin D. Roosevelt, 1933; Harry S. Truman, 1950; and John F. Kennedy in 1963 shows that most

were white, short and slight of build.[1] These same characteristics seems to fit the killer of Robert Kennedy and the would-be slayer of George Wallace.

So many major political assassins have been short and slight of build that it is probably a factor in the composite social and psychological makeup of this type of killer. This is not to place the political assassin into a particular biological or body structure group, or to say that short, slightly built white males have a particular penchant for political murder, but when taken into consideration with the other factors which contribute to the assassin's behavior, being small, in a position to be looked down upon, seems to be an important characteristic.

Of the eight presidential assassins listed above, only John Wilkes Booth could be said to be of average stature. The rest were small men.[2] The assassin generally feels that he has been treated unfairly by the world around him. Add to this attitude the extra insult of biological accident - his size - and one has a potentially volatile mixture.

Unlike physical appearance, there seems to be no common denominator relating to socio-economic class. Most of the political assassins or attempted assassins (and with these could be included Sirhan Sirhan and Arthur Bremer) came from the working class. The exceptions were Charles J. Guiteau,

the killer of President James A. Garfield, John Wilkes Booth and John N. Schrank, who attempted to murder President Theodore Roosevelt. These three men were from the middle class. Guiteau was a sometime lawyer and writer of religious tracts; Booth was a member of a prominent family of successful actors who had some small success in this calling; and Schrank was a New York tavern owner.[3]

The ages of the nine assassins or attempted assassins were between 24 and 40, as were Sirhan, Bremer and Ray.[4] The age factor is of doubtful relevance, since nationally, few crimes of violence are committed by persons over 40. Most of the assassins had reached maturity at the time of the act, indicating a fully developed personality and a longstanding mental or emotional problem.

In an effort to discern a common denominator among all the assassins, some salient factor of their individual environment that would link them all to some common pattern, one factor appears to be glaringly obvious: none of them had a stable masculine figure with whom to identify during childhood.[5] This particular symptom extends far beyond assassins. Studies of those who have threatened the lives of politically prominent persons reveal that most "had domineering mothers and weak and ineffectual fathers."[6]

John Wilkes Booth was raised almost exclusively by his mother. John N. Schrank, who shot Theodore Roosevelt, lost his father at age seven. Oswald's father died just after Oswald was born.[7] The fathers of Ray and Sirhan beat their sons, deserted their homes and left their families to fend for themselves.[8]

Beyond the two factors of physical appearance and lack of father image, other similarities become more speculative. The least speculative of these common factors is the apparent lack of any meaningful relationship with members of the opposite sex. Oswald's wife, Marina, accused him of impotence two months before he killed Kennedy; neither Ray nor Sirhan ever had a girl friend; Bremer's relationship with the one girl he sometimes dated was quite platonic and he never had sexual relations with her;[9] and Lawrence, who attempted to kill Andrew Jackson, never married. Leon Czolgosz, who shot William McKinley, and Guiseppe Zangara, who killed Mayor Clinton Cermak of Chicago while attempting to kill Franklin D. Roosevelt, actively avoided the company of women. Booth and Guiteau did have casual sexual liaisons with women, but none that appeared to be of a lasting nature.[10]

The obvious psychological theory that springs from the interpersonal relationships of the assassins is that they were motivated by hatred of a father who had neglected, deserted,

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The obvious psychological theory that springs from the interpersonal relationships of the assassins is that they were motivated by hatred of a father who had neglected, deserted,

or otherwise mistreated them. They projected this hatred into rage against an ultimate authority figure, such as a president or strong political or civic figure, thereby sowing the ultimate seeds of assassination.[11] Although logical and to some degree satisfying, such an explanation is oversimplistic. Most of the assassins not only had poor relationships with women, but also with other men. Only two of those who either killed or attempted to kill presidents were involved in anything that could remotely be called a conspiracy. Booth gathered around him a few inadequate persons, at least one of whom appeared to have been a mental defective, and the attempted assassins of Harry S. Truman, Oscar Collazo and Griselio Torresola, planned the attempt poorly and it was foredoomed to failure.[12] The rest of the assassins were loners, at least as far as the evidence presently shows.

It is generally agreed that most, if not all, of the assassins thus far alluded to were mentally ill to the point of severe psychosis. This is not to say that they were legally "insane," which is, after all, a legal and not a medical or psychiatric definition. Many, in fact, could not be categorized as falling within any of the legal definitions of insanity.

Beyond the fact of possible psychosis, the particular mental derangement is less easily definable. Two major categories of psychosis are generally suggested: paranoia and paranoid schizophrenia. The difference between the two is as much a difference in degree as in kind. In both illnesses, the patient suffers from delusions, i.e., he thinks he is someone he is not or he thinks he is being persecuted. In the case of paranoid schizophrenic, the delusions are less well organized, more fantastic and accompanied by hallucinations, e.g., voices of the people who are persecuting him or commands from God. The paranoid schizophrenic becomes more and more disorganized,[13] while the paranoiac, except for his delusions, retains his personality relatively intact.[14]

Sirhan Sirhan was diagnosed by experts as paranoid schizophrenic,[15] Zangara as paranoiac,[16] Guiteau as paranoid schizophrenic,[17] Lawrence, Schrank, Czolgosz, and Oswald as probably paranoid or paranoid schizophrenic.[18] Some experts have diagnosed all the assassins or attempted assassins of U.S. presidents as paranoid schizophrenic except for Callazo and Torresola.[19]

Leaving precise clinical definitions aside, it is clear that all the assassins acted under some delusion strong enough to lead to murder. Whether such delusions were aided and abetted by hallucinations is a point of academic debate.

John Wilkes Booth believed himself to be the instrument of God, as did Guiteau, whose mission was to save the public by killing President Garfield. Czolgosz killed McKinley because he believed McKinley was the enemy of the working people. Zangara blamed the capitalists for his lack of schooling and his intestinal disorders and believed he would get even with them by killing Franklin Roosevelt.[20] Richard Lawrence, who made an attempt on the life of Andrew Jackson, believed he was Richard III of England and the United States owed him large sums of money. John Schrank believed that Theodore Roosevelt had murdered President McKinley and tried to avenge McKinley by killing Roosevelt.[21] Sirhan Sirhan believed himself an Arab patriot and killed Robert Kennedy because Kennedy had proposed sending 50 military aircraft to Israel.[22] None of these delusions would be calculated to attract any large political movement. It is difficult to conceive that they would have sufficient appeal for even a small conspiracy. Perhaps one reason why these men, with such visions of the world, are so dangerous and often successful in their murderous schemes, is the pure irrationality of their thought processes, which makes it extremely difficult for rational men to predict their actions and thus to defend against them.

In a paper submitted to the National Commission on the Causes and Prevention of Violence, Dr. Doris Y. Wilkinson sought to apply the theory of the achievement-expectancy gap. She theorized the political assassin has an unrealistic expectancy of high achievement in society, but because of his lack of intelligence, social status, education or other factors, he is unable to achieve his expected goal. Upon realizing that he cannot achieve the status to which he believes he is entitled, the psychic trauma somehow becomes politicized and he attacks that person who, in his mind, has achieved that status.[23]

This theory supports the father hate idea in that the killer already harbors ill will against authority. It also seems to fit well with Booth's expectation that he would be thought of as a hero after killing Lincoln; with Oswald's dream of becoming premier of Cuba and his disappointment when he found that the Russians did not welcome him as a hero and were not anxious to have him as a Soviet citizen; with Sirhan's expectation of becoming a diplomat but lacking the ability to complete college; and Bremer's fantasizing about being a great writer but being able to hold only menial employment as a janitor or busboy.[24]

The achievement-expectancy gap theory also tends to explain the lack of blacks, Chicanos, or American-Indians among the murderers of the politically prominent. Since

some members of these minority groups have a low expectancy of achievement because of the lack of success of other members of their ethnic groups, they do not experience the psychic trauma associated with failure to achieve an unrealistic goal. In the face of failure, "the system" can be blamed. Such thinking provides a convenient safety valve for aggression, with the result that such aggression does not become directed to a Wallace or a Kennedy.[25]

Added to the general family pathology of the assassin is the fact that the paranoid personality is often overwhelmed by anxiety and feelings of worthlessness. The paranoid can only preserve a feeling of integrity by severely distorting reality.[26] The volatile mixture of the assassin is thus complete. His general hatred for authority finds release in a paranoid delusion, a murderous, anxiety-relieving attack on a politically prominent person.

Recent studies have suggested a further complication in the possible underlying causes of the paranoid personality, specifically the paranoid schizophrenic. Dr. Jacques S. Gottlieb, a respected biochemist, told the 1972 convention of the American Psychiatric Association at Dallas that he had found a possible connection between schizophrenia and an unstable enzyme in the emotional center of the brain.[27]

If a biological base for this mental abberration is established, the schizophrenic may be amenable to control through medication.

It is clear that political, and, particularly, presidential assassinations, have not been the product of rational political motives, even though the assassin himself may have felt his reasons were political.[28] The assassin's motive resulted from a misperception of reality; his view of the world was severely out of focus.

It is a tribute to the American system and further evidence of the lack of any real sinister conspiracy in the assassinations that our institutions suffered no fundamental disruption by the assassinations. In fact, there has seemed to have been no substantial change in the direction of public policy as a result of the loss of a president. If it is the killer's intent to change the thrust of presidential policy, the opposite result is obtained, since bills doubtful of passage prior to the assassination are quickly pushed through the Congress almost as a tribute to the murdered President.

Numerous suggestions have been made for the protection of presidents and other politically prominent persons, ranging from innovative protective devices to sophisticated data-retrieving computers in which information concerning unstable individuals could be stored.[29] However, the American propensity to deify many public officials, especially the president, and the need for charisma, which seems to be an

indispensable part of every successful politician's appeal, tend to make them extremely appealing targets to the mentally deranged person with a grudge against authority.

It has been suggested that the functions of the office rather than the occupant's personality should be emphasized; that maximum use should be made of television; and that public appearances should be limited. However, the nature of the American system has encouraged personality politics, at least since the slogan "Tippecanoe and Tyler too" was coined in 1840. It does not appear that this style of politics will change fundamentally; it is what the American public wants and expects from its political leaders.

There is considerable doubt concerning the charge that there is a basic streak of violence in the American charcter when the United States is compared to such countries as Mexico, France, China, Japan, Italy, Bulgaria, Germany, Egypt, Iraq, Cuba, Iran, and Poland, all of which have had many more assassinations than the United States since 1918.[30]

A great challenge is posed to the law enforcement community by the lone assassin. The determined gunman, overwhelmed by his failures and seeking revenge for his insignificance by destroying what to his mind is the symbol of all that is oppressive to him, is a formidable threat. This is especially true if he is willing to sacrifice his own life to accomplish his goal. There appears to be no way for a free and open society to completely rid itself of this threat without placing severe limitations on the present style of political campaigning in the United States.

FOOTNOTES

[1]Kirkman, James F., Leirf, Sheldon, and Crofty, William J., A Staff Report to the National Commission on the Causes and Prevention of Violence, Vol. 8, "Assassination and Political Violence," U.S. Government Printing Office, Washington, D. C. (1969) 66.

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[3]Footnote 1, 50-66.

[4]Footnote 2, 292.

[5]Abrahamsen, David, M.D., The Murdering Mind (1973) 18-19.

[6]Footnote 1, 67.

[7]Footnote 1, 62.

[8]Footnote 5, 20.

[9]Footnote 5, 21.

[10]Footnote 1, 49-57.

[11]Footnote 5, 19.

[12]Footnote 1, 58-61.

[13]White, Robert W., The Abnormal Personality (1964) 511.

[14]Coleman, James C., Abnormal Psychology and Modern Life (4th Ed. 1972) 276.

[15]Footnote 14, 276.

[16]McDonald, John M., The Murderer and His Victim (1961) 54.

[17]Footnote 16, 51.

[18]Footnote 2, 298-299.

[19]Footnote 1, 62.

[20]Footnote 16, 49-54.

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[21]Footnote 16, 291-299.

[22]Footnote 14, 276.

[23]Footnote 1, 66.

[24]Footnote 5, 22-23.

[25]Footnote 1, 66.

[26]Halleck, Seymour, M.D., Psychiatry and the Dilemmas of Crime (1967) 171.

[27]Remarks of Dr. Jacques S. Gottlieb given at a special symposium at a meeting of the American Psychiatric Association, April, 1972, Dallas, Texas.

[28]Footnote 1, 110.

[29]Footnote 1, 94-95.

[30]Footnote 1, 117.

ASSASSINATIONS

(Note: Statistical tabulations do not include incidents in Israel, No. Ireland and the United States. Period covered is 1 Jan 70 - 1 Nov 77.)

Background: 257 assassination incidents

390 victims

Average victim per Assassination Incident: 1.5

Average size of Assassination Team: 3.07

Geographic Location of Assassination Incidents:
38% in Latin America
46% in Western Europe
63.5% of all assassinations took place in five countries: Argentina, Spain, Guatemala, Mexico, and U.K.

Nationality of Victims:

Argentines	100
Spanish	64
Guatemalans	35
U.S.	27
Mexican	22
U.K.	20

Occupation of Victims:
20.4% police officers
20.0% rival terrorist group members
17.2% businessmen
15.7% diplomats

Success Rate: 78.6% of all assassinations attempted were successful.

Location of Assassination: 61% took place in the victims' office, home or en route between the two.

Trend: Upward. Of all persons assassinated, 49.2% were killed in 1976-77 and 69% during the period 1 Jan 75 - 1 Nov 77.

KIDNAPPING

(Note: Statistical tabulations do not include incidents in Israel, No. Ireland, or the United States. Period covered is 1 Jan 70 - 1 Nov 77.)

Background: 232 kidnapping incidents

363 victims

Average Victims Per Incident: 1.56

Average size of Kidnap Team: 4.25

Geographic Location of Kidnap Incidents: 63% Latin America
20% West Europe

71% in eight countries (Argentina, Colombia, Ethiopia, Italy, Mexico, Spain, Uruguay, Venezuela)

Occupation of Victims: 43% businessmen (Of this figure, one out of five kidnapped were American businessmen)

Place Kidnap Occurred: 90% while victim en route between residence and office or office and residence.

Success Rate: Approximately 80% of all attempted kidnaps were successful.

Results: $146,000,000 paid in ransoms (this figure is the total of known paid ransoms in only 32% of the kidnap incidents. Obviously, total paid ransoms for all cases would be substantially higher).

$1.9 million average per kidnap victim in paid ransoms (again based only data available in only 32% of the cases).

267 political prisoners released

Trend: Upward. 77.6% of all kidnaps in the last three years (1975, 76, 77).

BOMBINGS

(NOTE: Statistical tabulations do not include incidents in Israel, No. Ireland, or the United States. Period covered is 1 Jan 70 - 1 Nov 77)

Background: 924 Significant incidents*

212 persons killed

Geographic Location of Incidents:

Italy	146
Spain	115
France	112
Argentina	105
Turkey	52
Greece	43
Ecuador	39
Mexico	31
	643 incidents

In these eight countries constitute 69.6% of all bombing incidents.

Cost:

75 million, non-U.S. corporations
17.5 million for U.S. corporations

92.5 million (data on cost is available in only slightly over 50% of all the 924 bombing incidents listed).

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* Significant incidents include only those involving (1) an important target; (2) a relatively large amount of material damage; or (3) those reflecting a new bombing technique or device. Considering the frequency of bombing as a terrorist tactic, a listing of all incidents over the past eight years would probably produce a figure two, three or even four times larger than 924.

Type Bomb: An explosive device was used in approximately 60% of the incidents.

Targets: 50.4% non-corporate
49.6% corporate

- Corporations are hit in approximately one out of every two terrorist bombings.

- If the corporation involved is a foreign corporation operating overseas (including U.S. firms), its chances of being bombed are 63%.

- If a foreign corporation operating overseas is bombed, the chances are one out of two the firm will be a U.S. corporation.

Targets: The most common business targets are:

1. Travel offices and airline offices 46%
2. Business offices (in the case of U.S. firms, the figure rises to 47%) 37%
3. Production facilities 11%

Trend: Down. The high point for terrorist bombings was 1974. Since that date, the trend has been down. (This is not to imply terrorist bombings of business facilities have ceased but rather that statistically they have declined in numbers - as compared to 1974.)

FACILITY ATTACKS/SEIZURES

(Note: Statistical tabulations do not include incidents in Israel, No. Ireland, or the United States. Period covered is 1 Jan 70 - 1 Nov 77.)

Background: 290 incidents
358 killed (figures known for 90 cases)
332 wounded (figures known for 90 cases)
664 hostages seized (figures known for 37 cases)

In 67% of all incidents where the victim's status was known, no casualties resulted to hostages.

Average Hostages per Incident: 18 (for 37 cases)

Average Size of Attack Team: 4.38

Geographic Location of Facilities Attacks or Seizures:
52% Latin America
37% Western Europe
7% Mideast/North Africa

65% of all such incidents (188 of 290) occurred in Argentina, Uruguay, Spain, West Germany, France and Colombia.

Nationality of Facility Target:
15% Argentina
15% U.S.
11% Spain
11% Uruguay

Types of Facilities Attacked:
16.9% Governmental (non-military)
16.2% Banks (domestic/foreign)
14.8% Military installations/facilities
8.3% Utilities/communications
5.5% Airline industry (excluding time bombs or hijackings)
4.8% Other transportation industry
15.2% Other corporate entities
6.9% Residences
11.4% Other non-corporate (e.g., towns, rival group headquarters, schools, etc.)

Losses in damages and thefts: $31,300,000 (figures from 92% of all such incidents but excludes thefts of equipment)

Weapons used: 50% automatic weapons, 16% pistols, and less than 4% mortars or rockets.

Trend: Reasonably constant over past three years (between 40 and 60 each year).

HIJACKINGS

(Note: Statistical tabulations do not include incidents in Israel or No. Ireland. Includes U.S. hijackings attributed to Black Panthers and Croatian nationalists only. Period covered is 1 Jan 70 - 1 Nov 77.)

Background:
72 incidents
36 hostages killed
15 hostages wounded
1707 hostages released
361 hostages rescued
18 hostages escaped

Average Hostages per Incident: 87 (this figure susceptible to great fluctuation based on potential passenger loads)

Average Duration of Incidents: 3.4 days

Average Hijack Team Size: 3.75

Ransoms Paid: No money demanded in 54 or 3/4 of cases; $13,580,000 paid in eight cases where payment is known.

Nationalities of Aircraft Seized: 34 different countries' carriers hijacked; most frequent are Japanese, U.S., Dutch and Argentine in descending order. Regionally, the nationalities of hijacked commercial air carriers has been:

33% West European
21% Latin American
19% Mideast/North African
8% U.S.

Weapons Used During Hijackings: 68% pistols, 13% explosives, 8% automatic weapons and 6% grenades (use of more than one type is commonplace).

Trend: Downward -- last three years account for only 17 or 24% of all hijackings since January 1970.

FBI-AFOSI-AFSP TERRORISM SEMINARS

FIRST DAY

0830 - 0900 OPENING REMARKS - ADMINISTRATIVE COMMENTS. SA Conrad V. Hassel, FBI. Provides an overview of the seminar to include aims and objectives, methods of instruction, introduction of instructors and background on same.

0900 - 1000 TRANSNATIONAL TERRORISM. Dr. Charles A. Russell, HQ AFOSI. Examines the various types of terrorist groups operating today as well as their structure and organization; the targeting of DOD; commonalities among terrorist organizations (similar ideology and background of members, joint training, exchanges of personnel, joint operations); links between terrorist groups; the role of support states; and terrorist operational tactics.

1000 - 1015 COFFEE BREAK

1015 - 1115 TRANSNATIONAL TERRORISM (Continued).

1115 - 1145 TERRORIST WEAPONRY. SA Thomas Reilly, FBI. An analysis of the various types of weapons used by terrorists. Information is illustrated by case examples.

1145 - 1300 LUNCH

1300 - 1430 TERRORIST ORGANIZATIONAL PROFILE. SA Thomas Strentz, FBI. This block, developed jointly by the FBI and AFOSI, is a psychological and sociological assessment of those types of individuals involved in terrorist operations within the U.S. and overseas. The psychological background of a terrorist is examined as are the roles played by various types of individuals in any terrorist organization. Common/similar character types and roles are analyzed.

1430 - 1445 COFFEE BREAK

1145 - 1600 AIRCRAFT HIJACKING - STOCKHOLM SYNDROME. SA Thomas Strentz, FBI. This lecture focuses on the origin and background of the Stockholm Syndrome and its appearance in victims of aircraft hijackings. The problems posed for counterterrorist forces in coping with the syndrome in actual hijackings are illustrated through case studies.

1600 - 1700 HOSTAGE NEGOTIATIONS. SA Conrad V. Hassel, FBI. Discussion of priorities and negotiation considerations. Emphasis will be placed on those demands which may be negotiable and on the mental state of the subject.

SECOND DAY

0830 - 1000 HOSTAGE CASE STUDIES. SA Thomas Strentz, FBI. An analysis based on actual cases of what went right or wrong from both the tactical and psychological points of view in various terrorist-hostage situations in the United States and overseas.

1000 - 1015 COFFEE BREAK

1015 - 1115 HOSTAGE NEGOTIATIONS. SA Conrad V. Hassel, FBI. Discussion of the relationship between the negotiator and the subject with emphasis upon the selection of the negotiator and on the options available to the negotiator.

1115 - 1200 COUNTERTERRORISM TACTICS. SA Thomas Reilly, FBI. Discussion of counterterrorist tactics to include team composition, training, weaponry, proper employment techniques, and personal protective measures.

1200 - 1315 LUNCH

1315 - 1400 COUNTERTERRORISM TACTICS (Continued)

1400 - 1415 COFFEE BREAK

1415 - 1500 SECURITY POLICE SPECIAL OPERATIONS. Major Peter A. Colangelo, HQ, AFSP. An examination of SP role in hostage/sniper/barricaded subject situations, to include interface with the FBI and civil police. Review of U.S. Government policy on negotiating with terrorists. Discussion of possible hostage situations at Air Force Bases and selection of "negotiator." Analysis of recent relevant situations at Air Force Bases. Discussion of Air Force TNT (Tactical Neutralization Teams) program.

1500 - 1630 VICTIMIZATION. Frank M. Ochberg, M.D., National Institute of Mental Health. An in-depth analysis of the psychological effects on the victim of a hostage situation. This discussion includes an examination of coping under stress as well as other dynamics occurring both while the victim is a hostage and after release. Case examples used.

1630 - 1700 AFOSI-AFSP INTERFACE. AFOSI COUNTERTERRORISM COLLECTION OPERATIONS. Dr. Charles A. Russell, HQ AFOSI. A brief explanation of AFOSI-AFSP interface in countering terrorist activity as well as a description of AFOSI information collection activity/products available to USAF commanders. Includes comments on the AFOSI Protective Services Program.

1700 CONCLUSION. SA Conrad V. Hassel, FBI.

OUT-INVENTING THE TERRORIST

BY Charles A. Russell, Leon J. Banker, Jr., and Bowman H. Miller,
Office of Special Investigations, U.S. Air Force, Washington, D.C.

PREFACE

"What to do until the terrorist comes." Responding to this statement in an unpublished paper so entitled, Drs. Robert H. Kupperman and Harvey A. Smith discuss a three-fold plan of action involving an improvement in and acceleration of intelligence collection, the development and implementation of adequate physical security safeguards in critical areas and above all the creation of a crisis management capability focused specifically upon the terrorist problem. Looking toward new and qualitatively significant changes in future terrorist operations, motivations, group structure and tactics, these authors also argue "some continuing research and development expended on the invention of new terrorist schemes (and their counters) by imaginative official pseudo-terrorists would appear to be a worthwhile effort."* It is toward this goal of "out-inventing the terrorist" that the present discussion is dedicated.

In examining the problem of terrorism as it may develop in the future, we approach the subject from three separate but inter-related points of view. The first, termed traditional analytical, is essentially that used in intelligence analysis. Utilized to examine the contemporary terrorist phenomenon, it proceeds from known capabilities to possible intentions, operates on and from an established data base and is essentially pragmatic in nature. It focuses on the increasingly transnational aspects of terrorism, the groups involved in such activity, their capabilities, known

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* *Robert H. Kupperman and Harvey A. Smith, "What To Do Until The Terrorist Comes," April 5, 1977, p. 10.*

inter-group linkages, motivations and finally targets. From this springboard of relatively hard data, the second approach -- termed speculative -- reverses the capabilities to intentions progression and begins with an evaluation of optimum terrorist targets. It moves from this point into the areas of future terrorist motivation, capabilities and finally the possible configuration of terrorist groups themselves. The final approach, captioned "Crisis Management: Non-Technical Threat Assessment," probes those informational areas wherein data must be sought and rapidly provided to the individuals responsible for decision-making in the face of a stated terrorist threat to inflict high-order (nationally significant) disruption or destruction.

In applying the three-fold methodology outlined above, the authors are aware of shortcomings inherent in each of the three approaches. From the traditional analytical point of view, the methodology tends to assume that "past is prologue." It is factbound in orientation, conservative in outlook, and tends to be non-predictive. Recognizing, however, that the terrorists of the future may not come in the same manner as they have in the past, the speculative technique is used to counterbalance traditional analysis. It too has drawbacks. Among these are its inability to prove conclusions based on hard data and a tendency toward "worst case" scenarios. The final approach poses questions as yet unanswered. These are, nonetheless, questions and avenues of exploration which must be addressed and carefully considered if we are ever to be successful in countering terrorism. Cognizant of the potential problems in these three approaches, yet desirous that this discussion be of some practical consequence, the authors have endeavored to meld the three approaches while intentionally weighing the scales toward

reasoned analysis and away from creation of purely imaginative scenarios. In the final analysis, however, the discussion anticipates that significant qualitative changes will occur in future terrorist activity. In this light, it offers some basic guidelines as we begin the challenge of "out-inventing the terrorist."

THE CONTEMPORARY PHENOMENON: A TRADITIONAL ANALYTICAL ASSESSMENT

Terrorist Groups

Viewing terrorism as the threatened or actual use of force or violence to attain a political goal through fear, coercion or intimidation,* the roots of modern terrorism appear to lie largely in the rising tide of student and radical unrest so evident in most nations of the world during the early 1960's. From this almost international groundswell of dissatisfaction with then extant political establishments, various anti-establishment organizations formed, splintered and eventually spawned elements dedicated to destruction of "the system." Terrorism, a means to an end, was the tactic primarily and sometimes exclusively employed.

National in composition, political orientation and generally limiting their operations to the geographic confines of a single state, these "national" terrorist groups are epitomized today in such organizations as the Armed Proletarian Nuclei and the Red Brigades in Italy, the Basque Fatherland and Liberty Movement (ETA) and the First of October Anti-Fascist

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* *Beyond this abstract definition limitations which exclude both civil disorders and military confrontations need to be added. "Political" is understood in this usage to connote the entire range of social, economic, religious, ethnic and governmental factors impacting on a body-politic, stressing the notions of power and influence. The ideal definition is one which both the adherents and abhorers of terrorism could agree upon.*

Resistance Group in Spain and the People's Strugglers and People's Sacrifice Guerrillas in Iran, among others. Also included in this category are the numerous terrorist elements in Latin America as well as those in Greece, Turkey, South Asia and such groups as the Weather Underground and New World Liberation Front in the United States.*

With the onset of the late 1960's, terrorist group activities took a quantum leap from those purely national in scope to those involving operations across national boundaries, virtually anywhere in the world, at great distance from the terrorists' homelands. Characterized by many authors as "trans-national" terrorist groups, these small, highly professional and disciplined, tightly compartmented and highly dedicated cadre capitalized quickly on the mobility afforded them by expanding international transportation and communication systems. Exploiting the absences of international agreement**

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* *In May 1972 the "national" Baader-Meinhof nucleus bombed U.S. Army buildings in Frankfurt and Heidelberg, resulting in the deaths of four U.S. Army members. In June and December 1976 a group or groups calling themselves the Revolutionary Cell again bombed two U.S. military officers' clubs in West Germany, completely destroying a million dollar facility at Rhein-Main Air Base. Since 1972 four high-ranking U.S. officers have been attacked in Teheran by Iranian terrorists. Three were killed and a general officer was seriously injured. These same "national" terrorists assassinated three American business officials of Rockwell International on August 28, 1976. The Latin American context yields an even greater pool of examples showing the foreign impact which such groups have had.*

** *An example of the basic disagreement was reported by the Foreign Broadcast Information Service (FBIS) from Izvestiya, 30 March 1977, p. 1: "Expounding the USSR's principled position to the [UN Special Commission on Terrorism], the Soviet representative emphasized that the Soviet Union is opposed to acts of terrorism which disrupt the diplomatic activities of states and their representatives, transport communications between them and the normal course of international contacts and meetings. It is quite inadmissable, he pointed out, to extend the concept of 'international terrorism' to the national liberation struggle, to actions offering resistance to an aggressor on territories occupied by him and to working people's demonstrations for their rights against oppression by exploiters." [Underline added.] This position was reiterated by a number of communist powers during the October/November 1977 Belgrade review of the Helsinki agreement. FBIS quoted the October 28, 1977, TANJUG report citing the Polish statement that Poland "is opposed to double standards in the struggle against terrorism, since some forms of this violence are occasionally explained with political motives."*

concerning the legitimacy of terrorism, such groups have operated literally at will throughout the Western world, utilizing sympathetic safehaven states from which to launch and terminate their operations. In contrast to "national groups," they have no standard modus operandi, varying their techniques from aircraft hijacking and kidnapping to assassination, hostage-taking, stand-off attack, arson and bombing.* In brief, transnational terrorist groups have increased significantly the problems and frustrations of security and police agencies worldwide -- it is all but impossible to determine with assurance where, when, why or against whom their next assault may be launched. Starting with this unhappy realization in the first line of defense (intelligence), the resulting complications in the security and crisis resolution phases of counterefforts coalesce to make the consequence of terrorism international.

Although the origins of terrorism itself probably antedate recorded history, the beginning of contemporary transnational operations can be traced directly to 1968 and a conscious decision by certain Palestinian elements to move the focus of their attacks outside Israel proper -- to Israeli targets abroad where risks were least and Israeli vulnerability greatest. Thus, the July 23, 1968 hijacking of an El Al flight from Rome to Tel

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* *The Japanese Red Army is perhaps the best example of the variance in modus operandi. In six operations to date, it has executed two hijackings, one explosives attack, one automatic weapons attack and three hostage seizures, the latter spawning one secondary operation. Their targets have included Israel, Japan, the U.S., France, Sweden and Lebanon. Operations sites have ranged from India, Bangladesh, Malaysia and Singapore to Sweden, France, West Germany, Israel and Kuwait. While one might like to identify hostage-taking as a key JRA technique, one must also note that each hostage operation has included freeing of JRA terrorists as part of its motivation.*

Aviv* by the Popular Front for the Liberation of Palestine (PFLP) represents the first application of the transnational "third country operation" concept in modern terrorism. Although a careful assessment of the potential available to terrorists through an expansion of their operations into an international arena of non-combatant nations should have been anticipated, few analysts foresaw the full impact of this development and the truly qualitative change it brought to the terrorist operational capacity.

Following the PFLP lead, the Black September Organization and other less well publicized Palestinian groups -- as well as various non-Arab entities -- moved into transnational activity. Among these were the Irish Republican Army (IRA), the Japanese Red Army (JRA) and remnants of the West German Baader-Meinhof Group and Movement Two June. With the exception of the IRA, almost all other transnational terrorists -- either as individuals or working within their respective groups -- have been affiliated operationally with the PFLP. The September 1977 presumably Iranian operation in France directed at the Shah's sister may mark yet another entry into the transnational category.

In considering both national and transnational terrorist groups, most authors estimate there are approximately 50 such groups active today. Total action cadre** ranges from one to three thousand persons. Within the purely transnational category, however, there are only seven to nine groups with

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** The flight, a 707 jet carrying 31 passengers and a crew of ten, was diverted to Algeria by the hijackers, who demanded release of Palestinian guerrillas held in Israel in return for the plane and its passengers.*

*** "Action cadre" refers to the innermost circle of a terrorist group, those persons who actually perpetrate the terrorist act such as bombers, hijackers, assassins and so on.*

total membership in the hundreds. In general, these entities include the PFLP and its operational partners -- the JRA, Baader-Meinhof/Movement Two June successor elements and the apparatus directed by Venezuelan-born Ilich Ramirez Sanchez (Carlos). Also included are other Palestinian elements such as the PFLP-General Command, the Black September Organization, the Iraqi-based Black June and its Syrian counterpart Saiqa as well as the IRA, the only group with no known firm operational tie to the Palestinians.

The worldwide mobility of transnational groups and the absence of significant international restraints on their activities has facilitated their operational capability. There is no hard evidence as yet of any formalized coordination of terrorist operations by the equivalent of an international board of directors; this, despite the inferences and conclusions of some commentators that behind the malady lies Moscow, which would appear to benefit from terrorism in the West. The existence of shared support apparats, the use of certain specialists and their expertise by more than one group and occasional interchange of personnel is an established fact. Thus, in 1970, handguns stolen from a U.S. Army facility in Butzbach, Federal Republic of Germany, subsequently found their way into the hands of Baader-Meinhof Group members and ultimately were used by Japanese Red Army terrorists in the September 1974 takeover of the French Embassy in The Hague. In a similar manner, explosives stolen in West Germany during 1971 apparently were used in the May 1972 Baader-Meinhof operations against U.S. Army facilities in West Germany. Grenades known to be in the hands of Baader-Meinhof members during 1971 later found their way into the possession of both JRA and PFLP cadre and were also used by the former in

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the September 1974 barricade operation in The Hague. Additionally, similar grenades moved from the hands of Baader-Meinhof members to the Venezuelan terrorist Carlos (Ilich Ramirez Sanchez) and were used in the September 14, 1974 attack on "Le Drugstore" in Paris.[2]

Cooperation among terrorist cadre in West Germany, Switzerland, Italy, Spain and Latin America also is a matter of record. During early 1974 ETA-V, a revolutionary Basque organization, is known to have dispatched one of its members to Argentina where he was trained in terrorist tactics and the construction of "peoples' jails" by the Revolutionary People's Army (ERP). That same year the ERP loaned the Chilean Movement of the Revolutionary Left (MIR) five of the 12.4 million dollars obtained from the kidnap ransom of ESSO Argentina executive Victor Samuelson.[3] Countless other examples of limited but attested cooperation among similar groups can be cited. An examination of the Carlos apparatus alone sheds substantial light on the nature and extent of such intertwined linkages.

Terrorist Capabilities

Among national and transnational terrorist groups, the most crucial area of cooperation is in the training sector. It is here, in the shared instruction provided to various terrorist elements by the PFLP and previously Fatah, that a truly cohesive catalyst emerges binding together otherwise seemingly diverse groups. In short, Palestinian training and its outgrowth provide what might well be called the glue holding together many of today's transnational and national terrorist elements. In a very real sense these terrorists studied with the same faculty and are graduates of the same

academy. Some first met one another in these schools. Here, directly or indirectly, they have learned their basic skills along with the sophisticated PFLP modus operandi, organizational structure, excellent security practices and clandestine tradecraft.

Since its inception in approximately 1968, Palestinian instruction has been provided at least to the IRA, JRA, West German personnel from at least three groups and to Turkish and Iranian terrorist cadre.[4] In 1976 training also was given to at least 15 members of the Dutch Red Help (Rode Hulp) in the People's Democratic Republic of South Yemen.[5] Coupled with this group-level instruction has been training for various single terrorists including a number of Latin Americans. Notable among these have been the self-styled "super terrorist" Ilich Ramirez Sanchez (Carlos) and Patricio Arguello, a Nicaraguan killed in the September 1970 attempted hijacking of an El Al airliner by a PFLP team which included Leila Khaled.

While shared training experiences have been an instrumental ingredient in the mortar binding together the various national and transnational terrorist groups, also important is the similarity in social, political and philosophical backgrounds of these individuals. With few exceptions, these individuals conform closely to a relatively consistent profile.* They are, in the main: single, male, 22-25 years old (an increasing tendency toward younger recruits is evident of late), university-trained, reared in an urban environment, middle to upperclass in social origin, and

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* *This profile is based on information concerning some 350 known terrorists from 18 different groups involving 11 nationalities. The data was drawn largely from foreign press reporting in the period 1968-1976 and is discussed in an article "Profile of a Terrorist" by Charles A. Russell and Bowman H. Miller, published in* Terrorism: An International Journal, *Vol. 1, No. 1, November 1977.*

anarchist/Marxist in ideology (with a steadily increasing nihilist ingredient). While variations from this basic pattern obviously exist (among German groups approximately one-third of the operational cadre are female while both German and Japanese terrorists are somewhat older than the 22-25 year norm), the pattern is remarkably consistent for virtually all groups regardless of national origin. Even in terms of education -- a notable exception is the IRA -- the vast majority of terrorists with university backgrounds have studied in the humanities or non-technical fields. Minor exceptions occur, e.g., among Iranian and Turkish terrorists where a number are technicians, engineers and physical scientists.

Terrorist Motivation

Although separatist and nationalist objectives are important motivators for the Palestinians, the IRA and ETA, almost all terrorist groups active today either find or rationalize their raison d'etre in Marxist ideology or anarchist schools of thought. Also evident in many groups is an accelerating trend toward nihilism.* The few operative rightwing organizations such as Croatian nationalists, Ordine Nero and Ordine Nuovo in Italy and counterterrorist forces of the right in Spain and Latin America are the obvious exceptions.

Considering the sociological profile outlined above to be representative, the ease in linking Palestinian "national liberation"

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* *For purposes of this discussion "nihilism" is used in a non-doctrinaire sense and connotes the desire for violence and destruction as ends in themselves.*

objectives with the political aims of like-thinking non-Arab groups is obvious. As a result, the close relationships which have grown between George Habbash's PFLP and the groups or individuals it has trained and used in operations are not difficult to understand. Suffice it to say, groups receiving PFLP training have benefited significantly. In return, the PFLP has increased its pool of personnel available for use in transnational operations while at the same time raising the level of terrorist activity generally. In keeping their end of the bargain -- and probably as a form of quid pro quo -- the JRA, Turkish groups, Latin Americans and Germans all have attacked targets selected purely from a Palestinian viewpoint shortly after completion of their training. The May 1971 assassination of Israeli Consul General Ephraim Elrom in Istanbul by Turkish terrorists, the JRA May 1972 assault at Lod Airport and German terrorist attacks on Israeli facilities in Frankfurt and Berlin are all evidence of this "payment" procedure.*

In addition to the above mentioned "proxy type" operations carried out by PFLP-trained national groups, a joint PFLP cadre of terrorists -- joint in the sense of nationality -- also has developed. This cadre can consist of separate groups performing various phases of an operation as in the Baader-Meinhof/Carlos/JRA cooperation in the September 1974 assault on the French Embassy in The Hague or the late 1976 Dutch Red Help intelligence gathering operation conducted for the PFLP against the Air France route

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* *The October 1977 Arab seizure of a Lufthansa jet departing Mallorca, designed to increase the pressures engendered through the kidnapping of Hanns-Martin Schleyer and ending in the Mogadishu commando success, marks the first purely Arab terrorist act on behalf of a non-Palestinian counterpart.*

between Paris, Tel Aviv and Bombay.[6] The cooperative cadre also can take the form of multi-national operational teams. Since 1970, when the Nicaraguan Patricio Arguello and PFLP member Leila Khaled worked together in the attempted hijacking of an El Al flight, the following joint operations involving the PFLP have taken place:

May 1972 - JRA/PFLP/German collaboration in attacking Lod Airport, Israel.

Jul 1973 - PFLP/JRA/Latin American cooperation in hijacking a Japan Airlines 747 in Europe.

Jan 1974 - PFLP/JRA operation against Shell Oil facilities in Singapore.

Sep 1974 - JRA/PFLP/Baader-Meinhof collaboration in assault on the French Embassy, The Hague.

Jan 1975 - PFLP/German/Carlos cooperation in attempted attack against El Al aircraft, Orly Airport, Paris.

Dec 1975 - Carlos/German/Palestinian collaboration in the Vienna assault on the ministerial conference of the Oil Producing and Exporting Countries (OPEC).

Jun 1976 - PFLP/Latin American/German effort culminating at Entebbe.

As a result of the commonalities in sociological background and political outlook, a shared ideology and training experience and the meandering membership of individual terrorists between and among groups -- as well as their participation in joint and proxy operations -- linkages between individual terrorists and terrorist groups have increased significantly.

Through these ties and the channels they create, documentation, weapons and operational aid all have been exchanged.

To a significant degree this same type of assistance is provided by states supporting terrorism and several key leftist apparats which seek to further Trotskyite or orthodox Marxist political objectives on a broad front. Ulrike Meinhof -- before soliciting Palestinian training -- reportedly sought the aid of North Korea for such instruction in November 1971.[7] In this same context it is generally assumed the nine Japanese Red Army Faction terrorists who hijacked a Japan Airlines jet to Pyongyang in 1970 received training there, as have subsequent cadres before and since that date. Similar instruction has been provided by Cuba and the Soviet Union under the guise of military training for national liberation.[8] Additionally, Palestinian training camps are or have been located in Iraq, Libya, Lebanon, Somalia and the People's Democratic Republic of Yemen.* During late 1976 it also was reported that possibly as many as one hundred Basque terrorists were trained in Algeria.[9] In most support activities of the type described above, however, Libya has been the primary source for Palestinian terrorist support, providing finances, weapons, training, safehaven and an operational staging area. In the latter category, two examples were the August 1975 JRA attack at Kuala Lumpur and the 11 August 1976 PFLP attack on passengers in Istanbul's Yesilkoy Airport, operations which either ended or originated in Libya.[10]

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* *"The State Department has accused Libya, Iraq, South Yemen and Somalia of actively supporting terrorist groups, according to congressional correspondence made public yesterday."* (*The Washington Post*, 9 May 1977, p. A10)

Additional evidence of how diverse nationalities can and do collaborate within an assault team was reflected in both the OPEC attack and the Air France hijacking to Entebbe. The West Germans, for example, showed in the persons of Hans-Joachim Klein and Gabrielle Kroecher-Tiedemann how they could work effectively with Venezuelan Ilich Ramirez Sanchez (Carlos) as their team chief at OPEC. At Entebbe, Wilfred Boese and Brigitte Kuhlmann, longtime cohorts of Klein, led the assault in the air but yielded operational control to others on the ground, possibly to the South American Antonio Dages Bouvier, former London-based chief of the apparatus headed by Carlos.[11]

In addition to a similar personal background, shared ideology and training, intergroup linkages and the assistance of support states, transnational terrorist operations also require a variety of weapons and high quality false or stolen documentation. Although terrorist weapons have ranged from handguns to the man-portable SA-7 missile, the timed bomb and automatic weapon have remained the mainstays of the terrorist arsenals. Both provide effective destructive potential, relative ease of transport and concealment and thus enhance operational security. Such weapons and explosives also can be readily acquired from benefactor states, through theft, purchase or even simple fabrication. Equally important in both transnational and national terrorist activity is quality false documentation. Again, as in the case of weaponry, the same basic avenues of supply are available -- benefactor states, sympathizers, theft, alteration and outright purchase. All these methods of acquisition are in regular use and are reliable for obtaining needed documentation. In this context, the role of "national liberation" broker networks such as the Paris-based "Curiel apparat" directed

by Henri Curiel also should not be discounted. These reportedly have been involved in the production of some of the better false documentation recently available to terrorist cadre.[12]

Terrorist Targets

Despite occasional setbacks, the appeal of contemporary terrorist activity accounting for its continued widespread use is quite simply its apparent success. It is a cost effective, manageable and operationally sound tactic useful to small groups of highly dedicated, well trained and resourceful personnel. The motivation for using terrorism lies largely in the notion "propaganda by deed"[13] and the recognition afforded its users. They recognize its value to them as well. With a common sociological background, most terrorist groups share the same general political goals -- negatively expressed -- destroy a government, alter a policy or law, oust a foreign power or economically dominant class, attack imperialish/colonialism/Zionism, etc. As long as this motivation is rooted in an ideology with universal applicability or is without ideological roots at all, national-level objectives can easily be subordinated to international political goals or melded with them. Thus, the Japanese Red Army could readily support the PFLP as one phase in its ultimate plan for "simultaneous world revolution." In a similar manner, the purely national goals of such groups as the Turkish People's Liberation Army, the Iranian People's Sacrifice Guerrillas or the various German terrorist organizations can be melded easily with the broader revolutionary aims of the PFLP or even the JRA.

Of particular concern in this dilation of group-specific motivations is the fact that as motivation ceases to function on a purely national plane,

the constituency for whom the terrorist group operates may begin to fade in favor of some vague worldwide constituency -- if, in fact, constituency continues to play any role at all. Such a change could have a direct impact upon the nature and degree of terrorist violence, assuming that a constituency (real or imagined) acts as a moderating influence on the type, targets, and level of violence in terrorist operations. Put another way, if the terrorist feels a need to avoid alienating certain groups of people or sectors of society (the masses, "the little man," the proletariat, the innocent victims of exploitation, etc.), then this factor must enter his deliberations on target selection and the type of operation to be conducted.

Such may be the rationale for targeting of facilities rather than people in certain instances. In those terrorist incidents recorded since the 1968 onset of transnational operations, whether carried out by national or transnational groups, the actual number of casualties has been relatively small.* The basic reason for this seems to have been the conscious and selective nature of terrorist operational scenarios and targeting. As Brian Jenkins has stated ". . . terrorists want a lot of people watching, not a lot of people dead."[14] The truth of this observation lies primarily in the fact that most terrorism to date has been claimed to be altruistically motivated, ideologically explained, and has had as its goals recognition for the terrorists as well as the creation of political leverage for terrorist groups.

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* *This observation was the focus of Dr. Ted R. Gurr's presentation at the Conference on International Terrorism hosted by the Department of State on 25-26 March 1976. Dr. Gurr's research, based on data concerning terrorism in 87 nations in the period 1961 to 1970, indicated approximately 4600 total deaths, fewer than 2000 from the four most violent campaigns. No single incident has thus far claimed as many as 100 lives.*

Because of the intrinsic value of human life and the psychological stress when one or more is jeopardized, the terrorist target almost invariably remains a human one. The specific types of people targeted are usually those at the top of industrial, governmental or military/police hierarchies (judges, politicians, military/police personnel, corporate executives, etc.). Attacks against such persons are easily rationalized and justified in that they are perceived as symbols of "exploitive imperialist elements" or are part of the "repressive organs" of the state.

In general terms then, we have not come all that far from the assassination of Alexander II to the murders of Admiral Carrero Blanco and British Ambassador Ewart-Biggs, other than in the technology employed. The point is that terrorists, with minor exceptions such as transnational operations, have not been "terribly" creative to date. The potential, yet untapped, for this operational creativity lies in modern technology. It is this same technology, when coupled with the increasingly fragile, exposed and interdependent automated systems so essential in our modern society, which appears to offer a drastic change in terrorist targeting from selected individuals to larger and less defineable groups. In this context and in light of the improved operational potential afforded terrorist groups, the advance in terrorist weaponry from the rifle to the SA-7 is still only an evolutionary one. In view of technology's potential for a contribution to future quantum leaps in terrorist capabilities -- and considering the fact terrorist operations are predicated on the high value society places on human life -- one can only speculate where and how terrorists of the future may escalate their operations. It is this primary question which the

traditional analytical approach of the intelligence craft cannot answer adequately and ignores. It is here that the speculative method has its merits and can function usefully, when complemented by the ongoing efforts of traditional analysis. In short, it is in this regard that we must try to "out-invent the terrorist."

OUT-INVENTING THE TERRORIST: SOME THOUGHTS ON THE SPECULATIVE APPROACH

Terrorist Targets

The recent past has illustrated almost invariably that the targets of terrorist activity are people, both individuals and groups. Many of the groups have been basically of coincidental composition, such as airline passengers, visitors to facilities, and so forth.* On an individual basis, targets usually have been selected for their symbolic value -- for what they represent. No doubt this type of targeting will remain a significant aspect of terrorist target selection and operational endeavor in the foreseeable future. The "terrorism as theatre" notion[15] -- that terrorists are actors, that their activities are performed as an operational drama with the world as an audience -- is very useful in this context. Within this analogy lies a key element in terrorist motivation: to instill fear or intimidate the spectator by pointing up his own vulnerabilities as illustrated in attacks on selected persons or groups. If these spectators, in turn, become increasingly conditioned to unreflected acceptance of a certain level of terrorism (many

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* *This non-particularized target composition was an important aspect in the 23 July 1968 PFLP hijacking previously mentioned. Dr. Habbash later articulated the PFLP's "two camp" proposition that there are no neutrals; everyone is either part of the solution or part of the problem. This notion too attends the quantum leap character of the transnational "third country operation" concept.*

societies already have become numbed to growing criminal and fictionalized violence), then the desired transfer of impact from the terrorist target (the direct victim) to the indirect victims (the mass of non-participating spectators) will suffer. This situation would appear to be growing, if not already in an advanced stage of development.* In this context one might ask, for example, whether those few deaths resulting from aircraft hijacking are that shocking to a world which in 1977 on Teneriffa, Canary Islands, witnessed over 500 persons die in a single accidental aircraft disaster. One must ask whether the non-participating spectators differentiate between intentional and accidental killings; and if not, why not? Accidental catastrophies, coupled with the continued increase of criminal violence within our society, would appear to be reducing the impact of calculated terrorism upon the spectators.

Assuming familiarity breeds contempt, repetition conditions and that there is a degree of one-upmanship between and among terrorist groups, they then, it would seem, have two basic alternatives.** They can lower the threshhold of violence and redirect their operations at those aspects of society upon which the entire populace depends -- utilities, energy, food and water, transportation, communications, monetary and financial systems, and similar essential services. Or, in the converse, they may attempt to increase the number and range of casualties (human targets) by mustering greater resources

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* *A poll of German citizens taken by the Emnid-Institute following the Schleyer murder revealed 61% to feel themselves helpless against terrorism since total protection is inconceivable. (Die Welt, 31 October 1977, p. 2)*

** *An interesting comparison and contrast might be made between the PFLP and BSO in this context. The former was first in transnational operations, the latter second. The PFLP was skyjacking-oriented; the BSO tended toward assassination. While both received international press attention and their activities were seen as furthering "the cause," we are left with the question of whether their campaigns were (are) essentially a vying for leadership within the Palestinian "constituency."*

and proceed to mass destruction. For the sake of the following discussion, we shall label the two preceding target alternatives "mass disruption terrorism" and "mass destruction terrorism."

Mass Disruption Terrorism

In seeking to identify potential targets of disruptive terrorism, one must assume the status of a pseudo-terrorist and identify targets on a scale of relative attractiveness. The determining factors in such target selection will include optimum potential impact, the identity and size of the intended victim group and the type of desired impact. While publicity and recognition remain characteristics of the terrorists' aims, the very nature of disruptive operations will decrease the need for exploitation of media coverage to broaden public awareness of a given operation. The news media will continue to inform the world of specific incidents, but the vastly larger body of actual (through presumably non-casualty) victims will obviate the need for localized publicity. Clearly, media reporting to the U.S. East Coast that terrorists had succeeded in causing a massive electrical blackout there would be both unnecessary and perhaps impossible. The electronic media could not operate in such an event and electrically controlled printing presses would also cease to function. Absorption of the publicity phase into the disruptive operation itself would have been realized. The recognition or credit-claiming phase would be delayed but no less effective. Credit claimed for such disruption and a threat to repeat it offer untold coercive potential.

In view of the above, terrorists (or pseudo-terrorists) must ask what existing targets, or those in the research and/or development phase, could

be attacked to bring about the desired degree of disruption, chaos, inconvenience, and frustration. On one level, the terrorist would consider systems in terms of criticality of impact. Quite simply, what are the aspects of life which, if disrupted, would most quickly and demonstrably affect many human lives? Food, water, means of communication, modes of transportation, sources of energy, management of the flow of goods and services, financial systems, health and emergency services all immediately spring to mind. While a temporary disruption of such services will not of necessity cause a great number of casualties, it would generate considerable (understatement) concern among those directly affected, among those responsible for insuring the integrity of the affected systems and among those who otherwise also could have been victims. In a well-orchestrated campaign of such disruptive acts, democratic states most likely would be unable to deal effectively with these developments using methods which are acceptable to the voting public. Forcing governmental over-reaction through resort to martial law or other methods of controlling both the populace and the phenomenon will continue to be a primary terrorist objective.* This disruptive mode, because of its effect on a large number of victims, has considerably greater potential for energizing and polarizing an

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* *One of the statements to this effect by terrorists themselves is in a Basque ETA V training manual quoted in Blanco y Negro, June 29-July 5, 1977, p. 27: The enemy, altogether, is a thousand times stronger than we are. But each time we attack, at that very moment and place, we are stronger than he is. The enemmy, as a massive animal, stung by many bees, is infuriated to the point of uncontrollable rage, and strikes out blindly to the left and right - on every side. At this point we have achieved one of our major objectives; forcing him to commit a thousand atrocities and brutal acts. The majority of his victims are innocent. Then the people, to this point more or less passive and waiting, become indignant and in reaction turn to us. We could not hope for a better outcome. (Translation by C. A. Russell)*

audience which previously was watching and now is helplessly involved. The frequent terrorist reclama, "There are no innocent victims, only allies and enemies," will then be no longer merely a rhetorical device. It assumes the greater proportions of a polarizing catalyst.

Having selected a system as his target, the terrorist must then determine the most vulnerable points within that system, i.e., identify the weak link in terms of vulnerability to external attack or the key element upon which the entire system depends. Obviously, the optimum or ideal case would be for those two target characteristics to coincide at the same locus. Additional considerations for the terrorist include: system redundancy; available inventory of replacement components; time required to respond, to identify the disruption's origin and to correct or repair it; duration of disruption and permanent effects, if any. Fed by the media, public pressure would increase substantially, the greater the duration and range of disruption. Precipitous government response, however, brings with it room for error, miscalculation, possible over-reaction and failure.

Mass Destruction Terrorism

In moving from the disruptive mode to that of "mass destruction terrorism," there is indeed a quantum leap with reference to targets and their selection. This type of terrorism no longer fits the concept of "wanting a lot of people watching, not a lot of people dead."[16] Instead, destruction is aimed directly at a multitude of people in an escalation toward the creation of maximum fear and perhaps intimidating the world audience in general. Although this type of terrorism is not specifically systems-oriented in terms of targeting, it would well include as targets any and all materials required

by humans which are capable of being destroyed or contaminated rather than merely disrupted in terms of their availability. The potential employment of biological, chemical, nuclear or other high-technology materials or weapons has been discussed at length and it is not our purpose to review or seek to expand on such discussions.[17]

The mass destructive mode can target materials for acquisition and subsequent use against human targets; it can also target materials in such a way that the initial operation itself yields human victims or less than that, the threat convincingly coerces governments. For instance, a group could cause release of radioactive materials through some form of sabotage or could first acquire such materials in an initial operation with a logistics objective for subsequent utilization in undertakings against human targets. Thus, there is a need to defend against both the overt attack and clandestine acquisition. Physical protection could become increasingly valueless if it does not secure all available sources of the needed materials. Assuming terrorists possess the requisite resources, the targets and victims become one and the same -- people.* If a group has already decided upon this terrorist mode, their desired impact is self-evident. Thus the most attractive and critical target is the greatest concentration of people -- densely populated major urban areas. The prospect of a holocaust in terms of the publicity generated is obvious and has already been a favorite subject for the film industry.

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* *In countries where governments are not freely elected, the decision-making process in the face of coercion and intimidation would presumably end up with differing value considerations than with democratic/representative forms of government.*

· Risk Assessment

The counterbalance to the target attractiveness quotient is risk and its assessment in terms of the operation and the target selected. Terrorism has been and will continue to be a tactic of the weak in both a military and political sense. Due to their need to retain a positive, credible image, terrorists who see themselves as representing a constituency cannot afford defeats involving significant personnel or political losses. Thus, regardless of the attractiveness of a target, the group will not launch an operation when the assessed risks significantly outweigh the potential fruits of success. Presuming the current proportion of terrorists with an obvious concern over their mortality endures, one may reasonably also assume the entire notion of assessing operational risks will remain a valid criterion in their target selection processes.

In determining risk and target vulnerability, the terrorist will look at what defensive measures exist. If security is apparent (and with less-seasoned groups this is sufficient to deter) or convincing in its strength and overall capability to protect, the terrorist may assess his risks as relatively high. Even if the protection afforded appears to be excellent, a realistic risk assessment process is usually not a simple task to accomplish. The other component is the terrorists' assessment of their own capabilities in a possible confrontation with the security they have actually gauged. Thus, the prevailing attitude that obvious security measures are the best deterrent to preclude being selected as a terrorist target remains essentially valid. One might ask what effect publicized efficiency in the physical security sector, as opposed to the emphasis on security weaknesses, might have with

respect to terrorist calculations of risks involved. Terrorist successes in an environment which a government has publicly labelled secure may be more devastating in the long run than the absence of such assurances.

In the contemporary mode, the terrorists' risks are established. In the disruptive mode, now and within the foreseeable future, one would have to state that terrorists' risks are probably minimal, particularly in those societies with the greatest technological development and urbanization. At the same time few cases have yet demonstrated terrorists' intentions or capabilities for deep penetration into industrial targets of the type envisioned. In the third or mass destruction mode, the risks again increase for the terrorist since some segments are gradually becoming energized to the potential damage and loss of life which a viable employment of this technique could cause. Some measures already have been taken to guard against both attacks on and acquisition of these resources and security development continues. These measures, however, have been directed primarily against the threat of overt, frontal assault. The potential for an "inside job" should be a very real concern.

People have been and will be terrorist targets and are not able to be fully secured in an open society. Their attractiveness has been based on target symbolism and the inherent value of human life. If technological systems replace people for purposes of targeting, the security dilemma will not become any easier to solve since the number of potential non-human targets and their points of access are so vast that all cannot be completely protected. Their attractiveness will be assessed on the degree and extent

of impact which their disruption might cause. In both the disruptive and mass destruction modes, technology provides countless possible targets. Their allure in terms of impact, publicity and criticality will be a function of terrorist motivation. A crucial question is whether incidents which inconvenience or disrupt rather than maim and kill can have the same impact. As technology provides targets, it also affords improvements in security, the application of which will continue to lag unless the point of consciously incorporating security into systems as they are being conceived, designed and constructed is reached. Likewise, technology will provide the means to increase terrorist groups' operational sophistication. The essential balance among advances in security, target attractiveness and terrorist capabilities may well remain constant, although all on an elevated plane. Technological interdependence among systems which could become a target will further increase system attractiveness to the disruption-minded terrorist, particularly if the possibility exists that the sabotage of one system may lead to problems within others in a domino chain of events.

The proliferation of technology as well as technological expertise places constant pressure on the reliability of physical security as a barrier to terrorist operations. In areas of high technology which are not dependent upon specific physical substances (e.g., lasers), optimum physical security would have to include informational security such as constraints on the availability of scientific innovations and their applications. For example, the entire question surrounding genetic engineering (its potential for positive contributions to the sum of human knowledge) touches

on this issue and must be recognized as carrying with it the necessity for adequate safeguards against any misappropriation for destructive ends. Another aspect of this particular issue centers on the tolerance of special interest groups, particularly the scientific community, with respect to restricting the free flow of ideas. The specter of state control or management of information looms at the other end of the continuum. In the final analysis, targets will continue to exist due to the impracticability of total security and will be available to terrorists in the future. Both the mode of terrorism and targets selected will be a reflection of the motivation which moves the terrorist and his group. In terms of human casualties, it seemingly could range from "non-violent" disruptive to mass destruction varieties.

Terrorist Motivation

Terrorism has been used when all else fails and frustration peaks. We have seen the onset of a withering process in motivation based on systematic ideological schools of thought. Terrorist proponents articulating an adherence to Marxist, anarchist or other defined ideologies are becoming fewer in number. At the same time the number of terrorist "true believers"* remains fairly constant due to the community of those who oppose the same or similar things in many countries throughout the world. These purely negative motivations tend toward nihilism per se. They are grounded in an existentialism**

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* *The term is drawn from Eric Hoffer's excellent treatist, The True Believer, Harper, New York, 1951.*

** *One of today's foremost existentialist philosophers, Jean Paul Sartre, took great pains to visit Andreas Baader during the latter's imprisonment.*

which places emphasis on act(s) seemingly without attention to their "whatness" or nature. Terrorist violence is an act of the will. It is this same characteristic, of course, which always has separated terrorists from the orthodox Marxists who insist on orderly progression towards eventual proletarian revolution. One of the primary tenets of most mass movements is that the activists (usually intellectuals) are the vanguard of a constituency for whom they act. As motivation tends away from a positive ideology toward a nihilist attitude, certain constraints normally characteristic of popularly-oriented and ideologically-based movements also will fade in importance. The concern of the non-ideologically motivated focuses on the requirement for immediate action to alter existing conditions and not upon the creation of an ultimate utopia or the form it should take. While one previously fought for a constituency, the tendency is now basically just to fight. The successors to the Baader-Meinhof Gang exhibit this trend more and more.*

With a constituency, either actual or perceived, non-selective or random terrorism can be counterproductive, leading to mass alientión and revulsion. In the contemporary mode, where such constituencies are presumed to exist or appear sought-after, this awareness was demonstrated well in the calculated orchestration of Black September terrorism between 1971 and 1973. Having

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* *"The less clear the political purposes in terrorism, the greater its appeal to unbalanced persons. The motives of men fighting a cruel tyranny are quite different from those rebels against a democratically elected government. Idealism, a social conscience or hatred of foreign oppression are powerful impulses, but so are free floating aggression, boredom and mental confusion. Activism can give meaning to otherwise empty lives."* Laqueur, Terrorism, p. 128.

forced the world to ask "Why the violence?" -- the campaign (presumably undertaken for Palestinians) was halted in favor of letting international politics run its course. Other groups, however, attempt to use terrorism in order to win popular support for their aims. Thus, the Baader-Meinhof Group, which as revealed in the writings of Ulrike Meinhof and Horst Mahler realized it did not have popular support, tried to obtain such support by selective targeting and a cautious avoidance of harm to potential supporters and the common man. These illustrations point up the fact that moderating constraints have been imposed by the group on itself, mindful of the need to avoid active popular assistance to the countering forces of governments. Accordingly, it is this idea of constituency which is crucial in weighing a group's motivation for escalation into mass disruptive or destructive terrorism. Neither appears likely to foster, or even retain, a significant level of support among people who heretofore have been unaffected, i.e., in a spectator status. This loss or abandonment of a constituency can be one of the most important indicators that the group is willing to escalate its operations qualitatively into mass disruption or even perhaps mass destruction. In those few examples of would-be mass destruction operations or such declared intentions, it is significant that the perpetrators thus far have been sociopaths, pranksters, mentally disturbed or others with no claim to either ideology or constituency.[18] With regard to group-based terrorism, an unanswered question why as yet no catastrophic incidents have occurred remains.

The basic allure of terrorism is one which we recognize, yet are extremely reluctant to admit openly. Terrorism works, in the short term at least. It is efficient and cost effective. Were it not working or

inherently doomed to failure, the resources and urgency devoted to this problem could be more productively employed elsewhere. Other evidence of the realization that "terrorism works" can be found in increased hostage-taking, perhaps considered terrorism in ultimo in the minds of many laymen, by individuals with various personal grievances or mental problems. This "monkey see - monkey do" development would seem to indicate that a portion of the population,* which is not politically motivated or inveterately criminal, has turned to pseudo-terrorism as a way out of frustrations brought on by various causes.

As the attitudes of various groups toward critical issues in society harden in terms of their resolve to defend a given point-of-view, terrorism probably will be considered more frequently as an alternative to merely surrendering to an opposing view or force. For example, with Concorde landing rights granted in New York over the protests of area residents, some opponents will doubtless give at least passing thought to doing something to the object of their dismay -- the aircraft itself. If such thinking were to culminate in an attack on the Concorde aircraft, the move from citizen concern to terrorist assault would have occurred over an issue which, for homeowners, is essentially apolitical. Washington, D.C., witnessed a similar "terrorist" gambit, if not solution, in the Hanafi Muslim hostage-taking operation in March 1977.

Many issues and conflicts in the United States today have a potential for development of opposing views so resolutely held that terrorism appears

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* *The recent incident in the Philippines in which a felon was overcome and killed by his hostages is one of a growing number of such cases.*

a thinkable tactic in their furtherance. These include such areas as: energy and its nuclear sector; the environment; ethnic conflicts and minority rights; labor disputes; inflation; and various types of shortages, to name a few. Again, consistent with the activist bent away from absolute rights and wrongs, the decision to engage in terrorism becomes one of weighing relative values -- is it more acceptable to endure the foreseen destruction of the ecological balance, for example, than to terrorize one segment of society in order to draw attention to a more costly possibility (morally and possibly financially). In short, will ends which are essentially apolitical justify violent means?

Examination of the use or misuse of the term "terrorist organization" may be useful in this context. The word "organization" infers that individuals band together exclusively or primarily in order to practice terrorism. If terrorism is a tactical means subordinate to a primary, previously existing political objective, the primacy of the political objective(s) remains intact. Thus, the coinage "terrorist organization" and its usefulness are subject to serious question. It would appear that most, if not all, so-called terrorists espouse political objectives. With any increasing tendency toward nihilism as the primary motivation for the adoption of terrorist tactics, perhaps the term "terrorist organization" and its tactical versus strategic connotations will take on new shades of meaning. The likelihood is that terrorism will become both a pseudo-ideology for some groups with nihilist aims while other political groups will consider occasional resort to terrorism for its "attention getting" qualities. Terrorists in

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industrialized states appear to be so far from achieving their perceived political goals that they may well be losing sight of them entirely.

As with the present mode of terrorism, in disruptive or destructive terrorism, one basic aim will remain consistent -- to cause a government or its agencies to overreact. This would alienate the populace which democratic governments exist to serve. While the terrorist trend toward nihilism grows, an inversely proportional disregard of the need for a constituency on the part of terrorists takes place. However, democratic governments themselves feel the need to act, aware of the needs and desires of their constituencies. Lacking the inducement of a governmental overreaction, the terrorist alternately seeks to prove the establishment's inability to cope. Again the future terrorist may show little regard for his own constituency, if any. Instead, he may concentrate on showing the government that its attempts are hopeless and incapable of stemming the tide of a disruptive or destructive campaign of terrorism.

The government is faced with the apparent dilemma of choosing between non-selective retaliation, which will be the overreaction sought by the terrorists, or flexible response which may be doomed to failure in its inadequacy. Obviously, the discriminate, reasoned response is the ideal. But there may even be problems in convincing the citizenry and the media that such is in fact the proper course, given persistent, irritating disruption of systems and services due to terrorist operations. Indeed, the quandary would be worsened if officials are faced with the total elimination or contamination of a residential area, town or city. In this context an effort devoted to

speculative analyses to aid in planning for both security precautions and crisis management could be very useful.

Terrorist Capabilities

The gap between a terrorist group's desired capabilities and its actual skills and resources is a crucial one. Having proposed some operational possibilities under both the mass disruption and mass destruction target alternatives, our attention turns to the capabilities which would be necessary to carry out such acts. One point in these considerations is very significant: even qualitative changes in terrorism do not necessarily require notable advances in acquiring or developing new skills or resources. The inherent attractiveness of terrorism lies in its simplicity. Tremendous expertise and large amounts of material or manpower are not requried. Noted earlier was the qualitative change into transnational terrorism. This move by the PFLP was without any particular increase in skills or resources. It centered on exploitation of certain otherwise criminal practices (kidnap for ransom, extortion). These techniques were employed against the enemy (Israel) at its weakest points ("third country operations" and against "non-neutral" targets). They were carried out with reliance on the standard clandestine tradecraft of the espionage agent. The fact is that with these exceptions terrorists have not been particularly creative or inventive.

The potential for operational creativity among terrorists is afforded by our technological advances and increasing reliance on sophisticated systems. To take advantage of technology targets, terrorists will need some technological knowledge in order to locate and disrupt systems. Various possible sources

of such information exist. Terrorists can include persons with the requisite academic training or vocational experience. Turkish and Iranian terrorist groups were cited earlier as having a considerable number of such people already in their ranks. Other avenues include recruitment of persons with the necessary knowledge, obtaining witting or unwitting cooperation of experts,* coercing persons to aid the terrorists in their endeavor, or even obtaining training or knowledge with specific operations already in mind. The potential for coercive, monetary or ideological recruitments and the idea of "terrorists-in-place" are worthy of separate study as spin-offs from the worlds of intelligence, counterintelligence and espionage.

Before ascribing any real limitations to terrorists' potential in the area of learning about technologies, one should recall that most of those seen thus far have university training and are worldly-wise. Their resourcefulness and willingness to commit themselves to study is evidenced in the dispersion of terrorist literature such as the works of Carlos Marighela, Abraham Guillen, Regis Debray, the Anarchist Cookbook and others.**

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* *The West German Interior Minister recently was convinced that such a possibility existed with reference to a German nuclear expert and terrorists affiliated with the Carlos apparatus. For background on the incident surrounding Dr. Klaus Traube and the questionable audio surveillance of his residence, see "A Scientist's Terror Link Worries Bonn," The Washington Post, March 1, 1977, p. A8; "Bugging of scientist's home puts Minister in awkward spot," The German Tribune, March 3, 1977, p. 4; and "Man muss mit allem rechnen," Neue Rhein-Zeitung, March 3, 1977, among others.*

** *The drawings published in William Powell's The Anarchist Cookbook, Lyle Stuart, 1971, originally appeared in Cuban documents surfaced in the 1960's in Puerto Rico. They have been used in the German version published in 1974 and others.*

Exploitation of existing military training publications in the use of weapons, explosives and partisan warfare tactics is commonplace. The so-called underground press focuses on and is a vehicle for dissemination of much of this information. In his prison-circular correspondence Andreas Baader referred his colleagues on the outside to a multi-volume East German work on explosives fabrication.[19] Irish terrorists have long extracted sufficient chemicals from fertilizers to circumvent legal prohibitions on explosive substances and go on building their own devices. Why should this type of ingenuity somehow decrease in the targeting of more advanced technologies? While overestimating terrorist capabilities has its faults, some of which already may have cost millions of dollars in the security sector, the real dangers lie in underestimating their ingenuity and resourcefulness. The same applies in the area of the terrorists' own emphasis on out-flanking counter-terrorist methods and advances. Once again the Baader-Meinhof Group is an excellent example in which incarcerated and other terrorists routinely studied professional law enforcement journals where much of the countermeasures discussion is carried on.[20] The vast amount of open academic discussion in this area presumably is of interest to terrorists as well. We will return to this dilemma in our observations.

In the area of weapons and resources potentially available to future terrorists, one can envision a spectrum from carpenters tools to the most sophisticated man-portable missiles. While concerns center on the SA-7, the Redeye, its second generation the Stinger and others, disruptive operations will doubtless be most dependent upon excellent intelligence and target access. If a group can locate target vulnerability in a system (be it a

powergrid, relay point or whatever), then its problem is to gain access through ruse or force. Thus far, success in such penetration has not been plentiful. Once a penetration has been made, if one is indeed necessary, then wire cutters, a small charge or even foreign matter may trigger the desired disruption. In mass destruction terrorism the necessary resources are those discussed above and others like them.

Another resource available to terrorists, and already in increasing use, is cooperation. They learn from each other around the world. This can be directly through training and exchange of personnel. It also can be indirect through the media, handbooks and, of course, the entertainment industry. Terrorist "technology transfer" has been documented continually. Cuban use of letter bombs in the 1960's to Palestinian and IRA adoption in 1972-73 is one example; the technique was not originated by the Cubans. Others have included the IRA duplication of the Carrero-Blanco operation in Dublin, the use of people's prisons and so on. The basic types of operations are not endless and variations on proven, successful techniques are the rule in terrorism at present.

We will doubtless see the creation of at least a limited division of labor, especially where certain groups or individuals perform a specific operational or support task very well. This may become a necessity in cases where resources or manpower shrink, such as occurred following the Baader-Meinhof demise in June 1972 and may be underway in Argentina, Iran and Japan. Refinements in false documentation, clandestine communications and other tradecraft will occur as necessity proves to be the mother of invention. Experience remains the best teacher. The dry-run operation, practice session

and test explosion.presumably will continue, even in disruptive or mass destruction terrorism to some extent, and may be communicated to us more frequently by the terrorists in order to prove their credibility and to extort concessions lest the "real" operation be launched.

Terrorist Groups

Having sketched two qualitatively new terrorist target alternatives and some of the attending motivations and resources for such operations, we will now focus on terrorist groups. We must ask ourselves if and how terrorist groups in the future will differ from those we see today. Of equal interest are some preliminary judgments as to which types of current groups appear most likely and capable of escalation into mass disruption or destruction terrorism.

In looking to the future it appears likely that fewer tightly-structured groups with the longevity of the IRA or PFLP will emerge. Assuming ideological motivation will yield more to a nihilist attitude, larger numbers of smaller, perhaps fleeting, groups might be expected to appear and try their hands at the terrorist approach. In addition, other groups not primarily of a pre-conceived political persuasion will resort to its use on a selected basis. The complexity of intergroup linkages will grow as single operators change their affiliations, are exchanged or seek new contacts. The already difficult task of intelligence collection against terrorists will be complicated even more by such developments. Groups showing the greatest innovation and resolve in the operational arena will attain a level of prestige, as did the PFLP with its transnational acts, and be able to select from a pool of willing recruits or transfers from other groups. Solution of the Palestine question, which Rejection Front elements doubtless will find unacceptable, will not eliminate

certain trends toward cohesion and cooperation. Success becomes its own reward and terrorists, both actual and potential, will continue to seek ties with "winners." In fact, adhoc competition among groups for media attention and recognition could well be one external stimulus for escalation into mass disruption or mass destruction operations.

Group configurations may be altered in the sense that terrorists who do not in fact participate in operations may no longer be acceptable in leadership ranks. People like Shigenobu Fusako, Wadi Haddad, Abu Daud and the like may be forced to accept commando risks in order to claim leadership rights. As mentioned above, while the number of groups may grow, they will presumably be smaller and could conceivably consist of single cells of only several individuals. Such a pool of operatives floating among "revolutionary cells" may be the current state of affairs in West Germany. Women, who have increasingly entered the operational sphere -- particularly among German and IRA groups -- will more often see participation in operations and be group leaders. The precedents have long been established for this as well as for a lowering of the entry age for terrorist involvement. Teenage terrorists already have appeared within IRA and Palestinian ranks in more than isolated instances.

Multi-national groups such as we already have witnessed around Carlos, and most recently in the arrests in April 1977 in Sweden, may very well be quite common in the coming years. Expansion in the geographic breadth and general accessibility of support networks can be expected with organizations such as the Fourth International playing a larger role. Aside from a tendency toward younger terrorists and a larger percentage of women, the remaining

characteristics of the terrorist sociological profile of today will continue. One alteration could be indicated in a trend underway in Italy to draw increasingly on the participation of professional criminals in terrorist undertakings. The combination of political activists and criminals is evident in the Armed Proletarian Nuclei and Ordine Nuovo already. Other groups, such as the now defunct Symbionese Liberation Army in the United States, have sought to recruit fellow inmates while in prison. This is also true of German groups and was evident in the JRA request for release of non-JRA criminals in the October 1977 hijacking.

Terrorist bases of operation will continue to be largely in urban areas, aside from safe locations in sympathetic sponsor states. The possibility of some groups operating against cities from more rural areas exists -- Baader suggested it and Latin American groups in countries with uninhabited hinterlands do so now -- but the urban environment lends itself to good cover if security is practiced judiciously. It appears obvious that elimination of external safe havens will not solve the terrorist problem in its entirety.

If such developments as we have extrapolated indeed occur, the role of intelligence will be increasingly significant. At the same time its functions will be much more complicated. If speculative approaches are pursued with reference to optimum terrorist targeting possibilities, it will fall to conventional intelligence activities to determine the status of any and all groups with respect to the skills and resources needed to escalate operationally. Intelligence analysis coupled with speculative models will be called on to verify the convergence between presumed terrorist objectives and estimated capabilities and to postulate credible intentions. Intelligence collection

and analysis will have to be watchful for qualitative (revolutionary) changes in capabilities while seeking to anticipate short-term intentions. While cogent speculation can add new insights and vastly aid in planning, traditional analysis will retain its premier position in the day-to-day confrontation with terrorism.

Among terrorist groups currently operating, entities whose constituencies are vague or non-existent and whose motivation is basically nihilist offer the most likely candidates for escalation into disruptive terrorism. These could include the JRA, West German groups and even fledgling American groups, such as the New World Liberation Front and Weather Underground, whose ideological underpinnings are essentially anarchist. These groups emerged from so-called socialist student federations in the late 1960's. German groups, for instance, have destroyed mass transit automated ticket venders and issued counterfeit tickets. Palestinian groups could opt for such a qualitative change but this decision would no doubt be based on a significant setback in the international political arena. Preceding the 1973-74 energy crisis Black September targeted the petroleum industry more than most observers realize. Transnational operations have served the Palestinians reasonably well and continue to be efficient and manageable. Other national groups which have, or had, the resourcefulness to engage in large-scale disruption operations include the Revolutionary Peoples' Army and Montoneros in Argentina, and the now inactive Uruguayan Tupamaros.

No extant groups appear on the verge of using mass destruction operations. Despite the lack of present indicators, crisis planning should proceed on the basis that such a potentiality does exist, at least in the minds of some

terrorist groups. Perhaps the most severe test for us in the entire spectrum of mass destruction terrorism will be the response to what will have been determined to be a technically credible threat to kill thousands.

CRISIS MANAGEMENT: NON-TECHNICAL THREAT ASSESSMENT

The previous discussion ends with the observation that dealing with threats of either massive disruption or destruction which scientific experts have determined to be technically credible may well be our most difficult task. Accordingly, let us for argument's sake postulate that a government has received a technically credible threat. Those making it threaten to perpetrate massive disruption or destruction with so many casualties that the government involved must weigh seriously full or partial fulfillment of the terrorist demands. The question of technical credibility has been answered. What the terrorist says he can and/or will do is credible. At the same time the act has not been perpetrated. Perhaps only a demonstration attack of the type alluded to earlier has been carried out. The extortion dilemma remains. This constitutes a hostage-taking in which the government is both the hostage and would-be negotiator.

One German commentator has captured well the essence of this key dilemma with these words:

> ". . . . it stands to reason that a state which, in pursuing small terrorist groups, is forced to permanently make use of a seemingly excessive police force and numerous other related preventive and defensive measures will not win many friends,

> even if one disregards the enormous cost for which the citizen has to foot the bill . . . . This is particularly true in cases of false alarms which fit perfectly into the concept of the urban guerrilla. The fact that a determined group can force the state apparatus to follow up every imagineable clue, to implement every conceivable preventive measure - regardless how disrupting and costly it might be - all this demonstrates the strength of the guerrilla concept. A telephone call suffices to stop an express train, to evacuate a skyscraper or a stadium or to switch off the electricity supply. The actions and above all the feigned actions of the guerrillas force the state to over-react. The guerrilla can thus force the state to react to pinpricks or even mere threats in a manner which must eventually discredit it in the eyes of the citizens whom it is trying to protect."[21]
>
> [Emphasis added.]

Extortion of the type for which we have greatest concern relies on threats of massive disruption or destruction. The terrorists will seek to maximize the fear, coercion and intimidation they can create. At the same time threat credibility will be a primary consideration -- both technical and personal. If the threat is carelessly overstated or implausible for any reason, its credibility will be called into question.

The government or other recipient of the threat will not readily submit to coercion. How are we to determine whether the threat communicator will in fact execute the feared act?

This entire area of non-technical assessment of the group or individual communicating the coercive threat is one deserving a great deal of research. How do we assess whether a group which presumably has a high-order operational capability or mass disruptive potential will in fact resort to its use? What characteristics of individual terrorists and groups exist or can be determined to aid us in assessing probability of execution, hoax potential, level of resolve, willingness to negotiate, motivation, etc? In general, how do we know when to call the terrorist's bluff and when to negotiate or consider entering some other relationship with them rather than suffering the possible consequences of a mass disruptive or destructive act?

Throughout this discussion we have stressed the obvious, yet crucial, notion that intentions generally remain unknown to us as we seek to cope with terrorist groups and their operations. Despite hypnosis, extrasensory perception, palmistry and other forms of "seeing," we have yet to be able to read men's minds. It is not until ideas, desires, intentions and fears are articulated that they become know.. So it is with extortion threats. Once uttered in whatever form, they obtain the status of a communiction using language. In many incidents we may only have the contents of the threat communication itself from which to work.* Its authorship may not be claimed

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* *Our experience with the telephonic bomb threat should be of some assistance in this regard.*

by a person or group at all, the professed communicator may remain unknown, or may blame the threat on another person or group. In such an instance one must question the text itself as well as relate it to a data base of previous threats.* Key roles in dealing with this model or case type would go to psycho-linguists, sociologists, voice analysts, graphologists, forensic and behaviorial psychologists, criminologists and perhaps anthropologists.

Working primarily with the text, and using known terrorist writings as well as other threat communications, a multitude of difficult questions need to be answered. They include: the nature of the threat itself in all its components; what the threat reveals about its perpetrators (regardless of any previous reporting on them); and motivation for the threat.** Also of concern are the mental and sociological characteristics of the terrorists, their attitudes toward communication and negotiation, their operational history, modus operandi, sophistication and leadership. Equally critical are questions concerning their dedication and ideas about death, their grievances and even the future course of their efforts. Are they desperate, doomed, or even intent on martyrdom? Keeping in mind the time constraints in crisis situations, maximum effort must be made to pursue all lines of

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* *Among others Prof. Murray Miron, a Syracuse University psycho-linguist, has done considerable work in linguistic text analysis of threat communications using a computerized data base. In an address to the 1976 Seminar on Clandestine Tactics and Technologies of the International Association of Chiefs of Police, Washington, D.C., Prof. Miron stated his computerized threat dictionary consisted of 140,000 entries in some 300 construct categories which were of use in assessing demographic and psychological traits and disputed authorship of threat communications. He proposed an analytical model of terrorist communications needs with three axes: impotence denial ("the weak pretending to be strong"), affiliative needs traits, and destructive reaction.*

** *For example, despite the wealth of reporting, does anyone really know Patty Hearst's motivation.*

questioning until each response is properly evaluated. Some of the smallest aspects of grammar or word choice may reveal key traits to aid identification of those communicating the threat(s). Support to the crisis manager must include determination of any tactical opportunities for buying time as well as intelligence adequate and timely enough to favorably resolve the entire incident.

With only the text of the threat available and no prior data on the threat communicator, the assessment maker must focus on the form and content of the communication itself. By their very nature, human language and linguistics (its "science") are unique. Language alone among the subjects of science can prevaricate. No other phenomenon in nature can reveal itself in one form but actually mean another. Were this not the case, the whole question of assessing threats from the standpoint of questioning likelihood of execution would be moot. In such a case, any threat to act always would be executed. Webster's definition of "threat" reads: "A statement or expression of intention to hurt, destroy, punish, etc."

In instances where the identity, background, group affiliation and motivation of terrorist threat communicators is known, we can call upon intelligence data and analytical assessments to aid in answering some questions. It is the proper function of intelligence to be pre-emptive and to monitor group activities and capabilities as they occur. Composite analyses of groups can and must be drawn up on a continuing basis to support decision-making in crises. Incident or crisis management, on the other hand, is reactive in approach and focuses on a single instance. While using intelligence assessments of the group(s) involved, the crisis manager must not rely solely

on such group-oriented assessments. The individual terrorists may indeed not act in accord with the group's dictates or established patterns.* We must not be deluded into assuming that the lack of precedent in some way constitutes an argument against probable execution. Just because the German remnants of Baader-Meinhof had not used mass destruction thus far, it was not considered prudent to dismiss the questionable relationship between the terrorist Hans-Joachim Klein and nuclear physicist Dr. Klaus Traube, as noted previously. The Black September terrorists who in December 1972 opted in favor of what has become known as the "Bangkok solution"** certainly defied group policy in doing so.

While this discussion has centered on incident management questions, terrorist threat data obviously emanates from intelligence analysis of patterns and trends in operations, targeting and modus operandi. Threats, therefore, can exist short of some form of overt communication. A known capability, for intelligence analysts, constitutes a threat, communicated or not. However, as in the context of strategic military deterrence, an adversary cannot be intimidated by something of which he is totally unaware. The fear which arises from knowing only part of what one would hope to know about an adversary is central. Terrorists recognize this and intimidate via articulated threats.

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* *A case in point is the recent series of assassinations/kidnappings carried out by German terrorists. While calling themselves the Red Army Faction, their personnel and modus operandi are not those of the original RAF or Baader-Meinhof Group, as Baader himself stated to authorities shortly before his suicide.*

** *The term refers to incident resolution wherein terrorists release hostages in exchange for their own freedom. Its coinage resulted from the BSO takeover of the Israeli Embassy in Bangkok.*

In seeking to assess the credibility of a threat in terms of the terrorists' resolve to execute it, we must turn again a priori to group analysis focusing on motivation. We said earlier that constituencies moderate terrorist operations. Most ideologies proceed on the basis of larger constituencies whose lot is to be bettered. The stronger the perceived bond with a constituency, the less likely a group is to engage in mass destruction simply because it may affect that constituency, either physically, morally or otherwise. However, temporary mass disruption is still thinkable in the context of a constituency. Accordingly, let us consider briefly four tentative group models with respect to motivation and constituency, make-up, leadership, size and outside cooperation.

The first is the nationalist/ethnic separatist group whose motivation lies in creating an autonomous nation state for members of an ethnic minority (its constituency). Such terrorist groups (e.g., the IRA, ETA, Palestinians, Bretons, and so on) are led by political figures who could be expected to head eventual states. Examples include Yassir Arafat, Ben Bella, Menachim Begin and George Grivas. These groups vary in size depending on the size of the minority itself, the presence of ideologues and foreign allies in their midst and the level of friction between the minority and the superimposed power. On the surface such groups would appear willing to execute large-scale disruption against an opposing force but less willing to kill thousands for their purposes. They can rely on assistance from international apparats which aid "national liberation" struggles.

A second group type is ideological (Marxist, Maoist, fascist, etc.) with or without participation by hardened criminals. The Italian Armed

Proletarian Nuclei and Ordine Nuovo have been examples of such a mixture. As ideological true believers, they seemingly would avoid harming the "little man" via disruption and mass destruction, unless either operational alternative could have a predominantly upperclass or industrial target. Leadership in this group type still resides with the articulate ideologues and standout operational performers. The group is composed of highly intelligent, well-educated middleclass men and women who correspond well with the sociological profile sketched earlier. Again, international pro-communist or revolutionary apparats and sympathetic states will assist to some extent.

A third group type, and for our purposes the most enigmatic, is the nihilist group. They may have criminals as some of their membership, such as the Symbionese Liberation Army in the United States. They are bent on destruction along the lines of the once heard call by Black militants in the U.S. to "Burn baby, burn!" While moral qualms at killing masses of people may exist, the necessity for a constituency and some eventual political reckoning is generally absent. Destruction is seen as good because it rids the world of what ails it. This type of rationale was seen in 1970 and 1971 in the first contemporary German terrorist group to emerge -- the Socialist Patients' Collective (SPC). The SPC was composed of mental patients in Heidelberg, led by the psychiatrist Dr. Wolfgang Huber.[22] Huber along with his wife convinced some of his patients that society made them ill and to cure themselves they must in essence destroy the cause -- society. This nihilist thrust also garnered some sympathetic student recruits. Although the group met an early demise, many of its cadre floated smoothily into the Baader-Meinhof group where a thin veil of Marxism supplied by Ulrike Meinhof and Horst Mahler cloaked an otherwise nihilist group. For the nihilist, terrorism becomes the object of

his true belief -- an ideology of sorts. Apparats such as the Fourth International may lend support.

A fourth possible group type is that of the occasional users of terrorism, most of whom may well be issued-oriented interest groups. Their resort to terrorism is incumbent upon certain segments becoming overly frustrated with peaceful methods "within the system" and engaging in a calculated application of terrorism to regain political momentum, recognition or leverage. A constituency is always present and weighs against execution of high-order actions. Whether achieved or not, the intention generally is to abandon terrorism as soon as certain limited tactical goals have been achieved. In terms of probability this type of short-term terrorist involvement is least likely to perpetrate high-order disruption or destruction. It also is less likely to make and exploit contacts with other terrorist groups and support apparats due to its presumably fleeting affair with terrorist tactics.

Having examined the phenomenon of terrorism from both the analytical and speculative points of view -- and having sketched out four tentative models of future terrorist groups -- the questions of practical application and prognosis follow logically. Without claiming to exhaust the possibilities or even touch on all key points, let us consider some indicators -- outside the technical sphere -- which may be harbingers of escalation into either mass disruptive or mass destructive terrorist operations. As pointed out earlier, the latter may be actual or threatened.

In monitoring group motivations, we must be mindful of trends away from constituency relationships toward nihilism. Is the group which claims to be Marxist or nationalist, for example, really based on ideology or simply

shared negative attitudes, failures, rejections, frustrations, etc? In its writings, communiques or statements, is the group increasingly disdainful of the people, class or ethnic group for which they earlier claimed to be fighting? Is ego gratification, hunger for power, or financial aggrandizement more and more the center of their activities, targeting and demands? Can one assume that such motivations as money and muscle-flexing per se are indicators that a group is less likely to execute a threat due to the lack of over-riding political motives? Or is it likely that, lacking constituencies, they may indeed escalate and execute?

Group size is an important indicator to watch. With the proliferation of smaller groups, competition for prestige and media attention may force such groups to escalate or fade. If such small groups have been reduced through police or military counteroffensives, they may be forced to seek greater impact from each operation due to severely limited resources or loss of self-esteem. Alliances with other groups, international apparats and support states are avenues for such depleted cadres to increase group vitality. Are surrogate relationships developing where one or more groups act for a sponsor state or even perform operations which another group may desire but would need to disclaim? Are police or right-wing counterterrorists so oppressive that the resolve and desire for retribution within a group grow rather than decline?

Despite the complexity of the task, we must look at individuals as well as groups. Who comprises a group? Does a group of both sexes and various nationalities have less emotional stability than a more homogeneous one?

With the influx of women into operational roles we may see more fanaticism and emotionally driven activists in future groups. The younger the membership, the less selective the targeting becomes. As emotional maturity decreases, the "responsible" terrorist tends to vanish. Operations increase quantitatively; leadership is less able to control operational personnel. Generally the tempered approach to operations appears to be likely to fade as maturity decreases.

We must follow closely any moves to co-opt or recruit exploitable scientists and technicians. Can we let go unnoticed any unusual attempts to obtain technical information on systems or substances which are essential to the national order? At the same time the availability of such data, particularly in the U.S., is tremendous. Obviously, attempts to buy, steal or create sophisticated weaponry or highly-lethal substances are of great concern. A tactical change to attacks on hardened targets warrants close scrutiny. The same is true of any series of unclaimed or anonymous acts. What about strange incidents of a few unexplained deaths from unknown but suspicious causes or even very short periods of disruption of essential systems? Notions similar to "legionnaires' disease" and the New York blackouts are most often cited as models. Could these be dry-run high-order operations? Moves out of densely-populated areas which coincide with other indicators may be a sign that terrorists are clearing a target area. The presence of target sketches, gas masks, or other paraphernalia may be telltale signs of pending escalation. Are intelligence analysts aware of and tracking fictional treatments of terrorism along with the literatures of terrorism and the extremist press? Are terrorists duplicating fictional scenarios? Are

they discussing counterterrorist literature and methods? In short, do they read our discussions about them?

One of the most disturbing potential developments could be the appearance of a series of presumed terrorist incidents to which no one lays claim. How can we label an act as terrorist in origin if no perpetrator claims credit or can be tied to the incident? At the same time an nihilist group has no political need to seek recognition for its activities. It has no constituency and destruction/disruption are, for it, strategic objectives, not intermediate goals. In a sense claims made for an incident tend to violate operational security. Can we be content with less than totally acceptable explanations of such incidents if possible terrorist motivation has been discounted? Nihilists, it would seem, find ample satisfaction in the success of destruction itself.

These are some of the indicators which bear watching. Chief among them remain motivation and constituency, group size and make-up, the effects of countering efforts and techniques, and attempts to acquire technical expertise via recruitment, coercion or education. An ordered approach to this crucial area of research will revolve around the gaming of well-considered operational scenarios using group models and speculatively derived optimal targets. The post-mortem on such "terrorist games" should reveal answers to some of our concerns as well as many more valid questions for intelligence, security and crisis management to contemplate. The role of the pseudo-terrorists and social scientists in this endeavor is both vital and full of promise.

In seeking to determine the likelihood that a mass disruptive or destructive threat will be executed, we must ask ourselves what the terrorists

hope to achieve. Will such an act, once executed, aid that objective? Is goal attainment more likely, or solely possible, through successful extortion rather than operational execution? We must find out as much as possible about the threat communicators, their backgrounds, known affiliates and above all their motivations. The latter may in fact change or multiply. Pessimists could argue that the pool of potential terrorists includes all of mankind. Use of refined analytical models of group/motivation types seems to be worth our attention. There is no room for error in this regard. Indeed, the social sciences and their practitioners may find a new significance, unforeseen needs and practical applications for their body of knowledge and abilities. The policy makers will have to call upon and depend upon the skill of social scientists once the technical credibility of a threat has been established. How likely are responsible officials to accept such assessments from experts outside the world of the so-called hard, empirical or quantitative sciences? Do linguists and sociologists have a place on terrorism crisis management staffs? Are there potential profiles or models which can help us sort out the suicidal or nihilist terrorists from those more likely to accept negotiation or even compromise? All of these questions demand close examination and study if we are to remove the guesswork from decision-making in the face of technically credible, high-order terrorist threats. In this area of threat perpetration, the terrorist retains the offensive. Inventiveness and success in creating fear -- the fear inherent in the awesome responsibility of decision-makers faced with an extortion threat involving the fate of thousands -- is his or her primary avenue of access to political power.

In the beginning of this discussion we consciously included the aspect of threatened violence as a large part of our definition of terrorism. Assuming technical credibility to accomplish a specific act is established or at least cannot be discounted, its threatened use is probably terrorism's greatest tool. Extortion and intimidation maximize the pressures on the fragile institution of democratic government. This results from terrorist recognition that our weakest area of information and analysis centers on true motivation and intentions. The paradox of mass disruptive or destructive extortion revolves around our having been told specifically what a group's intentions are. In this case, where intentions are reported overtly by the terrorist himself rather than clandestinely via intelligence collection, the assessment or judgment required is one which we otherwise consider impossible to make: Will the terrorists do what they can and say they will do? The time to consider approaches to this ever-present quandary is now -- prior to the actual moment of truth for the crisis manager and his team. If we are to out-invent the terrorist, we must defuse the virtually unlimited coercive potential of threatened mass disruption or destruction now available. We must develop models for inquiry, working intelligence composites of groups and their motivations, and the research mechanisms to anticipate cultural, sociological and psychological changes among present and future terrorist groups.

OBSERVATIONS

As pointed out, we see the likelihood of terrorism increasingly becoming an end in itself. This would result from a nihilist attitude which already appears to be quite prevalent over other actually ideological

motivations. As terrorism loses its tactic status in favor of a strategic and/or philosophical one, it tends toward elevation to an "ism" among existing ideologies. This same trend is fed by the prestige inherent in success and the recognition which inventive terrorist operations may be expected to reap. Such recognition will be both notoriety and fame, depending upon the observer's status.

In the area of creativity and ingenuity, the terrorists' potential hardly has been scratched. Aside from mass destruction, which although worrisome still appears less likely, the potential havoc to be wrought with reasonably simple disruptive operations is virtually unlimited. It is also nearly untapped thus far. Terrorists who either lose or drop a primarily political objective and are willing to endure alienation and even disgust will resort to disruption operations and consider small-scale destruction operations using high-technology or bacteriological resources. In the latter instance, they may either seek to demonstrate their capabilities in a limited way in order to coerce victims and governments to meet demands or may simply want to prove their power through perpetrating vast destruction. They may even be well-thinking persons who have sought to change what they view as incorrect and unwise decisions or policies but were ignored or overruled. Most current terrorists rationalize their acts as justifiable, whether they believe it morally or not. The notion of a terrorist group comprised of disgruntled scientists who seek to demonstrate how vulnerable to terrorism we all are by simulating their own terrorist acts is not unthinkable by any means.

One of the areas where our preparation is weakest is that of assessing the likelihood that a technically credible threat to inflict devastating disruption or mass casualties will actually be executed. We must devote

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our attention and resources to analyses and model construction of terrorist motivational, behavioral and psychological typologies. The purpose of such an endeavor is to improve the analytical methodology in an area where technical expertise and quantitative approaches may never be of any avail. The social scientist, whose exactitude has occasionally been adversely compared with that of the natural and physical scientists, has a large role to play in crisis management. Decision-makers will rely on their expertise while recognizing the inherent limits of sciences whose object of study is man, his mind, his language and his social behavior.

Having provided some thoughts using a speculative approach, one misgiving has been present throughout this discourse. We have illustrated in several contexts the resourcefulness of terrorists in studying what is written about them and how to best deal with them. They obviously do not lack their own "good" ideas. If a speculative approach is to be of benefit to those of us outside the terrorist camp, then its conduct as well as its output must be handled with discretion similar to that used for traditional intelligence analysis. We will not succeed in "out-inventing" the terrorist if we disclose each card (or conclusion) as it is drawn.

ENDNOTES

1. For an excellent JRA summary article, see "Terror: Behind the Red Army," Asiaweek, November 26, 1976, pp. 26-31.

2. Charles A. Russell, "Transnational Terrorism," Air University Review, January/February 1976, pp. 31-32.

3. Russell, op. cit., pp. 28-29.

4. Russell, op. cit., pp. 29-32.

5. Israeli Defense Forces press release, "The Terrorists' Connections in Foreign Underground Organizations," November 16, 1976.

6. See Der Spiegel, "Ich bin der beruehmte Carlos," August 2, 1976, and Israeli Defense Forces press release, op. cit.

7. Hans Josef Horchem, Extremisten in einer selbstbewussten Demokratie, Herderbuecherei, Freiburg 1975, p. 29.

8. See also John Barron, KGB: The Secret Work of Soviet Secret Agents, Reader's Digest Press, New York, 1974, pp. 239-246.

9. See "ETA va a clase en Argelia," DIA 32, 24 December 1976; "Argelia no tiene vinculación con el Grapo, segun un portavoz de la Embajada en Madrid," YA, February 1, 1977, p. 12.

10. Milliyet Halk Gazetesi (Istanbul), August 12, 1976, pp. 1-3 and "Istanbul Governor: Hijackers Received Instructions in Libya," FBIS, reporting Ankara Radio, August 12, 1976, p. T-6.

11. Israeli Defense Forces press release, op. cit.

12. See "Le patron des réseaux d'aide aux terroristes," Le Point (Paris), June 21, 1976.

13. See Walter Laqueur, Terrorism, Little, Brown and Co., Boston, 1977, pp. 49-53.

14. Brian M. Jenkins, International Terrorism: A New Kind of Warfare, Rand Publication P-5261, June 1974, p. 4.

15. Ibid.

16. Ibid.

17. See also R. W. Mengel, "Terrorism and New Technologies of Destruction: An Overview of the Potential Risk," in: Disorders and Terrorism: Report of

the Task Force on Disorders and Terrorism (Appendix 2), U.S. Government Printing Office, 1977, pp. 443-473; Brian M. Jenkins, "Will Terrorists Go Nuclear?: California Seminar on Foreign Policy and Arms Control, January 1976, and "The Potential For Nuclear Terrorism," Rand Publication P-5876, May 1977; and Martha C. Hutchinson, "Defining Future Threats: Terrorist and Nuclear Proliferation" and "Terrorism and the Diffusion of Nuclear Power," papers delivered during 1976.

18. For an interesting typology of terrorist personalities, see Dr. Frederick Hacker, Crusaders, Criminals and Crazies, Norton, 1976.

19. "There is a standard work about explosives from the DDR [German Democratic Republic] two volumes in which there is really everything (all explosives since their invention, fabrication, etc.) -- one of us stole it from a library in Frankfurt." Dokumentation ueber Aktivitaeten anarchistischer Gewalttaeter in der Bundesrepublik Deutschland, Federal Interior Ministry, [1974], p. 66.

20. Ibid, p. 10ff.

21. Bernd Guggenberger, "What motivates the urban guerrilla?" (from Die politische Meinung, No. 166, 1976) in: The German Tribune -- Political Affairs Review, No. 28, October 3, 1976, p. 16.

22. See Horchem, op. cit., p. 22; Betrifft: Verfassungsschutz '72, Federal Ministry of the Interior, Bonn, 1973, p. 61; Dokumentation, op. cit., pp. 6-7; and Innere Sicherheit: Informationen des Bundesministeriums des Innern, Bonn, No. 28, June 2, 1975, p. 1.

General Services Administration
Federal Preparedness Agency
Washington, DC 20405

Honorable Abraham A. Ribicoff
Chairman, Committee on
Governmental Affairs
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

Thank you for your interest in the Federal Preparedness Agency's effort in the area of preparedness for disruptive terrorism.

We would be pleased to have our initial planning guidance incorporated in the hearing record of S. 2236, as you requested, provided it is understood that this is an unofficial working draft.

We will be pleased to provide any additional information or assistance which you may desire.

Sincerely,

Joseph A. Mitchell

JOSEPH A. MITCHELL
Director

Enclosure

WORKING DRAFT

INITIAL PLANNING GUIDANCE

FEDERAL RESPONSE TO THE CONSEQUENCES OF TERRORISM

Federal Preparedness Agency
General Services Administration

Sixth Draft - October 3, 1977

The planning guidance document is an internal working draft in its developmental stages and has not yet been issued officially.

TABLE OF CONTENTS

I. INTRODUCTION

The Civil Emergency Preparedness Policy and Planning Guidance prepared under the overall direction of the Federal Preparedness Agency (FPA) and approved by the National Security Council, is a general document that provides broad policy and planning guidance to all Departments and agencies with emergency preparedness responsibilities. The Guidance assures integration of all major contingencies into the civil preparedness effort. Terrorism is one of the major contingencies for which planning is recommended. This document expands on the Guidance and provides more specific planning information for the development of a Federal capability to cope with the regional and national consequences of terrorism in the U. S.

Purpose

This document is designed to:

- describe the disruptive terrorism threat.
- define objectives, policies, assumptions and responsibilities for developing the preparedness capability.
- identify the agencies with primary and supporting responsibilities for managing the preparedness effort.
- provide guidelines for further study of the terrorism threat.

Authorities

The authorities of the Federal Preparedness Agency (FPA) for issuing this document and for its emergency preparedness responsibilities are found in Executive Orders 10421, 11051, and 11490.

Executive Order 10421 requires the FPA Director to supervise programs for the physical security of facilities important to defense mobilization, defense production, or the essential civilian economy. These security programs are directed at protection against sabotage, espionage, and other hostile and destructive acts.

Executive Orders 11051 and 11490 require the FPA Director, under the direction of the President, to be responsible for the preparation of nonmilitary preparedness programs of the Federal Government under all conditions of national emergency. This includes overall Federal civil emergency preparedness policy determination and program coordination.

Authorities of Federal Departments and agencies for emergency preparedness measures are found in Executive Order 11490 and other Executive orders, statutes and administrative authorities pertaining to each agency.

II. THREAT

Acts of terrorism have occurred in the United States and are expected to continue. Many experts predict an eventual increase in such activity and an escalation in its intensity. Part of the basis for this prediction is the success of international terrorists. Making full use of modern communications media and taking advantage of the divisions and disagreements among nations, these terrorists have been unable to accomplish their goals with a substantial degree of impunity. Terrorism has been and continues to be a profitable activity. It accomplishes the objectives of extremist groups at minimal costs.

Definition

Although there is no universally accepted definition of terrorism, there are several areas of relative agreement. Terrorism involves the threat or use of violence for persuasion, coercion or publicizing the existence, grievances or causes of a particular group. Although the two often overlap, terrorism is separated from purely criminal activities by its devotion to political ends. Terrorism is usually a means to an end, i.e., a weapon of subversion or of carrying out an extreme political ideology.

In this guidance, terrorism is defined to mean the threat or use of violence against selected targets for the prime purpose of (1) creating

overwhelming fear, (2) extracting concessions, (3) weakening the power of institutions, (4) gaining publicity, (5) expressing a grievance, or (6) threatening U. S. security.

Symbolic Terrorism

In the past, terrorist incidents in the U. S. have been symbolic in nature and have been directed at individuals and property. These incidents have been isolated events with only local impact. They have included bombings, hijackings, kidnappings, arson, murder and extortion. Such symbolic terrorism is expected to continue and may increase.

State and local governments have taken measures to prevent and cope with the effects of symbolic terrorist acts. They have developed organizational and functional arrangements that have permitted adequate response to the localized consequences. Many of these measures are well defined in existing procedures and have been tested under actual conditions. Generally, State and local capabilities, supported by Federal law enforcement agencies, are expected to be adequate to cope with the future consequences of symbolic terrorism.

Disruptive Terrorism

Of more concern to the overall security and living standard of the U. S. is the potential for a change in the character of domestic terrorism. Expanded objectives and activities of extremist groups

could become more regional or national in scope. Activities could involve a different class of targets with more widespread impact. Terrorism could change from isolated events to coordinated attacks causing major property damage, extensive loss of life, severe disruptions of resources, disruptions to the continuity of government or situations of unique political significance. This possible new dimension of the threat could cause more serious and more nationally significant consequences than previous incidents.

To distinguish this new dimension from symbolic terrorism, the term disruptive terrorism is defined to mean acts that cause economic, social, political or national security effects of sufficient magnitude to produce regional or national consequences requiring a coordinated Federal response. Disruptive terrorism is the principal focus of this document and the use of the word terrorism in the remainder of the guidance is understood to mean disruptive terrorism.

Background

To prepare for a Federal response to the consequences of disruptive terrorism, it is necessary to understand the motivations of terrorist groups, their destructive capabilities, the vulnerabilities of likely targets and the consequences of exploiting these vulnerabilities.

Currently, intelligence on the motivations and capabilities of extremist groups is less than adequate. The nature of terrorism itself contributes significantly to this situation. Covert acts are undertaken by small groups of dedicated secretive individuals with loose leadership alliances between groups. These groups are difficult to penetrate and thus accurate information is difficult to obtain. Federal and State protective legislation regarding invasion of privacy compound this problem. As a result, gaps in intelligence related to terrorist groups are likely to continue.

Consequently, trends in U. S. terrorist activity cannot be predicted with acceptable certainty. The unsatisfactory nature of available data and the scattered and fragmentary sources make it difficult to estimate the severity, frequency, and possible change in character of the domestic terrorism threat. The threat will continue to be a debatable question until it has been clearly proven or disproven by experience. The most dreadful possibilities have not been realized, but they remain and must be faced realistically.

Although trends cannot be predicted, conditions that may cause changes in terrorist activities can be identified.

Motivations

Extremists may shift to disruptive terrorism as a supplement or alternative to symbolic terrorism any or all of the following conditions:

- the inability of terrorists to accomplish their objectives by isolated attacks against people and property.
- the need to attack the government more directly.
- the need to instill greater fear in the minds of the general public.
- the adoption of objectives of foreign countries unfriendly to the U.S.
- the acceptance of the proposition that people and not just the power structure are the enemy.
- the adoption of the disruption of the U.S. economy as a primary objective.
- the perception of social and economic vulnerabilities due to frequent regional and national crises.
- the specter of relatively few individuals being able to disrupt the economy, the social behavior, or the political institutions of a world power.
- the adoption of terrorism as a surrogate war concept because of the decreasing profit of modern conventional warfare as an instrument of political pressure.

- the identification of more attractive targets with disproportionately greater impacts because of an increasingly more complex and interrelated technology.

- the perception of unfavorable U. S. policy towards other nations sympathetic to the cause of a terrorist group.

Although the above conditions do not assure a change from symbolic to disruptive motivations, they do describe factors that could support such a change.

Capabilities

Terrorist groups operating in the U. S. employ tactics similar to the activities of terrorists and revolutionary groups operating throughout the world. Terrorists intending to commit acts of disruptive terrorism will require and can secure capabilities for organized attacks against critical and vulnerable parts of the society. The following conditions contribute to maintaining or increasing these capabilities:

- Terrorists can operate in optimum fashion from either dispersed or centralized bases.
- Terrorists can acquire and effectively employ a wide variety of weapons including small arms, conventional explosives, chemical-biological/radiological agents, and nuclear devices.
- Terrorists can move easily and with considerable speed among countries.
- Terrorists can transfer technology and training and even combine operations among groups of different structure and purpose.
- Terrorists can quickly exploit the communications capability of the mass media.
- Terrorist groups frequently are supported by transnational organizations and/or foreign governments.

• Terrorists can couple traditional disruptive incidents such as severe weather, natural disasters or labor strikes with deliberate acts of violence and compound the consequences.

The skills and resources of modern technology are available to terrorists. The limiting factor is the ability of extremist groups to combine the necessary physical resources with technicians who are motivated to engage in activity that could destroy property on a large scale, impair the delivery of services over wide areas or kill hundreds of people.

Again, the above conditions do not assure any change in terrorism, but they do describe factors which could produce significant changes in the severity, frequency, or character of incidents.

Vulnerabilities

Capabilities of terrorist groups are important in the context of vulnerabilities of the American society.

To date, U.S. systems have not been seriously disrupted by terrorism. However, U.S. society offers terrorists a variety of targets for destruction. The highly interrelated functions necessary to keep a modern city alive offer countless opportunities to extremists.

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Experience in the past decade has demonstrated the extent to which breakdowns in one area of the society can have significant impacts in other areas. Past accidental occurrences that have seriously reduced the performance of essential services or the availability of essential resources underscore system weaknesses. Many natural disasters including severe weather have provided evidence of the vulnerability of a complex society to unanticipated events.

The emergency preparedness requirements for disruptive terrorism rest heavily on the assumption that the U. S. is vulnerable to disruptions resulting from actions of extremist groups. Modern complex systems possess choke points, upon which essential activities depend. Destruction of these choke points can leave vital industries without energy, transportation, raw materials, food and other support requirements. Many of them are susceptible to damage and destruction by motivated terrorists possessing the necessary capabilities.

Consequences

The exploitation of vulnerable choke points will impact on the functioning of numerous systems in the U. S. The disruption of essential services or resources could cause serious economic, social or political consequences for a region or the Nation as a whole. Some

disruptions could have serious consequences for the functioning of the Federal Government and for the national security.

Significant disruptions for a sustained period of time could produce situations such as unemployment, crippled production, shortages of important goods, reduction of personal income, decreased GNP or extreme hardship for the public.

Conclusion

The probability of any terrorist group sucessfully combining the material resources, requisite skills and motivations necessary to perpetrate criminal acts for political purposes and for these acts to produce national consequences is not high. However, it must be recognized that if such actions are initiated, the results could seriously disrupt essential social, economic or political functions. Casualties and damage could be several orders of magnitude greater than any terrorist attack of the past. Modern terrorists have already demonstrated that small groups, even those with a limited capacity for violence, can achieve disproportionately large effects elsewhere in the world. They could accomplish the same in the U.S.

For these compelling reasons, examination of existing arrangements for decision making, coordination, allocation of resources and multi-level government interaction must be undertaken by agencies responsible

for preparedness measures. Significant changes in extant plans or the development of new emergency plans, arrangements or procedures may be needed.

This document provides guidance to assure that the assessment of extant plans and the development of new or revised ones will produce an integrated and comprehensive capability to respond to the effects of disruptive terrorism.

III. REQUIREMENTS

The Federal Government must be prepared to cope with the broadest realistic range of possible consequences from disruptive terrorism. The preparedness effort should include provisions to:

- deal with the incident itself as a criminal act,
- provide assistance to alleviate suffering to persons,
- restore the disrupted processes and damaged property to normal levels; and,
- reestablish or maintain the credibility of government as the protector of the population.

Incident Management

The first requirement can be met through effective incident management which encompasses:

- actions related to the prevention of the incident, such as, intelligence gathering;
- actions related to the termination of the incident, such as, negotiation; and,
- actions related to the disposition of terrorists following the incident, such as, prosecution.

The Department of Justice, which has the preponderance of statutory responsibility for investigation and prosecution of crimes

characterized as terrorism, handles almost all terrorist events involving violations of federal law that take place in the United States. This authority is carried out in close cooperation with other federal, state, and local agencies and is, in some cases, shared. In skyjacking incidents, for example, the Federal Aviation Administration has exclusive responsibility for the direction of law enforcement activities affecting the safety of persons aboard aircraft in flight.

Since law enforcement is not a part of the preparedness responsibilities outlined in Executive Orders 11490, 11051 and 10421, and since substantial preparations to manage incidents have already been undertaken, no additional incident management requirements are included in this guidance.

Consequence Management

The remaining requirements can be met through an effective preparedness effort for consequence management. This effort will concentrate on:

- reducing the vulnerability of potential target systems,
- performing relief operations in the event that disruptions do occur, and
- restoring and rehabilitating disrupted systems.

These are the primary considerations underlining all preparedness activities required by the entire range of emergency contingencies. Identification of a potential threat from disruptive terrorism does not therefore generate new or unique preparedness requirements. Nor does it generate new and distinctive preparedness programs. Rather, identification of terrorism as a threat should induce planners to:

- assess the vulnerability to terrorism of resource systems under their jurisdiction;
- determine the possible national consequences of exploiting such vulnerabilities; and,
- evaluate the adequacy of current plans and capabilities for responding to the consequences.

Each of these requirements is discussed in turn.

Vulnerability Analysis

Although gross vulnerabilities are generally recognized, comprehensive studies of the impact of terrorist acts against specific weak spots in vital services and resources have not been made. Different threats such as natural disasters, terrorist acts, labor strikes or nuclear attack can produce different effects on system elements. Therefore, although there may be significant overlaps, vulnerability analyses for other contingencies are not completely adequate for the terrorism contingency. New studies are needed to

bring into sharper focus the specific dimensions of the terrorism threat and to provide a solid foundation for practical operational response planning.

Vulnerability analyses will require the examination of both the physical vulnerability of system components and the vulnerability of total system performance. The analyses must also include the study of support systems requirements and the impact of degradations in these supporting systems on the primary system.

Agencies having expertise in a particular system must direct the studies of that system. Appropriate assignments identified in Executive Order 11490 are listed in Section V. For consistency, the following assumptions should be used in the vulnerability studies of each agency.

- Terrorists will possess the technical knowledge required to attack system components in an optimum fashion.
- Terrorists will have access to and be skilled in the employment of conventional explosives, low yield nuclear devices, chemical, biological and radiological agents, and all forms of portable and hand held weaponry.
- Terrorists can operate as a single group or as a coordinated team of many individuals in scores of separate groups.

- Terrorists can attack at widely dispersed locations throughout the U. S.

These assumptions may be modified by agencies to meet the particular characteristics of systems under study. Changes should be coordinated with FPA.

The results of the vulnerability analysis should include data on the following:

- the general characteristics of the overall system under analysis;
- the identity and purpose of the vulnerable components of the system;
- the reductions in system output or performance that may be expected if vulnerabilities are exploited;
- the duration of such reductions;
- the identity of the users most affected by these reductions;
- the countermeasures that can be taken to reduce or prevent vulnerabilities plus estimates of their cost effectiveness; and,
- the degree to which the performance of the system can be adversely affected by disturbances from other systems.

These results will be valuable to the agency conducting the study and to agencies dependent on the system studied. Since the results will identify system weak spots, they could be useful to groups planning acts of terrorism. Therefore, agencies should classify their studies at the level they deem appropriate.

Consequence Analysis

The analysis of system vulnerabilities will provide preparedness planners essential perspectives on the magnitude of the disruptive terrorism threat to each service or resource area viewed separately. Consequence analyses are needed to assess the interdependencies of losses in individual systems on the broad social, economic and political activities of the Nation. In large measure, these consequences are only indirectly related to a particular threat. They are most directly related to losses in individual systems. A given loss will have about the same impact on social, economic or political consequences regardless of the threat causing the loss. It is principally for this reason that vulnerability and consequence analyses are treated separately.

Consequences are frequently described in abstract terms such as national security, economic prosperity, and high standard of living. Before these concepts can be measured, they must be converted to appropriate specific indicators such as GNP or per capital income. Identification of these indicators is the starting point for the development of models which are required for any consequence analyses. The models will relate the indicators to the potential reductions in system performance described by the vulnerability analyses.

Economic models are typically quantitative in character. Existing models will be adapted for assessing the economic consequences of disruptive terrorism or, if necessary, new models will be developed. Modeling of social and, in particular, political consequences is much less advanced than economic modeling. Therefore, these models may be more qualitative in character.

Models for consequence analyses can be developed concurrently with the conduct of vulnerability studies. However, their application to actual problems must wait until the vulnerability studies are completed.

Assignments for completion of consequence analyses are listed in Section V.

Assessment of Current Preparedness

Vulnerability and consequence analyses will require a year or more to complete. Because of the potential seriousness of disruptive terrorism, postponing preparedness measures for more than a year is not prudent. Therefore, interim measures are required to develop a partial response capability in the event it is needed in the near term.

During the interim planning period, while vulnerability and consequence analyses are being completed, agencies must have a common basis for assessing their preparedness status. For this purpose, a set of 18 scenarios are included in Appendix 1. They are based on informed intuitive judgment and should assist agencies

in assessing the adequacy of their planning for responding to the regional and national consequences of disruptive terrorism. As the vulnerability and consequence analyses are completed, the findings will replace the scenarios and provide a basis for the revision of this guidance. The number of scenarios is justified on the basis that planners responsible for a given system must be able to envision the possible impact of disruptions in numerous supporting systems.

This guidance does not require the development of a family of plans devoted exclusively to terrorism. Rather, the intent is to ensure that adequate planning and preparedness measures have been accomplished for response to a wide range of terrorist acts. In some cases, modification of existing plans may be adequate. In other cases, additional plans may be needed. This decision is the responsibility of individual agencies. After the vulnerability and consequence analyses are completed, it may be apparent that separate terrorism response plans are required.

In assessing their current preparedness status for disruptive terrorism, agencies are expected to determine the adequacy of:

- preventative measures to reduce the impact of a terrorist attack;
- current capabilities to conduct relief operations; and,

- current capabilities to restore or rehabilitate a system.

Agencies should:

- review the criteria and methods used to evaluate the effectiveness of existing preparedness capabilities developed in response to other threats,
- apply these criteria and methods to the disruptive terrorism threat, and
- compare the results of the inquiry on terrorism to the findings developed relative to other threats. These findings will provide the basis for determining the extent of revisions, new plans or other capabilities required.

IV. OBJECTIVES, POLICIES AND ASSUMPTIONS

The following objectives, policies and planning assumptions will govern the development of the Federal preparedness capability to cope with disruptive terrorism. As the capability is developed, coordination with the Federal Preparedness Agency should assure a uniform and integrated national response.

Objectives

- Complete the pre-incident actions that will minimize the consequences of disruptive terrorism.

This includes actions such as operational response planning, stockpiling of critical components, mutual protection of interagency choke points, reduction of interdependencies, and the preparation of standby authorities and capabilities to reduce the impact of disruptions. The objective focuses on activities that might not be possible during the emergency because they would be too complex to initiate, would be too time consuming to develop, or would require action by non-target groups too diverse to provide rapid response. Actions related to this objective must be cost-effective in relation to the low probability of disruptive terrorism.

- Attain a state of readiness to perform essential relief operations in response to disruptive terrorism.

This includes preparedness in the target systems that are regarded as the most critical and the most vulnerable. Preparedness

will enable the Federal Government to minimize the scope, severity, and duration of the disruptions to these essential systems.

Disruptions are minimized if the conditions are less severe, of shorter duration, and less varied than they would be if no preparedness measures were taken. The reductions in severity, duration and variety should be as great as can be expected given the constraints of time, societal complexity, limited governmental authority and available resources that may be operative under emergency conditions.

- Attain a state of readiness to restore disrupted national systems.

This includes the restoration of the disrupted target systems as part of the long term recovery of the U.S. The disrupted system should be restored to as much of its preattack capability as feasible and within the shortest possible timeframe given the resource constraints applicable during that period.

Policy

- Federal agencies, as designated in Executive Order 11490, will participate in an effort to develop a Federal preparedness program to meet all the conditions of national emergency that may be produced by disruptive terrorism.

- Federal preparedness will be designed to cope with the impact of disruptive terrorism on essential national economic, social, and political processes and structures. This guidance is applicable primarily to those situations in which the response to the disrupted process or system is within the exclusive or predominant domain of the Federal Government, such as, interstate commerce or national security.

- To the maximum feasible extent, Federal agencies will incorporate the capability to cope with disruptive terrorism into their existing preparedness efforts. Their preparations will rely to a maximum degree on present organizational structures, coordinating mechanisms, crisis management procedures and operational response plans.

- All Federal responses to disruptive terrorism will operate within the general constraints applicable to all civil emergency preparedness operations in regard to the preservation of basic constitutional processes and political freedoms. These constraints are particularly important in light of the fact that one of the most important objectives of terrorists may be to provoke the government into counterproductive repression.

• Emergency planners should concentrate on eight critical target systems: electric power, petroleum and gas, transportation, telecommunications, finance, industrial production, water and government. These are the systems that appear to be both the most vulnerable and most critical to the national well-being. In addition, the use of chemical, biological and/or radiological agents, which could affect large numbers of people, should be given special attention.

• In meeting the preparedness objectives, agencies should consider the full range of emergency measures that might be applicable. These include voluntary measures, rationing, stockpiling, dispersion of resources, conservation, establishing priorities, determining allocations, and obtaining standby authority.

Planning Assumptions

• State and local governments will, under their legal powers, respond to the immediate needs of their citizens.

• When the consequences of disruptive terrorism exceed the response capabilities of an affected State, its Governor may seek Federal assistance under P. L. 93-288, the Disaster Relief Act of 1974. If the President declares a major disaster or an emergency in the affected State, the Federal Disaster Assistance Administration will direct and coordinate the Federal disaster assistance program.

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- The Governor may seek extraordinary support from the President or Congress for those consequences which cannot be dealt with under P. L. 93-288.

- Disruptive terrorism may extend beyond the boundaries of a single State to the extent that an entire region of the Nation may be adversely affected. In regional crises, the Federal Government will work closely with the States and respond in a manner that will meet the needs of both the individual States and the region as a whole.

- Disruptive terrorism may impact directly upon national conditions and adversely affect the security and economic prosperity of the Nation. In such instances, conditions of national emergency may be created and vigorous sustained and coherent Federal response may be required. The Federal Government will be the primary actor and will direct operations as required. States will be expected to conform to Federal guidelines and operate in a manner consistent with the Federal response.

- Under PL 94-412, National Emergencies Act, the President can declare a state of national emergency. He may do so under extreme situations such as major disruptions threatening the national security or the national economy. In such cases, over 450 emergency powers are available to the President and through him to the Federal

agencies. In less extreme cases, the President can direct Federal agencies to respond to the problems of disruptive terrorism without such extraordinary powers. Federal agencies should plan to operate under either condition.

- Management procedures for the Federal response to disruptive terrorism will be required. Virtually all of the extant crisis management measures available throughout the Federal Government should be regarded as applicable. These include:

a. In the event of a serious crisis, the FPA Director may use the procedures outlined in FPA Circular 9130.3 including the use of the Interagency Emergency Policy Board and Interagency Emergency Coordinating Group.

b. The President may create an ad hoc task force under the leadership of the FPA Director or some other official to manage the crisis.

c. The President may designate a single Federal agency with coordinating responsibilities under E.O. 11490 or specific authority under law as the manager of the Federal response.

d. The President may designate any other appropriate agency to manage the crisis.

The criteria to be employed in selecting the appropriate Federal response manager cannot be specified in advance, as they will reflect the personal, political, and management styles of the President. The decision will consider such variables as the functional areas affected, the political sensitivity of the crisis, the legal authorities available, and the working relationships that exist between the President, his staff, and the various Federal agencies. In the absence of established criteria for prior designation of Federal response coordinators, each Federal agency should maintain the capability to respond under each of the above options.

- The character of the Federal response will be determined in part by the extent to which the President desires to adopt a policy of high visibility and personal involvement in the response. There are two extreme possibilities in this regard. The President may move in the most visible and direct manner and attempt to reassure the public that he and the Government are doing all that is required to cope with the emergency conditions produced by the terrorists. Alternatively, the President may attempt to decouple the act of terrorism from both the emergency conditions and the governmental response in order to avoid the impression that terrorists can create conditions requiring extraordinary measures.

Associated with the high visibility approach is White House participation in decision making and crisis management and the possibility of a declaration of national emergency. Conversely, the low visibility approach may mean less White House involvement and reliance on nonemergency authorities. Planners must develop approaches that will accommodate both styles of Presidential response.

- The guidance in this document is related to the Federal Response Plan for Peacetime Nuclear Emergencies (FRPPNE), April, 1977, in that terrorism could involve a nuclear device or radioactive substance. If the requirements in this guidance are met either by operational response plans developed under the FRPPNE or by other emergency plans of an agency, no further planning is required.

V. RESPONSIBILITIES

Executive Orders 11051 and 11490 outline the emergency preparedness responsibilities of FPA and other Federal agencies. These responsibilities when coupled with the Civil Emergency Preparedness Policy and Planning Guidance assure an integrated preparedness effort across a range of contingencies.

Assignments

In reviewing the Executive Order 11490 assignments as they relate to terrorism, agency planners should remember that responsibilities are assigned in four ways as follows:

- Some assignments are unique and specific to an agency. No other agency shares the assignment. This indicates a primary responsibility.
- Some assignments direct an agency to coordinate the planning of other agencies in a particular area. This also indicates a primary responsibility.
- Some assignments direct two or more agencies to coordinate, cooperate, consult or participate on a coequal basis. This indicates a joint or mutual responsibility.
- Some assignments direct one agency to assist another agency in a particular area. This indicates a supporting responsibility.

From the preceding, it is evident that agencies having primary, joint and supporting responsibilities for emergency preparedness measures can be identified. Since these measures extend to all conditions of national emergency and since terrorism is defined as one of these conditions, the responsibilities for various aspects of the terrorism contingency can also be identified. On this basis, the responsible agencies for the most likely targets defined in the policy section are:

Target System	Primary Responsibility	Supporting Responsibility	EO 11490 Section
finance			
Reserve	FRB		1701
Home loans	FHLB		1701
Farm Credit	FCA		1701
Deposit Insurance	FDIC		1701
Securities Exch.	SEC		2501
Credit Unions	NCUA		2250
Monetary	Treasury		301
systems/national		Compt/Currency	1701
banks/public debt		HEW	1104(3), 1105
water	DOI		703(3)
		DOD	401(28)(29)
		DOA	804(4)
		DOC	902(6)
		EPA	1552(1)
		TVA	2701(5)
electric power	DOE		701, 1901, 1401*
		NRC	1450*
		TVA	2701(1)
petroleum and gas	DOE		701, 1901
transportation	DOT		1303
		DOD	401(18)(26)(30)
		DOC	903
		CAB	1502
		ICC	2103
		TVA	2701(2)

Target System	Primary Responsibility	Supportint Responsibility	EO 11490 Section
telecommunications	OTP		2**
		DOD	401(17)(27)
		FCC	1802
		NCS	Pres. Memo 8/21/63
		GSA	2002(3)
government (continuity)	FPA		304***208***
		All	102
industrial production****	DOC		902
		DOD	401(2)(3)(6)(9)(13)(14)
		DOI	703(2)
		GSA	2003
Public***** (use of CBR agents)	DHEW		1103(3)
		EPA	1552(2)

* Executive Order 11953
** Executive Order 11556
*** Executive Order 11051
**** All communications, electric power, water, transportation, petroleum storage and transportation/pipeline categories included in the DOC Critical Industry Facility List will be included in the assignment of the appropriate agency having primary responsibility for all other categories, i. e., manufacturing, research and development, and warehouse and storage.
***** The public could be attacked directly by chemical/biological/radiological agents or they could be affected by the use of such agents against another target system.

The listing of the above targets does not imply that other targets should not be considered or that other agencies need not examine their preparedness measures in light of the terrorism threat. The listing is only to assure that these particularly important targets receive priority attention. Other service or resource systems should be examined by agencies having

appropriate authority under EO 11490. The following primary agency responsibilities are also appropriate for these studies.

Primary Agency Responsibilities

Agencies having primary assignments are responsible for the following:

- Conducting a vulnerability analysis of the assigned target system. The analysis should be conducted with the supporting agencies and be completed in accordance with the guidelines outlined in Section III. On completion, the results should be furnished to FPA for integration into the consequence analyses studies and for dissemination to other agencies.

- Assisting FPA in the development of models for consequence analysis and in the application of these models to actual problems.

- Determining the specific tasks of the supporting agencies as they relate to the target system. These tasks should be consistent with the responsibilities outlined in Executive Order 11490 and other Executive Orders, statutes or administrative issuances, pertaining to the supporting agencies.

- Preparing the criteria for the adequacy assessment of extant plans, procedures and arrangements.

- Assessing with the supporting agencies, the adequacy of extant plans, procedures and arrangements for responding to terrorist attacks against the assigned target system. Guidelines for preparedness assessment are included in Section III.

- Providing standard guidance unique to a particular target system for use by supporting agencies. This guidance may include definition of the system and descriptions of system components, processes and structures.

- Coordinating the preparedness planning effort for the assigned target system. This includes ensuring that all functions essential to an effective operational response are part of the preparedness effort. These functions include incident notification, communications, situation evaluation, decision making support, public information, health and safety services, international relations and recovery operations.

- Identifying the authorities under which response activities will be conducted. If additional authorities are needed to carry out essential response measures, the agency should take the necessary steps to acquire such authority.

- Incorporating provisions for tests and exercises into the planning.

- Reviewing and revising plans based on tests and exercises, changed circumstances and experience from actual terrorist incidents.

- Funding all emergency preparedness measures for which the agency is responsible.

Supporting Agency Responsibilities

Agencies having supporting assignments are responsible for the following:

- Assisting the primary agency in developing a preparedness capability in the areas defined in Executive Order 11490.
- Assisting the primary agency in conducting the vulnerability analysis of a particular target system.
- Funding all emergency preparedness measures for which the agency is responsible.

FPA Responsibilities

The Federal Preparedness Agency is responsible for the overall coordination of the civil emergency preparedness planning effort resulting from this guidance. In addition, FPA is responsible for the following:

- Conducting a vulnerability analysis related to the continuity of the Executive branch of the Federal Government.
- Conducting, with the assistance of other Federal agencies, consequence analyses to determine the potential impact of terrorist attacks. These analyses will use the output of the vulnerability analyses produced by the primary agencies. The results of this effort will provide the basis on which to revise this guidance.

- Coordinating the preparedness effort among primary agencies.
- Providing assistance in resolving Federal interagency or Federal-State problems whenever such action facilitates the fulfillment of responsibilities assigned to Federal agencies.
- Encouraging States to develop a preparedness capability related to this guidance as part of their general civil emergency preparedness planning. This includes providing appropriate guidance for State and local preparedness efforts.
- Providing additional or revised policy and planning guidance whenever such action is necessary.

Appendix

Guidelines for the Preparation of Scenarios

Scenarios of terrorist attacks against the following 18 targets will be included in this appendix. The scenarios are to be prepared by the appropriate agencies and submitted to FPA through the emergency coordinators. These guidelines will be replaced by the scenarios as soon as they are available.

- financial system
  (3 scenarios: several large banks, Federal Reserve System, securities exchanges)

  (3 scenarios: electric power, petroleum, natural gas)

- water system (human consumption)

- transportation systems

  (4 scenarios: air, ocean shipping, inland waterways, rail)

- telecommunications systems

  (2 scenarios: telephone and television)

- government

  (2 scenarios: Federal and State continuity of operations)

- industrial production

  (2 scenarios related to defense production)

- public (chemical/biological/radiological attack against large groups of people)

Each scenario should be approximately one single spaced page and should contain the following three sections:

1. System Description

Include a brief description of the type and size of the system, its geographic dispersion or actual location, its major operations (how it works), its scope of impact in terms of relative importance to the operation of similar or dependent systems, and its relationship to national and regional economic, social and/or political viability.

2. Nature of Terrorist Attack

Include a description of a hypothetical nationwide terrorist attack against all or part of the system that is consistent with the assumptions in Section III. If important, identify the specific facilities of the system attacked and the degree of destruction.

3. Impact of Attack

Include a description of the type of problems resulting from the attack, e.g., distribution, supply or allocation, the relative or absolute reduction in system output, the probable duration of system reductions, the feasibility and effectiveness of alternative methods of operation during the impact period, the best estimate of probable direct effects on the users of the system output and the best estimate of indirect effects on the economic, social and/or political aspects of national viability.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 27, 1978

The Honorable John Glenn
United States Senate
Washington, D.C. 20510

Dear Senator Glenn:

On March 23, 1978 Commissioner Gilinsky appeared before the Senate Governmental Affairs Committee in conjunction with the hearing, chaired by you, on S. 2236, the Omnibus Anti-Terrorism Act of 1977. In his prepared testimony he stated that the Nuclear Regulatory Commission staff was preparing a list of incidents or threats known to the NRC which relate to or might have related to nuclear facilities. The Office of Nuclear Material Safety and Safeguards has compiled the attached list entitled, "Safeguards Summary Event List" which:

(1). Is a list of Safeguards Events involving NRC licensed facilities or materials only.

(2). Is a list of events compiled from extensive research of known and, in some instances, obscure records and therefore may not be absolutely complete.

This event list is provided for the record and any additional information will be forwarded to the Committee when known or when updated by the staff. A copy of the list will also be placed in the NRC's Public Document Room.

If I can be of further assistance please feel free to call.

Sincerely,

Carlton Kammerer, Director
Office of Congressional Affairs

Enclosure:
As stated

SAFEGUARDS SUMMARY EVENT LIST

Pre-NRC thru December 31, 1977
(Prepared by the Office of Nuclear Material Safety and Safeguards, Division of Safeguards)

The Safeguards Summary Event List contains nine categories of events involving NRC licensed material or licensees. It is deliberately broad in scope for several reasons. First, the list is designed to serve as a reference document. While the list may not be as complete or contain as much detail as is desirable, it is as complete and accurate as possible. In the future, if additional information is obtained, it will be incorporated into the list. Second, the list is intended to provide as broad a perspective of the nature of licensee related events as possible. Therefore, the list contains incidents as well as less significant events -- for example those involving small quantities of radiopharmaceuticals.

It should be noted that the criteria for placing an event on the list or in one category as opposed to another is not etched in concrete and the lines between categories are often blurred. How each category is defined and what is included in it is as follows:

I. Bomb related events include threats, discovery of bombs or explosive material and bomb explosions. Threats are defined as an expression of intention to harm or damage a facility. Threats are identified as hoaxes in the sense that no explosions occurred or no bomb material was found. Also, included in this category are events where bombs or explosive material were located at or in the vicinity of a licensed facility and events where explosions occurred.

II. Intrusion events include the attempted or actual penetration of a facility's barriers or safeguards systems. In this category are several unexplained breaking and enterings that resulted in neither damage nor missing material or property. Some events appeared to have been drug or alcohol motivated.

III. Missing and/or allegedly stolen category includes events in which licensed material was inadvertently misplaced or disposed of. It also includes events involving stolen or allegedly stolen material. Typically a very small amount of material such as a radiopharmaceutical was involved and the material was often subsequently located. Also, the thefts of radiopharmaceuticals or other material were sometimes incidental to the theft of other items, such as furs, collocated with the material.

IV. Transportation related events includes any occurrence where licensed material was misrouted, threatened, or reported missing or stolen during transport.

V. Vandalism includes low-level destructive or harrassing activities.

VI. Arson includes acts involving the intentional use of incendiary materials to damage or destroy property, equipment or other assets.

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VII. Firearms-related events include the discovery of weapons or the discharge of firearms at or near a licensed facility.

VIII. Sabotage includes any deliberate act directed against a licensed activity which culminates in a direct or indirect danger to the public health and safety by exposure to radiation.

IX. Miscellaneous includes events that elude inclusion in any of the above categories, but hold some interest to safeguards.

Each event has an identifying number composed of the category number, the year in which the event occurred, and a sequential number for that year. The date and location are given for each event as well as a description of the event. These descriptions vary in detail according to the amount of relevant data available.

BOMB-RELATED

I-69-01 05/04/69 Illinois Institute of Technology

Pipe bomb found near reactor building.

I-70-01 04/22/70 United Nuclear Corporation
New Haven, CT

Bomb threat in overheard conversation. Apparent hoax.

I-70-02 1970 Point Beach
Wisconsin Electric Power Co.
Manitowoc County, WI

A guard reported finding materials for a homemade bomb near a construction area guard shack during the early summer of 1970. It was found that components of the bomb were not assembled in such a manner that an explosion could have resulted. The fact that the materials were located in the weeds behind the shack in such a manner that it would not be found by casual observation was considered to be significant. The guard was suspected of staging a bomb scare.

The guard was later discharged from his employment at Point Beach on the basis of his conduct.

The guard in question was subsequently employed by a local company. While in the employ of the local company, the ex-guard was arrested for his part in a bomb scare at that concern. Dynamite was reportedly found in his car.

Fuel present at site.

I-70-03 09/11/70 Kansas State University

Bomb threat. Apparent hoax.

I-70-04 10/27/70 Dresden
Commonwealth Edison Co.
Grundy County, IL

Bomb threat. Apparent hoax. Fuel present at site.

I-70-05	11/04/70	United Nuclear Corporation New Haven, CT

Bomb threat. Apparent hoax.

I-70-06	11/06/70	United Nuclear Corporation New Haven, CT

Bomb threat. Apparent hoax.

I-70-07	11/10/70	Idaho State University

Bomb threat. Apparent hoax.

I-71-01	02/16/71	Yankee-Rowe Yankee Atomic Electric Co. Franklin County, MA

Bomb threat. Apparent hoax. Fuel present at site.

I-71-02	03/09/71	Arkansas Nuclear One Arkansas Power & Light Co. Pope County, AR

Bomb threat. Apparent hoax. Fuel not present at site.

I-71-03	03/12/71	Yankee-Rowe Yankee Atomic Electric Co. Franklin County, MA

Bomb threat. Apparent hoax. Fuel present at site.

I-71-04	06/23/71	Purdue University Indiana

Bomb threat. Apparent hoax.

I-71-05	08/17/71	Oconee Duke Power Co. Oconee County, SC

Bomb threat. Apparent hoax. At 8:20 a.m., a male called and said that a bomb would go off at 11:30 a.m. Fuel not present at site.

I-71-06 09/18/71 Surry
Virginia Electric Power Co. (VEPCO)
Surry County, VA

Bomb threat. About 2:30 p.m., on Saturday, a woman called the site and said that a bomb had been planted. A search of the site proved negative. Apparent hoax. Fuel probably not present at site.

I-71-07 10/13/71 United Nuclear Corporation
New Haven, CT

Bomb threat. Apparent hoax.

I-71-08 10/18/71 North Anna
VEPCO
Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-01 01/20/72 Surry
VEPCO
Surry County, VA

Bomb threat. Apparent hoax. Fuel probably present at site.

I-72-02 03/13/72 General Electric Co.
San Jose, CA

Bomb threat. Apparent hoax.

I-72-03 04/72 Crystal River
Florida Power Co.
Citrus County, FL

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-04 04/72 Beaver Valley
Duquesne Light Co.
Beaver County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-05	04/28/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-06	05/05/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-07	05/11/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-08	05/12/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-09	05/12/72	Beaver Valley Duquesne Light Co. Beaver County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-10	05/30/72	Babcock & Wilcox Co. Lynchburg, VA

Bomb threat. Apparent hoax.

I-72-11	05/72	Crystal River Florida Power Co. Citrus County, FL

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-12	05/72	Crystal River Florida Power Co. Citrus County, FL

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-13	06/02/72	Iowa State University

Bomb threat. Apparent hoax.

I-72-14	06/30/72	Babcock & Wilcox Co. Lynchburg, VA

Bomb threat. Apparent hoax.

I-72-15	07/04/72	Fort St. Vrain Colorado Public Service Co. Weld County, CO

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-16	08/01/72	Gulf-United Nuclear Fuels Corp. Elmsford, NY

Bomb threat. Apparent hoax.

I-72-17	08/72	San Onofre Southern California Edison Co. San Diego County, CA

Bomb threat. Apparent hoax. Fuel present at site.

I-72-18	08/01/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-19	08/10/72	North Anna VEPCO Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-20 08/10/72 North Anna
VEPCO
Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-21 08/11/72 North Anna
VEPCO
Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-22 08/14/72 North Anna
VEPCO
Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-23 08/15/72 North Anna
VEPCO
Louisa County, VA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-24 09/25/72 Three Mile Island
Metropolitan Edison Co.
Dauphin County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-25 10/31/72 General Atomics Co.
San Diego, CA

Bomb threat. Apparent hoax. An anonymous person telephoned the facility's guard office at 7:15 a.m. and alleged that three cannisters of plastic explosives had been placed at the facility and were set to explode. The caller stated that his intent was to demonstrate that it could be done, but that it was not intended to cause bodily injury.

Emergency procedures were instituted and a search conducted. No bombs were found.

I-72-26 10/06/72 Cooper Station
Nebraska Public Power District
Nemaha County, NE

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-27 10/20/72 San Onofre
Southern California Edison Co.
San Diego County, CA

Bomb threat. Apparent hoax. Fuel not present at site.

I-72-28 10/31/72 General Atomics Co.
San Diego, CA

Bomb threat. Apparent hoax.

I-72-29 10/31/72 Energy Systems & Gulf Environmental

Bomb threat. Apparent hoax at their fuel production department plant. Plant evacuated. A search of the plant proved negative.

I-72-30 11/07/72 State University
Buffalo, NY

Two bombs found in a building across the street from the reactor building.

I-72-31 12/72 Atomics International Division
Canoga Park, CA

Bomb threat. Apparent hoax.

I-72-32 12/29/72 Palisades
Consumers Power Co.
Van Burien County, MI

Bomb threat. Apparent hoax. Fuel present at site.

I-73-01 02/05/73 Gulf-United Nuclear Fuels Corp.
Elmsford, NY

Bomb threat. Apparent hoax.

I-73-02 03/23/73 Three Mile Island
Metropolitan Edison Co.
Dauphin County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-73-03 05/03/73 Babcock & Wilcox Co.
Naval Plant
Lynchburg, VA

Bomb threat. Apparent hoax. A caller stated that four bombs were on the site. Plant evacuated. A search of the plant proved negative.

I-73-04 05/08/73 Babcock & Wilcox Co. (all plants)
Lynchburg, VA

Bomb threat. Apparent hoax. Voice judged to be that of a juvenile. Plants were not evacuated. A search of the facilities proved negative.

I-73-05 06/19/73 San Onofre
Southern California Edison Co.
San Diego County, CA

Bomb threat. Apparent hoax. Fuel present at site.

I-73-06 10/28/73 G. E. Nuclear Energy Division
San Jose, CA

Bomb threat. Apparent hoax.

I-73-07 11/05/73 Three Mile Island
Metropolitan Edison Co.
Dauphin County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-73-08	11/16/73	Turkey Point Florida Power & Light Co. Dade County, FL

Bomb threat. Apparent hoax. Fuel present at site.

I-74-01	01/06/74	Crystal River Florida Power Corp. Citrus County, FL

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-02	01/17/74	Robert E. Ginna Rochester Gas & Electric Corp. Wayne County, NY

Bomb threat. Apparent hoax. Fuel present at site.

I-74-03	01/22/74	Crystal River Florida Power Corp. Crystal County, FL

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-04	03/08/74	Maine Yankee Maine Yankee Atomic Power Co. Lincoln County, ME

Bomb threat. Apparent hoax. Fuel present at site.

I-74-05	03/11/74	Maine Yankee Maine Yankee Atomic Power Co. Lincoln County, ME

Bomb threat. Apparent hoax. Fuel present at site.

I-74-06	03/13/74	Diablo Canyon Pacific Gas & Electric Co. San Luis Obispo County, CA

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-07 04/17/74 Westinghouse
Columbia, SC

Bomb threat. Apparent hoax.

I-74-08 05/03/74 Indian Point
Consolidated Edison Co.
Westchester County, NY

Bomb threat. Apparent hoax. Fuel present at site.

I-74-09 05/17/74 Indian Point I
Consolidated Edison Co.
Westchester County, NY

Bomb threat. Apparent hoax. Fuel present at site.

I-74-10 05/21/74 Atomics International Division
Canoga Park, CA

Bomb threat. Apparent hoax.

I-74-11 05/29/74 Calvert Cliffs 1
Baltimore Gas & Electric Co.
Calvert County, MD

Bomb threat. Apparent hoax. Fuel present at site.

I-74-12 05/30/74 Haddam Neck
Connecticut Yankee Atomic Power Co.
Middlesex County, CT

Bomb threat. Apparent hoax. Fuel present at site.

I-74-13 07/15/74 Farley
Alabama Power Co.
Houston County, AL

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-14 07/24/74 San Onofre
Southern California Edison Co.
San Diego County, CA

Bomb threat. Apparent hoax. Fuel present at site.

I-74-15 08/11/74 Zion
Commonwealth Edison Co.
Lake County, IL

Bomb threat. Apparent hoax. Fuel present ot site.

I-74-16 08/16/74 Indian Point
Consolidated Edison Co.
Westchester County, NY

Bomb threat. Apparent hoax. Fuel present at site.

I-74-17 08/26/74 Pilgrim I
Boston Edison Co.
Plymouth County, MA

At 5:11 p.m. two distinct shots were heard, the second sounding much like an explosion. A small fire was then observed in a wooded area next to the plant. Subsequently, it was determined that a small propane gas tank, 12" x 3", had apparently been tied to a tree and fired on with a pistol or rifle thereby causing it to explode. No penetration of the protected area occurred. The incident occurred in an area open to the public, and 200 feet from the fence and at least 1/4 mile from the station itself.

I-74-18 Summer 1974 Zion
Commonwealth Edison Co.
Lake County, IL

Plant received several bomb threats. Apparent hoaxes. Search of the area proved negative. Fuel present at site.

I-74-19 09/07/74 Brunswick
Carolina Power & Light Co.
Brunswick County, NC

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-20	11/01/74	Haddam Neck Connecticut Yankee Atomic Power Co. Middlesex County, CT

Bomb threat. Apparent hoax. Fuel not present at site.

I-74-21	11/04/74	Pilgrim Boston Edison Co. Plymouth County, MA

Bomb threat. Apparent hoax. Fuel present at site.

I-75-01	02/20/75	Diablo Canyon Pacific Gas & Electric Co. San Luis Obispo County, CA

Bomb threat. Apparent hoax. Fuel not present at site.

I-75-02	02/25/75	Farley Alabama Power Co. Houston County, AL

Bomb threat. Apparent hoax. Fuel not present at site.

I-75-03	03/08/75	Zion Commonwealth Edison Co. Lake County, IL

Bomb threat. Apparent hoax. Fuel present at site.

I-75-04	03/14/75	Mallinchrodt Chemical Works St. Louis, MO

Bomb threat. Apparent hoax.

I-75-05	04/01/75	Peach Bottom Philadelphia Electric Co. York County, PA

Bomb threat. Apparent hoax. Fuel present at site.

I-75-06 04/10/75 Millstone
Northeast Nuclear Energy Co.
New London County, CT

Waterford Fire Department received bomb theat at 4:30 p.m. During the search of Unit 2, a small fire was discovered in a cardboard box and extinguished. Fuel present at site. Apparent hoax.

I-75-07 04/14/75 Calvert Cliffs 1 & 2
Baltimore Gas & Electric Co.
Calvert County, MD

Bomb threat call received at 9:30 a.m. Caller stated a bomb was inside containment. Apparent hoax. Fuel present at site.

I-75-08 04/16/75 Unspecified Plant in New York
Consolidated Edison Co.
New York, NY

Bomb threat. Apparent hoax. At approximately 9:25 and 9:35 a.m., the New York Daily News notified Con. Ed. Co. Central Information group that they had received a call stating three bombs were placed in two plants. The bombs were set to go off in two hours; however, the plants were not identified. Con. Ed. commenced bomb threat procedures. Fuel present at site.

I-75-09 05/06/75 Forked River
Jersey Central Power & Light Co.
Ocean County, NJ

Jersey Central Power & Light Co. received bomb threat in mail. Apparent hoax. Fuel not present at site.

I-75-10 05/12/75 Millstone Point 3
Northeast Utilities
New London County, CT

New Britain Police received bomb threat, an apparent hoax, at 7:20 a.m. Local police and fire department searched site with negative results. Fuel present at site.

I-75-11 06/10/75 Hatch 1 & 2
Georgia Power Co.
Appling County, GA

Bomb threat. Apparent hoax. Hatch security personnel received a telephone call originating outside the plant at 10:35 p.m. A female stated that the plant would blow up within 24 hours. Search did not disclose an explosive device. Fuel present at site.

I-75-12 07/04/75 General Electric (Vallecitos)
Pleasanton, CA

Telephoned bomb threat, an apparent hoax, received. Search of the center proved negative.

I-75-13 07/14/75 Brunswick 2
Carolina Power & Light Co.
Brunswick County, NC

At 7:05 a.m. switchboard operator received a bomb threat call. Apparent hoax. Fort Bragg bomb squad determined that suspicious objects were only trash. Fuel present at site.

I-75-14 08/21/75 Unspecified Plant in New York
Consolidated Edison Co.
New York, NY

Bomb threat. Apparent hoax. Con. Ed. Hq., NY received telephone bomb threat against unspecified Con. Ed. facility. 12:00 noon was noted as time of threatened explosion. Indian Point notified. Search procedures implemented with negative results. Fuel present at site.

I-75-15 08/22/75 Millstone Point 1
Northeast Nuclear Energy Co.
New London County, CT

Bomb threat. Apparent hoax. Site received telephone threat at 10:00 a.m. Search with negative results. Fuel present at site.

I-75-16 09/01/75 Zion
Commonwealth Edison Co.
Lake County, Illinois

A bomb threat was assumed based on suspicious voice transmission received on the protective force citizen-band radio. Apparent hoax. A search proved negative. Fuel present at site.

I-75-17 09/20/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat call received. Apparent hoax.

I-75-18 09/20/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat call received. Apparent hoax.

I-75-19 09/20/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat call received. Apparent hoax.

I-75-20 09/23/75 Brunswick
Carolina Power and Light Co.
Brunswick County, NC

A bomb threat, an apparent hoax, was received at the switchboard at Brunswick Unit 1 at 2:04 p.m. Caller was an adult male and call was placed from a phone on-site. Search of facility completed at 3:15 p.m. with negative results. Fuel present at site.

I-75-21 09/26/75 Babcock & Wilcox Co.
West Mufflin, PA

Bomb threat. Apparent hoax.

I-75-22 09/26/75 Indian Point 1, 2, & 3
Consolidated Edison Co.
Westchester County, NY

Guard at on-site gate received a call at 10:20 a.m. from on-site extension that there was a bomb in plant. Apparent hoax. Search with negative results. Fuel present at site.

I-75-23 10/01/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat. Apparent hoax.

I-75-24 10/03/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat. Apparent hoax.

I-75-25 10/14/75 Westinghouse
Columbia, SC

Plant guard received a telephone bomb threat, an apparent hoax, at about 4:50 a.m. A male stated that a bomb was to go off at 7:39 a.m. Westinghouse house supervisory employees inspected the plant with negative results.

I-75-26 10/17/75 Pilgrim
Boston Edison Co.
Plymouth County, MA

Bomb threat. Apparent hoax. Fuel present at site.

I-75-27 11/03/75 Visitors' Center at the Trojan
Nuclear Power Station
Portland General Electric Co.
Prescott, OR

Bomb threat. Apparent hoax. Vistor Center received threat at 9:40 a.m. that a bomb would explode in 35 minutes. A 65 minute search proved negative. Fuel present at site.

I-75-28 11/03/75 General Atomics Co.
San Diego County, CA

A telephone bomb threat, an apparent hoax, was received at approximately 10:00 a.m. A search of the area proved negative.

I-75-29 10/03/75 General Atomics Co.
San Diego County, CA

Bomb threat. Apparent hoax. A search of the area proved negative.

I-75-30 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-31 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-32 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-33 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-34 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-35 11/04/75 General Atomics Co.
San Diego, CA

A telephone bomb threat, an apparent hoax, was received. Searches of the area proved negative.

I-75-36 11/08/75 Pilgrim
Boston Edison Co.
Plymouth County, MA

Plymouth Police Department received an apparent hoax bomb threat at 8:08 p.m. Area searched with negative results. Fuel present at site.

I-75-37 11/08/75 Pilgrim
Boston Edison Co.
Plymouth County, MA

Plymouth Police Department received an apparent hoax bomb threat at 8:10 p.m. Area searched with negative results. Fuel present at site.

I-75-38 11/29/75 General Electric (Vallecitos)
San Jose, CA

Bomb threat. Apparent hoax.

I-75-39 12/08/75 Arkansas Nuclear One
Arkansas Power and Light Co.
Pope County, AR

Construction supervisor received an apparent hoax telephone bomb threat at 7:30 a.m. Caller stated bomb was set to go off at 10:05 a.m. in turbine building. A search of the area proved negative. Fuel present at site.

I-75-40 12/11/75 Allied-General Nuclear Services
Barnwell, SC

Security guard received an apparent hoax telephone bomb threat at 4:36 a.m. A search of the area proved negative.

I-75-41 12/23/75 Oconee
Duke Power Co.
Oconee County, SC

Bomb threat. Apparent hoax. Fuel present at site.

I-75-42 12/23/75 Shoreham
Long Island Lighting Co.
Suffolk County, NY

Bomb threat. Apparent hoax. Fuel not present at site.

I-75-43 12/23/75 Shoreham
Long Island Lighting Co.
Suffolk County, NY

Bomb threat. Apparent hoax. Fuel not present at site.

I-75-44 12/31/75 Oyster Creek
Jersey Central Power & Light Co.
Toms River, New Jersey

An apparent hoax bomb threat to blow up Nuclear Station. Person involved referred to mental health center. Fuel present at site.

I-76-01 01/19/76 Babcock & Wilcox Co.
Naval Nuclear Fuel Division
Lynchburg, VA

Received an apparent hoax bomb threat at 3:00 p.m. Search of facility conducted with negative results.

I-76-02 01/22/76 Massachusetts Institute of Technology
Boston, MA

Received an apparent hoax bomb threat at 3:00 p.m. Routine search conducted with negative results.

I-76-03 01/23/76 Massachusetts Institute of Technology
Boston, MA

Campus authorities received an apparent hoax bomb threat at 2:14 p.m. Routine search conducted with negative results.

I-76-04 01/30/76 Massachusetts Institute of Technology
Boston, MA

An apparent hoax bomb threat received at 1:49 p.m. Search of area proved negative.

I-76-05 02/03/76 Westinghouse
Columbia, SC

At 4:15 p.m. a bomb threat telephone call was received by the plant. Apparent hoax.

I-76-06 02/04/76 Susquehanna Units 1 & 2
Pennsylvania Power & Light Co.
Luzerne County, PA

Apparent hoax bomb threat. New York State Police received a call informing them that a bomb was placed at the site and set to go off at 11:00 a.m. Search with negative results. Fuel not present at site.

I-76-07 03/04/76 Diablo Canyon
Pacific Gas & Elecric Company
San Luis Obispo County, CA

General information concerning a bomb threat was received. Apparent hoax. Fuel not present at site.

I-76-08 03/05/76 Susquehanna Units 1 & 2
Pennsylvania Power & Light Co.
Luzerne County, PA

Pennsylvania State Police received a phone threat at 8:47 a.m. Search conducted with negative results. Apparent hoax. Fuel not present at site.

I-76-09 03/05/76 Brunswick 1 & 2
Carolina Power & Light Co.
Brunswick County, NC

Telephone bomb threat, an apparent hoax, received at 2:55 p.m. Search of both sites proved negative. Fuel possibly present at site.

I-76-10 03/08/76 Susquehanna Units 1 & 2
Pennsylvania Power & Light Co.
Luzerne County, PA

Apparent hoax bomb threat. Subcontractor received telephone call at 8:47 a.m. stating that two bombs had been placed at the construction site. Search conducted with negative results. Fuel not present at site.

I-76-11 03/09/76 Turkey Point
Florida Power & Light Co.
Dade County, FL

At 1:21 p.m. a message was found at the Miami Herald which outlined a general threat against FP&L activities. Message relayed that hidden devices were placed in key areas at Turkey Point. Apparent hoax. Fuel present at site.

I-76-12 03/15/76 Susquehanna Nuclear Plant
Pennsylvania Power & Light Co.
Luzerne County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-76-13 03/16/76 Susquehanna Nuclear Plant
Pennsylvania Power & Light Co.
Luzerne County, PA

Bomb threat. Apparent hoax. Fuel not present at site.

I-76-14 03/25/76 Purdue University
West Lafayett, IN

Laboratory Director received general bomb threat against four University buildings, one of which housed the research reactor. A search was conducted with negative results. Apparent hoax.

I-76-15 03/25/76 Diablo Canyon 1
Pacific Gas & Electric Co.
San Luis Obispo County, CA

Apparent hoax telephone bomb threat call received at 11:25 a.m. Search conducted with negative results. Fuel present at site.

I-76-16 04/06/76 Millstone 1 & 2
Northeast Nuclear Energy Co.
New London County, CT

Apparent hoax bomb threat call received at 10:35 p.m. Search conducted with negative results. Fuel present at site.

I-76-17 04/23/76 Turkey Point 3 & 4
Florida Power & Light Co.
Dade County, FL

Bomb threat. Apparent hoax. FP&L notified of message received by local radio station that devices were hidden in key places at Turkey Point. Search conducted and security increased. Fuel present at site.

I-76-18 04/23/76 Grand Gulf
Mississippi Power & Light Co.
Claiborne County, MS

An apparent hoax bomb threat. Bomb threat call received at switchboard that a bomb was placed in construction pit. Search conducted with negative results. Fuel not present at site.

I-76-19 04/26/76 Grand Gulf
Mississippi Power & Light Co.
Claiborne County, MS

Apparent hoax bomb threat call received. Caller stated that the bomb that didn't go off will go off this morning. Fuel not present at site. See I-76-19.

I-76-20 05/04/76 North Anna 1, 2, 3 & 4
VEPCO
Louisa County, VA

Telephone bomb threat, apparent hoax, received at 8:10 a.m. Adult male stated that four bombs had been placed on the site. Search of facility conducted with negative results. Fuel present at site.

I-76-21 05/05/76 Diablo Canyon 1 & 2
Pacific Gas & Electric Co.
San Luis Obispo County, CA

Apparent hoax bomb threat. A radio station received a call at 8:50 p.m. from a man who stated that his brother and another individual had welded a bomb into a pipe at the Diablo Canyon Reactors and that a bomb was set to explode the next morning (05/06/76). Search conducted with negative results. Fuel present at site.

I-76-22 05/07/76 North Anna 1, 2, 3 & 4
VEPCO
Louisa County, VA

Site security received telephone bomb threat, an apparent hoax. Search conducted with negative results. Fuel present at site.

I-76-23. 05/31/76 General Electric
Wilmington, NC

Bomb threat. Apparent hoax.

I-76-24 06/02/76 Pilgrim 1
Boston Edison Co.
Plymouth County, MA

Telephone bomb threat relayed to plant by Chief of Plymouth Police. Apparent hoax. Fuel present at site.

I-76-25 06/03/76 Susquehanna 1 & 2
Pennsylvania Power & Light Co.
Luzerne County, PA

Bloomsburg Bell Telephone Company operator received a call from a man who stated that a bomb would go off between 11:00 p.m. and 12:00 midnight at the Susquehanna site. State police investigated. Apparent hoax. Fuel not present at site.

I-76-26 06/03/76 Nuclear Power Plants
California

Apparent hoax bomb threat. A Radio Station in Berkeley, California received a threat from an extremist group that it would release a non-nuclear explosive device from a balloon over a nuclear power plant.

I-76-27 06/07/76 Nuclear Power Plants
Massachusetts

General threat received in extortion letter to bomb Logan airport, banks, and nuclear power plant. Apparent hoax.

CONTINUED

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I-76-28 06/23/76 Duane Arnold
Iowa Electric Light & Power Co.
Linn County, IA

Telephone bomb threat, an apparent hoax, received at corporate office. Authorities notified and a search conducted with negative results. Fuel present at site.

I-76-29 06/23/76 Nuclear Power Plants
Oregon or Washington

Telephone threat received by federal authorities alleging that in celebration of the Little Big Horn, Custer's Last Stand, a group of Indians would attempt to destroy a nuclear power plant in either Oregon or Washington (06/25/76). No incident occurred and it was determined that the "threat" was actually misunderstood gossip.

I-76-30 07/01/76 Farley
Alabama Power Company
Houston County, AL

Telephone bomb threat, an apparent hoax, received by construction superintendent. Search conducted with negative results. A strike was in progress at the site. Fuel not present at site.

I-76-31 07/03/76 Peach Bottom
Philadelphia Electric Co.
York County, PA

Bomb threat. Apparent hoax. Fuel present at site.

I-76-32 07/14/76 Northern States Power Co. (NSP)
Minneapolis, MN

NSP local dispatcher received a general bomb threat at 10:18 p.m. No threats received at any of the NSP plants. Apparent hoax.

I-76-33 07/16/76 Beaver Valley
Duquesne Light Co.
Beaver County, PA

Shippingport Police received telephone call advising that two bombs were in the atomic plant -- one in the stack and one in the power house. Cooling towers at Beaver Valley searched with negative results. Apparent hoax. Fuel present at site.

I-76-34 07/26/76 Farley
Alabama Power Company
Houston County, AL

Undefined bomb threat. Apparent hoax. Fuel not present at site.

I-76-35 08/03/76 Dresden Units 1, 2 & 3
Commonwealth Edison Co.
Grundy County, IL

Dresden control room received bomb threat call, an apparent hoax, from male at 12:58 p.m. Caller stated there was a bomb in control room. Search conducted with negative results. Fuel present at site.

I-76-36 08/12/76 Turkey Point
Florida Power & Light Co.
Dade County, FL

A source of unknown reliability reported that an individual tried to get explosives to bomb Turkey Point. Fuel present at site. Apparent hoax.

I-76-37 08/22/76 North Anna Units 1 & 2
VEPCO
Louisa County, VA

Apparent hoax bomb threat call received at 11:00 p.m. Male stated that a bomb would explode at 11:15 p.m. Search initiated with negative results. Fuel present at site.

I-76-38 08/25/76 Limerick Units 1 & 2
Philadelphia Electric Co.
Montgomery County, PA

Operator received call from male stating he was going to plant a bomb at Limerick. Apparent hoax. Fuel not present at site.

I-76-39 08/31/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, apparent hoax, received at 11:25 p.m. Search initiated with negative results. Fuel present at site.

I-76-40 09/01/76 North Anna
VEPCO
Louisa County, VA

Bomb threat call, apparent hoax, received at 1:33 p.m. Search initiated with negative results. Fuel present at site.

I-76-41 09/02/76 North Anna
VEPCO
Louisa County, VA

Bomb threat call, an apparent hoax, received at 9:30 p.m. Adult male stated that a bomb would go off in 24 hours. Search initiated with negative results. Fuel present at site.

I-76-42 09/19/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat call, an apparent hoax, received at 8:30 p.m. Fuel present at site.

I-76-43 10/06/76 North Anna
VEPCO
Louisa County, VA

At 8:10 a.m., the switchboard received bomb threat from adult male who stated that a bomb would go off at the plant before lunch. Search conducted. Apparent hoax. Fuel present at site.

I-76-44 10/06/76 North Anna
VEPCO
Louisa County, VA

Apparent hoax bomb threat call received at 10:00 a.m. from adult male. Caller stated that three bombs would go off at the plant at 10:05 a.m. No search conducted due to lack of time. Fuel present at site.

I-76-45 10/06/76 North Anna
VEPCO
Louisa County, VA

At 10:00 p.m. a bomb threat, an apparent hoax, was received at the security guard house. An adult male caller stated that a bomb would go off. A search was conducted with negative results. Fuel present at site.

I-76-46 10/07/76 North Anna
VEPCO
Louisa County, VA

Apparent hoax bomb threat. At 1:00 p.m. an adult male called the security guard house and stated that a bomb would go off at 1:10 p.m. A search was initiated with negative results. Fuel present at site.

I-76-47 10/13/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 9:05 p.m. Caller stated bomb was set to go off in the containment building in 8 hours. Fuel present at site.

I-76-48 10/14/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 2:20 p.m. Search conducted with negative results. Fuel present at site.

I-76-49 10/15/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 10:19 a.m. Adult male reported that 12 bombs were scheduled to go off by Tuesday. Fuel present at plant.

I-76-50 10/15/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 10:42 a.m. Adult female stated there were bombs at the plant. Search conducted with negative results. Fuel present at site.

I-76-51 10/15/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 11:28 p.m. Search conducted with negative results. Fuel present at site.

I-76-52 11/03/76 North Anna
VEPCO
Louisa County, VA

Telephone bomb threat, an apparent hoax, received at 2:04 p.m. Adult male stated that a bomb would go off on the second shift. Fuel present at site.

I-76-53 11/03/76 Waterford Unit 3
Louisiana Power & Light Co.
St. Charles Parish, LA

Telephone bomb threat, an apparent hoax, received at 10:39 a.m. from adult male. Search conducted with negative results. Fuel not present at site.

I-76-54 11/03/76 Waterford Unit 3
Louisiana Power & Light Co.
St. Charles Parish, LA

Telephone bomb threat, an apparent hoax, received at 1:14 p.m. from male caller. Search conducted with negative results. Fuel not present at site.

I-76-55 12/10/76 Calvert Cliffs Units 1 & 2
Baltimore Gas & Electric Co.
Calvert County, MD

Customer Service switchboard operator of the BG&E Co. received bomb threat call at 6:30 p.m. Apparent hoax. Fuel present at site.

I-77-01 01/26/77 Summer
South Carolina Electric Co.
Fairfield County, SC

At about 12:10 p.m., a telephone bomb threat, an apparent hoax, was received by the South Carolina Electric & Gas Co. Safety & First Aid Office. The male caller stated that a bomb would go off in about one hour. The presence of high background noise suggested that the call may have originated on site. All supervisors were notified and limited searches made near vital equipment. No bomb was found and no explosions occurred. Fuel not present at site.

I-77-02 02/10/77 Westinghouse
Columbia, SC

At approximately 7:20 a.m. a security guard received an anonymous phone call asking what time did the plant manager come to work. When the guard gave him this information, the caller told the guard that he (the guard) had better get everyone out of the plant and hung up. A search was conducted with no results. Apparent hoax.

I-77-03 02/17/77 Palo Verde
Arizona Public Service Co.
Maricopa County, AZ

An anonymous telephone bomb threat, an apparent hoax, was received. A search produced no results. Fuel not present at site.

I-77-04 03/03/77 Millstone
Northeast Nuclear Energy Co.
New London County, CT

At 7:59 p.m., a telephone bomb threat, an apparent hoax, was received stating that a bomb was on the site and would go off that night. The call was made by a male to the public telephone located outside of gate #1. A guard answered the phone and received the threat. A search was conducted with no results. Fuel present at site.

I-77-05 03/23/77 Arkansas Nuclear One
Arkansas Power & Light Co.
Pope County, AR

Telephone bomb threat, an apparent hoax, was received at the Unit 2 construction switchboard. No bomb was found. Fuel present at Unit 1. (See next entry.)

I-77-06 03/23/77 Arkansas Nuclear One
Arkansas Power & Light Co.
Pope County, AR

At about 1:00 p.m., a second bomb threat, an apparent hoax, was received at the Unit 2 construction switchboard. Plant personnel conducted a search of both Units 1 and 2 since the caller did not specify the affected Unit in the threat. No bomb was found. Subsequently, a female suspect was arrested. Fuel present at Unit 1.

I-77-07 03/30/77 Diablo Canyon #1
Pacific Gas and Electric Co.
San Luis Obispo County, CA

At 6:45 p.m. the Diablo Canyon switchboard received a bomb threat, an apparent hoax, from an unknown male. He stated that an explosive device had been planted in Unit 1 and would explode before midnight. A search was conducted with negative results. Fuel present at site.

I-77-08 03/77 Three Mile Island
Metropolitan Edison Co.
Dauphin County, PA

At 3:15 p.m., a telephone bomb threat, an apparent hoax, was received at the Unit 2 construction switchboard. A muffled male voice stated that everyone should be told to get out because the place was going to blow up. Appropriate procedures at both units were invoked. A search produced negative results. Fuel present at site.

I-77-09 03/31/77 Waterford #3
Louisiana Power & Light Co.
St. Charles Parish, LA

At 7:28 a.m., a telephone bomb threat, an apparent hoax, was received by a security guard at Waterford #3. The caller stated that the head of security should be told that a bomb had been planted. A search produced negative results. Fuel not present at site.

I-77-10 03/31/77 Waterford #3
Louisiana Power & Light Co.
St. Charles Parish, LA

At 10:30 a.m., the Project Superintendent's office received a telephonic bomb threat, an apparent hoax. A search produced negative results. Fuel not present at site. (See next entry.)

I-77-11 03/31/77 Waterford #3
Louisiana Power & Light Co.
St. Charles Parish, LA

At 2:30 p.m. the Project Superintendent's office received a telephone bomb threat, an apparent hoax. A male voice stated that this was definitely the last warning and to get out of the site. The secretary stated that the voice sounded the same as the one of the 10:30 a.m. call. She also stated that there was a sound of office equipment in the background of the caller's voice. It was noted that the call did not come through the plant switchboard which indicates the call was made from an on-site phone. Fuel not present at site.

I-77-12 04/01/77 Waterford #3
Louisiana Power & Light Co.
St. Charles Parish, LA

At 7:20 a.m., a plant security guard received a telephone bomb threat, an apparent hoax. The caller was thought to be a male, about 30 years old, used peculiar grammar and spoke in a calm deliberate manner. A search produced negative results. Fuel not present at site.

I-77-13 04/06/77 Salem
Public Service Electric & Gas Co.
Salem County, NJ

Apparent hoax bomb threat. A local radio station received a telephone call from an unidentified male caller who stated that "the plant" was going to blow up. The threat was reported to the police department who advised the licensee at 9:10 a.m. A search was conducted with negative results. Though the caller made no specific mention of the Salem site, it was assumed the call concerned Salem since it is the only "plant" in the area. Fuel present at site.

I-77-14 04/27/77 Shoreham
Long Island Lighting Co.
Suffolk County, NY

Apparent hoax threat to fire bomb site. Fuel not present at site.

I-77-15 05/10/77 Shoreham
Long Island Lighting Co.
Suffolk County, NY

At 1:50 p.m. the site received a telephone bomb threat, an apparent hoax. A search produced negative results. Fuel not present at site.

I-77-16 05/19/77 Summer
South Carolina Electric & Gas Co.
Fairfield County, SC

At 12:33 p.m. a telephone bomb threat, an apparent hoax, was received by the South Carolina Electric & Gas Co. switchboard. The caller stated that the bomb would go off at the Summer site within 12 hours. A search produced negative results.

(continued)

I-77-16 cont.
The caller was described as male with a deep voice, good grammar, rational and distinct speech. There was no background noise. No reason was given for planting the alleged bomb. Fuel not present at site.

I-77-17 05/24/77 Allied Chemical Co.
Metropolis, IL

Apparent hoax bomb threat. An outside call was received by the shift foreman at 11:40 p.m. The caller stated that he had called to tell the shift foreman that there was a bomb in the plant and that it would explode at 1:00 a.m., May 25, 1977. A search produced negative results.

I-77-18 06/01/77 Washington Nuclear Power Project
Washington Public Power Supply System
Benton County, WA

At 7:10 a.m., the common construction area between the units received a telephone bomb threat, an apparent hoax, that was repeated at 7:15 a.m. the same morning. The caller stated that three bombs were on the site. A local radio station also received the same threat. A search produced negative results. Fuel present at site.

I-77-19 08/03/77 Indian Point
Consolidated Edison Co.
Westchester County, NY

At 4:40 p.m. the National Broadcasting Co. notified Consolidated Edison that a telephone threat, an apparent hoax, that two of Con Ed's facilities would be bombed. Indian Point implemented appropriate procedures and a search produced negative results. Fuel present at site.

(Two bombings had occurred in New York city on August 3, 1977.)

I-77-20 08/15/77 Braidwood
Commonwealth Edison Co.
Will County, IL

At 3:15 p.m., a telephonic threat, an apparent hoax, stating that three sticks of dynamite had been placed in the Unit 1 containment was received by the welding supervisor. No time of detonation was given and a search produced negative results.

Construction representatives speculate that the call was a prank since there had been recent labor problems. Fuel not present at site.

I-77-21 09/30/77 Grand Gulf
Mississippi Power & Light Co.
Claiborne County, MS

At 11:40 a.m., an anonymous telephone threat, an apparent hoax, was received at the construction contractor switchboard. The caller stated that there was a bomb in the reactor room. No time of detonation was given and a search produced no results. Fuel not present at site.

I-77-22 10/10/77 Visitors' Center at Trojan
Nuclear Power Plant
Columbia County, OR

Between 3:00 and 4:00 a.m., a pipe bomb detonated next to the Trojan visitors' center. The explosion was no threat to protected areas. Fuel present at site.

I-77-23 10/29/77 Westinghouse
Columbia, SC

At 11:10 p.m., the Westinghouse Manager of Security and Services received a telephone bomb threat, an apparent hoax. The caller stated that the facility had a bomb and hung up. Approximately two minutes later a caller, believed to be the same person stated that he was not kidding and that the facility really had a bomb. No time of detonation was given and a search produced negative results.

I-77-24 11/04/77 Indian Point
Consolidated Edison Co.
Westchester County, NY

Apparent hoax bomb threat. At 10:50 a.m., Mt. Vernon, NY Telephone Company Operator received a call from a person who stated that he was going to plant a bomb at the site. Police were notified. In the interim, the operator put the call through to Indian Point 2 and the caller told a site employee that he had been fired that day and if he was not rehired he was going to plant a bomb at Indian Point. A search of the site produced negative results. A suspect was subsequently arrested. Fuel present at site.

I-77-25 11/06/77 Peach Bottom
Philadelphia Electric Co.
York County, PA

Apparent hoax bomb threat. Between 7:00 and 7:30 p.m., an unidentified caller placed three calls attempting to talk to one specific employee. A contractor working at Peach Bottom received the calls in which the caller stated that he knew of a person who was planning to place a bomb on the site. Appropriate precautions were taken and nothing unusual occurred. Fuel present at site.

I-77-26 11/14/77 Westinghouse
Columbia, SC

Apparent hoax bomb threat. At 7:10 p.m., an anonymous call was received by a security officer at the fuel fabrication plant in Columbia, SC. The caller rapidly stated that two bombs were behind the wall on each . . . and then the caller hung up in midsentence. No time of detonation was given and a search produced negative results.

I-77-27 11/22/77 Indian Point
Consolidated Edison Co.
Westchester County, NY

At approximately 6:50 a.m., the Westchester Business Office of Consolidated Edison received a telephone threat, an apparent hoax, from an unidentified male who stated that a bomb was going to be brought into Unit 3 between 8:00 a.m. and 12:00 noon. Fuel present at site.

I-77-28 12/13/77 Quad-Cities
Commonwealth Edison Co.
Rock Island County, IL

At 6:10 p.m., a switchboard operator for the Iowa-Illinois Gas & Electric Co., Davenport, Iowa received a telephone threat, an apparent hoax. The male caller stated that all the company's offices and plants were going up that night. No further specifics were provided. Although the threat was not specifically addressed to Quad-Cities a search was conducted with negative results. Fuel present at site.

I-77-29 12/23/77

Braidwood
Commonwealth Edison Co.
Will County, IL

At 7:32 a.m., a telephone threat, an apparent hoax, was received by a secretary for the piping contractor for the Braidwood site. The caller, a male with a deep voice, asked the secretary if he was talking to the Northern Petro Chemical Co. When she advised him it was the Braidwood site, the caller said that she had better clear everyone out because there was a bomb set to explode at 9:00 a.m. at reactor building #1. A search produced negative results. Fuel not present at site.

INTRUSION

II-71-01 03/27/71 Grand Junction
Colorado

Unknown individual climbed the fence of the Grand Junction compound. Evidence of the intrusion was discovered during a routine patrol in which guards observed that the barbed wire of the fence had been pulled down and there were "footprints in the dust." Footprints also indicated that intruder went to a shed inside the compound. There was no damage of any type and nothing was stolen.

II-71-02 08/30/71 Vermont Yankee
Vermont Yankee Nuclear Corp.
Windham County, VT

At about 8:45 p.m., August 30, 1971, a radio call was received by the guard at the main gate from the roving guard requesting assistance at the stack. Two guards responded to the call and found that the roving guard had been attacked. The roving guard had received blows about the head, a scratch across the abdomen and a deep laceration in the upper right leg. The local sheriff and state police were notified.

According to the roving guard, as he was patrolling the fence, he heard a noise in the stack control building. Upon entry, he was assaulted and struck with a sharp object. The man then ran west toward the switchyard.

The area was searched. A dog was used to search the wooded areas. Extra guards were placed near the area. A detailed search for damage or evidence was conducted by site security and plant personnel. Footprints were found coming from and going to the river. The footprints led to a hole in the north fence which is under construction. No damage to material or equipment was detected. Roads in the area were patrolled throughout the night. Security was tightened. All patrols were doubled. Fuel probably at site.

II-73-01 03/15/73 Oconee, Unit 2
Duke Power Co.
Oconee County, SC

Break-in at fuel storage building between 11:30 p.m., March 14 and 1:30 a.m., March 15 by person or persons

(continued)

who removed the door to gain access. No SNM missing or damaged. It was presumed that entry into the building was for the purpose of stealing tools or other equipment.

II-73-02 05/16/74 Nuclear Fuel Services
Erwin, TN

At 12:50 a.m., a guard making a tour heard a mature male voice say, "Oh Lord, somebody is coming." The guard saw two individuals, one on the ground outside the fence and another on the outside about two feet from the top of the fence. The person near the top of the fence was being supported by a plank laying against the outside of the fence on an inclined angle. Almost instantaneously, the two individuals started running from the area. Additional security personnel were summoned by the guard and the local police were notified.

It was believed that the attempted penetration was an unplanned event performed by non-professional local individuals, probably as the continuance of a recent series of industrial and educational site break-ins which had been reported in the local press as having occurred in the area.

II-74-01 05/27/74 Gulf United Nuclear
New Haven, CT

A guard who hoped to improve his chances for promotion fabricated an intrusion event. He admitted that he had made it appear that a break-in and attempted burglary occurred. No material was stolen as a result of this ruse.

II-74-02 09/04/74 U.S. Nuclear Corp.
Oak Ridge, TN

Noise and moving shadow observed by a guard performing a routine inspection of the fence. Messenger wire found cut in one spot at the bottom of the fence fabric. It was determined that a penetration of the fence had not been achieved. No alarms from material access area doors occurred. Additional security personnel and local law responded.

II-75-01 02/23/75 Nuclear Fuel Services
Erwin, TN

On the evening of February 23, 1975, NFS notified the NRC that two unknown individuals had been detected inside the protected area fence. The entry was detected when a beam of the intrusion detection system was broken on the west side of the plant. This was followed one minute later when the beam was reported as having been broken again. NFS reported that a guard responded in the security vehicle. About two minutes later, as the vehicle started down the west side of the fence, the beam was broken and the responding guard observed two figures leap from the top of the fence and run off in a northwesterly direction. The guard was about 700 feet away when the individuals departed the protected area. The guard observed the intruders depart the immediate area via a railroad spur that enters the NFS protected area at the point of escape. The guard did not pursue the intruders immediately, although a general search of the area was reportedly made later. The sheriff's office was contacted. A deputy responded and assisted in the search. Except for footprints near the apparent point of entry, no evidence was found. The licensee searched the protected area, checked doors and tested intrusion alarms for operability. No problems were detected. This intrusion occurred in the same genreal area as the attempted entry on 05/16/74.

II-75-02 07/02/75 Kerr-McGee Corp.
Cimarron, OK

A former Kerr-McGee employee arrived at gate armed with rifle (unloaded) and attempted to climb fence. She was apprehended and turned over to the sheriff's department.

II-75-03 09/25/75 Massachusetts Institute of Technology (MIT)
Boston, MA

Intrusion. An MIT student, acting on his own, forced his way into the MIT reactor facility. The containment room housing and reactor appeared not to have been entered. No damage to the reactor or loss of nuclear material occurred. The person making the entry subsequently turned himself in at a Boston police station and stated what had occurred.

II-76-01 01/27/76 Three Mile Island
Metropolitan Edison Co.
Dauphin County, PA

At 6:50 p.m., January 27, 1976 an individual in an automobile made an unauthorized, uncontrolled entry through an open gate onto the Three Mile Island site. He remained on the Island in the construction area for fifty minutes and then exited in his automobile through the open gate in an unauthorized, uncontrolled manner.

When the north gate to the Island was opened to permit an employee in his automobile to enter, the unauthorized automobile drove through the gate. Fifty minutes later the gate was again opened to permit exit of an authorized automobile. The unauthorized automobile then drove through the gate, nearly striking the guard. A description and license number were obtained.

Entry through the north gate permits access to the fenced owner controlled area. The Unit-2 construction site is in this controlled area. A second inner fence surrounds the secured area which contains Unit-1, the operating facility. The secured area was not opened. During the time the man was on the Island, searches were conducted in the vicinity of Unit-1. No search was made at the south end of the Island which is the construction area for Unit-2.

Searches showed that no entry had been made through the security fence for Unit 1. In addition, no alarm was received from the fence intrusion alarm system, and no abnormalities were found.

The individual was identified by the state police. He is employed as an electrician on Unit-2. Members of his family brought him to the Island where he was interviewed by security personnel. The individual exhibited abnormal behavior patterns. Fuel present at site.

II-76-02 02/26/76 Diablo Canyon
Pacific Gas & Electric Co.
San Luis Obispo, CA

An intruder activated the alarm at the information center. No damage or materials missing.

II-76-03 04/22/76 St. Lucie
Florida Power & Light Co.
St. Lucie County, FL

FP&L commercial manager notified by newspaper that an activist group would attempt to penetrate security at St. Lucie 1 on 04/22/76 to discredit security at nuclear facilities. Fuel present at site. No penetration was attempted. Apparent hoax.

II-76-04 04/26/76 Oyster Creek
Jersey Central Power & Light Co.
Toms River, NJ

A news media representative informed Region I Office, Philadelphia that he had gained access to the protected area at Oyster Creek unchallenged. He allegedly entered the Administration Building lobby, which is in the protected area, before being stopped. No vital areas were compromised. Fuel present at site.

II-76-05 05/12/76 Zion
Commonwealth Edison Co.
Lake County, IL

Rumored intrusion threat. Apparent hoax. Fuel present at site.

II-76-06 07/18/76 Zion
Commonwealth Edison Co.
Lake County, IL

At 4:30 p.m. a car with two persons intruded into the owner-controlled area between the plant outer perimeter and the security fence striking one guard and attempting to run down a second guard. Four shots were fired at the fleeing vehicle, one of which hit the fuel tank. Local police apprehended and arrested the occupants. The driver appeared to be under the influence of narcotics. Drug paraphenalia was found in the car. The occupants remembered no unlawful activity and complained their car had been shot at while passing a "manufacturing plant." Fuel present at site.

II-76-07 07/24/76 Prairie Island
Northern States Power Co.
Goodhue County, MN

Eighteen marchers attempted to enter site, apparently as part of an anti-nuclear demonstration. Three attempted to penetrate the security fence and were arrested. Fuel present at site.

II-76-08 09/19/76 D. C. Cook 1 & 2
Indiana & Michigan Electric Co.
Bridgeman, MI

At 12:05 p.m., a guard on mobile patrol of the owner-controlled area reported to the central alarm station that she thought that she had observed someone in a train car near the cement mixing area. A search of the area produced no results. Fuel present at site.

II-76-09 09/20/76 D. C. Cook 1 & 2
Indiana & Michigan Electric Co.
Bridgeman, MI

A guard located at the Visitor Center Guard House observed what he thought was a male hunter on owner-controlled property at about 5:55 a.m. A search of the area adjacent to and inside the protected area was conducted. No persons could be located. Also, no alarms were generated by the facility's systems during the period of concern and there was no evidence of tampering with the perimeter fence. Additional security was added. Fuel present at site.

II-76-10 09/25/76 Indian Point
Consolidated Edison Co.
Westchester County, NY

At 3:42 a.m., a drunk driver drove into main vehicle gate damaging gates. No sensitive areas were penetrated. Fuel present at site.

II-76-11 10/03/76 Zion
Commonwealth Edison Co.
Lake County, IL

At 10:00 a.m. October 3, 1976, a seventeen-year old high school student who was camping at Illinois State Beach Park, south of Zion Station, approached the southeast

corner of the protected area fence. His presence was detected by the intrusion system. Two guards were dispatched to the scene. The intruder continued north on the beach (public property) and broke an alarm beam when he climbed over the barbed wire barrier fronting the concrete forebay wall. As he proceeded south on the walkway of the forebay, he was apprehended by the guards. He offered no resistence. He was interviewed by the shift supervisor who turned him over to the Zion Police. The intruder's stated reason for coming over the fence was "to see the reactor." He was held by the Zion Police for a few hours and turned over to his father. Fuel present at site.

II-77-01	04/19/77	Fort St. Vrain Public Service Co. Weld County, CO

During a shift change an NRC Inspector who infrequently visits the facility and was not recognized, gained access to vital areas of the plant without a security challenge, contrary to the facility's existing security program. Fuel present at site.

II-77-02	08/18/77	Ginna Rochester Gas & Electric Corp Wayne County, NY

Individual seeking aid for a friend after their canoe capsized climbed a fence and requested help over facility's PA system. Fuel present at site.

MISSING AND/OR ALLEGEDLY STOLEN

III-57-01 05/24/57 State of Texas Department of Health

A 250 millicurie source of Cobalt-60 was reported lost. A search and investigation produced no results.

III-60-01 1960's NUMEC
Apollo, PA

High unexplained inventory difference coupled with rumors of allegedly diverted material resulted in intensive investigations by federal law enforcement agencies. NRC's involvement in this matter is detailed in a three volume report entitled "Inquiry into the Testimony of the Executive Director for Operations," dated February 1978.

III-61-01 03/13/61 University of Chicago Clinic
Chicago, IL

200 millicuries of Strontium-90 was reported lost. It is believed that it had been inadvertently included in radioactive waste from the hospital pharmacy that was sent to the Argonne National Lab for disposal.

III-61-02 04/10/61 Space Technology Lab Inc.
El Segundo, CA

A Strontium-90 sealed source (1.2 millicuries) was reported lost. A search produced no results.

III-62-01 04/26 to 05/02/62 Westinghouse
Cheswick, PA

Two fuel plates of HEU (40 grams) valued at $1,050 were reported missing. Site management believed that both plates were inadvertently chopped or recycled within the facility.

III-62-02 07/16/62 National Lead Co.
New York

A natural uranium metal fragment (423 grams) was found by a truck driver for a lumber company that held a contract with the National Lead Co. The driver tried to find out the nature of the material by sending it to a college where it was later retrieved. It was concluded that there was no evidence of theft and that the material probably came to the lumber yard accidently by adherence to a greased wooden pallet. No threat to public health or safety.

III-62-03	10/16/62	Philadelphia College of Textiles and Science Philadelphia, PA

A piece of natural uranium (192 grams valued at about $6) was reported missing. The metal was supplied to Mr. Van Zandt, a Congressman on the JAEC, by the AEC in early 1954 for display use in speeches and atomic energy educational talks. Mr. Van Zandt concluded that the natural uranium was inadvertently misplaced and may have been swept up in the trash following a meeting at which he spoke. Mr. Van Zandt reimbursed the AEC in the amount of $6 for the material.

III-62-04	10/06/62	Carnegie Institute of Technology Pittsburgh, PA

Sixty-seven aluminum-clad natural uranium slugs were reported missing. In March 1964, forty-one of the slugs were located in the possession of a scrap metal dealer in Cleveland, Ohio.

III-63-01	07/21/63	Battelle Memorial Institute Columbus, OH

Two samples of material (total contents .54 grams of uranium valued at $6) was reported missing. The material was believed to have been disposed of.

III-63-02	10/04/63	Stevens Institute of Technology Hoboken, NJ

One aluminum-clad natural uranium slug (4 pounds valued at $72) out of a total inventory of 1389 slugs was reported missing.

III-64-01	06/05/64	Rensselaer Polytechnic Institute Troy, NY

One natural uranium slug (4 pounds valued at $72) out of a total inventory of 1,292 aluminum-clad slugs was reported missing.

III-64-02 06/12/64 Pratt & Whitney

One .9 grams (1 inch by .894 inch) four mil foil of 93% enriched U-235 was reported missing.

III-64-03 07/23/64 General Electric
Vallecitos, CA

One capsule (4.33% enriched) was reported missing.

III-64-04 08/07/64 Marquette University
Milwaukee, WI

One natural uranium slug (4 pounds valued at $72) out of a total inventory of 1,381 aluminum-clad slugs was reported missing.

III-64-05 11/23/64 Tulane University
Louisiana

One natural uranium slug (4 pounds valued at $72) was reported missing.

III-66-01 02/04/66 Case Institute of Technology
Cleveland, OH

Eight aluminum-clad reject natural uranium slugs (31.5 pounds valued at $570) out of a total inventory of 1,415 slugs were reported missing. Case authorities stated that on 02/02/66 several tools were noted missing from the Nuclear Engineering Lab and it is possible that the slugs could have been stolen. Hazards from direct radiation standpoint were negligible.

III-66-02 09/08/66 Columbia University
New York

Three slugs of natural uranium reported missing. (See III-67-02.)

III-67-01 01/67 Wayne State University
Detroit, MI

The apparent loss of three one-gram uranium oxide reference sources containing a total of 1.38 grams of U-235 was reported. The sources were obtained from the Ford Motor Company's Scientific Laboratory on 08/24/66. The sources had never been used and it was believed that the sources were accidently put in with dry active waste that was stored in the same area. The waste was shipped to the Nuclear Engineering burial site on 12/66. The last accounting of the sources was made in 10/66. During the routine 1/67 inventory the sources could not be located.

III-67-02 03/01/67 Columbia University
New York

Five slugs out of an original total inventory of 1,448 slugs of natural uranium could not be located during a physical inventory. Lab equipment including the slug inventory had been moved to a new area in 02/67. On 03/01/67 it was reported that "eight slugs are now missing" (see III-66-02). University personnel theorized that perhaps some of the students had been taking the slugs as souvenirs. The university had no other explanation as to the cause of the losses. The slugs (30 pounds) were valued at $550.

III-67-03 03/08/67 Drexel Institute of Technology
Philadelphia, PA

Inventory records indicate that 1,382 aluminum-clad hollow reject slugs were shipped to the Institute on 03/08/62. At the conclusion of a 03/03/67 inventory only 1,381 slugs could be accounted for. The room normally occupied by the sub-critical assembly was undergoing alterations and the slugs had been removed and stored several weeks prior to the inventory. The slugs, 3.98 pounds valued at $72, were stored in a locked room.

III-67-04 04/04/67 Atomics International
San Diego, CA

One aluminum-clad fuel plate containing 21.05 grams of U-235 was discovered missing. Investigation later revealed that the fuel plate did not contain any licensed material.

III-67-05 10/03/67 Pennsylvania State University
University Park, PA

One uranium plated cylinder containing .057 grams of U-235 was reported lost and presumed mistakenly disposed of.

III-67-06 10/06/67 Unknown

Three curies of Americium-241 was believed to have been accidently discarded with radioactive wastes.

III-68-01 01/03/68 New York University
New York, NY

Slugs, 3.6 kilograms natural uranium aluminum-clad slugs, out of a total inventory of 2,604 slugs, were found to be missing during a survey by Savannah River Operation. Slugs valued at $1,144.

III-68-02 01/29/68 National Lead Co.
New York

Two fuel plates, 3" x 37" x 15 mils containing 53 grams of U-235 total, reported missing from a relatively secure area. A search proved negative.

III-68-03 02/26/68 National Bureau of Standards
Washington, DC

The loss of one 25-gram natural uranium oxide standard was reported. The standard was to have been sent to Brazil, but was lost prior to shipment.

III-68-04 06/24/68 Unknown (see III-68-06)

208 grams of highly enriched U-235 as UO_2 in stainless steel reactor subassemblies (unirradiated) reported missing. Mistaken for unfueled subassembly which was buried as contaminated waste.

III-68-05 06/27/68 - 07/16/68 Columbia University New York

One slug, 2 kilograms natural uranium as aluminum-clad slug, out of 1,440, was found to be missing during a physical inventory observed by an AEC inspector. Slug valued at $40.

III-68-06 07/24/68 Battelle Memorial Institute Columbus, Ohio

A subassembly, 208 grams of 93% enriched U-235 as UO_2 (unirradiated), was discovered to be missing during an AEC inspection. The missing subassembly was not found, but the subsequent investigation indicated that it had been accidentally confused with an unfueled subassembly which was to have been sent to Oak Ridge for burial as contaminated waste. The unfueled subassembly was found to have been stored and inventoried as a fueled subassembly since 1962. (See III-68-04 above.) Value of subassembly was $2,400.

III-68-07 09/20/68 University of Florida Tallahassee, FL

A container of reference samples (143 grams of 19.8% enriched uranium as aluminum alloy in reference samples) was discovered missing during an inspection by the AEC. The University conducted an investigation. The missing samples were located in the console cabinet in the reactor building on October 8, 1978.

III-69-01 03/69 Unknown

Two metal foils (each 4 grams 93% enriched uranium) reported missing and were located.

III-69-02 02/05/69 Purdue University
Lafayette, IN

An automobile containing a total of 16 microcuries of Iodine-125 in 25 kilograms of tagged soil samples was stolen.

III-69-03 04/21/69 Nuclear Fuels Services
West Valley, NY

An irradiated fuel assembly containing 6 kilograms of depleted uranium and 12.6 kilograms of plutonium was incorrectly transferred to the waste burial ground where it was encased in concrete and buried. The burial site is within the fenced area of NFS designated for this purpose.

III-69-04 06/69 Kulite Tungsten Co.
Ridgefield, NJ

Cube of uranium metal, 1.25" square (.4141% enriched U-235) believed to have been stolen was offered as a sample of a 100-pound cache available for sale. The cube, depleted uranium, may have been produced at Kulite Tungsten Co.

III-69-05 08/01/69 JFK or Newark Airport

Two calibration sets each containing a total of 818.1 micrograms Plutonium-239 were reported stolen or missing. Sets were to be used in mining and prospecting.

III-69-06 08/20/69 Massachusetts Institute of Technology (MIT)

Four depleted fuel plates weighing 2.45 kilograms and 20 grams of HEU reported missing or stolen. A thorough investigation ensued. The material was promptly recovered.

III-70-01 03/02/70 Texas Technical College
Lubbock, TX

A physical inventory on March 2, 1970, revealed that four slugs (17.1 pounds natural uranium as four aluminum-clad slugs) were missing out of 1,289 loaned to the college in 1959 for a subcritical assembly. After a search, the slugs were located on March 12, 1970.

III-70-02 06/05/70 Drexel University
Philadelphia, PA

One natural uranium slug out of an original inventory of 1,382 slugs was reported missing when the assembly was being crated for shipment. 1,380 slugs were packed. Because of personnel changes at Drexel, this was not recognized as a shortage since current personnel were aware that a slug had been previously lost and paid for. They were not aware that the original inventory was 1,382 slugs. A search did not result in the recovery of the missing slug. (See III-67-03.)

III-70-03 06/15/70 United Nuclear Corp.
New Haven, CT

Four samples (16.1 grams of U-235 enriched substrate material) were received from United Nuclear Corp., Hematite, Missouri, on June 1, 1970, and the fifth sample was received on June 6. All five were signed for by the guard receiving them, but were not logged in by the laboratory. United Nuclear Corp. became aware that the samples were missing after a phone call from Hematite on June 15. One of the containers used for the first shipment was found half filled with soap powder in a washroom, where the janitor put it after retrieving it (empty) from a waste basket in the chemistry laboratory. An extensive investigation was carried out.

III-70-04 09/16/70 Western Nuclear Mill
Jeffrey City, WY

Two of nine drums (1765.4 pounds of U_3O_8 in the 2 drums) missing. Storage building found unlocked. Material was similar in appearance and assay to that delivered to a Salt Lake City bookstore. (Over 2,300 pounds of yellowcake was confiscated at the bookstore. Individuals who possessed the 2,300 pounds stated they could supply 3,000 pounds of yellowcake per week, with the total being 400,000 pounds.)

III-70-05 09/23/70 New York University
New York

One of 2,602 natural uranium slugs reported missing.

III-71-01 02/16/71 NUMEC, PA

35 pounds depleted uranium and less than 3 grams of HEU found in NUMEC employees home. Material was scrap and waste of no apparent use in weapons or nuclear research. Employee wanted oak crate that was identified for disposal. Employee claims he took it and found material in it when he got the crate home. He was afraid to return it so he hid it. The material was all recovered.

III-71-02 03/21/71 Shippingport Power Plant

Unirradiated fuel rod containing natural uranium was reported missing from a display at the visitors' building. Missing item is a PWR-type blanket rod 10-1/2" x 7/16" containing natural uranium oxide pellets (134 grams.)

III-71-03 04/19/71 Babcock & Wilcox Co.
Lynchburg, VA

On 04/27/71, B&W reported that a metallographic mount containing 1.6 grams of U-235 (97% enriched) could not be located. It was believed that the material was placed in a regular waste can and disposed of. Value of material approximately $20.19.

III-71-04 05/28/71 General Electric
Vallecitos, CA

Loss of four pellets of PuO_2-UO_2 (Pu-mixed oxides). Suspected that items had been disposed of in waste generated during the clean-up of a spill that occurred on 05/11/71. The barrels of waste which apparently contained the four samples were picked up by Nuclear Engineering on 05/19/71 and taken to the burial grounds in Beatty, Nevada. Total fissile content was .84 grams.

III-71-05 07/71 Westinghouse
Cheswick, PA

During a safeguards inspection in Switzerland, several fuel elements removed from NOK Unit 1 showed areas where the pin tubing was collapsed, indicating apparently missing fuel pellets. The NOK fuel was fabricated by Westinghouse-Cheswick and was placed in the core of NOK-1 in June 1969. The reactor was shut down in June 1971 for Core I unloading and subsequent fuel examination. Both Westinghouse and NOK officials reported that "several" pins were noted to have collapsed areas along the fuel area of the tubing, indicating areas of apparently "missing" fuel pellets in the pins. The elements with these collapsed areas were not "leakers" as determined from the sipping operation and were reloaded into Core II of NOK-1. This would indicate that any "missing pellets" were missing at the time of fabrication rather than missing as a result of erosion through a leak during operation.

III-71-06 08/31/71 General Atomics
Fuel Operations Lab
San Diego, CA

A platinum boat and several platinum crucibles were reported stolen. The crucibles had been decontaminated and the platinum boat cleaned in preparation for repairs. It was estimated that the maximum contamination on the crucibles was about 0.5 grams uranium (93% enriched) and 1.5 grams of thorium. 400 grams of platinum was subsequently recovered at the facility and an arrest was made.

III-71-07 09/71 Howard University
Washington, D.C.

Slug consisting of 1.98 pounds of natural uranium lost. Slug valued at $42.46.

III-71-08 10/71 Brigham Young University
Utah

In October 1971, unauthorized personnel at Brigham Young University inadvertently sold a radiation device (irradiator) as scrap to a junk salvage yard in Provo, Utah. The reports did not indicate who had sold the device, but stated that the radiation source was still in the device when sold. The device is one which was typically used for classroom or laboratory work under an AEC license by authorizeo personnel. The discovery that the device was missing was not made until September 1974 - three years after it had been sold. University personnel located the device at the salvage yard in late September 1974. The radiation source was intact and no health or safety hazard was present. According to the salvage dealer, the device was not moved from the time it arrived in October 1971 until its recovery in October 1974.

III-71-09 10/71 Hydro-Jet Services Inc.
Texas

The president of the company reported that he had been offered $50 thousand per month as a bribe for the use of his company's equipment in processing one-half million pounds of stolen yellowcake. An investigation did not disclose any stolen yellowcake or any clue to its existence. No inventory discrepancies revealed.

III-72-01 03/23/72 United Nuclear Corp.
New Haven, CT

Rumored theft attempt. Apparent hoax. A former employee of United Nuclear Corp.informed a United Nuclear Corp. official that a theft of nuclear material from United Nuclear Corp. was being planned. The matter was investigated by federal authorities. No theft was attempted.

III-73-01 08/73 Hospital
Arcadia, CA

Twenty-one capsules of I-131 were stolen from a hospital in Arcadia, CA.

III-73-02 11/19/73 Walter Reed Hospital
Washington, DC

Two fission chambers (total 0.69 grams of U-235) reported missing. Probably inadvertently disposed of.

III-74-01 04/23/74 Babcock & Wilcox
Lynchburg, VA

One of ten mounts containing uranium was discovered missing. An investigation indicated that the mount was probably disposed of as waste.

III-74-02 05/09/74 Kerr-McGee Corp
Cimarron, OK

Allegation of possible theft of a small quantity of SNM in the form of pellets in 1970. An investigation was conducted. No data was developed that a theft had occurred. Employees working at the plant at that time (1970) were interviewed and knew of no theft of pellets.

III-74-03 06/74 Deerfield Beach
Florida

A device, containing Strontium-90, used to measure the density of roadbeds, was stolen near Deerfield Beach, Florida in June of 1974. The device was later recovered on a freeway overpass where an examination indicated that it had been tampered with.

III-74-04 08/74 Scenic General Hospital
California

Nine radioactive radium (no license required) needles were stolen from Scenic General Hospital during August of 1974. The theft was not discovered until November, when hospital employees planned to turn the needles over to federal authorities for disposal. The theft was apparently perpetrated by a night porter at the hospital, who was found in possession of 7 of the needles. Another needle was found in the possession of an uncle of the porter, and a ninth needle was still missing. The police had not learned the motive for the theft, but stated it was elaborately planned. It included the removal of lead blocks which surrounded the needles in storage, one at a time, over a period of several days to reduce the container's weight so it could be easily carried from the hospital.

III-74-05 08/12/74 Tuskegee Institute
Tuskegee, AL

As a result of a physical natural uranium inventory, the Institute reported that it could account for only 2,429 uranium slugs out of a total inventory of 2,440. The missing slugs could not be located.

III-74-06 08/19/74 Fairleigh Dickinson College
Teaneck, NJ

Two natural uranium slugs reported missing after a physical inventory. The slugs could not be subsequently located.

III-74-07 12/12/74 DuPont
Gibbstown, NJ

Two Cesium-137 gauges were stolen prior to December 12, 1974, from a locked room at the E.I. DuPont de Nemours and Co. plant near Gibbstown, New Jersey. The gauges had been slated for disposal. They were found in damaged condition after an anonymous phone call led to their location. Their discovery was not made until several days after they were missed and came after a widespread search of the Gibbstown area.

III-76-01 08/04/76 Babcock & Wilcox Co.
Apollo, PA

A woman in a bar mentioned "stuff stolen and brought to Va." The FBI investigated and found a janitor was removing maintenance gear. No SNM involved.

III-76-02 11/04/76 Milton, MA

Stolen automobile had Iron-55 and Cobalt-57 source in it. When auto was recovered, sources were missing from auto. The origin of the sources is unknown.

III-76-03 12/13/76 Bartlesville, OK

Chief Nuclear Medicine Technologist signed receipt letter for 100 microcuries Iodine-131 but did not verify actual receipt. Material could not subsequently be located.

III-76-04 12/13/76 Kansas City Nuclear Pharmacy Inc.

Burglary of licensee's facility over the weekend of December 11-12, 1976 resulted in loss of 15 capsules containing Iodine-131. Cash was also stolen.

III-76-05 12/13/76 TWA Terminal in Detroit

Four sources of radioactive material stolen, one of which, Xenon-133 is NRC licensed. The sources were collocated with a shipment of valuable furs and, therefore, theft of the sources may have been incidental to theft of the furs.

III-77-01 01/10-13/77 Cabell Huntington Hospital
Huntington, WV

On January 10, 1977, two packages of radioisotopes 200 millicuries of Molybdenum-99/Technetium-99 (metastable) generator and 2 millicuries of Iodine-131 capsules were discovered missing. On January 13, 1977 the two packages were recovered from the city dump. Despite diminishing radiation due to the isotopes' short half-lives, the two packages were located by NRC personnel under one foot of sewage sludge and five feet of compacted trash.

III-77-02 01/24/77 Ralph K. Davis Hospital
San Francisco, CA

On January 24, 1977, NRC was notified of the theft of a delivery van containing 3-4 curies of various radiopharmaceuticals (primarily Technetium-99 (metastable) and Iodine-123). The theft occurred at approximately 4:30 a.m. on January 24, 1977 in front of the hospital.

III-77-03 February 25, 1977 Denver, CO

On Friday, February 25, 1977, three stolen lead cannisters of Cesium-137 were recovered after a ten hour search. All were intact. The sources, used for measuring moisture content of soil, were on a pickup truck that had been stolen.

III-77-04 04/18/77 Pittsburgh Testing Laboratory
Pittsburgh, PA

On April 18, 1977, a radiographic projector was accidently dropped into the Monogahela River. The 45-pound projector, containing a 100-curie Iridium-192 sealed source, was locked with the source in a safe position. The licensee planned to recover it.

III-77-05 05/18/77 St. Joseph Hospital
Kirkwood, Missouri

On May 18, 1977, a package containing 1.15 millicuries of Iodine-131 in the form of one 1-millicurie capsule and ten nominal 15-microcurie capsules was stolen from St. Joseph Hospital during the evening.

III-77-06 05/30/77 Millinchrodt/Nuclear
St. Louis, MI

On Monday, May 30, 1977, a break-in occurred at the carrier's warehouse in Kansas City and a box containing 2 millicuries of Iodine-131 in less than 1 ounce of liquid was taken. A number of radios and electronic equipment were also taken. The quantity of Iodine-131 was similar to quantities used for routine medical therapeutic administration.

III-77-07 07/19/77 - 08/16/77 AMF Tuboscope
Houston, TX

A nominal 400 millicurie Iridium-192 sealed source that was reported missing by the licensee on July 19, 1977 was recovered on August 16, 1977. The source was located in the home of a former employee of a competing licensee. The motivation and the manner in which the source was obtained were not determined.

III-77-08 09/10-11/77 Rappahanock County
Virginia

Over the weekend a Troxler soil density gauge containing 8 millicuries of Cesium-137 and 50 millicuries of Americium-241 was stolen from a Virginia Highway Department trailer located in Rappahanock County.

III-77-09 09/14/77 Bethlehem Steel Corp.
Sparrows Point, MD

NRC was notified on 09/14/77 that a 5 millicurie Cobalt-60 source was missing from a shipment of thirty-two 5 millicurie and forty-two 10 millicurie sources sent to Bethlehem Steel's Sparrows Point plant from New England Nuclear. It was reported that a cap was missing from one of the two lead pigs used for the shipment. A search produced negative results.

III-77-10 10/10-11/77 Veteran's Administration Hospital
Cleveland, OH

The licensee reported a shipment containing 1.27 curies of Technetium-99 (metastable), received at 4:30 p.m. on October 10, 1977 was missing at the start of business October 11, 1977. The supplier verified that the package was delivered. The shipment was placed in a basement refrigerator assigned to the Nuclear Medicine Dept. The room containing the refrigerator was appropriately locked when personnel arrived for work, but the package was missing. No other material was missing.

III-77-11 11/07/77 Stillwater Municipal Hospital
Stillwater, OK

Approximately 104 Technetium-99 (metastable) generators, in storage for one to three years, were reported missing by the licensee. The generators were left in a locked room at the facilities formerly occupied by the hospital. The hospital moved to its present location during January 1976. Seven generator columns were found by police on November 7, 1977. The remaining generators were not recovered. Considering the age of the generators, the radiation hazard was considered minimal.

III-77-12 12/06/77 Veteran's Administration Hospital
Long Beach, CA

On December 6, 1977 a nominal 100 millicuries Strontium-90 ophthalmic applicator was scheduled for use, but was discovered missing. The storage box was reported to be properly labeled and was last seen and used on June 27, 1977.

III-UNK-01 Unknown — Doctors Memorial Hospital, Carbondale, IL

A one-millicurie Cesium-137 calibration source and its lead storage container were found to be missing from the isotope laboratory. The source was made of solid epoxy and Cesium-137 contained inside a 30 milliliter glass vial. The vial bore a label indicating that it contained radioactive material. The lead container was not labelled or locked. A radiation survey of the hospital failed to locate the source. The loss of the source does not represent a significant health hazard.

III-UNK-02 Unknown — Dresser Industries, Inc., Dresser-Atlas Division, Houston, TX

During well logging operations, a four-curie Americium-241 and Beryllium source contained in a logging tool became lodged in a well near Cody, Wyoming, at a depth of 6,627 feet. Recovery efforts were unsuccessful and the source was cemented in place. The well was placarded to indicate that it contained radioactive material.

III-UNK-03 Unknown — Amersham/Searly Corporation, Arlington Heights, IL

Two 500-millicurie Promethium-147 sources shipped via air from Amersham/Searle to the Columbia Scientific Industries, Inc., Austin, Texas, was not received. The sources were in the form of discs 3/8" in diameter and 1/8" thick with gold plated aluminum covering the radioactive material. Each source was contained in a small lead container which was sealed in a steel can. The can was labelled to indicate that it contained radioactive material. An investigation indicated that the shipment, for reasons unknown, was disposed of as normal trash by the air carrier and transferred to a landfill area located near Dallas, Texas.

III-UNK-04 Unknown

Dresser Industries, Inc.
Dresser-Atlas Division
Houston, TX

During well logging operations, a one-curie Cesium-137 source became lodged in an oil well located in Major County, Oklahoma, at a depth of about 1500 feet. Recovery operations were unsuccessful and the source was cemented in place.

III-UNK-05 Unknown

Beatrice Foods Company
Chicago, Illinois

After extensive remodeling of the licensee's facility, a gas chromatograph containing a 250-millicurie tritium foil could not be located. All attempts to locate the chromatograph were unsuccessful and the licensee concluded that the device was disposed of via normal trash following renovation of the facility. The outer container of the gas chromatograph cell was labelled to indicate the presence of radioactive material.

III-UNK-06 Unknown

Bell Laboratories
Murray Hill, NJ

During a routine inventory, a 142-microcurie Strontium-90 source was found to be missing. A search for the missing source was successful and it was recovered intact in an unoccupied store room in the licensee's facility.

III-UNK-07 Unknown

U.S. Department of Commerce
National Bureau of Standards
Washington, D.C.

Two water samples containing approximately 7 microcuries of tritium were reported lost during shipment to the Atomic Energy Research Establishment, Harwell, England. The samples were found several weeks later at the consignee's address.

IV-62-1 7/16/62 Lorain, Ohio to St. Louis, Missouri

Twenty Cobalt-60 needles (5.3 to 10.6 millicuries each) reported lost. Sixteen of the needles were recovered along the highway. Four needles (5.3 millicuries each) were not located.

IV-64-1 9/64 CEA, New York to CEA, Saclay, France

Six .5-gram samples of plutonium destined for France were lost in shipment and not delivered until 05/05/70. The package containing the samples was discovered in a warehouse in its original shipping carton.

IV-66-1 8/66 Fort Worth, Texas to Queens, New York

In August, 1966, a one-inch-long cylinder containing 300 milligrams of radium (no license required) was lost in shipment. The loss of the capsule was apparently due to improper packaging. Despite an intensive search, using Geiger-counter teams, the capsule was never found.

IV-66-2 9/66 Seattle, Washington to New York

A radium capsule (no license required), valued at $1,350 was lost in shipment from Seattle to New York in September, 1966. This capsule contained 50 milligrams of radium. Despite the fact that this shipment was properly packaged, when the crate arrived in New York the lid was loose and the capsule was missing from the lead container. A search failed to retrieve the missing capsule.

IV-67-1 12/15/67 Transit to France

Six one-half gram Plutonium samples that were reported as lost in transit to France in August 1964 were determined to be in the possession of the National Bureau of Standards.

IV-68-1 1/2/68 Westinghouse to EANCO, Inc.

Unknown grams of enriched uranium in the form of U_3O_8 plated on aluminum cylinders that were originally reported as lost were actually shipped to Connecticut Yankee Nuclear Power Plant.

IV-69-1 3/5/69 Goodyear Atomic Corp., Portsmouth, Ohio to United Nuclear Corp., Hematite, Missouri

One cylinder (15.8 kilograms of U-235 as UF_6, 97% enriched) was one of a shipment of three to UNC, plus four other cylinders shipped at the same time to Kerr-McGee at Oklahoma City. All seven cylinders were off-loaded at St. Louis to continue by truck. One of the Kerr-McGee cylinders was left at St. Louis instead of the subject (UNC) cylinder, which was sent to Oklahoma City via Air Cargo Trucklines. When TWA personnel noticed the mistake, they arranged to exchange cylinders. Subject UNC cylinder was placed on TWA flight 70 for return to St. Louis on March 7, and UNC was so notified. On March 12 the cylinder had not arrived and a search was instituted; it was found in the TWA freight terminal in Boston with its contents intact. The cylinder apparently had not been off-loaded in St. Louis, but continued on to JFK Airport in New York where it was transferred with other equipment for the continuation of Flight 70 to Boston.

Contributing causes to the delay of this shipment were (1) heavy backlog of air freight traffic because of American Airlines strike; (2) further backup of freight at Boston because of recent snowstorm; (3) failure of UNC to follow shipment closely; (4) lack of protective signature service; and (5) two similar shipments by GAT at the same time and via same route with different destinations. This incident precipitated the publishing of 73.31 of 10 CFR Part 70 (Physical Protection of Special Nuclear Material in Transit) as an effective rule.

IV-69-2 3/11/69 New York City to Frankfort, Federal Republic of Germany

On March 11, 1969, a shipment of highly enriched uranium was booked for departure from New York's Kennedy International Airport for delivery to Frankfurt, Germany on the afternoon of the 12th. The material did not arrive as scheduled. Five days later, on March 17th, it turned up in London where it had been apparently off-loaded in error. All seals intact.

IV-69-3 06/08/69 B&W Lynchburg, Va to KAPL, Schnectedy, NY

A trailer truck was hijacked and then recovered within 24 hours. An REA crib was on the truck with a manifest indicating two items of interest to the AEC: 1) 100g of U-235 and 2) a five-gallon drum containing one pound of radioactive material. These two items were missing from the crib. A check at KAPL indicated that they were already in receipt of both items. This meant that the items on the manifest had not been on the truck that was hijacked. The manifest for some reason still showed, incorrectly, the two items in the truck that was hijacked.

IV-69-4 7/11/69 Monsanto Research Corporation, Dayton, Ohio to Houston, Texas

On 7/11/69 a shipment, 15 gallon steel drum Plutonium-238 Beryllium neutron source as PuO_2 powder milled with berylluim powder and excapsulated in a stainless steel capsule (four curies or 1/4 gram of Pu-238), was in a truck that was stolen. Truck with source intact recovered on 7/12/69. No radiation exposures involved.

IV-69-5 8/5/69 Naval Radiological Defense Lab (NRDL), San Francisco, California to ATOMCHEM, Plainview, New York

818.1 micrograms of Plutonium-239 in two calibration sources never arrived at their destination. Such shipments normally take about six weeks. On September 4, the U.S. Border Patrol reported that some stolen material was in the vicinity of Montreal, Canada, and an invoice accompanying this material was later identified as that accompanying the shipment. It was not known from where in the U.S. the shipment was stolen or whether its theft was incidental to a theft of other material. The individual who produced the invoice claimed the material was stolen from either JFK Airport or Newark, NJ. The calibration sources cost about $500 and do not present any hazard of safeguards significance.

IV-69-6 8/11/69 Aeroject-General Corp., San Ramon, CA to United Nuclear Corp., Wood River Junction, RI

About 42 kilograms U-235 (approximately 52% enriched) in seven drums of uranium scrap was delayed by ordinary transportation delays.

IV-69-7 10/24/69 D. Douglas Lab

Three 10-gallon cans of nuclear batteries were lost in transit from Basil, Switzerland to D. Douglas Lab. Four batteries included 167.8 curies of Promethium-147, two batteries 6 grams of Plutonium-238 and one battery 3.5 grams of Plutonium-238. Four non-nuclear packages in the shipment were delivered.

IV-70-1 4/16/70 Gulf General Atomics (GGA)
San Diego, CA

The event involved 5 to 7 grams of 70% enriched uranium in a 55 gallon drum as a 0.00015M solution in waste pickle acid.

On April 16, 1970, a Mexican truck driver, under instructions to pick up a drum of acetone at GGA, reported by mistake to a loading dock containing an empty acid drum for return to the chemical supply company and seven drums of waste to be picked up for disposal. Four of these drums contained pickle acid with a few grams of uranium. A GGA employee misunderstood the Mexican's request for a drum of acetone (because of language problems) and, thinking he had come for the empty drum, pointed this one out to the Mexican who then went to get his truck. Apparently realizing that he was to get a full drum, the Mexican driver left the empty and picked up one of the drums full of waste acid, which he loaded with the help of a couple of GGA employees. By the time the mistake was realized and action taken, the truck was in Tijuana, Mexico. The material was returned to GGA as soon as an import license could be obtained to bring it back across the border. The incident was investigated.

IV-70-2 4/28/70 Eldorado Mining, Canada to
Westinghouse, Columbia, South Carolina

The shipment, 100 kilograms UO_2 (natural) in one drum, cleared customs in Buffalo and then was not heard from until a search was instituted by Westinghouse on May 21. The drum was delivered by truck on May 21 to Columbia, S.C., from Charlotte, N.C. Cause of the delay is not known.

IV-70-3 5/16/70 Kerr-McGee Corp., Cimarron, Oklahoma to Goodyear Atomic Corp. Portsmouth, Ohio

The shipment, 56.2 kilograms (93% enriched) in five drums, was due on May 19 but did not arrive that date. It was traced to AA terminal in Dallas (Flight 225 on May 17) and was finally located in an outdoors outbound Motor Freight Storage area at the AA terminal in Dallas on May 25, 1970. (AA at Dallas normally ships out drums only by truck.) Contributing to the delay in locating the shipment were: (a) AA had not provided Protective Signature Service as requested by Kerr-McGee; (b) containers were incorrectly described on computer-prepared "uniform airbill"--AA employees at Dallas were looking for cartons; (c) a large backlog of freight had accumulated at the Dallas terminal because of a teamsters strike; (d) Kerr-McGee did not have SOP for tracing overdue shipments; and (e) Kerr-McGee did not report failure of shipment to arrive until four or five days after they were aware it was overdue.

IV-71-1 1/20/71 Laramie, Wyoming

At approximately 1:05 a.m. a Tri-State truck containing a shipment of spent reactor fuel was fired upon by two men driving a 61 blue chevy. The sedan initially passed the truck going in the opposite direction. As the two vehicles met, one of the men in the sedan threw a large rock which shattered the windshield of the truck. The sedan then turned around, again passed the truck, and a shotgun was fired at the trailer. However, there was no penetration of the skin of the trailer, and the cargo was not damaged.

The driver and assistant driver were armed with revolvers and reportedly fired 12 shots at the sedan after it had passed. No injuries.

IV-71-2 1/20/71 Ft. Collins, Colorado

A car attempted to force a Tri-State truck off the road. Incident suspected to be labor related. This incident occurred the same morning another Tri-State truck was shot at just north of the Colorado border in Wyoming. No damage to cargo.

IV-71-3 3/24/71 Texas Instruments, Attleboro, Maine to Ledoux & Co., Teaneck, New Jersey

Five gram sample U_3O_8 (93% enriched) was reported missing enroute, but material did arrive, late.

IV-71-4 10/6/71 Canada to NFS, Erwin, Tennessee

NFS had received SNM from Canada without an import license. The SNM (approximately 1.4 kilograms of uranium-zirconium scrap) was imported from AECL through the port of Buffalo. The uranium had been purchased by AECL from the U.S. and was therefore Canadian owned material entering the U.S. The SNM was listed on the entry document as "return of U.S. material" and was shipped by El Dorado of Canada to Buffalo on 9/14/71 and clearing customs at Buffalo on 9/16/71. Customs investigated.

IV-71-5 12/1/71 Gulf United Nuclear Fuels, New Haven, Connecticut

Shipment consisting of four 55-gallon drums containing 21 kilograms of U-235 (93% enriched) was reported missing but arrived late. Shipment left Los Angeles Airport November 29, 1971, via United Airlines cargo flight 2856 destined for JFK and transferred to Associated Air Flight at N.Y. on November 30, 1971; then transferred to Hawks Trucking on November 30, 1971. Hawks transferred to Art & Lou Trucking Co., on December 3, 1971. Drums were at premises of Art & Lou Trucking Co. in a locked truck in a locked building with a locked fence. Delivered December 4, 1971.

IV-72-1 4/11/72 Idaho Nuclear Corp. to Atomic International

A capsule containing approximately 59 grams of plutonium reported apparently missing. The assembly, which was presumed to contain the capsule, had been returned to AI on 1/20/70 from Idaho Nuclear Corp. Apparent loss or non-receipt of capsule was not discovered until 4-11-72. Investigation conducted by AEC and AI revealed the slug had never been returned to AI. Material accounted for.

IV-73-1 2/13/73 Ledoux Inc. to Gulf United Nuclear Corp., Connecticut

Sixty grams of U-235 (93% enriched UF_6) reported missing enroute, and then located by freight company.

IV-74-1 08/30/74 Grand Junction, Colorado to National Lead Co., Ohio

Reported loss of two samples of uranium concentrate from a rail shipment between Grand Junction and National Lead. The rail car had arrived with a replacement seal. From an inspection it appeared that at least one sample jar was missing. One of the two boxes of samples in the shipment had been opened, packing paper had been removed and there was an indentation indicating that a jar had been moved. The car left Grand Junction August 6, arrived at National Lead August 16 and unloading began August 30.

On August 3, 1974, it was determined that two sample jars were missing and that a second car had a replacement seal, but no material was missing. The book value of the missing concentrate was $4.32. Total loss involved .47 pounds of uranium.

IV-75-1 3/21/75 National Nuclear Corp. to AECL, Canada

A Pu-238 source shipped to Atomic Energy of Canada Limited (AECL), Chalk River, Canada, on 01/27/75, via Railway Express Agency (REA) was reported not received. The source was contained in a DOT 6M shipping container as part of a fuel rod scanning system. The shipment consisted of five items of which four were received at AECL. Both REA and National Nuclear traced the shipment and determined that the source had been shipped from the Oakland terminal, REA on 3/20/75, instead of being shipped 1/27/75 with other items of consignment. REA confirmed that item was enroute and estimated to arrive at AECL about 4/3/75 and would report arrival at transfer points and destination.

IV-75-2 6/23/75 Anchorage, Alaska to Houston, Texas

Schlumberger, Inc., Houston, Texas, reported to Region IV that a truck shipment containing a sealed source, originating in Anchorage, Alaska, on 6/5/75, in transit to Houston, was lost. Licensee traced it. The sealed source reported lost on 6/23/75 was located on 6/25/75 in a shipment delivered to another Houston consignee. Item in custody of licensee and no damage incurred.

IV-75-3 7/31/75 Abbott Laboratories New York

Four packages of radiopharmaceuticals were stolen from a truck near Paramus, N.J. Packages contained in vitro bits of Iodine-125 with a total activity of 140 millicuries. New York Police recovered items and returned them to an Abbott representative in N.Y.

IV-75-4 10/24/75 Ladysmith, Virginia

Mallinchrodt Chemical Works, a radiopharmaceutical company, reported loss of package containing 10 Iodine-131 diagnostic capsules (100 microcuries each). Loss discovered in Ladysmith, Virginia.

IV-76-1 06/16/76 Tennessee to Virginia

Possible surveillance of Tri-State vehicle. No incident occurred.

IV-76-2 9/10/76 New York City, New York

A 10 millicurie package of Technetium-199 was missing from a stolen pharmaceutical truck. Technetium-199 is a licensed item with a half-life of six hours used for medical tracing.

IV-77-1 8/29/77 Tri-State, Wheeling, West Virginia
Region 2

On August 29, 1977 a Tri-State vehicle carrying low enriched fuel assemblies ran into a road full of nails near Wheeling, West Virginia. Whether this incident was coincidence or labor related is unknown.

VANDALISM

V-74-01 02/22/74 Montague, MA

The top 3/4 of a 500-foot meterological tower was toppled by the deliberate loosening of the guying cables. The tower was instrumented to record environmental data.

V-74-02 Summer 1974 Trojan
Columbia County, OR

Vandalism a problem during construction; an intricate web of hand-shaped copper tubes smashed by hammer.

V-74-03 Summer 1974 Zion
Lake County, IL

Valves and switches found in wrong position; other valves repeatedly failed. Disgruntled employee suspected. Fuel present at site.

ARSON

VI-71-01 04/11/71 Indian Point
Consolidated Edison
Westchester County, NY

A fire, resulting from arson, caused $5 million damage to Consolidated Edison's nearly completed Indian Point No. 2 plant. The fire was set on the first floor of an auxilliary building which housed control panels, cables, and pumps for the facility. The reactor building and generator building at the site were not endangered by the fire and there was no release of radioactive material. During the course of the investigation of this case, a group calling itself "Project: Achilles Heel," sent a letter to the New York Times saying "Indian Point Guerrillas" were responsible for the fire. An operating mechanic at the plant was arrested for the crime and later pleaded guilty to arson in the third degree. The man was on duty at the plant at the time and was reported to be one of the first persons on the scene of the fire. Some support for the mental incompetence of the employee was evidenced. Fuel present at site.

VI-75-01 07/23/75 Nuclear Fuels Services
West Valley, NY

Fire destroyed an equipment storage barn. Arson was suspected and investigated.

FIREARMS-RELATED

VII-75-01 04/14/75 Millstone II
Northeast Utilities
New London County, CT

A small pistol was found in a portable toilet on-site and turned over to local police. Fuel present at site.

VII-75-02 04/14/75 Point Beach
Wisconsin Electric Power Co.
Manitowoc County, WI

An unknown person fired rifle or pistol shots into a junction box located on utility owned land at Point Beach, Wisconsin (totalling several hundred acres around the site). The junction box was not located within the protected area. The event occurred approximately one-half mile from the actual boundry of the protected area. One of the lines, a telephone line, cut by the shots into the junction box carried an alarm signal from an outbuilding where gauges and other valuable non-nuclear items were stored. The junction box and alarm line were non-essential to the site's safeguards, and there was no evidence whatsoever that the facility had been "targeted" or threatened. Fuel present at site.

VII-75-03 05/27/75 Zion
Commonwealth Edison Co.
Lake County, IL

At approximately 1:58 a.m. on May 24, 1975, a car with high beams on and containing four persons approached to within 75 to 100 feet of the Zion 1 & 2 Illinois, north gate station. This station is the entrance to the owner controlled area, not protected area, and is used for traffic monitoring purposes. The protected area fence is 150 feet south of north gate station while the entrance to the protected area is further removed from the scene of the alleged event. One of the occupants of the car got out and allegedly fired a shot. The guard assumed the prone position. A second shot was allegedly taken at the guard. The guard did not return the fire. A second guard manning the north gate station was on patrol in the area and did not hear any shots. The car immediately departed the

area. Zion police responded within one minute (the police station is five blocks from north gate station), but could not locate the car. The police did not find any spent cartridges nor where the bullets hit. All information concerning this event came from the sole guard manning the gate at the time. There were no witnesses who could provide additional information or corroborate the guard's narrative. Fuel present at site.

VII-76-01 09/21/76 Davis-Besse
Toledo Edison Co.
Ottawa County,OH

Four rounds of ammunition for 105 millimeter recoilless rifle found on beach near the site. It apparently washed ashore after having been dumped by a nearby artillery range into Lake Erie during the period 1945-1950. EOD was cabled for assistance and detonated the rounds. Fuel not present at site.

VII-77-01 02/06/77 U.S. Nuclear Corp.
Oak Ridge, TN

At about 1:35 a.m., February 6, 1977 a U.S. Nuclear security guard heard a single gunshot and observed a flash of light believed to be a muzzle flash. The sound and flash were from off-site but near the boundry. The guard assumed he was under attack, fell to the ground and fired four pistol shots in the direction of the observed light flash. Other security personnel and local police responded to his request for assistance.

A search of the area disclosed no evidence of the origin or motivation for the off-site firearms discharge. The moon was full and the weather clear. It had been reported that poaching deer hunters had been active in the area.

Subsequently, it was revealed that the guard had fabricated the event and was discharged.

VII-77-02 07/17/77 Palisades
Van Burien County, MI

An anonymous telephone threat was received at the site at 5:37 p.m. on Sunday, July 17, 1977. The caller stated that he was going to shoot the hell out of the place that night. Authorities were notified and security precautions taken. No unusual activities or incidents were noted at the site. It was speculated that recent layoffs may have motivated the anonymous caller.

SABOTAGE

VIII NONE.

MISCELLANEOUS

IX-66-01 11/66 General Atomics
San Diego, CA

Reported unauthorized transfer of 27 grams of HEU (total of 1 gram of U-235) in the form of coated uranium particles from General Atomics to San Diego State College. All 27 grams were returned to General Atomics.

IX-73-01 01/20/73 Duquesne Light Co.
Pittsburg, PA

General threat to 20 reactors in northeast. Apparent hoax.

IX-74-01 11/74 Kerr-McGee Corp.
Oklahoma

Contamination with minute amounts of plutonium of Kerr-McGee employee that probably could not happen in her normal work environment. Contamination mechanism unknown. No conclusive evidence of Pu smuggling. Employee involved in dispute over facility safety.

IX-74-02 12/16/74 Kerr-McGee Corp
Oklahoma

Scattering of low-enriched uranium pellets in the form of UO_2 and pellet fragments diverted from authorized areas and strewn about the grounds. Pellets probably thrown from area of two exit doors in manufacturing building.

IX-75-01 05/08/75 Forked River
Jersey Central Power & Light Co.
Forked River, New Jersey

Guards found lock on entrance gate missing at 3:00 a.m. on 05/07/75. Telephone threats received. Fuel not present at site.

IX-75-02 10/15/75 Calvert Cliffs
Baltimore Gas & Electric Co.
Calvert County, MD

At 5:00 p.m., a security guard found a gate on the 27-ft level of the Auxilliary Building had been opened by removal of a hinge pin. No indication of entry into vital areas, which are alarmed, was noted. Fuel present at site.

IX-75-03 12/02/75 Palisades
Consumers Power Co.
Van Burien County, MI

State police advised Consumers Power Company of threat made by resident of South Haven, MI. Individual is a mental patient. Apparent hoax. Fuel present at site.

IX-75-04 10/22/75 Pilgrim
Plymouth, MA

The individual involved in an apparent bomb threat appeared at the public sharefront area around 6:00 p.m. He departed when a police cruiser appeared. Fuel present at site.

IX-76-01 03/04/76 Diablo Canyon
Pacific Gas & Electric Co.
San Luis Obispo County, CA

General threat. Apparent hoax. Fuel not present at site.

IX-76-02 03/05/76 Diablo Canyon
Pacific Gas & Electric Co.
San Luis Obispo County, CA

Map found with site circled. Other circled areas indicated areas to be bombed. Fuel not present at site. No bombs located and no explosions occurred.

IX-76-03 05/05/76 Grand Gulf
Mississippi Power & Light Co.
Claiborne County, MS

Call placed from site to radio station to pass on story of threats. Apparent hoax. Fuel not present at site.

IX-76-04 05/12/76 Zion
Commonwealth Edison Co.
Lake County, IL

Rumored threat to take over plant relayed to Zion. Rumor never substantiated. Apparent hoax. Fuel present at site.

IX-76-05 06/02/76 Rancho Seco
Sacramento Municipal Utility District
Clay Station, CA

Threat by radical group. Apparent hoax. Fuel present at site.

IX-76-06 06/16/76 Union Carbide Corp Research Center
Sterling Forest
Tuxedo, NY

A male individual in an auto parked near the visitor parking area was apparently taking photographs with a large lens. He later drove off when apparently it became obvious to him he was being observed.

IX-76-07 07/26/76 Farley Nuclear Power Plant
Alabama Power Co.
Houston County, AL

Apparent hoax threat. Daniel Construction Co. manager at Farley received a call from an unidentified male at 2:55 p.m. stating he represented a national terrorist group and there would be trouble that day at Farley. A similar call was received at Radio Station WOOF about the same time. Caller identified himself as a member of the International Terrorist Group for the Destruction of all Nuclear Plants. He stated Farley Nuclear Plant will be destroyed. Labor problems had occurred at Farley over the past month and certain groups were on strike. Fuel not present at site.

IX-76-08 08/27/76 Shoreham
Long Island Lighting Co.
Suffolk County, NY

A crude bomb was discovered, by a gas station attendant, attached to the gas tank of an auto that he was servicing. The auto was owned by a steam fitter who was employed by a subcontractor at the Shoreham site. No bomb threat was made against the Shoreham site. The incident appears to be related to a labor dispute. Fuel not present at site.

IX-76-09 09/23/76 North Anna
VEPCO
Louisa County, VA

At about 10:00 a.m. three employees, all involved in pipefitting activities, were discharged. Two reportedly had not been providing adequate supervision over their areas of responsibility and the third was discharged for improper operation of an argon gas valve which may have been related to the death of a worker. The pipefitters protested the above firings and became disorderly, prompting VEPCO to call in the State police. Approximately 25 police vehicles responded and about 80 workers were removed from the site. Fuel present at site.

IX-76-10 12/21/76 Salem
Public Service Electric & Gas Co.
Salem County, NJ

The security force under Y.O.H. Security Incorp., struck at 3:30 p.m. where upon licensee implemented prearranged contingency plan which provided for weapons qualified part-time non-Y.O.H. guards to be supplied. Fuel present at site.

IX-77-01 02/22/77 Hatch 1 & 2
Appling County, GA

On February 22, 1977, a construction employee had a fight with a Georgia Power Co. employee somewhere on company property, but not in the vicinity of either nuclear unit. After the construction worker was fired and ordered to leave company property, he attempted to run down a security guard with his private vehicle. The guard dodged the car, drew his weapon and fired one shot at the tires of the receding car. The vehicle was not hit. Subsequently, the construction worker was arrested and the guard suspended. Fuel present at site.

IX-77-02 03/02/77 Teledyne Cast Products
Pomona, CA

On Wednesday, March 2, 1977, Los Angeles County Radiation Control staff received a call from the Inglewood Fire Department regarding burning material tentatively identified as being radioactive. A fire had started after a carton had fallen about three feet off a loading dock and broken open. The package contained four metal cans, each about the size of a 2-pound coffee can. One can split open and the contents were burning. The outer carton was unmarked as to its radioactive contents.

The shipment, compacted discs of thorium powder, was marked as "Magnesuim Grain Refinery" and the inner cans were marked as pelletized magnesium thorium powder.

IX-77-03 03/22/77 Turkey Point 3 & 4
Dade County, FL

At 4:00 a.m., March 22, 1977, a maintenance employee at Turkey Point was arrested by county authorities and charged with possession of narcotics and explosives. The charges resulted from a search of the employee's residence, and police officials characterized the incident as a routine narcotics arrest.

The employee was a maintenance journeyman mechanic. He was suspended and denied access to the plant until his

IX-77-03 (cont.)

case was resolved. The site Security Director interviewed the employee who stated he in no way intended to do any damage to the plant and that the explosives and guns (no automatic weapons) belonged to a friend. Fuel present at site.

IX-77-04 12/29/77 Millstone
New London County, CT

Three watchpersons were suspended on Thursday, December 29, 1977 and fired on December 30, 1977 for possessing and smoking marijuana while on duty. Fuel present at site.

PURDUE UNIVERSITY DEPARTMENT OF POLITICAL SCIENCE

27 April 1978

Hon. Sen. Abraham A. Ribicoff
Chairman
Governmental Affairs Committee
U.S. Senate
Washington, D.C.

Dear Senator Ribicoff:

As members of your staff who are currently working on the omnibus anti-terrorism bill probably know, I have lectured and published widely on the subject of counter-nuclear terrorism. In this connection, I will be presenting a major address on the subject next week in Washington at the National Bureau of Standards/Defense Nuclear Agency conference on "The Role of Behavioral Science in Physical Security." My paper, "Strategies of Counter-Nuclear Terrorism: Theory and Decision on the Frontiers of Law Enforcement and Criminal Justice," will be presented at 9:00 A.M. on Thursday, May 4, at the Hospitality House Inn at Arlington, Virginia. A copy is enclosed for your information.

I am writing to indicate that I would like to serve your committee in its important work in any way that I can, and would be willing to serve as a witness, consultant, etc. Moreover, I would surely be pleased to send along copies of my many journal articles on the subject of nuclear terrorism should you find them helpful. If a member of your staff would be interested in meeting with me next week while I am in Washington, they may feel free to contact me at the hotel from May 2-4.

Many thanks for your interest in this inquiry.

Sincerely,

Louis René Beres
Associate Professor

Recitation Building
West Lafayette, Indiana 47907

Louis René Beres
Associate Professor of Political Science/Purdue University
Ph.D., Princeton University, 1971

PROFESSOR BERES is a specialist in international relations and international law with particular reference to strategic and world order studies. His current writing and research center on nuclear war and nuclear terrorism. A Special Report on nuclear terrorism was commissioned by the U.S. Arms Control and Disarmament Agency in 1977, and Professor Beres is currently completing work on APOCALYPSE: NUCLEAR CATASTROPHE IN WORLD POLITICS. During his sabbatical leave in the fall 1977 semester, he will also be serving on the New Directions (Washington) Task Force, Reducing the Risk of War and Violence; accepting an invitation to speak at the University of Zürich's (Switzerland) Forschungsstelle für Politische Wissenschaft; participating in the Harvard/MIT Arms Control Seminar and Strategic Problems Working Group; presenting an address to the University of Nebraska's Hendricks Symposium on American Politics and World Order; and beginning work on a new book (Houghton-Mifflin), PEOPLE, STATES, AND PLANET EARTH: DIVERSE PATHS TO WORLD ORDER REFORM.

PROFESSOR BERES' publications include THE MANAGEMENT OF WORLD POWER; REORDERING THE PLANET: CONSTRUCTING ALTERNATIVE WORLD FUTURES; TRANSFORMING WORLD POLITICS; PLANNING ALTERNATIVE WORLD FUTURES; THE LEARNING PACKAGE IN WORLD ORDER STUDIES; FIRST STEPS IN BUILDING AN ARK OF RENEWAL: STUDENT VIEWS OF WORLD ORDER; and several dozen articles in major national and international journals. A member of the Peace and World Order Resource Network of the Institute for World Order and an Editor of the MONOGRAPH SERIES IN WORLD AFFAIRS, Professor Beres is a frequent participant and panel chairman at professional meetings and conferences. The recipient of many national awards and fellowships, he has taught at Princeton, the University of Illinois, and Simon Fraser University (B.C., Canada) as well as at Purdue.

PROFESSOR BERES was born in Zürich, Switzerland, in 1945, and spent most of his years in New York City. He now resides with his wife Valerie and daughter Lisa Alexandra in West Lafayette, Indiana.

PUBLICATIONS BY PROFESSOR LOUIS RENÉ BERES ON SUBJECT OF NUCLEAR TERRORISM

TERRORISM AND INTERNATIONAL SECURITY: THE NUCLEAR THREAT, a Report to the U.S. Arms Control and Disarmament Agency, August 1977, to be published in CHITTY'S LAW JOURNAL, Toronto, Canada, forthcoming; "The Nuclear Threat of Terrorism," INTERNATIONAL JOURNAL OF GROUP TENSIONS, Vol. 6, Nos. 1/2, 1976, pp. 53-66; "International Terrorism and World Order: The Nuclear Threat," STANFORD JOURNAL OF INTERNATIONAL STUDIES, Vol. XII/Spring 1977, pp. 131-146; "The Threat of Palestinian Nuclear Terrorism in the Middle East," INTERNATIONAL PROBLEMS, Vol. XV, Nos. 3/4, Fall 1976, pp. 48-56; "Arab Terrorists May Use Nuclear Weapons," MAARIV (in Hebrew, Israel), Saturday Magazine, April 23, 1976; "Terrorism and the Nuclear Threat in the Middle East," CURRENT HISTORY, January 1976, pp. 27-29; "Guerrillas, Terrorists, and Polarity: New Structural Models of World Politics," WESTERN POLITICAL QUARTERLY, Vol. 27, No. 4., December 1974, pp. 624-636; "Hic Sunt Dracones: The Nuclear Threat of International Terrorism," TERRORISM: AN INTERNATIONAL JOURNAL, forthcoming; "The Ever-Violent Middle East," in W.P. Lineberry's, ed., THE STRUGGLE AGAINST TERRORISM (New York, The Reference Shelf, 1977), pp. 76-82; "The Nuclear Threat of Terrorism," INTERNATIONAL STUDIES NOTES, International Studies Association, forthcoming; "Strategies of Counter-Nuclear Terrorism," National Bureau of Standards/ Defense Nuclear Agency, THE ROLE OF BEHAVIORAL SCIENCE IN PHYSICAL SECURITY, Proceedings, May 1978; and the forthcoming book, APOCALYPSE: NUCLEAR CATASTROPHE IN WORLD POLITICS.

STRATEGIES OF COUNTER-NUCLEAR TERRORISM: THEORY AND DECISION ON THE FRONTIERS OF LAW ENFORCEMENT AND CRIMINAL JUSTICE

Louis René Beres, Ph.D.
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Presented to the Conference on The Role of Behavioral Science in Physical Security, Third Annual Meeting, Washington, D.C. May 4, 1978

Lenin once remarked: "Without a revolutionary theory, there is no revolutionary practice." The same relationship applies between the theory of counter-nuclear terrorism and effective counter-nuclear terrorism in practice. Without the former, the latter is impossible. Recognizing this, the following paper proposes further research to construct a theory of counter-nuclear terrorism from which viable strategies, should they ever be needed, could be systematically derived.

Introduction

On August 22, 1977, I submitted a report to the United States Arms Control and Disarmament Agency on the subject of nuclear terrorism.[1] This report, "Terrorism and International Security: The Nuclear Threat," was commissioned by ACDA in April 1977, and represents the product of one summer's research effort. The report identifies effective means of preventing nuclear terrorism (deterrence) and limiting nuclear terrorism

1. Nuclear terrorism is defined as the use of nuclear explosives, radiological weapons, or nuclear reactor sabotage by insurgent groups.

if prevention fails (situation management). These means are derived from a rudimentary theory of counter-nuclear terrorism which: (1) is founded upon an awareness of differences between terrorist groups on the balance of risks that can be taken, and (2) correlates deterrent and remedial measures with the characteristic risk calculations of the different types of terrorist groups.

The Need for Further Research

With these facts in mind, this paper proposes further research to refine and expand this theory with particular reference to the construction of a decision-making taxonomy suitable for use by policy-makers in crisis or pre-crisis situations. This taxonomy, in which strategies of counter-nuclear terrorism would be differentiated according to the particular category of risk-calculation involved, could provide a rationally-conceived behavioral technology for dealing with terrorist nuclear threats.

The need for such a behavioral "technology" is underscored by the following two points: (1) the central task of effective counter-nuclear terrorism lies in distinguishing contingencies of reinforcement according to the particular type of terrorist group in question, and (2) at the present time, scholars and policy-makers continue to expend all of their

efforts on the search for a mechanical "fix" to the prospect of nuclear terrorism, with no concern for the truly crucial behavioral aspects of the problem. Nuclear terrorism cannot be prevented solely by additional guards, higher fences, and other protection devices. Sooner or later, a determined terrorist group will be able to by-pass these measures and gain access to fissionable materials, assembled nuclear weapons, or nuclear power plants. What can work to prevent nuclear terrorism (or at least offer some hope of successful deterrence) are strategies that are directed toward affecting the behavior of terrorists. The search for such differentiated strategies defines the theoretical and public-policy "core" of the needed research.

Why Strategies of Counter-Nuclear Terrorism? Rationale of the Needed Research

From the end of the eleventh century, when a Muslim sect known as the Assassins (a translation from Hashishaya) willingly sacrificed their own lives in pursuit of what they considered to be righteousness and salvation, special difficulties have been involved in dealing with terrorists. Not until very recently, however, have these difficulties entailed the prospect of nuclear catastrophe. Today, the failure of counter-terrorist strategies can give rise not only to locally destructive acts of rage and

violence, but to enormously damaging events triggered by nuclear weapons.

The reason for this state of affairs lies largely in the fact that the ability to acquire and use nuclear weapons has now passed into the hands of private individuals and groups. Coupled with the orientation to violence of terrorists, their relative insensitivity to orthodox threats of deterrence, and the growth of inter-terrorist cooperation, this ability signals a perilous drift toward nuclear insurgency. A brief look at this situation follows.[2] A detailed explanation of these four factors which, taken together, suggest a compelling need for the proposed research, can be found in Appendix A.

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2. For additional information on these factors, see the following publications by Professor Beres: Terrorism and International Security: The Nuclear Threat, a Report to the U.S. Arms Control and Disarmament Agency, August 1977, to be printed in Chitty's Law Journal, Toronto, Canada, forthcoming; "The Nuclear Threat of Terrorism," International Journal of Group Tensions, Vol. 6, Nos. 1/2, 1976, pp. 53-66; "International Terrorism and World Order: The Nuclear Threat," Stanford Journal of International Studies, Vol. XII/Spring 1977, pp. 131-146; "The Threat of Palestinian Nuclear Terrorism in the Middle East," International Problems, Vol. XV, Nos. 3/4, Fall 1976, pp. 48-56; "Arab Terrorists May Use Nuclear Weapons," Maariv (in Hebrew, Israel), Saturday Magazine, April 23, 1976; "Terrorism and the Nuclear Threat in the Middle East," Current History, January 1976, pp. 27-29; "Guerrillas, Terrorists, and Polarity: New Structural Models of World Politics," Western Political Quarterly, Vol. 27, No. 4., December 1974, pp. 624-636; "Hic Sunt Dracones: The Nuclear Threat of International Terrorism," Terrorism: An International Journal, forthcoming; "The Ever-Violent Middle-East," in W.D. Lineberry, ed., The Struggle Against Terrorism (New York, The Reference Shelf, 1977), pp. 76-82; "The Nuclear Threat of Terrorism," International Studies Notes, International Studies Association, forthcoming; and the forthcoming book, Apocalypse: Nuclear Catastrophe in World Politics.

Precis of the Problem

1. The increasingly easy access of terrorists to nuclear weaponry (either by theft of assembled systems from military stockpiles or by self-development from plutonium that has been pilfered from nuclear power plants) and nuclear reactors.

   Compelling evidence now exists that nuclear weapons storage areas can be penetrated successfully; that fissionable materials needed for the fabrication of fission bombs or radiation dispersal devices are inadequately protected; that the design and manufacture of a highly-destructive nuclear weapon is no longer a difficult task technically; and that sabotage of nuclear reactors can be accomplished.

2. The indiscriminate use of violence by terrorists.

   Today's terrorists are sui generis in one important respect: they no longer operate according to a code which defines a sense of proportionality in the use of force, or which distinguishes between combatants and non-combatants. Viewed from the standpoint of nuclear terrorism, the random exercise of unrestrained violence suggests that the amount of suffering to be inflicted is limited only by the availability of weapons resources.

3. The relative insensitivity of terrorists to ordinary retaliatory threats.

Today's terrorists are typically insensitive to threats of retaliatory destruction, either because of the preeminent value which they attach to certain goals, or because of the difficulty that is involved in locating them. As a consequence of this insensitivity, the essential dynamics of deterrence that lie at the heart of international security processes are immobilized. They do not work. From the standpoint of the threat of nuclear terrorism, this suggests that where diplomatic forms of persuasion prove useless, strategies of preemption may have to be taken seriously.

4. The trend toward growing cooperation among terrorist groups.

Today's terrorists are engaged in increasingly high levels of intergroup cooperation. The implications of such cooperation for nuclear destruction by terrorists are at least four in number: increased opportunities for acquiring nuclear weapons; the proliferation of "private" nuclear weapons throughout the system; the spread of expertise in handling nuclear weapons; and the growth of reciprocity in such areas as forged documents and safe havens.

Phases of the Needed Research

To create the decision-making taxonomy, I propose the following two basic phases of research:

Phase I. An in-depth exploration of the six critical conditions which determine terrorist stance on the balance of risks that can be taken in pursuit of particular objectives. These conditions are as follows:

1. Terrorist perceptions of the utility of nuclear violence.

2. Terrorist alignments with states.

3. Terrorist alignments with other terrorist groups.

4. Terrorist receptivity to positive cues or sanctions as opposed to negative ones.

5. Terrorist perceptions of patterns of counter-terrorist cooperation among states.

6. Terrorist perceptions of sympathy and support from others in the intranational and international milieu.

Principal Research Questions

To accomplish the proposed exploration of these six basic conditions, the research mustaddress the following eight principal questions:

1. To what extent, if any, are the risk-calculations of terrorist actors affected by the belief that increasingly-destructive modes of insurgency are gainful (i.e., in their own best interests)? In this connection, special attention must be directed toward understanding ways in which such a belief might be reversed.

   Historically, many violent acts of terrorist groups have alienated popular support and been counter-productive to political objectives. As examples, we may point to the Stern Gang (especially the murder of Lord Moyne in Cairo in 1944, which inspired the Jewish Agency to launch a counter-terrorist campaign); the Front de Liberation Quebecois, FLQ (especially the killing of French-Canadian Cabinet Minister LaPorte); the Malayan Terrorists of the 1950s; the OAS in Algeria; the Turkish People's Liberation Army; the U.S. Weathermen; and the Netherland's South Mollucan terrorists.

   It is worth pointing out, however, that the practice of terror and cruelty can occasionally elicit support and admiration as well as

revulsion. In writing about the history of bandits, for example, Eric Hobsbawm has indicated that bandits have often become heroes not in spite of their terrible cruelty (cruelty, incidentally, beside which some examples of modern terrorism pale into insignificance), but because of it. The hero image stems not from their presumed ability to right wrongs, but to avenge. In describing the Colombian violencia during the peasant revolution of the years after 1948, Hobsbawm points out that bandits who chopped prisoners into tiny fragments before whole villages and ripped fetuses from pregnant women became instant heroes to the local population.[3]

What this suggests, from the point of view of effective counter-nuclear terrorism, is that the ability to convince terrorist groups that nuclear violence is apt to be self-defeating may be impossible in certain contexts. In such cases, where resort to nuclear terror may actually generate admiration and support, efforts to prevent this terror must center on other bases of deterrence.

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3. See Eric Hobsbawm, Bandits (New York, Dell, 1969).

2. To what extent, if any, are the risk-calculations of terrorist actors affected by alignments with state actors? And how, therefore, can we use what we know about such effects to devise an effective counter-nuclear terrorist strategy?

It would appear that such alignments encourage terrorist inclinations to nuclear violence in two ways: (1) by direct assistance from state allies, in the form of weapons, material aid, and safe havens; and (2) by the progressive alteration of international power configurations in favor of terrorist actors.

3. To what extent, if any, are the risk-calculations of terrorist actors affected by geographic dispersion among, and intermingling with, state actors? Since terrorists do not occupy a piece of territory in the manner of states, they are not susceptible to orthodox threats of deterrence. The proposed research, therefore, must examine how effective counter-nuclear terrorist efforts might be reconciled with the reality of geographic dispersion.

Terrorist intermingling with state actors may (1) give rise to alignments between states that are dedicated to counter-terrorist

purposes; (2) inhibit the formation of contemplated alliances where split sympathies between states are in evidence; or (3) fractionate existing alignments that are cross-cut by such a split. While the first possibility would appear to put a damper on terrorist adventurism, the other two possibilities seem fraught with opportunity for terrorists to wreak havoc with impunity. In this connection, it is important to point out that the effects of the second and third possibilities could conceivably include some fundamental realignments of power between states; indeed, they might produce a genuinely realigned global structure.

4. To what extent, if any, are the risk calculations of terrorist actors affected by their relations with "host" states? Since terrorist actors operate within the framework of individual states, the character of the relationship between "visitor" and "host" may affect the viability of counter-nuclear terrorist measures. The proposed study, therefore, must ask: How might we exploit what is known about such relationships in curbing the threat of nuclear terrorism?

Terrorist groups, of course, do not occupy a piece of territory in the manner of states, but necessarily operate from within states.

Where the targets of terrorist attacks are located within their own states (intranational insurgency), the terrorist organization is anathema to its own government and enjoys no protection from the principle of sovereignty. However, where the terrorist target is located within another state (international insurgency), it may enjoy both the blessings of its "host" state and safety from acts of retaliation.

The effect of the second condition, i.e., terrorist targets located in other states combined with a supportive host state, is to embolden terrorist behavior. Here, since counter-terrorist measures necessarily require infringements upon the sovereignty of host states, these measures inevitably impinge upon delicate international legal concerns. Hence, unless the target states of terrorists are willing to turn their backs on legal/jurisdictional niceties, and initiate pre-emptive or retaliatory strikes on terrorist bases, it is these states - rather than the terrorists - who are put on the defensive.

5. To what extent, if any, are the risk-calculations of terrorist actors affected by their relations with other terrorist groups? And how might we exploit what we know about such ties to devise an effective strategy

of counter-nuclear terrorism?

Some of the evidence here is genuinely startling. Links have now been established between such groups as the various Palestinian organizations, the Tupamaros, the FLQ, the IRA, the Basque Liberation Front, the Baader-Meinhof group, the Turkish Popular Liberation Front, and the Japanese Red Army. Occasionally, joint operations are staged, as was the case with the Lod Airport Massacre in May 1972, which was carried out for the PFLP by Red Army Agents that had received training in Syria.

6. To what extent, if any, might the decisional calculi of terrorist actors be receptive to positive cues or sanctions as opposed to negative ones, and exactly which rewards seem to warrant consideration? In this connection, special attention must be directed to studies of child rearing, which indicate with overwhelming regularity that positive sanctions (rewards) are generally far-more effective than negative ones (punishment).

The reasonableness of such a strategy is also enhanced by its probable long-term systemic effects. Just as violence tends to beget

more violence, rewards tend to generate more rewards. By the incremental replacement of negative sanctions with positive ones, a growing number of actors in world politics, terrorists as well as states, are apt to become habituated to the ideology of a reward system, and to disengage from the dynamics of a threat or punishment system. The cumulative effect of such habituation is likely to be a more peaceful and harmonious world and national system.

Some of the problems associated with such a strategy in a world system founded upon the principles of realpolitik - problems to be dealt with in the proposed research - concern the appearance of "bribes." Even if a strategy of positive sanctions is worked out that looks exceptionally promising, the public reaction to it may be exceedingly unfavorable. Matters of honor and courage, therefore, may mitigate against the operation of positive sanctions in counter-nuclear terrorist strategies.

Another problem associated with the operation of positive sanctions in such strategies centers on the possibility that some terrorists who display the self-sacrificing value system of Fedayeen thrive on

violent action for its own sake. They are unconcerned with the political object or matters of personal gain. Here, we are up against a brick wall, the reductio ad absurdum of deterrence logic, since the only incentives that might be extended to deter acts of violence are the opportunities to commit such acts.

And then there is the "blackmail" problem. The habitual use of rewards to discourage terrorist violence is apt to encourage terrorists to extort an ever-expanding package of "gifts" in exchange for "good behavior." Here, we must confront the prospect of terrorism as a "protection racket" on a global scale.

7. To what extent, if any, are the risk-calculations of terrorists affected by inter-state patterns of counter-terrorist cooperation? And how, therefore, might such patterns be created? In principle, the surest path to success in averting nuclear terrorism lies in a unified opposition by states to terrorist activity. Yet, at least in the immediate future, this kind of opposition is assuredly not

forthcoming.[4] The proposed study, therefore, must ask: What cooperative patterns between particular states can cope with the problem at hand?

In this connection, special attention must be directed toward such options as exchange of intelligence data concerning terrorist groups; bilateral agreements on extradition; mutual judicial assistance concerning acts of terrorism; multilateral infiltration of terrorist organizations to gather information; improved border checks; expanded use of the media to publicize terrorist inclinations and inter-group ties; and separate negotiations with selected groups to fractionate their bonds and atomize their operations. International cooperation could also take the form of highly limited and particularistic acts, e.g., the willingness of Kenya to allow Israeli planes to refuel during the Entebbe mission, and the assistance of three ambassadors from

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4. It is sometimes argued that an effective international agreement among all states to combat terrorism is practicable, since all states share a common interest in obstructing terrorism. This argument rests on the mistaken assumption that all states will always value the proper functioning of the international diplomatic system more highly than any other preference that might be obtained through terrorist activity. It is, therefore, an erroneous and dangerous argument, very much like the argument that all states will agree to halt the proliferation of nuclear weapons since it is clearly in their common interest to do so. Regrettably, everything that is known about the realpolitiker's paradigm of foreign policy behavior mitigates against accepting the assumption that states will risk significant cooperative ventures in an anarchic world system.

Moslem states during the Hanafi Moslem siege of Washington D.C. in March 1977.

8. To what extent, if any, are the risk calculations of terrorist actors affected by the degree to which their policies evoke sympathy and support from others? Since almost all acts of terror are essentially propagandistic, it is important to understand their desired effects on selected publics in order to prevent escalation to a nuclear option.

Sympathy and support of terrorist groups in the international community suggests an opportunity for such groups to increase their strength and step up their activities with minimal fear of interference. Unless the trend toward such support is quickly and surely altered, it will certainly convince terrorists that policies of violence will be rewarded rather than punished.

Summary of Principal Research Questions

By considering these eight basic questions, the proposed research can begin the search for a "behavioral technology" to reduce the chances

of terrorist nuclear violence. As with all other groups of human beings, terrorists acquire a repertoire of behavior under the particular contingencies of reinforcement to which they are exposed. The "trick" is to understand this repertoire and to use it to inform the differential reinforcement of alternative courses of action. Once this is done, the spectre of nuclear terrorism can be confronted with counter-measures that are grounded in a systematic body of theory.

Summary of Phase I Methodology and Research Strategy

The proposed Phase I research must be informed by hypotheses that represent tentative explanations of the eight principal research questions. These hypotheses must link the risk-calculations of terrorist actors (as dependent variables) to corrective steps (as independent variables) which might be expected to affect these calculations. To investigate these hypotheses, a number of appropriate analytic models must be created wherein the stipulated connections that are presumed to obtain between independent and dependent variables can be explored. In effect, these analytic models would represent different configurations of world policy processes which vary according to the precise pattern of remedial steps involved.

Paralleling the major research questions and their respective hypotheses, these models must focus upon such policy processes as the following: steps to convince terrorist actors that nuclear violence would generate broad-based repulsion rather than support; steps to curtail "heterogeneous" alignments between terrorist and state actors; steps to discourage states from offering "hospitality" to terrorist actors within their borders; steps to fractionate bonds between terrorist groups; steps to develop strategies of "positive sanctions" to apply to terrorist actors; steps to create workable patterns of counter-terrorist cooperation between states; and steps to impair sources of public sympathy and support for terrorist excesses.

The mode of investigation must reflect strict adherence to the basic canons of empirical-scientific inquiry. This means that conclusions about the dependent variables must be derived in conformity with the requirements of logical consistency, and that the value-maximizing properties of the models must be rigorously deduced before they are subjected to the tests of correspondence with empirical materials.

After the analytic models have been suitably explored, Phase II study must get underway, and recommendations must be offered for the consideration of policy-makers. In arriving at these recommendations, attention

must be directed to both the desirability and feasibility dimensions of the proposed remedies. This two-part concern derives from the understanding that the chances for implementation of particular strategies define a criterion of reasonableness that is every bit as important as the inherent attractiveness of these strategies.

Phase II. The development of a decision-making taxonomy which rests upon the findings of Phase I research, and which differentiates strategies of counter-nuclear terrorism according to the particular category of risk-calculation involved.

To accomplish such development, I propose the identification of six principal types of terrorist group according to the group's position on two primary dimensions: (1) Degree of Commitment to Political Objectives, and (2) Utilization of Criminal Tactics (i.e., robbery or "expropriation" to secure funds).[5] Since the first dimension would have three possible forms

5. While all terrorist groups are, of course, "criminal" in the broad meaning of the term, as it would be used in the proposed taxonomy that term would apply to only ordinary criminal tactics used to secure funds. Hence, groups that do not utilize such ordinary tactics would be characterized as "non-criminal."

(High, Moderate, or Low) and the second dimension would have two possible forms (Criminal or Non-Criminal), six basic types of terrorist group would be considered. Each type would display a distinctive stance on the balance of risks that can be taken in pursuit of particular preferences.[6] The following chart lists the six basic types of terrorist group that would be used in the decision-making taxonomy:

Group Type	Degree of Commitment	Utilization of Criminality
1	High	Non-Criminal
2	High	Criminal
3	Moderate	Non-Criminal
4	Moderate	Criminal
5	Low	Non-Criminal
6	Low	Criminal

These six types range from what might be termed "pure altruism" (Group Type Number 1) to what comes very close to being "pure criminality" (Group

6. With the introduction of a number of "intervening variables" into the basic types or models (e.g., group types utilizing ordinary criminal tactics could be subdivided according to particular forms of such tactics), several subsidiary types of terrorist group could also be considered.

Type Number 6). Psychopathic or nihilistic terrorism can fall under the heading of either Group Type Number 5 or Group Type Number 6. To create the decision-making taxonomy from these six basic types of terrorist group, I propose (1) an exploration of the characteristics and modus operandi of each group type, and (2) an exploration of the various forms of counter-nuclear terrorist strategy that appear appropriate to each particular type. The resultant decision-making taxonomy would represent a theoretically-informed plan that correlates each of the six group types with a highly-detailed set of recommendations and prescriptions. A detailed summary of these six terrorist group types can be found in Appendix B.

To clarify these proposed operations of Phase II research, let us very briefly consider Group Type Number One. This type of terrorist group is characterized by a High degree of commitment to political objectives and by an absence of criminal activity. Hence, the self-sacrificing value system of fedayeen is in evidence, and the group does not secure needed funds through "expropriatory" activities.

In view of the particular ordering of preferences associated with this particular type of terrorist group - an ordering which assigns far greater value to political objectives than to personal safety -the task would be to identify and probe a range of deterrence options that focuses upon threats

to obstruct political objectives. Such options would include: (a) ways of convincing the group that its resort to nuclear violence would militate against political objectives because such violence would stiffen incumbent resolve and alientate vital bases of popular support, and (b) the use of positive sanctions, whereby certain rewards or concessions which relate to political objectives are promised in exchange for the non-use of nuclear violence.[7]

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7. The possible use of positive sanctions has been left out of existing studies of counter-terrorism; yet, it might prove to be one of the most worthwhile ways of affecting the decisional calculi of terrorist groups. Indeed, since we now live in a world wherein the execution of certain terrorist threats could have genuinely calamitous effects, responsible authorities can no longer always afford to take a hard line position against making concessions. Such concessions, however, should be based upon a systematically-formulated hierarchy of concessions that has been worked out in advance of a particular incident or crisis, rather than upon ad hoc judgments. Recognizing this, the proposed study must include the development of such a hierarchy, ranging from the most easily satisfied financial demands to the most sweeping transformations of government policy and personnel. With such a hierarchy in hand, responsible officials could enter into a protracted bargaining situation with prospective nuclear terrorists, pursuing a concessionary policy that is consistent with predetermined calculations of tolerable losses.

In reference to the investigation of the other five group types, the proposed research must also focus upon deterrence options that involve: (c) ways of exploiting the ordinary criminal characteristics of certain terrorist groups; (d) threats of mild punishment;[8] and (e) orthodox threats of physically punishing retaliation. Where a particular group type is expected to value the violent act itself more highly than any alleged political goals, strategies of "prophylaxis" must be examined together with deterrence measures. Here, however, special attention must be directed to the possible effects of such preemption strategies on essential human and citizen rights, since the requirements of effective counter-nuclear terrorism strategies must always be tempered by judicious concern for the assurance of civil liberties and personal freedoms. A detailed explanation of the threat to civil liberties posed by certain strategies of counter-nuclear terrorism can be found in Appendix C.

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8. Threats of mild punishment may have a greater deterrent effect than threats of severe punishment in certain instances. From the vantage point of the terrorist group's particular baseline of expectations, it would appear that such threats may prove less likely to elicit the high levels of anger and intractability that can impair rationality and override the inhibiting factor of expected punishment. Moreover, threats of mild punishment may be less likely to support the contention of official repression - a contention that is often a vital part of terrorist group strategies.

Conclusion

Taken together, Phases I and II of the needed research define a coherent plan for (a) increasing our understanding of the threat of nuclear terrorism, and (b) identifying differentiated strategies of prevention and response that are organized into a set of theoretically-informed, yet specific, policy recommendations. At the present time, students of the problem of nuclear terrorism continue to expend almost all of their efforts on the search for a technological "fix" to what is inherently a social-psychological and political problem. The research that is recommended in this paper would shift scholarly and governmental attention to the essential behavioral underpinnings of the problem, and provide a theory of counter-nuclear terrorism from which viable strategies could be systematically derived. In this way, the needed research would contribute to the improvement of national and international security through the power of theoretical and policy-relevant scholarship.

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STRATEGIES OF COUNTER-NUCLEAR TERRORISM: THEORY AND DECISION

APPENDIX A

Factors Which Suggest A Compelling Need for Counter-Nuclear Terrorism Research

1. Terrorist Access to Nuclear Weapons

Terrorists can now gain access to nuclear weapons either by theft of assembled systems from military stockpiles and production facilities or by self-development from pilfered nuclear materials. To acquire an assembled weapon, terrorist operatives might direct their attention to any of the tens of thousands of nuclear weapons now deployed across the world in national arsenals. In the future, such terrorists are likely to have a significantly enlarged range of possibilities for stealing nuclear weapons. This is the case because the number of national members in the so-called "Nuclear Club" is growing steadily.

To fashion their own weapons from basic nuclear materials, terrorist groups would require both the materials and the expertise to create an explosive device or radiation dispersal implement. How difficult would it be for them to fulfil these requirements? Not very! As increasingly large amounts of fissionable materials are produced by the nuclear power industry in the years ahead, the opportunities for terrorists to exploit the manifestly catastrophic possibilities that lie dormant in nuclear fuel will skyrocket.

How difficult would it be for terrorists to actually get their hands on fissionable materials? According to Mason Willrich and Theodore Taylor, co-authors of a special report to the Energy Policy Project of the Ford Foundation, the extant system of safeguards in this country is so inadequate that it is only a matter of time before terrorists are able to surreptitiously remove the essential fissionable materials from nuclear power

plants.[1] Although significant improvements in American safeguards have taken place since this appraisal was offered, parallel improvements have not always been implemented abroad. This situation has portentious overtones since American safeguards do not secure us against nuclear weapons fashioned from materials stolen elsewhere. To be genuinely worthwhile, the protection of nuclear materials from terrorist groups must be global in scope.

Regrettably, the amount of fissionable materials present in other countries which might become the target of terrorists is likely to expand at an alarming rate. Together with India's manufacture of a nuclear device with technology supplied by Canada, the West-German-Brazilian and French-Pakistani deals involving pilot reprocessing plants to extract weapons grade plutonium from spent reactor fuel rods and the continuing development of fast-breeder reactor plants by Japan, the Soviet Union, France and West Germany signal very dangerous conditions. Unless immediate and effective steps are taken to inhibit the spread of plutonium reprocessing and uranium enrichment facilities to other countries, terrorist opportunities to acquire fissionable materials for nuclear weapons purposes will reach very high limits.

To fabricate its own nuclear weapons, a terrorist group would also require expertise. According to Willrich and Taylor, "The design and manufacture of a crude nuclear explosive is no longer a difficult task technically, and a plutonium dispersal device which can cause widespread radioactive contamination is much simpler to make than an explosive."[2] Since

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1. See Mason Willrich and Theodore Taylor, Nuclear Theft: Risks and Safeguards (Cambridge, Ballinger, 1974), p. 115. See also, U.S. Congress, Office of Technology Assessment, Nuclear Proliferation and Safeguards (New York, Praeger, 1977); and Brian Jenkins, The Potential for Nuclear Terrorism, The Rand Paper Series, May 1977.

2. Willrich and Taylor, op. cit., p. 1. A crude nuclear explosive made from pilfered plutonium would probably have a yield in the range between several hundred and several thousand tons of high explosive. If such an explosive were detonated in a crowded metropolitan area, as many as 10,000 people might be killed directly while tens of thousands of others might suffer severe fallout problems.

as early as 1954, declassification and public dissemination of information about the design of fission weapons has been extensive. As a result, such widely-publicized cases as the one involving the twenty-year old MIT undergraduate who put together a devastatingly accurate technical design for a nuclear explosive - a case documented in the NOVA science series on public television, March 9, 1975 - assume a high degree of credibility.[3]

The fact is that such cases are not really all that remarkable. According to Willrich and Taylor:

> Under conceivable circumstances, a few persons, possibly even one person working alone, who possessed about ten kilograms of plutonium oxide and a substantial amount of chemical high explosive could, within several weeks, design and build a crude fission bomb. By a "crude fission bomb" we mean one that would have an excellent chance of exploding, and would probably explode with the power of at least 100 tons of chemical high explosive. This could be done using materials and equipment that could be purchased at a hardware store and from commercial suppliers of scientific equipment for student laboratories.[4]

What would happen if such a bomb were made and exploded? Since a nuclear explosion yields deadly penetrating radiations (gamma rays and neutrons) as well as blast wave and heat, even a "small" nuclear weapon could generate terrible destruction. Consider the following examples provided by Willrich and Taylor:

> A nuclear explosion with a yield of ten tons in the central courtyard of a large office building might expose to lethal radiation as many as 1000 people in the building. A comparable explosion in the center

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3. More recently, there is the case of the 21 year old undergraduate physics major at Princeton, John A. Phillips, who designed an atomic bomb in four months with information obtained entirely from public documents. The point of his design, said Phillips, "was to show that any undergraduate with a physics background can do it, and therefore that it is reasonable to assume that terrorists could do it, too." (See THE PRINCETON ALUMNI WEEKLY, October 25, 1976, p. 6).

4. Willrich and Taylor, op. cit., pp. 20-21.

> of a football stadium during a major game could lethally irradiate as many as 10,000 spectators. A nuclear explosion with a 100-ton yield in a typical suburban residential area might kill perhaps as many as 2000 people, primarily by exposure to fallout. The same explosion in a parking lot beneath a very large skyscraper might kill as many as 50,000 people and destroy the entire building.[5]

A terrorist group might also choose to use its plutonium in the form of a radiation dispersal device. In this case, the plutonium would be transformed into an aerosol of finely divided particles that could be distributed uniformly into the intake of a large office building's air conditioning system. According to Willrich and Taylor, only three and one half ounces of this extraordinarily toxic substance (its toxicity is at least 20,000 times that of cobra venom or potassium cyanide) would pose a lethal hazard to everyone in such a building.

How would such a weapon work? Consider the following scenario:

> The plutonium aerosol is distributed into the intake of a large downtown office building's air conditioning system by a criminal or terrorist group. Only three and one half ounces could prove a deadly risk for all of the occupants. Death by lung cancer would probably come to anyone inhaling between ten and one hundred millionths of a gram. Death due to fibrosis of the lung would be the probably fate of those who retain a dose of about a dozen thousandths of a gram.[6]

What makes this scenario particularly macabre is that the building occupants who absorb lethal but not massive doses of plutonium might not know of their poisoning for weeks, or months, or perhaps even years. One can only imagine the reaction of thousands of office workers to the disclosure that they have been lethally irradiated. The concrete human implications, the social and economic dislocations, and - last but certainly not least - the politi-

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5. Ibid., p. 22.

6. Willrich and Taylor, op. cit., pp. 24-25.

cal implications are staggering.

Plutonium might be dispersed in still other ways. One scenario that has been considered at the Nuclear Regulatory Commission office in Washington, D.C. is described as follows:

> During what appears to be a normal day at the Pacific Coast Stock Exchange, a large beaker filled with boiling liquid is noticed in the window of a nearby hotel. Police investigate, but it is too late. The boiling acid in the beaker has been dissolving and dispersing half a pound of plutonium, enough to expose everyone within several city blocks to a high risk of lung cancer.[7]

Rather than use plutonium for nuclear explosives or radiation dispersal, terrorists might also find it agreeable to sabotage nuclear plant facilities. Such sabotage could yield extensive death and property damage via radiation release. Although the chances of accidental reactor meltdown are generally believed to be extremely small, the case is quite different with respect to deliberate reactor meltdown. Consider the following scenario, another in the collection of the Nuclear Regulatory Commission's Office of Nuclear Material Safety and Safeguards:

> Under the cover of night, a dozen men storm the gates of a nuclear power plant, killing the two guards and taking the operating staff hostage. After placing charges of high explosives next to the plant's critical cooling systems, they phone the mayor of a nearby large city. Send $5 million, they demand, or we will blow the plant, sending radioactive particles drifting over the city's neighborhoods.[8]

Such acts could pose monumental problems for the appropriate authorities. Although a great many steps have already been taken to diminish the vulnerability of nuclear power plants in this country, successful sabotage is certainly not out of the question. By penetrating the physical barriers between themselves and the fission material in the reactor, and by disabling

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7. See Robert R. Jones, "Nuclear Reactor Risks - Some Frightening Scenarios," Chicago Sun-Times, Friday, April 30, 1976, p. 12.

8. Ibid., p. 12.

the cooling systems to the reactor core, saboteurs could cause the reactor to melt through its protective shielding and release deadly radioactivity into the atmosphere. Alternatively, since today's nuclear plants are unable to withstand the impact of large aircraft, a kamikaze-type plane crash into a nuclear plant could create a calamitous reactor core meltdown. Comparatively speaking, however, it would be more difficult for terrorists to "pulse" a nuclear reactor core to destruction than to make a radiological weapon or crude fission bomb.

2. Terrorist Orientations To Violence

Today's terrorist groups typically share an orientation to violence that has been shaped largely by the preachings of Bakunin, Fanon, and Sorel. All too frequently, these groups operate without a code of honor that distinguishes between combatants and non-combatants. As a result, the imperative to create limits to violence is ignored, and terrorist anger is vented almost randomly. At the same time, the level of adopted violence is constrained only by the limits of available weaponry. These facts imply an unacceptably high probability of nuclear terrorism should access to weapons or power plants be realized.

To a certain extent, this orientation to violence stems from the conviction that the absence of inhibitions to apply maximum force to virtually any segment of human population is expedient. Since war is still the ultima ratio between states, so, it is argued, must internal war be the final arbiter within states. Such "gun-barrel" thinking is often taken as an adaptation from the aphoristic philosophy of Mao Tse-tung.

To another extent, this orientation derives from the romanticization of violent action exemplified by Bakunin's dictum that "The passion for de-

struction is a constructive passion." Fused with the categories of Sorel and Fanon, and the existential idea of Sartre that "irrepressible violence. . . is man recreating himself," such romanticization breeds a cathartic view of violence. The reductio ad absurdum of this view is the slogan of the Spanish Civil War, "Viva la Muerte."

Finally, today's terrorist orientations to violence stem, in part, from the presence of psychopaths and sociopaths who enjoy carnage for its own sake. Here, the complete inversion of Judaeo-Christian notions of conscience and compassion flows not from any means-end calculation or from devotion to the "creativity" of violence, but from purely psychotic motive. Where such motive is present among terrorists who are suicidal schizophrenics, the problems of effective counter-terrorist action are greatly exacerbated. This is the case because such terrorists - whose incentive is to use violence nihilistically rather than politically - are apt to regard the threat of death as a stimulus rather than as a deterrent.

3. Terrorist Insensitivity To threats Of Deterrence

As we have just seen, the viability of deterrent threats against terrorist actors may be undermined when these actors are impelled by psychotic motive. It must now be pointed out that the ability to deter violent behavior by terrorists is in doubt with all categories of terrorist, including those whose actions spring from purely political concerns. Since a great many modern terrorists place a higher value on the achievement of certain political and social objectives than they do upon their own lives, these groups are essentially insensitive to orthodox threats of retaliation. Faced with an international actor for whom the "deadly logic" of deterrence is immo-

bilized, states bent upon an effective counter-terrorist strategy are at a significant disadvantage.

Consider the following examples of terrorist "rationality":

- Arab terrorists, in April 1974, seized an apartment building in Northern Israel, and ultimately accepted death rather than capture.
- SLA members, during the widely-publicized California shoot-out in May 1974, preferred death to incarceration.
- Two Red Army terrorists, during their attack on Israel's Lod International Airport in May 1972, killed themselves.
- Holger Meins, of the Baader-Meinhof group, succumbed to self-inflicted starvation in 1974.

What are the implications of this particular behavioral characteristic of terrorist actors for the threat of nuclear terrorism? Quite plainly, the most significant implication is that should terrorists obtain access to nuclear explosives or radioactivity and calculate the prospective costs and benefits of use, the fear of retaliatory destruction might not figure importantly in this calculation. In effect, this means that traditional threats of deterrence might have little or no bearing on the terrorist decision concerning the use of nuclear force.

It follows that unless diplomatic or other forms of persuasion can prove successful, the only means left to prevent the threatened nuclear act would be a "surgical" or pre-emptive strike. In certain instances, of course, even this option might prove inappropriate or ineffectual.

4. Cooperation Among Terrorist Groups

- Venezuelan terrorist Illich Remirzed Sanchez receives weapons training from the P.F.L.P. in Lebanon.
- Members of the Japanese Red Army terrorist group receive weapons training in Lebanon.

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- Joint training programs and arms transfers take place between the Turkish People's Army and Black September.

- Members of the American Weathermen, Northern Ireland's IRA, and Nicaragua's Tandanista movement are trained in Palestinian camps.

- Black September operatives demand the release of German insurgents who had been involved in the killing of German policemen.

- Liason between P.F.L.P. and Japanese Red Army agents produces the Lydda Airport massacre; an attack on the American Embassy in Kuala Lumpur, Malaysia; the hijack-ing of a JAL flight; an assault on the Japanese Embas-sy in Kuwait; and a take-over of the French Embassy at The Hague.

These are only a few of the most glaring examples of a new phenomenon in world politics - systematic cooperation and collaboration between terrorist groups. Terrorists have always formed alignments with sympathetic state actors, but they are now also beginning to cement patterns of alliance and partnership with each other. The net effect of such behavior patterns is a mirror image of Trotsky's theory of "permanent revolution."

From the standpoint of nuclear terrorism, cooperation between terrorist groups is particularly ominous. Such cooperation greatly facilitates terrorist acquisition of nuclear weapons and their exchange between different groups. It also increases the prospect of shared expertise in the technology of nuclear destruction and enlarges the opportunity for reciprocal privileges which might be crucial to successful operations.

STRATEGIES OF COUNTER-NUCLEAR TERRORISM: THEORY AND DECISION

APPENDIX B

Summary of Terrorist Group Types

Group Type	Degree of Commitment	Utilization of Criminality
1	High	Non-Criminal
2	High	Criminal
3	Moderate	Non-Criminal
4	Moderate	Criminal
5	Low	Non-Criminal
6	Low	Criminal

Group Type No. 1

This type of terrorist group is characterized by a High degree of commitment to political objectives and an absence of criminal activity.[1] Here, the self-sacrificing value-system of fedayeen is in evidence, and the group does not secure needed funds through "expropriatory" activities. In view of the particular ordering of preferences associated with this type of terrorist group - an ordering which assigns much greater value to political objectives than to personal safety - it would appear that deterrence efforts should focus upon threats to obstruct political objectives.

Such threats must be directed at convincing the group that its resort to nuclear violence would mitigate against political objectives because it would both stiffen incumbent resolve and alienate vital bases of popular support. Deterrence might also be based upon a strategy of positive sanctions,[2]

1. The special meaning of "criminal" should be kept in mind here.

2. It is ironic that the mainspring of global security has always been the threat to punish rather than the promise to reward. After all, beginning with studies of child-rearing, the literature on behavior modification regularly underscores the idea that positive sanctions are more effective than negative ones, that -- speaking metaphorically -- we can influence more flies with honey than with vinegar. In reference to reducing the probability of nuclear terrorism, we must begin to look at some carrots as well as the usual sticks.

in which certain rewards or concessions which relate to political objectives are promised in exchange for the non-use of nuclear or higher order weapons technologies.[3] It would appear that under no circumstances should deterrence of this type of terrorist group be based upon orthodox threats of physically punishing retaliation.

Group Type No. 2

This type of terrorist group is characterized by a High degree of commitment to political objectives and by the utilization of criminal tactics. Here, the self-sacrificing value system of fedayeen is still in evidence, while the group secures needed funds through robberies of one kind or another. It follows that deterrence efforts should focus upon the same threats and promises associated with Group Type No. 1 plus efforts which exploit the criminal character of the group. It would appear that this second category of efforts should concentrate upon creating a "bad press" for the group among potential adherents and supporters by spreading the news about the group's ordinary criminal tendencies.

Group Type No. 3

This type of terrorist group is characterized by a Moderate degree

3. Prior to the advent of concern for nuclear acts of terrorism, the idea that governments would engage in substantive bargaining with terrorists which might lead to major concessions was widely criticized. Today, however, we must face up to the fact that the execution of certain terrorist threats could have genuinely system-destructive effects. Recognizing this, the "hard line" unwillingness to bargain and concede can no longer be regarded as a fixed and irrevocable position of responsible governments. Moreover, a willingness to offer certain concessions to terrorist demands need not be construed as a sign of weakness. Not only does it have the effect of buying time while other courses of action are explored, it is a reversible policy which does not necessarily signal continuing capitulation.

of commitment to political objectives and by an absence of criminal activity. Here, the group's primary rationale and concern is still manifestly political, but there is no evidence of the self-sacrificing value. And the group does not secure funds through "expropriation."

In view of the particular ordering of preferences associated with this type of terrorist group - an ordering which values both political objectives and personal safety - it would appear that deterrence efforts should focus upon the same threats and promises associated with Group Type No. 1 plus an appropriate level of orthodox threats of physically punishing retaliation.[4] Such negative sanctions are needed to compensate for the diminished (vis-à-vis Group Types 1 and 2) level of political commitment.

Group Type No. 4

This type of terrorist group is characterized by a Moderate degree of commitment to political objectives and by the utilization of criminal tactics. Here, the group's political concerns mirror Group Type No. 3, but the group does secure funds through robberies and hold-ups. It would appear, therefore, that deterrence efforts should focus upon the same threats and promises associated with Group Type No. 3 plus efforts to broadcast and publicize the group's ordinary criminal activities. As in the case of deterrence

4. The use of negative physical sanctions must always involve great care and subtlety, even where it is clear that the intended terrorist targets value personal survival and safety. Indeed, a great deal of sophisticated conceptual analysis and experimental evidence now seems to indicate that, in certain cases, the threat of physical punishment may actually prove counterproductive. See, for example, Ted Robert Gurr, WHY MEN REBEL (Princeton, Princeton University Press, 1970), especially pages 241-242, 259, and 274; Arnold H. Buss, THE PSYCHOLOGY OF AGGRESSION (New York, Wiley, 1961), p. 58; and Leonard Berkowitz, AGGRESSION: A SOCIAL PSYCHOLOGICAL ANALYSIS (New York, McGraw-Hill, 1962), p. 96.

efforts associated with Group Type No. 2, such efforts are designed to alienate the group from vital bases of potential support.

Group Type No. 5

This type of terrorist group is characterized by a Low degree of commitment to political objectives and by the absence of criminal activity. Here, the group's raison d'être is only nominally political, and the group does not secure funds through "expropriation." Typically, this type of group looks upon violence as its own end rather than as an instrument. Moreover, violence is viewed as a romantic and creative force that is self-justifying. In view of the particular ordering of preferences associated with this type of terrorist group - an ordering which values the violent act itself more highly than any alleged political objectives - it would appear that deterrence should be abandoned altogether as a strategy of counter-nuclear terrorism. Since such groups exhibit traits that are best described as nihilistic or psychopathic,[5] preventive measures should focus upon "prophylaxis" via a counter-nuclear terrorism campaign which may or may not require preemption. And since personal safety figures unimportantly in this type of terrorist group's risk calculus,

5. Witness, for example, the case of Kozo Okamoto, the surviving terrorist of the Lydda Airport massacre, who stated that he experienced "a strange ecstasy" as unknown people fell to his bullets. It would be a mistake, however, to conclude that such individuals are incapable of having profound effects because of their condition. As Freud points out, "Fools, visionaries, sufferers from delusions, neurotics, and lunatics have played great roles at all times in the history of mankind and not merely when the accident of birth had bequeathed them sovereignty. Usually they have wreaked havoc. . . ."

the application of negative physical sanctions must be at the highest reasonable levels, i.e., levels that are consistent with the society's basic commitment to decency and essential human rights.

Group Type No. 6

This type of terrorist group is characterized by a Low degree of commitment to political objectives and by the use of criminal tactics. Here, the group's nominal political concerns mirror Group Type No. 5, but the group does secure funds through "expropriation." While this type of terrorist group may also exhibit nihilistic or psychopathic traits, its primary characteristics come closer to those of ordinary criminals or bandits. It would appear, therefore, that deterrence efforts should focus upon the kinds of threats that are used to counter orthodox criminality, and that these efforts must be augmented by the preventive measures associated with Group Type No. 5. The extent to which such preventive measures should be adopted depends largely on the extent to which the primary features of this type of terrorist group exhibit nihilistic/psycopathic rather than purely criminal traits.

STRATEGIES OF COUNTER-NUCLEAR TERRORISM: THEORY AND DECISION

APPENDIX C

The Threat to Civil Liberties

In seeking to identify a potentially effective configuration of counter-nuclear terrorism measures, the proposed research must also explore the effects of such measures upon civil liberties. Such exploration is suggested by the realization that, on occasion, effective counter-nuclear terrorist measures may be achieved only at considerable cost to certain basic democratic values, and that this cost must be included in the decisional calculi of governments contemplating the use of such measures. For governments that are sensitive to preserving the basic fabric of civil liberties, the concern for effective counter-nuclear terrorist measures must always be tempered by a coequal concern for judicious respect of essential human rights.

Some of the prospective sanctions available to counter-nuclear terrorist strategies entail measures that might be injurious to such values as social justice and human rights within states. Of special interest in this connection are options involving:

1. A total, no-holds barred military-type assault designed to eradicate the terrorist group(s) altogether; and/or

2. A protracted, counter-terrorist campaign utilizing "classical" methods of informers, infiltrators, counter-terror squads patterned, perhaps, after Israel's Mivtah Elohim (God's wrath), assassinations,[1] agents provocateurs, and selected raids.

1. Despite the revulsion that is typically generated by the suggestion of assassination in liberal, democratic societies, there is a well-established tradition in political philosophy which regards it as permissible under certain circumstances, e.g.,the writings of Cicero, St. Thomas Aquinas, and Sir Thomas More.

The first option, however effective it might be, is apt to be most destructive of essential citizen rights. Hence, governments contemplating such an option must pay close attention to the necessary trade-off between efficacy and liberty that is involved. Since this option would almost certainly be repugnant to the most deeply-held values of liberal, democratic societies, governments, before resorting to this option, would have to be convinced that its prospective benefits were great enough to outweigh its probable costs. In fact, short of its use at the situational level where higher-order acts of terrorist violence have already taken place, it is unlikely that this option would be taken seriously in democratic states. Rather, we are likely to see its adoption only by the world's most blatantly authoritarian, anti-democratic regimes.

This no-holds-barred military option is problematic for another reason. Not only might it incite fears of military/police repression among the more liberal sectors of the population, it might also confer a genuine combatant status upon the terrorists. As a result, the terrorist group(s) would more likely acquire the cast of an underdog army than that of a criminal band.[2]

2. Once it becomes focused upon the no-holds-barred military option, counter-terrorist measures generate a symbiotic relationship between opposing "armies," with each "feeding" upon the other. This development is contrary to the interests of the government, not only because it tends to fulfill the terrorist claims of repression, while boosting terrorist group morale and cohesion, but because it also creates incentives for escalation of violent action by both sides. An example of this point is the case of FLN terrorism in Algeria (1954-1962) and the "mirror image" response of the OAS.

The second option is also apt to score high marks on the efficacy dimension, but its effects on essential citizen rights need not be as injurious. This is not to suggest that a protracted counter-terrorist campaign utilizing classical methods of apprehension and punishment would necessarily be any less repulsive to liberal, democratic societies, but that such a campaign might be conducted on a comparatively less-visible and clandestine basis. An additional virtue of such quiet operations would be the avoidance of sympathy-generating publicity for the terrorist group(s).[3]

In the final analysis, the problem of conflicting values which emerges from the consideration of harsh deterrent counter-measures can be resolved only by careful comparison of the costs and benefits involved. To the extent that the terrorist threat is believed to be of potentially "lethal" quality to the state's very survival, Trudeau's "total war" message of October 14, 1970 may be regarded widely as perfectly reasonable:

> There are a lot of bleeding hearts around who just don't like to see people with helmets and guns. All I can say is, go on and bleed, but it is more important to keep law and order in the society than to be worried about weak-kneed people. . . . I think society must take every means at its disposal to defend itself against the emergence of a parallel power which defies the elected power in this country.[4]

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3. As in the case of the first option, it is essential that option 2 tactics be confined to the purpose at hand, lest they give rise to the sorts of right-wing vigilante groups that have run amok in Brazil, Argentina, and Guatemala.

4. Canadian Prime Minister Trudeau's response to FLQ tactics of bombing and assassination, a response which was designed to put Canada on a genuine wartime footing against its internal insurgents, gave the government the power to do anything "it deems necessary for the security, defense, peace, order, and welfare of Canada" (War Measures Act, October 16, 1970). While such a "broad net" strategy may actually be effective in dealing with the problem at hand, it inevitably generates new problems in the process.

On the other hand, where the terrorist threat is not deemed to be of such a precarious character, the prospective benefits of draconian measures may not be great enough to outweigh the resulting impairment of civil liberties and personal freedoms.

In general, the optimal counter-nuclear terrorist strategy is one in which effective counter-action leaves the prevailing network of citizen rights and privileges unimpaired. Barring this possiblity, however, the requirements of effective strategies should be tempered, to the greatest extent possible, by the assurance of those freedoms which are basic to any democratic order.

In reference to the two options just outlined, it would appear to be better from the civil liberties point of view if their sanctioning methods could be replaced altogether by the use of positive sanctions; moderate, ad hoc acts of physical punishment; efforts at underscoring the orthodox criminality of terrorist activities; and sustained efforts to convince terrorists that higher-order violence would be counter-productive to their objectives. Indeed, it would surely appear to be a good idea for counter-nuclear terrorist planners to begin to exploit the psychological warfare tactics which go back to the fifth century B.C. and Sun Tzu's THE BOOK OF WAR. Recognizing that in most cases, terrorist violence is not an end in itself, but an instrument for achieving desired personal/social/political change, certain terrorist groups might be deterred from nuclear violence to the extent that they believe such violence to be self-defeating. Unlike options 1 and 2, such tactics would recognize the primacy of ends over means

in the preference orderings of most terrorist groups, and exploit this recognition by the establishment of reasoned counter-measures.[5]

5. This primacy of ends over means has also served to justify the use of totally random and highly destructive violence by terrorists. As long as terrorists believe that the overwhelming righteousness of their particular causes justifies any available means, governments must learn how to deal with what Hannah Arendt calls the "banality of evil" problem. This is the case because terrorists with an "ends justifies the means" stance on violence are capable of engaging in evil without experiencing it as evil. In fact, they are even capable of displacing responsibility for their own violent acts upon the victims of these acts, e.g., the statement by the leader of Black September terrorists concerning responsibility for the helicopter deaths in Munich: "No Israelis would have been killed if the Germans had not trapped the operation. No one at all would have been killed if the Israelis had released their prisoners." Hence, the terrorist reasoning disclaims responsibility because the Germans and Israelis had not agreed to blackmail. To counter this sort of thinking, counter-terrorist efforts must be geared toward communicating the need for "proportionality" between ends and means to terrorist groups (e.g., the statement included in the Report of the Ad Hoc Committee on International Terrorism of the General Assemby, New York, 1973: "Even when the use of force is legally and morally justified, there are some means, as in every form of human conflict, which must not be used; the legitimacy of a cause does not in itself legitimize the use of certain forms of violence, especially against the innocent.") Such efforts must also be augmented by steps designed to undermine the "psychology of the cell," a psychology which acts to submerge individual feelings of responsibility and consequently renders violent excesses more likely. These steps should be calculated to fractionate bonds between members of a terrorist group, so as to strengthen, rather than diminish, feelings of individual responsibility. The effects of the psychology of the cell were perceptively revealed by James Cross of the British Trade Commission after his captivity at the hands of the FLQ in the winter of 1970. Together with the Uruguayan Tupamaros and the Algerian FLN, the FLQ best illustrates the clandestine cell structure of a terrorist group.

Such tactics, however, are intrinsically ill-suited to dealing with terrorist groups for whom higher-order acts of destruction are ends in themselves. In dealing with such groups, options 1 and 2 may circumscribe the government's only means of defending the citizens in its charge. It would appear that in such cases, the exigencies of survival may have to take precedence over the claims of libertarian values.[6]

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6. However, even when survival itself is at stake, decent governments must resist descending to counter-terrorist policies of "prophylaxis" as they are practiced in the Soviet Union and other authoritarian societies. Such policies, having their historial roots in the arbitrary arrest provisions of the Law of 1793 during the French Reign of Terror, represent so great an assault on fundamental human rights that they destroy the very values which counter-terrorism is designed to protect.

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What Happens If . . .? Terrorists, Revolutionaries, and Nuclear Weapons

By DAVID KRIEGER

ABSTRACT: This paper explores what may happen if terrorists or revolutionaries are able to develop nuclear explosives or the ability to dispense radioactive materials. Continued proliferation of so-called peaceful nuclear technology will increase the likelihood of this happening. The consequences are substantial, since nuclear technology would provide terrorists or revolutionaries with a lever for threatening or carrying out acts of mass destruction against a society. Deterrence would be ineffective against terrorists who are unidentified and/or unlocatable, or at least believe themselves to be so. Complications would arise, which could potentially trigger an international war, if nuclear-armed terrorists or revolutionaries deliberately misidentify themselves. The solution to the problem would require perfect safeguarding of nuclear weapons and special nuclear materials on a global scale. The record in the United States, a technologically advanced nation with an established nuclear program, suggests that perfect safeguards are unlikely to be achieved. Thus, future policy-makers may face a significantly enhanced threat from terrorists or revolutionaries in possession of a nuclear weapon.

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TERRORIST and revolutionary activities spring from deep wells of social and personal discontent, and it seems unlikely that these wells will dry up of their own accord, or that social changes will soon cap them. Thus, we can predict with a high degree of certainty that terrorist and revolutionary activity will continue.

THE FUTURE OF TERRORIST AND REVOLUTIONARY ACTIVITIES

Terrorism is nongovernmental public violence or its threat performed by an individual or small group and aimed at achieving social or political goals which may be subnational, national, or international. Revolutionaries have the specific goal of bringing down a government, and to this end their actions may range from nonviolent to terrorist to organized military activities.

The victims of terrorist activity may be:

—victims of convenience (that is, easy targets) such as passengers aboard a hijacked airliner
—newsworthy victims such as Olympic athletes
—representatives of groups perceived to be exploitative, such as, diplomats, industrialists, politicians, or even tourists from a given nation
—individuals or groups believed to provide an effective "bargaining chip." For example, any of the above could be held hostage in order to extort money, have prisoners released, change government or corporate policies, and so forth.

Terrorists may also threaten inanimate objects. They may target social or political symbols; for example, attempting to bomb the Washington Monument or Independence Hall. They may also seek to control or destroy vulnerable functioning technologies, such as computer centers, communication systems, or power generating stations. Any of these events could result in the death of innocent people who happened to be "in the wrong place at the wrong time."

Terrorist activities seem to have increasingly taken on an international character in the past decade. The U.S. State Department has published a memorandum stating:

> . . . since 1968 there has been a marked increase in international terrorism as a means for the attainment of political goals. Simultaneously, there has been a major development of intelligence, training, financial and operational collaboration among terrorist groups in different parts of the world. . . . Technological advances afford the terrorist opportunities he never had before: an instant world-wide audience . . . new types of weapons, a plethora of vulnerable targets.[1]

Thus, at least in the eyes of the State Department, international terrorism is becoming better organized, with better financing and weapons, and plenty of targets.

Based on past incidents, certain general motivations for terrorism can be suggested:

—to attain national or global publicity for a cause
—to achieve certain limited political and/or financial goals
—to demonstrate the weakness of an established government

1. Fahey Black, "Terrorism," *GIST* (Washington, D.C.: U.S. Department of State, March 1976).

—to manipulate a government into an unnecessary and discreditable use of force
—to create a situation where one can be hunted, killed, or put on trial with notoriety and excitement

Motives range from clear political objectives to hazy quasi-suicidal propensities. Globally, it would appear that there is a large body of persons whose lack of sufficient satisfaction and excitement in their lives makes them potential criminals or terrorists. We cannot say with certainty what catalysts will convert individual dissatisfaction and thirst for adventure into political terrorism. We can only suggest that we have no valid reason to believe that the discontent from which terrorism arises will soon diminish or that terrorism will decline in the foreseeable future.

Revolutionaries may be defined as individuals and groups acting with the primary intention of bringing down a government and replacing the fallen government with one more in accord with their own value system. Revolutionaries may, of course, act from either a left or right perspective and may be comprised of poor and maltreated elements of society or of well-to-do and well-established elements discontented with government policies. In the latter case, national military forces or a branch thereof will often play a major role in overthrowing an existing government. Most Latin American nations, for example, are now governed by military regimes which forcibly supplanted preexisting governments. Naturally, a large, well-organized revolutionary movement, which included a trained military force could pose a greater threat to take possession of nuclear weapons or nuclear weapon materials than could a smaller, less powerful terrorist organization. Also, nuclear weapons may come into the possession of former revolutionaries who become legitimized by the assumption of power within a state and who persist in their revolutionary aims and aspirations, thereby transforming the threat from a national to an international one.

THE NUCLEAR DIMENSION

It is the specific purpose of this paper to explore what may happen if terrorists and revolutionaries are able to develop nuclear explosive or dispersal capabilities. Thus far, only a few national governments possess nuclear weapons, and each has taken strong (although possibly insufficient) precautionary measures to prevent their nuclear bombs or special nuclear materials which are convertible to explosives from falling into unauthorized hands.

Whether terrorists and revolutionaries of the future will be able to achieve a nuclear weapon capability depends upon several factors. These include:

—the sympathies and political stability of regimes possessing a nuclear weapon capability
—safeguards applied by regimes possessing uranium enrichment and/or nuclear fuel reprocessing plants and their political stability
—the durability of safeguarding procedures for special nuclear material nationally and internationally over time

At the present time, only five nations are acknowledged members of the nuclear weapon club: the United States, USSR, UK, France, and China. India tested what it described as a "peaceful" nuclear

explosive in 1974, having created it with materials originally supplied by the United States and Canada for its nuclear power program. India's example illustrates how, under poor safeguards, nuclear electricity generation can lead to nuclear weapons.[2]

The stability of regimes possessing nuclear weapons is important, since opportunities for terrorists or revolutionaries to take possession of stockpiled nuclear weapons could arise as a result of a coup or revolution. The nations currently possessing nuclear weapons appear stable enough at present, but will this always be so? Imagine, for example, the government of China being unable to continue to assert control over the entire country after repeated, devastating earthquakes and factional struggles. A splinter group of army officers seizes control of a few nuclear missiles and (*a*) threatens to employ them against Japan unless a large sum is paid; (*b*) uses the weapons without warning against the USSR which is suspected of having caused the earthquakes in China by geological warfare; or (*c*) is convinced by a revolutionary student group to turn over the weapons to it to prevent capitalists from regaining a foothold in China.

Should there be a rapid proliferation of nuclear-weapon states, which at this time seems rather likely, future nuclear-weapon states may be less stable than current nuclear powers and thus more likely to lose their nuclear weapons to terrorists or revolutionaries. Nevertheless, of the various ways for terrorists or revolutionaries to gain nuclear weapons, taking them forcibly from a government would be relatively difficult unless the power of the revolutionary force approached that of the government. Far simpler would be to convince a sympathetic government to give one or more weapons away. We can imagine, for example, another Middle Eastern nation clandestinely creating nuclear weapons in the same way Israel is purported to have done and then turning some of them over to a terrorist group with whom its leader sympathizes. Or the nuclear weapon may be given to the terrorist group as payment for other activities the national leader wants accomplished. In either case, the agreement would most likely be secret, so that the national donor would not be held culpable for the terrorist use of the weapon. The situation could become even more confused and dangerous if the terrorist group claimed publicly to have received the nuclear weapon from an innocent party, thereby generating a retaliatory response against the innocent party. In certain cases, this could conceivably result in international war.

The above example, as with others, points out the difficulty of drawing a hard line between national goals and terrorist goals. In the future, as in the past, national leaders may work clandestinely to achieve certain goals through the activities of terrorist groups. Some of these goals may involve the use of nuclear weapons, and others may involve the trade of nuclear weapons for terrorist services rendered. Based on past performance, can we doubt that certain national leaders would be capable of such behavior? Moreover, we cannot safely dismiss

2. In addition to the five nuclear-weapon nations and India, Israel is widely thought also to possess nuclear weapons developed from its nuclear reactors.

the possibility that these leaders will eventually acquire nuclear weapons or that other leaders of this disposition will come to power in nuclear-weapon states of the future.

Nations possessing nuclear spent fuel reprocessing plants will have at hand the plutonium necessary for constructing nuclear weapons. Reprocessing plants will make it possible for nations possessing them to develop nuclear weapons or, depending upon the degree of safeguarding applied, for terrorists to obtain bomb-grade materials from the reprocessing facility. Since a certain amount of material is unaccounted for in processing, it is impossible to know with certainty whether it was in fact, diverted. Uranium enrichment plants would offer less opportunity for diversion by terrorists or revolutionaries unless highly enriched uranium was being produced, and most enriched uranium for power plants is not weapons-grade.

It is widely acknowledged by the experts in this area that a sophisticated terrorist group would be capable of constructing nuclear weapons with information and equipment publicly available, once sufficient plutonium or highly enriched uranium had been obtained. Former nuclear weapons designer Theodore Taylor, for example, and his co-author, Mason Willrich, stated in their Ford Foundation Energy Policy Project study:

> It is difficult to imagine that a determined terrorist group could not acquire a nuclear weapon manufacturing capability once it had the required nuclear weapon materials. In this regard, a terrorist's willingness to take chances with his own health and safety, and to use coercion to obtain information or services from others, should be contrasted with the probably more conservative approach of persons engaged in crime for money.[3]

Agreements are currently being pursued by France and West Germany to sell nuclear reprocessing facilities to less developed countries, including Brazil and Pakistan. The United States has opposed such technology transfers as promotive of nuclear weapons proliferation, but other nuclear exporting countries have not been ready to forgo the potential profits.

Regardless of the apparent present stability of national regimes acquiring reprocessing facilities, it remains impossible to assure that in the future such countries will not have leaders with terrorist sympathies or that, in the chaos of a civil war, nuclear materials would not fall into the hands of avowed terrorist groups. Similar considerations may be applied to nations with nuclear power facilities.

Nuclear power plants, while not prime potential sources of special nuclear materials, are major potential targets for terrorist attack; in effect, they are huge radiological weapons which terrorists could sabotage, spreading deadly radioactivity far downwind. We will discuss this possibility further in a separate section of this paper.

SAFEGUARDING SPECIAL NUCLEAR MATERIALS

A major factor in determining the ease with which terrorist groups may attain nuclear weapons will be the extent to which effective national and international safeguards over special nuclear materials are

3. Mason Willrich and Theodore B. Taylor, *Nuclear Theft: Risks and Safeguards* (Cambridge, Mass.: Ballinger Publishing Company, 1974), p. 115.

devised and enforced. The issue of nuclear safeguards became a subject of public and congressional concern in the United States largely through the persistent efforts of a former nuclear weapons designer Theodore B. Taylor. In his Ford Foundation study with Mason Willrich, it was argued forcibly that "without effective safeguards to prevent nuclear theft, the development of nuclear power will create substantial risks to the security and safety of the American people and people generally."[4]

Elsewhere in their study, the authors considered the possibility of terrorists gaining nuclear materials, They wrote:

> One wonders how in the long run nuclear power industries can develop and prosper in a world where terrorist activities are widespread and persistent. For if present trends continue, it seems only a question of time before some terrorist organization exploits the possibilities for coercion which are inherent in nuclear fuel.[5]

The study by Willrich and Taylor was published in early 1974. Congressional interest was stirred, but little action was taken. In early 1976, the Director of the Nuclear Regulatory Commission's Division of Safeguards, Carl H. Builder, wrote a memorandum, which subsequently became public, in which he expressed concern that ". . . some or even many of our currently licensed facilities may not have safeguards adequate against the lowest levels of design threat [of theft] we are considering. . . ."[6] This level was defined as one insider and three outsiders. And the House Subcommittee on Energy and the Environment, in February 1976, summarizing testimony presented to it, noted that "although the witnesses differed on the severity of the threat, it is obvious there is insufficient security against threats the NRC considers plausible."[7]

Thus, more than two years after Taylor and Willrich called national attention to nuclear safeguarding inadequacies, the problems remain far from being solved. Taylor himself provided rather extraordinary testimony at the subcommittee hearings mentioned above. Rather than offering confident answers to safeguarding problems, Taylor indicated that he found himself faced with certain questions he was unable to answer after years of effort to do so. Specifically, regarding safeguards, he asked:

> What levels of risks of nuclear violence, whether caused by nations or criminal groups, are acceptable to society worldwide, and who should decide what these levels should be? By what process is the worldwide public to be assured that international and domestic safeguards against purposeful nuclear violence will, in fact, be effective, in the sense that residual risks will be both known and considered acceptable by the public?[8]

Taylor's questions speak eloquently to the intractability of the problems of potential nuclear violence and nuclear safeguards. The

4. Ibid.
5. Ibid., p. 169.
6. Carl H. Builder, "Adequacy of Current Safeguards," Memorandum to R. A. Brightsen, U.S. Nuclear Regulatory Commission, 19 January 1976.
7. "House Subcommittee Chairman Calls for Improved Nuclear Security," Subcommittee on Energy and the Environment, House Committee on Interior and Insular Affairs, news release of 3 March 1976.
8. Theodore B. Taylor, Statement before the Subcommittee on Energy and the Environment of the House Committee on Interior and Insular Affairs, 26 February 1976.

safeguarding problems which Taylor was instrumental in raising seem further from solution now than when he initially raised them.

I have concentrated on U.S. safeguarding difficulties because it seems a valid assumption that if the world's richest and most technologically advanced nation cannot adequately deal with these problems, then other nations will be even more likely to fail. The supposed safeguards provided by the International Atomic Energy Agency (IAEA) are basically an inventory accounting system administered by the agency's small technical staff. The IAEA is able to recognize diversions after they occur, but is helpless to prevent diversions. It provides no physical security against diversion, nor does it have any capability to track down and recover diverted materials.

It appears that neither national nor international safeguards will prove adequate to prevent terrorists from going nuclear. In the following sections, we will consider what sort of world we may expect with nuclear armed terrorists.

WHAT TERRORISTS AND REVOLUTIONARIES CAN DO WITH NUCLEAR WEAPONS

With a nuclear weapon at their disposal, the coercive leverage of a terrorist or revolutionary group is multiplied enormously. Terrorists could threaten the destruction of any number of key targets, including a nation's capital city, a major dam, or a nuclear power generating station. Nuclear threats against any of these targets could cause widespread panic and intense pressure on the government to accede to terrorist demands.

The government involved would be in the difficult position of not knowing with certainty whether the terrorists were bluffing. One wonders how much risk a government would take if the terrorists publicly presented a credible description and photographs of their nuclear weapon and a small sample of special nuclear material. As a matter of policy, the U.S. government refuses to negotiate for the release of Americans who have been kidnapped. Would it adopt a similar no-negotiation policy for the "release" of Americans who were in effect being held hostage by a nuclear bomb threat to New York or Chicago?

Nuclear terrorists would have the advantage of choosing whether or not to identify themselves for publicity purposes. But even while identifying themselves, they could remain unlocatable and thus untargetable for retaliation. This, of course, nullifies the basic premise of deterrence theory, namely that a nuclear attack can be prevented by fear of retaliation. Clearly, if terrorists cannot be located, they have no need to fear retaliation, and thus deterrence in this context becomes meaningless. Further, some terrorists may be assumed to be so alienated that they would not be deterred even if located and certain to die if they carried out their threat. Of course, a nuclear bomb could be detonated remotely, even in another city, by telephone signal.

An interesting variant of the above would be for the atomic terrorists to claim to be a group on which they desired to bring public enmity, or upon which they desired to inflict the retaliatory might of the threatened nation. When terrorists have deliberately misidentified themselves, one wonders whether or not

national leaders would be capable of responding intelligently, under possibly panic conditions.

Were the terrorists to have more than one nuclear weapon, their position would be even more powerful. After they exploded one, it would be virtually impossible to reject their subsequent demands. Even if they had only one weapon which they used and bluffed a second weapon, it would be extremely difficult to attempt calling the bluff in the face of their already demonstrated capability and the likely overriding public sentiment to avoid further destruction at virtually any price. One successful nuclear extortion threat, or one actual nuclear bombing, would also undoubtedly instigate many similar threats. Distinguishing credible extortionists from hoaxers would increase in difficulty.

The sorts of situations we are now considering would very likely result in state-of-emergency declarations and the assumption of unlimited police powers by the threatened government. Responding to nuclear threats could undermine civil liberties and put democratic governments to their severest test.

Revolutionaries within a given nation would be unlikely to use nuclear tactics against a population center of their own people. They might, however, be willing to act against a military target or a government symbol. Revolutionaries could also act without identifying themselves if they perceived the action to be in their interest. Revolutionaries would probably be less inhibited in terrorizing a foreign government they desired overthrown. Theodore Taylor has pointed out that a nuclear weapon with a one-fiftieth kiloton yield (1,000 times less powerful than the yield at Hiroshima) detonated in a car on Pennsylvania Avenue would produce sufficient radiation to kill anyone above basement level in the White House, and that a one kiloton weapon (still 20 times less powerful than the Hiroshima bomb), if exploded just outside the exclusion area during a State of the Union message, would kill everyone inside the Capitol building.[9] Taylor states of the latter possibility:

> It's hard for me to think of a higher-leverage target, at least in the United States. The bomb would destroy the heads of all branches of the United States government—all Supreme Court justices, the entire cabinet, all legislators, and, for what it's worth, the Joint Chiefs of Staff. With the exception of anyone who happened to be sick in bed, it would kill the line of succession to the Presidency—all the way to the bottom of the list. A fizzle-yield, low-efficiency, basically lousy fission bomb could do this.[10]

The situation referred to by Dr. Taylor would involve no threat, no warning—simply the explosion, the death and destruction, and the ensuing chaos and panic. Terrorists or revolutionaries in possession of a nuclear weapon would have the option of exploding it without warning. Some groups might find this preferable both to avoid identification with the act and to avoid capture. By deliberately misidentifying themselves, terrorists might be able to catalyze domestic repression and/or international war.

RADIATION DISPERSAL DEVICES

To construct a nuclear bomb requires either about 11 pounds of plutonium or about 45 pounds of

9. John McPhee, *The Curve of Binding Energy* (New York: Farrar, Strauss and Giroux, 1973), pp. 221–22.

10. Ibid., p. 222.

highly enriched uranium. It also requires some expertise and at least several weeks of work by a small well-trained team. With lesser amounts of time, expertise, and plutonium, terrorists could prepare radiological weapons which could be used for extortion or contamination of chosen targets.

Plutonium is an extremely toxic carcinogen. In a study done by the U.S. Atomic Energy Commission, it was calculated that the release of 4.4 pounds of plutonium oxide as a fine powder would entail 100 percent probability of developing bone or lung cancer up to 1,800 feet downwind from the point of release, and a 1 percent risk as far as 40 miles downwind.[11]

The immediate impact in terms of deaths and recognizable injury would be far less with a radiological weapon than a nuclear bomb, but the psychological and economic impact of forcing the evacuation of a large area and the costly and lengthy decontamination procedures involved could make radiological weapons attractive to terrorist and revolutionary groups. Additionally, radiation dispersal devices would be far easier to prepare than a nuclear bomb, requiring only a basic knowledge of nuclear chemistry. Terrorists who threatened the release of plutonium oxide in a population center would have to be negotiated with seriously, particularly if they included a sample of plutonium with their threat letter. It would be virtually impossible for authorities to prevent the release of plutonium oxide when it could be done by simply attaching a leaking container of the material to a city taxicab or dropping it from the window of a tall building.

Dr. Edward Martell, a nuclear chemist with the National Center for Atmospheric Research, has stated: "in the not too unlikely event of a major plutonium release, the resulting contamination could require large-scale evacuation of the affected area, the leveling of buildings and homes, the deep plowing and removal of topsoil and an unpredictable number of radiation casualties."[12] The evident potential for creating the economic and social chaos—of forcing evacuation of a major city, say New York or Washington, D.C.—might prove a substantial lure for political terrorists in possession of plutonium. They might feel safer putting the diverted plutonium to immediate use rather than running the risk of organizing the talent and taking the necessary time to construct a nuclear bomb.

Radiation dispersal devices could also be used against more specific targets, particularly ventilated buildings. Feasible targets might include legislative chambers, stock exchanges, embassies, corporate headquarters, political conventions, power plants, and communication centers. Willrich and Taylor have calculated that the indoor release of one gram of powdered plutonium oxide could provide lethal dosages for inhabitants within a 500 square meter area and significant contamination requiring some evacuation and clean-up over a 50,000 square meter area. The indoor release of 100 grams of plutonium, about one-quarter pound, would give lethal inhalation dosages for 50,000 square meters and sig-

11. "Generic Environmental Statement on Mixed Oxide Fuel" (U.S. Atomic Energy Commission WASH-1327, August 1974), vol. 4, p. v-48.

12. Edward H. Martell, cited in Roger Rapoport, *The Great American Bomb Machine* (New York: Ballantine, 1972), p. 47.

nificant contamination over 5 million square meters.[13]

The above calculations are for an oxide of plutonium-239, the most common isotope of plutonium produced as a by-product of the nuclear fission process. A 1,000-megawatt light-water nuclear power reactor produces approximately 440 pounds of plutonium annually. A less common isotope of plutonium produced by the fission process is plutonium-238. This isotope decays at a rate approximately 280 times faster than plutonium-239, having an 87 year half-life rather than 24,400 years, and thus is approximately 280 times as toxic. Plutonium-238 is worthy of our attention, since it is being used to power cardiac pacemakers. Each pacemaker contains approximately one-quarter gram of plutonium-238. Extrapolating from the figures given by Willrich and Taylor, the one-quarter gram of plutonium-238 in a single pacemaker could provide lethal dosages over an indoor area of 37,500 square meters and provide significant contamination requiring some evacuation and clean-up to an area of 3,750,000 square meters. It would seem imprudent at best to dismiss the possibility of terrorists gaining a significant radiological weapon by the removal of an implanted nuclear heart pacemaker from a hapless victim, particularly when the recipients of nuclear pacemakers are periodically mentioned in the press.[14] At the present time, 20 such pacemakers are being manufactured and implanted monthly in the United States. A decision is pending on whether or not to proceed with nuclear heart pacemakers on a larger scale.

Since the major radiotoxic danger of plutonium derives from inhalation, sophisticated terrorists could theoretically contain the plutonium without hazard to themselves until they are ready to release it. If they chose to release it by time-bomb, they could be out of the area when the release occurred.

Douglas DeNike, a long-time scholar of nuclear terrorism, has painted this frightening scenario for the use of radiological weapons by terrorists:

> Perhaps the end will come with a whimper rather than a bang. Covert radiological warfare could cripple any nation without its immediate awareness. The downtown cores of the hundred largest American cities, for example, could be made uninhabitable by two foreign students on their summer vacation. The whole job would require roughly 100 pounds of power-reactor-grade plutonium or strontium-90 particles. A pound of either one, tied to the underside of a taxicab in a leaking container, would create an insidious cancer-induction hazard over several square miles.[15]

While the health effects of the radiological contamination might not be felt for many years, the psychological and economic effects of announcing the contamination, as the terrorists would surely do, would be substantial, particularly if evacuation and decontamination were necessitated.

As with a nuclear bomb, the leverage of terrorists generally would

13. Willrich and Taylor, *Nuclear Theft*, p. 25.

14. See, for example, "Government Owns Part of His Heart," *Santa Barbara News Press*, 26 February 1976. For a fictional account of nuclear terrorism with a cardiac pacemaker, see my story, "The Ordeal of Harry Dalton: A Parable for Our Times," *Science Forum*, vol. 8, no. 6 (December 1975), pp. 3–7.

15. L. Douglas DeNike, "Nuclear Terror," *Sierra Club Bulletin*, November-December 1975.

increase after the initial terrorist release of radionuclides. It would be extremely difficult for officials of a threatened city to resist terrorist demands when another city had already been required to evacuate.

NUCLEAR FACILITIES AS TARGETS FOR TERRORISTS AND REVOLUTIONARIES

As we enter the fourth quarter of the twentieth century, nuclear power plants are being increasingly relied upon to supply electric power. While a majority of people probably continue to view nuclear power as a great technological achievement, a growing minority see nuclear power as a symbol of technological arrogance. It is becoming increasingly widely understood that a meltdown of a nuclear reactor core could result in the release of volatile radioactive materials which could take thousands of lives and cause billions of dollars in property damage. The amount of potential damage remains a hotly debated issue, but the most recent Nuclear Regulatory Commission (NRC) document on this issue, the "Reactor Safety Study" (Rasmussen Report), estimates a worst-case accident would cause 3,300 early fatalities, 45,000 cases of early illnesses, and $14 billion in property damage.[16] This study argues that the chances of a nuclear accident killing more than 1,000 people are extremely low, the likelihood of occurrence being once in a million reactor-years for 100 nuclear plants, about the same risk as this number of people being killed by a meteorite. The study, however, excludes consideration of intentional destruction of a nuclear reactor which could set the probability of a core meltdown at unity.

In 1972 airline hijackers threatened to crash a Boeing 727 into the Oak Ridge, Tennessee, nuclear installation. The site was evacuated, and the terrorists did not carry out their threat. James R. Schlesinger, who was at that time U.S. Atomic Energy Commission (AEC) chairman, commented on the incident that

> . . . if one intends to crash a plane into a facility and one is able to persuade the pilot that that is the best way to go, there is, I suspect, little that can be done about that problem. The nuclear plants that we are building today are designed carefully to take the impact of, I believe, a 200,000 pound aircraft arriving at something on the order of 150 miles per hour. They will not take the impact of a larger aircraft.[17]

A Boeing 747 is nearly twice as heavy as the aircraft the power plants are designed to withstand, and a smaller aircraft carrying conventional explosives would probably penetrate a reactor containment structure. This approach to radiation release would, of course, be suicidal, but demonstrably there are terrorists fanatical enough to sacrifice their lives for what they believe to be a greater goal.

There are simpler ways for terrorists to effect a radiation release at a nuclear power plant. A former U.S. navy demolition specialist testified before Congress that

> . . . as one trained in special warfare and demolitions, I feel certain that I could pick three to five ex-underwater

16. "Reactor Safety Study: An Assessment of Accident in U.S. Commercial Nuclear Power Plants, Main Report" (Nuclear Regulatory Commission, WASH-1400, October 1975).

17. Cited in *Mike Gravel Newsletter*, 31 October 1973.

demolition Marine Reconnaissance, or Green Beret men at random and sabotage virtually any nuclear reactor in the country. It would not be essential for more than one of these men to have had such specialized training. . . . The engineered safeguards would be minimally effective and the amount of radioactivity released could be of catastrophic proportions.[18]

A 1974 Government Accounting Office (GAO) survey of security systems at nuclear plants drew attention to the vulnerability of the spent fuel storage pools located at reactor sites. In a letter to then AEC Chairman Dixy Lee Ray, a GAO official noted:

> According to AEC and licensee officials, the used-fuel storage facility at a nuclear power plant is more accessible and vulnerable to sabotage than is the reactor core. Such a storage facility generally is an uncovered pool of water near the reactor. The highly radioactive used fuel does not have the same degree of physical protection as that provided to the reactor core by the reactor containment vessel.[19]

Terrorists might consider the spent fuel storage pool of a nuclear reactor as an inviting target. Dropping a waterproof bomb in this storage pool would probably result in high-level radioactive contamination of the power plant itself, making its evacuation necessary.

Nuclear power plants may justifiably be considered military equalizers. Locating a nuclear power plant near a metropolitan area gives terrorists or revolutionaries (or small enemy nations) a target which in effect can disrupt an entire city by radioactive contamination, necessitating precipitate evacuation. This concept of military equalizer is one which, to the best of my knowledge, no national department of defense has yet recognized. The GAO study referred to above also pointed out that at U.S. nuclear facilities "there has been no specific coordination with other Federal Agencies, such as the Department of Defense and the Federal Bureau of Investigation, to protect against or respond to attacks by paramilitary groups."[20] Moreover, federal regulations specifically exempt the nuclear industry from responsibility for defending against sophisticated attacks on nuclear plants.[21]

Other areas of the nuclear fuel cycle could conceivably be targets for terrorist attack as well. These would include spent fuels being transported by rail or truck, and waste storage sites. In either case, a terrorist attack would involve the penetration of the transport cask with explosives and the consequent release of radioactive materials into the environment. This clearly would not be a strategy for terrorists or revolutionaries desirous of impressing a local population with their benevolence. Conceivably, though, the terrorists could perceive themselves as benevolent if they believed their action to be the only way to stop a dangerous technology (such

18. B. L. Welch, Statement before the Joint Committee on Atomic Energy, 28 March 1974.

19. Henry Eschwege, letter to AEC Chairman Dixy Lee Ray, 16 October 1974, p. 2.

20. Ibid., p. 3.

21. 10CFR 50.13: "An applicant for a license to construct and operate a production or utilization facility, or for an amendment to such license, is not required to provide for design features or other measures for the specific purpose of protection against the effects of (a) attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States, whether a foreign government or other person, or (b) use or deployment of weapons incident to U.S. defense activities."

as nuclear power) before industrial societies became too dependent upon it.

In the United States, between April 1969 and July 1976, there were 235 threats of violence or acts of violence toward nuclear facilities, and the frequency of such actions is increasing—there were 55 just in the first eight months of 1976.[22] As far as is known, none has yet succeeded in the loss of nuclear material or in causing damage to nuclear equipment or the general public, but the likelihood that one will soon succeed is not trivial.

BRIEF SCENARIOS FOR U.S. POLICY-MAKERS

To give some idea of the difficulties which policy-makers may face in the future, let us consider the following brief scenarios.

—A U.S. army base is destroyed without warning by a low yield nuclear weapon with no clues as to who is responsible.
—The U.S. embassy in India is destroyed in the same manner.
—A cadre of revolutionaries, including a nuclear engineer, take over a nuclear power plant and threaten to initiate a core meltdown if their demands for policy change are not met.
—An American-owned factory in France is discovered to have been saturated with plutonium oxide, and threats are received that the same will happen to other American corporations if certain government policy changes are not made.
—Japanese extremists divebomb an American nuclear reactor causing a core meltdown.
—A German terrorist group threatens the nuclear bombing of an unspecified U.S. target in Europe unless the Netherlands releases certain political prisoners.
—A multinational terrorist group, in possession of plutonium oxide, begins contaminating U.S. targets in Latin America and Asia, each time reiterating a demand for the United States to withdraw its nuclear weapons from Europe.

CONCLUSIONS

—Nuclear or radiological weapons in the hands of terrorists or revolutionaries could provide a significant threat to any society, particularly urban and industrial societies.
—Terrorists or revolutionaries can use nuclear or radiological weapons to extort money or extract political concessions from a government.
—Once a nuclear or radiological weapon is used by a terrorist or revolutionary group, other such groups will be more likely to threaten this approach and also more likely to be successful in having their demands met.
—Since retaliation will be difficult if not impossible against possibly unlocatable and even unidentifiable terrorists or revolutionaries, it will be necessary to prevent any diversion of nuclear weapons or special nuclear materials anywhere in the world. As yet, no criteria have been established as to how nuclear safeguards can be assured for the present, let alone for a conceivable future with many more nuclear weapon and nuclear power states.
—The threat of nuclear terrorism could precipitate restrictions on

22. A complete listing of threats and acts of violence to licensed and unlicensed nuclear facilities may be obtained from the Energy Resources Division Administration and/or the Nuclear Regulatory Commission.

civil liberties. Policy-makers of the future will have to make some hard decisions in this area, particularly if nuclear power continues to expand as an energy source.

—It is not inconceivable that nuclear terrorism could intensify international tensions and catalyze international wars, particularly if the terrorists are not identifiable or are misidentified.

—The serious nature of the potential consequences of nuclear terrorism demands equally serious policy decisions by current government policy-makers. A starting point is an evaluation of the consequences of continued development and exportation of nuclear technology and a realistic assessment of how effective nuclear safeguards can be expected to be on a worldwide basis.

—The solution to the problem of potential nuclear violence by terrorists or revolutionaries must be founded in a broad international context if it is to be effective.

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

DEPUTY ASSISTANT SECRETARY

May 8, 1978

Dear Mr. Chairman:

This is in response to your letter to Secretary Blumenthal this date requesting a statement concerning the explosives tagging program of the Bureau of Alcohol, Tobacco and Firearms along with other material which would be helpful for inclusion in your hearing record on S. 2236, "An Act to Combat International Terrorism." I am including a statement prepared by Mr. A. Atley Peterson, Special Assistant to the Director for Research and Development, Bureau of Alcohol, Tobacco and Firearms. I am also enclosing other materials which you may find of interest.

Lawrence M. Baskir
Deputy Assistant Secretary
(Legislative Affairs)

The Honorable
Abraham A. Ribicoff
Chairman, Senate
Governmental Affairs Committee
U. S. Senate
Washington, D.C. 20510

Enclosures

May 8, 1978

Statement of A. Atley Peterson

Special Assistant to the Director
for Research and Development
Bureau of Alcohol, Tobacco and Firearms

to the

Senate Governmental Affairs Committee
Concerning S. 2236, "An Act to Combat Terrorism"

I am A. Atley Peterson, Special Assistant to the Director for Research and Development of the Bureau of Alcohol, Tobacco and Firearms. For the past four years, I have been Chairman of the Advisory Committee on Explosives Tagging, reporting to the Director for this important program. This statement outlines the history of the program, the methodology we are using, the objectives, and the status of the program's four parts.

HISTORY

For some 20 years people involved in the suppression of crimes with explosives have hoped that some day a means would be found to detect concealed explosives and to provide some clue after an explosion which would lead the investigator to the criminal. In 1972 ATF, with a group of interested people, discussed this problem and determined that the time was ripe to enlist the support of science and technology to assist in controlling the use of explosives in crime. In 1973 the Bureau of Alcohol, Tobacco and Firearms assumed leadership of this project.

In 1974 we requested and were granted charters for an Advisory Committee on Explosives Tagging and a Technical Subcommittee to the Advisory Committee. ATF was first funded last year, 1976, with FY-77 funds for this program. At that time the program was put into high gear. Prior to that, funding had been provided by the Law Enforcement Assistance Administration, the Federal Aviation Administration, the Bureau of Mines, the U. S. Postal Service and the Internal Revenue Service. Each had addressed a rather limited area of the whole program, but these efforts did establish the scientific confidence that we could tag explosives for identification after detonation and for detection

prior to detonation. Through the Advisory Committee on Explosives Tagging, we achieved a sense of common purpose toward a national objective and excellent coordination.

We received outstanding cooperation and technical advice from industry. Without the help of those highly skilled, experienced people in the explosives industry, this program could not have advanced as rapidly as it has.

METHODOLOGY

The attack on this program has been developed with the advice, guidance and technical expertise offered by the individuals on the Advisory Committee on Explosives Tagging and its Technical Subcommittee. The Advisory Committee representatives are from all of the agencies of the Federal Government interested in explosives control. They include ATF, the Federal Aviation Administration, the Secret Service, the U. S. Postal Service, the Bureau of Mines, the Department of Defense, the Department of Transportation, the Environmental Protection Agency, the Law Enforcement Assistance Administration, the Federal Bureau of Investigation, and the U. S. Customs Service. In addition, we have representatives from a local police department, the academic world, and the Institute of Makers of Explosives.

The last group brings to our forum the representatives of the manufacturers for their practical scientific and technical expertise. It has been a very effective interchange, and at our meetings the manufacturing companies are invited to send representatives as observers.

The Technical Subcommittee consists of five individuals, carefully selected for their scientific expertise in the

explosive fields. The Chairman is the Chief of ATF's Forensic Laboratory, in which the techniques for the analysis of bomb crimes are perfected and many of which are adopted by crime laboratories throughout the country. The Bureau of Mines is represented because it has done a great deal of research and development in control of the permissible and impermissible explosives used in the mining industry. The Lawrence Livermore Laboratory of the University of California provides a highly qualified individual and so does the Institute for Defense Analyses. The U. S. Postal Service, which has been very concerned with the letter bomb problem for some years, provides the fifth representative from its research and development organization.

This small group is able to make tough, hard decisions and make them fast. They have over the past few years held hearings throughout the United States inviting any organization or person who has an idea of how to control explosives used in crime to present proposals. The task of the Technical Subcommittee is to determine which technology should be pursued and which probably does not have the promise that their promoters allege. These are tough decisions to make because there are many people who believe in what they

are proposing and yet, scientifically, perhaps there are better ways of attacking the problem.

In addition, as soon as this program was funded, ATF negotiated a contract with Aerospace Corporation to provide technical systems management. The Aerospace Corporation, as is well known, has been systems managers on many of the military's highly scientific programs and is now, in addition, devoting its efforts to non-military national programs as well. We are pleased to have the support from Aerospace, and I understand that later Dr. Robert Moler, Director of the Explosives Control Program for Aerospace Corporation, will present his testimony on the program.

An additional contract was negotiated with Management Science Associates of Los Altos, California, to study the cost benefits of the program. Data on explosives crimes is not very precise at this time. We are frequently asked what is the value of our program. Those of us working in the control of explosives crimes feel very strongly that it is of value, but we realize the need to be more precise in describing its value to society. The results of this study should be available in January or February of 1978. The procedures by

which we function are generally these: Aerospace Corporation or the Technical Subcommittee recommends certain technologies that should be researched. The proposed funding is reviewed by the Technical Subcommittee and it makes a recommendation to the full Advisory Committee. The Advisory Committee then, in light of national interests, total fundings, overall departmental objectives, and a review of the potential of the technology proposed, reviews these recommendations. If the Advisory Committee finds that the recommendations are appropriate, it will establish an order of priority and recommend the next steps in the research and development program to the Director of ATF. Aerospace Corporation, then, on behalf of ATF, negotiates contracts with the many subcontractors supporting this program. This system has been most successful and has kept all parties in the program apprised of the efforts. The guidance has been quick and we believe quite practical.

OBJECTIVES

The major objective is to reduce and suppress crimes with explosives. Detection will prevent the introduction of an explosive into an area for illegal use. Identification will enable us to apprehend more criminal bombers, faster and at less cost.

There are also associated objectives. One is to reduce thefts. If we are able to trace explosives used in crime to the last legal possessor, that person or organization, we believe, will tend to improve his security measures. He will want to avoid the surprise and embarrassment of being confronted with the fact that the explosive used in crime came from his magazine.

Another related objective is to provide a more certain means of determining whether an explosion was accidental, such as from a leaking gas main, or intentionally set off by explosive materials set in place by some person. This capability would tend to simplify litigation in insurance claims.

This program is also designed to assist the Bureau of Mines in assuring that only certain safe or permissible explosives are used in underground mining operations.

PROGRAM

The Explosives Tagging Program has four parts:

1. Tagging for Identification
2. Tagging for Detection
3. Detection without Tagging
4. Identification without Tagging

The first two require the addition of some chemical material, which we call taggants, to the explosives to enable us to identify and detect. The identification is to tell us the information we need about the explosive after detonation which would enable us to trace it through its course in commerce to the point at which a criminal may have procured it. The tagging for detection is designed to detect the presence of concealed explosives.

The last two parts, detection without tagging and identification without tagging, are objectives that we believe will be technologically feasible in the future but are not yet possible. If, in fact, we were able to detect without tagging or to identify without tagging, we would immediately discontinue the tagging program. But both of these latter two phases, to be universally applicable, are scientifically still fairly far in the future.

TAGGING FOR IDENTIFICATION

Tagging for identification will give us essentially the same information that is now printed on the outside wrapper of all explosives in accordance with ATF regulations. This information is commonly called the date/shift code and identifies the manufacturer, the plant at which it was manufactured, the date, and the production unit in which it was manufactured. By this information, we are able to trace explosives from the manufacturer through the distributor to a legal user. This is possible because the recordkeeping requirements are in existence now that will provide us this pathway. We now do such traces from data on undetonated explosives in our National Explosives Tracing Center. ATF provides this service to all law enforcement organizations and now traces approximately 100 explosives each month. When the explosive goes off, it usually destroys all evidence, and consequently, the apprehension of the criminal is extremely difficult. For example, ATF's ratio of arrests to crimes in explosives is about one-third the ratio in firearms crimes.

In tagging for identification, our first efforts are to tag cap-sensitive explosives which are generally known as dynamites, water gels and slurries. Cap-sensitive explosives

are those that can be detonated by either an electric or non-electric blasting cap. They are therefore sensitive as compared to blasting agents which require a booster to be activated. Water gels and slurries are explosive materials with characteristics similar to dynamites. They are conveniently packaged in sausage-like plastic tubes. They are generally accepted as modern improved explosives to replace dynamites.

These explosives are conveniently packaged for use in blasting operations. They are identified as being used in about 20% of the criminal bombings. However, they account for a major portion of deaths, injuries, and property damage in explosives crimes. We have determined that about 69% of deaths, 68% of injuries, and 79% of property damage are due to this family of explosives. We have proved we can tag this family of explosives, and a National Pilot Test is underway to refine the procedures in normal commerce.

The next family is the powders--black and smokeless. They are used in about 40% of the crimes, but because they produce a low-order explosion, loss of life, injuries, and property damage are small. In June of this year the Board

of Governors of the American Society of Crime Laboratory Directors, Inc. (ASCLD) determined that its number one research and development priority was the tagging of ammunition. If we are successful in tagging smokeless and black powders, we will be able to tag ammunition and shall have satisfied this objective. Right now we are negotiating contracts to insure that there is no change in the ballistic character or the corrosion effect of tagged ammunition. We believe we will succeed in tagging the powders in the next several months.

The next family, not used in general crime very frequently, but often in letter bombs, is plastic explosives, the semi-gelatinous materials. We are working in this area, and believe there will be no serious problems to adding taggants to these plastic explosives.

Another family comprises the military explosives such as C-4, RDX, HMX, tetryl, etc. These appear in crime less than 5% but due to the high energy of the explosion, they cause considerable damage, loss of life and injury. Most of these explosives used in crime are stolen from the military.

Periodically, the military declares some of these explosives as surplus, and they are then purchased by licensed manufacturers or dealers for re-work into commercial explosives products. Manufacturers have assured us that, as they re-work the military explosives, they can add identification tags. Thus, there would be a time gap between the release of the explosives from the military and the time at which the licensed manufacturer could add the taggants. This time gap would have to be monitored very closely.

Finally, we come to the family of blasting agents. These are non-cap-sensitive explosives and are generally produced by combining an oxidizer and a fuel oil. The best known is ammonium nitrate and fuel oil, commonly referred to as ANFO. Ammonium nitrate is commonly used as a fertilizer. Therefore, these two components are widely available. Separated, the components are not classed as explosives; mixed, they become explosive materials.

Under existing laws there is no authority to tag the components, although once combined, the mixture does fall under the regulations governing explosives. Of the three billion pounds of explosive materials used each year,

blasting agents represent about 80% of the total. Their use in bombings is low--less than 1%, probably because of inconvenience for handling surreptitiously. If we move to tag this quantity, we do not believe we could produce enough taggants for several years. Therefore, we have taken another approach. To be detonated, a blasting agent in almost every case requires a booster. A 1-pound booster charge could set off 500 to 5,000 pounds of blasting agent. Research is going on now to tag boosters. In this way we shall be able to make blasting agents traceable.

Lastly, we are investigating ways to tag the supporting elements for identification. These include the electric and non-electric blasting caps, detonating cord, safety fuzes, etc. Tagging the electric blasting caps for identification is highly desirable because they are made by only three companies in the U. S., and they are used in a majority of the crimes resulting in death, injuries or property damage. However, the manufacturing process is so sensitive and so complex that we do not foresee an early solution to this problem.

Tagging for identification has been proved feasible and has been demonstrated in the field. In June 1977 it was

demonstrated for representatives of Congress and the press in nearby Maryland. In February 1977 it was demonstrated in actual field conditions in Alabama with the participation of the local and state police, FBI and ATF agents. These demonstrations have proved that we can tag cap-sensitive explosives, which include dynamites, the new slurries, and water gels, and recover the coded tags to identify the explosive. We recognize that there are other explosives used in crime. We are not ignoring them. We have research underway to investigate the methodology by which we can tag black and smokeless powders, boosters, caps, fuzes, and detonating cord, as well as the military surplus explosives which are sold to the commercial manufacturers for re-work into commercial explosives.

Originally there were three candidate taggants. In the first feasibility studies, one was determined as not to be feasible. That left two taggants, those produced by the Westinghouse Electric Corporation and the 3M Company, as contenders. Each was capable of meeting some of the requirements but each had deficiencies. At this time, therefore, the taggants produced by the 3M Company are the surviving contender. 3M taggants are adequate but not yet optimum.

They have not yet met all of our requirements. 3M is continuing the research and development to meet all objectives. We have confidence that the 3M Company will meet these requirements. Meanwhile, we have research looking at other and possibly better techniques. We do not consider that this is a static program. There is room for improvement and the participation of other manufacturers as the market develops.

Currently, beginning this past June, we are engaged in a National Pilot Test for tagging for identification. We are tagging some seven million pounds of commercially produced cap-sensitive explosives which will be distributed through normal commercial channels. These are the dynamites, water gels, and slurries which cause most damage in criminal bombings. We shall watch this program, identifying bugs, trying to correct them, and then in April of next year we shall be ready for national implementation. When I say "ready for national implementation," quite obviously there will be a time lag; first, between the beginning of the program and the introduction of the taggants into the manufacturing process of commercially produced explosives, and second, before the complete replacement of those explosives

which were on the shelves and produced prior to that date. In addition, there will be some explosives concerning which our research will not have been concluded, and which, therefore, we will not be ready to tag.

TAGGING FOR DETECTION

Turning from identification to tagging for detection, we envision a system involving a detector which in the presence of a tagged explosive would provide a signal that an explosive was present. Our goal is to enable this to be built into doorways, into the circulating systems of buildings or aircraft, or mounted in portable units with which a search of an area could be accomplished.

Our first objective is to tag electric blasting caps. Since the taggant for detection does not have to survive the blast, the addition of the taggant to the blasting cap is, we believe, reasonably simple.

Our current efforts are directed toward developing a suitable taggant. Our goal is a vapor taggant which can be detected by simple, inexpensive instruments. We are not unmindful of the merits of another type of additive, one that responds in some detectable manner to an outside energy source. But at this time most intense efforts are to develop a vapor taggant.

In tagging for detection, we are approximately one year behind schedule. The initial promise of sulfahexafluoride embedded in teflon has proved not to be the optimum taggant that we sought.

Therefore, we now have three parallel approaches attacking the problem of providing a vapor which will remain in the explosive for at least five years, give a very distinctive vapor which can be detected conveniently by moderate or low-cost detection instruments, does not exist normally in nature, disintegrates once it is released into the air, has no undesirable impact on the environment, and is reasonable in cost. We are confident that out of these three parallel efforts in the next few months we will find materials which will satisfy our severe requirements.

We believe we shall achieve this goal by early 1978. Then we shall begin a National Pilot Test on tagging for detention in mid-1978 and be ready for implementation in April of 1979. Once we have solved the chemistry of the detection taggant, we look forward to combining it with the taggant for identification. At that time the tagging program will be mature.

DETECTION WITHOUT TAGGING

Research in detection without tagging is also a current phase of the tagging program. The Federal Aviation Administration is most interested in detecting explosives without tagging at airports, and therefore is devoting considerable amount of its effort in this direction. The representatives of ATF and FAA work very closely together to ensure no duplication and a complementary attack on the program.

In detection without tagging, the Federal Aviation Administration is researching several different techniques for detection of explosives carried by aircraft passengers, in luggage and in cargo. In addition, in the ATF program we are engaging in three parallel research and development efforts, which are not being addressed in any other program in the United States. These will, if successful, support the FAA and the Postal Service programs, the first for detection of explosives in luggage and the second for the detection of letter bombs at a high rate of speed.

IDENTIFICATION WITHOUT TAGGING

In identification without tagging, we have only a minor monitoring effort of the scientific developments.

Identification without tagging is a low-level effort because we have as yet seen no promising technological potential which can respond to this requirement to identify all the elements we need to know concerning the explosive after it has been detonated. Today we do analyze residue. Our laboratory scientists work extremely hard to uncover clues which can lead to the criminals who use explosves. They sift residue for any bit or piece of the explosive material, and occassionally they are fortunate enough to put together pieces of metal, plastic, paper, wood, or some other material that can give us a clue as to where this particular explosive came from, which then, hopefully, can lead us to the criminal. We are sucessful in some cases, but with difficulty, and success is not frequent.

SUMMARY

Thus, of the four parts of the program, the two involving tagging are the ones on which we are now concentrating most heavily with ATF funding. FAA is extending its program somewhat further in the future by additional efforts on detection without tagging. Some of the R & D effort that ATF is exploring now is also in the field of detection without tagging. Each attack, however, is well known to all agencies involved.

FOREIGN INTEREST

One further note on the current status about which I am pleased to report is that Canada is establishing an interagency organization to pursue explosives tagging. England has asked for and received some of our identification taggants for its own field tests. Other countries of the free world confronted with terrorist attacks are watching our program closely. We willingly assist any interested friendly government.

CONCLUSION

The explosives tagging program will greatly assist in suppressing one of the most horrendous crimes in the United States and the world today, the criminal use of explosives, and its attendant costs. It is a favorite tactic of terrorists. Not only will we be helping ourselves but also other countries faced with terrorism. Consequently, we believe that we have a duty to our fellow man to promote this program as rapidly as we can.

The mere fact that we have tagging will deter theft by encouraging the legal owner to tighten his security, for he will be more aware that we can track an explosive used in crime to his magazines.

Furthermore, tagging will help to distinguish between explosions caused purely accidentally and those caused by deliberate acts.

The law enforcement officers whom we have invited to provide inputs on our program, including representatives of the major police organizations, have strongly supported the tagging for identification because now they have so few clues to help catch the bomber. The security officers at airports, office buildings,

grocery stores, banks, and all activities faced with bomb threats which now require costly solutions need a simple detection system to prevent the unauthorized introduction of explosives.

We are also pleased to have Canada and England pursuing a parallel effort.

ADVISORY COMMITTEE ON EXPLOSIVES TAGGING

- REPRESENTATIVES ON THE ADVISORY COMMITTEE

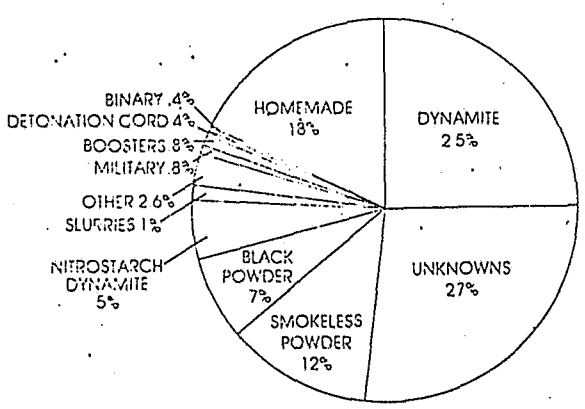
- Alcohol, Tobacco and Firearms (Chairman)
- Federal Aviation Administration
- U. S. Secret Service
- U. S. Postal Service
- Bureau of Mines
- Department of Defense
- Department of Transportation
- Environmental Protection Agency
- A Police Department
- Law Enforcement Assistance Administration
- Federal Bureau of Investigation
- Institute of Makers of Explosives
- Washington College
- U. S. Customs Service

- REPRESENTATIVES ON THE TECHNICAL SUBCOMMITTEE

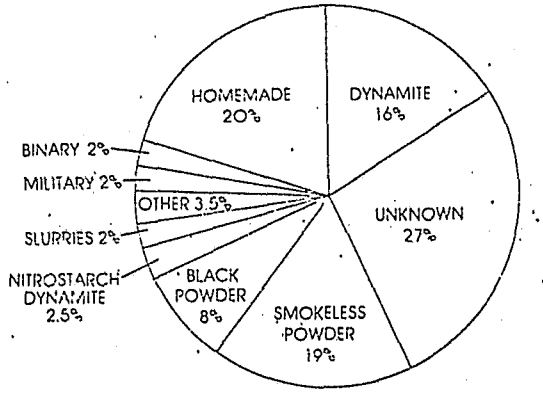
- Alcohol, Tobacco and Firearms (Chairman)
- Bureau of Mines
- Lawrence Livermore Laboratory, University of California
- Institute for Defense Analysis
- U. S. Postal Service

Chart #1

TYPES OF EXPLOSIVES USED IN CRIMINAL BOMBINGS
AS ANALYZED BY BATF HEADQUARTERS LABORATORY



1975 DATA
(244 samples)



1976 DATA
(279 samples)

1097

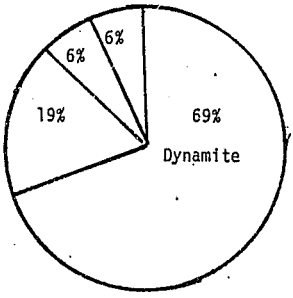
Chart #2

Chart #3

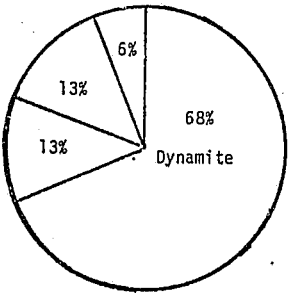
TYPES OF EXPLOSIVES INVOLVED IN CRIMINAL BOMBINGS
CAUSING DEATH, INJURY, AND DAMAGE IN 1976

DEATHS

6% Military Explosives
6% Smokeless Powder
19% Black Powder

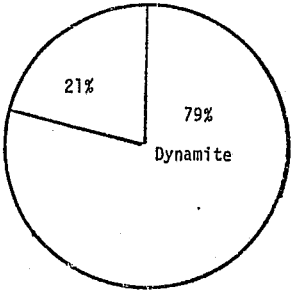


INJURIES



6% Military Explosives
13% Smokeless Powder
13% Black Powder

DAMAGE



21% Other Explosives

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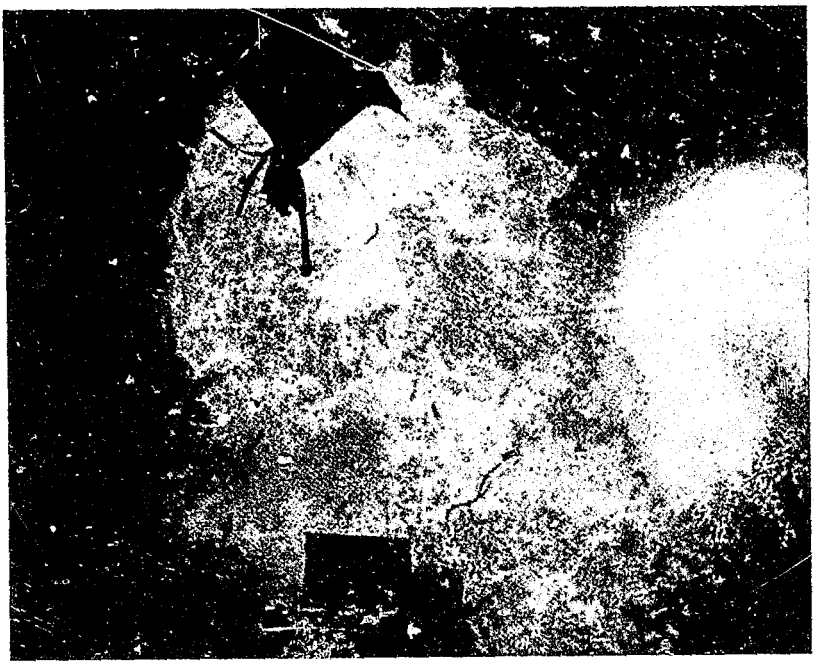
ATR-77(2860-01)-1



EXPLOSIVES TAGGING AND CONTROL

ANNUAL REPORT
FISCAL YEAR 1977

Prepared for

Bureau of Alcohol, Tobacco and Firearms
U.S. DEPARTMENT OF THE TREASURY

THE AEROSPACE CORPORATION

Aerospace Report No.
ATR-77(2860-01)-1

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ANNUAL REPORT

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Prepared by
Law Enforcement Development Group
THE AEROSPACE CORPORATION
Washington, D.C.

OCTOBER 1977

Prepared for
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U.S. DEPARTMENT OF THE TREASURY
Washington, D.C.

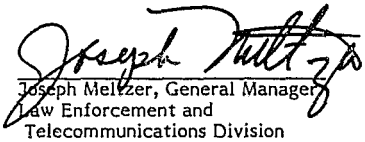
ATF-77-B-0314

Aerospace Report No.
ATR-77(2860-01)-1

EXPLOSIVES TAGGING AND CONTROL

ANNUAL REPORT - FISCAL YEAR 1977

APPROVED:



Joseph Meltzer, General Manager
Law Enforcement and
Telecommunications Division

ACKNOWLEDGEMENTS

The preparation of this report and performance of the described contractual work in explosives control was accomplished by the Explosives Staff of The Aerospace Corporation. The results presented in this report are a synopsis of a team effort. Individual contributors are listed alphabetically below:

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G. Roberts
F. Roder
P. Williams

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EXECUTIVE SUMMARY

The Explosives Tagging and Control Program is multifaceted. Its key elements, as defined by the Advisory Committee on explosives tagging, are tagging for identification and tagging for detection with lesser emphasis on nontagged detection. In support of the established goals, The Aerospace Corporation has carried out a program for the Bureau of Alcohol, Tobacco and Firearms (ATF) designed to produce significant accomplishments as rapidly as possible.

The technical support task has involved numerous presentations to the Advisory Committee on Explosives Tagging, the Technical Subcommittee to the Advisory Committee, ATF's Project Officer, the law enforcement community, key representatives of industry, and the Congress of the United States. These discussions served to highlight the progress and status of the explosives control program. Key objectives of this effort have been to foster a climate of cooperation and coordination of efforts to ensure orderly progression toward implementation of explosives tagging. This effort has provided an interface with the explosives industry, numerous technology reports, environmental and economic assessments of the explosives tagging program, and support for field testing and demonstrations.

Another key area of technical support to ATF has been the training of bomb investigative field agents in methods for postblast identification taggant recovery, separation from debris, and readout. Several exercises have been conducted at such locations as Birmingham, Alabama; Seneca Creek State Park, Maryland; Phoenix, Arizona; and Glenco, Georgia. Bomb investigators have been enthusiastic about identification tagging once actual detonation, recovery, and readout have been demonstrated.

Identification tagging implementation has centered on a National pilot test program for the identification tagging of 10 million pounds of packaged dynamite and slurries/water gels by seven leading manufacturers. Several issues involving taggant compatibility with explosive materials have been resolved after extensive testing. The issue of transportaion of tagged explosives was favorably resolved. The permissibility of tagged explosives is still under study. Feasibility studies for inclusion of identification taggants in other explosives categories are in progress (i.e., gun powders, blasting caps, emulsions, fuse/detonating cord, two-component explosives, and boosters). The overall objective of these efforts is to demonstrate feasibility for identification tagging of all explosive categories which pose a significant potential threat.

Detection tagging development has focused on the incorporation of a distinctive vapor taggant into the explosives formulation of blasting caps and gun powders. Subcontracted efforts include sorption of vapor taggants into blasting cap plug closure materials, inclusion of microencapsulated vapor taggants in caps and bulk explosives, and finally, the experimental evaluation of room-temperature sublimable salts. The soption studies have included a wide range of explosives types and have dwelt with more than 150 combinations. Based on criteria developed early in the program, only some 25 candidates are still being investigated. Mircoencapsulated liquids appear to hold substantial promise based on preliminary studies, and an increasing emphasis is being placed in this area. Finally, some preliminary studies have been made on the potential of a coded harmonic radar tagging method, which indicates promise, and a deactivation method using a micromagnetic switch.

Smaller efforts have been initiated in nontagged detection of explosives. The technique of ion-mobility spectrometry is being investigated as a natural vapor detector. (It has also some potential as a vapor tag detector.) The use of the dielectric discontinuity method is being studied as a relatively fast, low cost means of letter-bomb detection. Finally, the technique of dual-energy tomography shows considerable promise as a method of determining the bulk properties (average density and atomic number) of explosives within a larger package.

As part of the technical support task, recommendations regarding fruitful avenues of approach are made, and a number of important developments were studied. The two most important were the detection of explosives (nontagged or vapor tagged) by atmospheric pressure ionization mass spectrometry and olfactory discrimination by the Mongolian gerbil. In either case, the apparent detection limit and specificity surpass known methods by several orders of magnitude, and serious, detailed studies are warranted and recommended.

Nontagged identification of explosives has not been offered the attention it deserves, largely because of the technical difficulty of the area. During this program, several promising technologies were identified and evaluated that suggest that a reassessment of this position should be made. These experimental methods involve comparison (powder matching) and postblast residue analysis (explosive-specific enzymes and chromatographic methods). Such procedures will enhance the forensic chemist's ability to

analyze and identify the type of explosive from blast residue. These methods are suggested out of the realization that identification taggant addition to certain categories of explosives (military explosives, homemade explosives, and explosives in inventory prior to National implementation of the identification tagging concept) represent broad categories of explosives for which only residue analysis can provide investigative support.

The above-described efforts delineate the approach of this program under sponsorship of the Bureau of Alcohol, Tobacco and Firearms. Key program efforts are designed to provide for predetonation detection of illegally used explosives and, in the event of detonation, provide a mechanism of explosives identification thereby giving investigative leads. This duality of concerted efforts is targeted at the ultimate objective toward controlling the illegal use of explosives.

CONTENTS

1. INTRODUCTION

The illegal use of explosives has been recognized as a serious threat to the country for a number of years, and several Government agencies have sponsored studies and developments toward countering this threat. However, no substantial gains had been made in achieving a significant impact on the problem until relatively recently. Noting that many bombings were taking place in public areas traditionally considered inviolate, there has developed an element of coordination and cooperation among United States Federal agencies.

Efforts in explosives vapor characterization, identification tagging developments, and initial detection tagging feasibility studies were originated by the Law Enforcement Assistance Administration. The U.S. Postal Service also pioneered studies in explosives vapor characterization, barrier penetration, and detection, as did the U.S. Army Mobility Equipment Research and Development Command (USAMERADCOM). In addition, the Bureau of Mines contributed substantially toward the development of identification tags and an implementation model of a Nationwide explosives identification tagging program.

Under the impetus and coordination of the Advisory Committee on Explosives Tagging of the Bureau of Alcohol, Tobacco and Firearms (ATF), an explosives control program resulted. This report addresses a majority of the technical areas having significant potential for detecting and identifying illegally used explosives.

In addition to ATF, the Federal Aviation Administration (FAA) and the Energy Research and Development Administration (ERDA) currently sponsor the vast majority of ongoing work. Both FAA and ERDA have their own particular operational requirements, which narrowly constrain their objectives and direct their research efforts. As a result, their programs have little impact in the areas of greatest concern to law enforcement personnel, although they may have an effect in the prevention of explosions in public buildings and other controlled areas. The investigations by FAA, and those of the Sandia Corporation (sponsored by ERDA), have been coordinated with ATF efforts to a significant degree, and this cooperative spirit has begun to show results in developing complementary programs. Nevertheless, the ATF program remains the only substantial effort underway which promises to provide the investigator and the analyst improved methods and capabilities for attacking this pernicious problem.

This report describes the work carried out by The Aerospace Corporation and its subcontractors on behalf of the Bureau of Alcohol, Tobacco and Firearms. During Fiscal Year 1977, the major accomplishments dealt with the identification tagging of explosives. This work, of particular importance to investigators and analysts, has no counterpart in other agencies. A substantial effort in detection tagging was begun in conjunction with a smaller-scaled FAA effort. Finally, a limited exploration in untagged detection was initiated to complement the much larger efforts being undertaken by FAA and the Sandia Corporation.

2. TECHNICAL SUPPORT

2.1 DOCUMENTATION AND REPORTS

A major aspect of the Aerospace contract is to provide technical support and assistance to the Bureau of Alcohol, Tobacco and Firearms (ATF) in the development of Explosives Tagging and Control program. This assistance has taken the form of numerous briefings, industrial interface, technology assessments, technology transfer, technical assistance and advice, support of other contracted efforts by ATF, environmental and economic assessments, and training in identification taggant retrieval and decoding techniques. The Appendix gives a chronological listing of major reports/documents delivered to ATF, many of which were in direct support of these efforts. The most significant are described below.

2.2 TRAINING

Training is an integral part of National implementation and pilot testing of explosives identification tagging. Training to date has been directed at law enforcement field investigators and forensic laboratory personnel. Future training will also include regulatory personnel involved in enforcing explosives tagging regulations at the explosives manufacturers, distributors and users, as well as prosecuting attorneys.

2.2.1 Training of Law Enforcement Field Investigators

A formal program in training ATF agents to be qualified instructors in explosives identification tagging was recently initiated at the Federal Law Enforcement Training Center at Glenco, Georgia. Aerospace supported this effort by providing planning, instructors, tagged explosives, training aids, and field kits. To date, some 60 ATF agents have received this training and are qualified instructors. Aerospace is providing these agent/investigators with several items to assist them in their instructional and investigative roles. Each agent will be provided with copies of a descriptive brochure on recovering and decoding taggants, a slide show augmenting the descriptive brochure, models of the 3M Company color-coded taggants, and field kits containing the tools necessary for conducting a bomb-scene investigation for taggants.

A less formal training program has been underway at each field demonstration conducted since the initiation of this contractual effort. These field demonstrations have been conducted at Birmingham, Alabama; Seneca, Maryland; and Phoenix, Arizona. At each of these demonstrations, ATF agents and other law enforcement personnel received instructions in the theory of identification tagging and in the recovery and decoding of taggants. To date, this effort has instructed over 100 investigators.

2.2.2 Training of Forensic Laboratory Personnel

Personnel from each of the ATF laboratories have visited the taggant recovery and decoding laboratory at the Aerospace Washington, D.C., office. These forensic scientists received training in recovering taggants from bomb-scene debris normally submitted, as well as instructions in reading the taggant code.

2.2.3 Continuing Efforts

As the pilot test program continues toward a National implementation target date during Fiscal Year 1978, the efforts in training and instruction must be expanded to instruct bomb investigating personnel. Further developments in the 3M Company identification taggant technology and the newly developed magnetic Curie point taggant technology must be transferred to the law enforcement community as their feasibility is established.

Law enforcement personnel of the Federal Bureau of Investigation and the State/local agencies must likewise be trained. Video taped programs and slide/tape shows should be developed for use as stand-alone training aids. Courses should be developed as part of the regular entry-level and advanced-agent training at the Federal Law Enforcement Training Center. Toward the latter part of Fiscal Year 1978, training should be initiated for the ATF regulatory offices in methods to ensure that explosives manufacturers and distributors are carrying out the required manufacturing practices and recordkeeping necessary to ensure a successful identification taggant tracing ability that leads the investigator to the last legal owner.

2.3 Economic Impact Statement

The major conclusions of the "Explosives Tagging and Control Inflation Impact Analysis" (22 March 1977) are summarized as follows. The expected annual cost for material and labor to the explosives industry for identification and detection tagging is about $15 million per year. This is well below the impact critera of $50 million per year or $75 million over two years. National costs would include the purchase and operation of equipment used to detect and identify explosives. It is estimated that the purchase and operation of such equipment would add another $40 million per year to the program cost. The resulting total of $55 million is significantly less than the National impact criteria of $100 million for one year, or $150 million over two years. The impact on individual States is negligible relative to their personal incomes. The program is judged to have no

significant negative impact on productivity within the explosives industry, since total manufacturing costs, excluding materials, are estimated to be $2.2 million per year. No negative impacts of the program are foreseen for competition, supply of important materials, energy demand, employment, or the financial market.

It should be emphasized that much of the input cost data of this report are estimates. The Bureau of Alcohol, Tobacco and Firearms has recently contracted with Management Science Associates to prepare a detailed economic cost/benefit appraisal of the overall tagging effort. These results are scheduled for completion 31 January 1978.

2.4 Environmental and Health Hazard Analysis

The proposed action for a nationwide implementation of an explosive identification tagging effort has been evaluated for the potential impact on health and the environment. On 16 August 1977, a detailed assessment, prepared in compliance with the Environmental Protection Agency's control measures was prepared. The toxicology and epidemiology information known about the individual components of both 3M and Westinghouse identification taggants was investigated. With consideration of all factors relative to this matter, in accordance with the Treasury Procedures for Preparation and Coordination of Environmental Impact Statements, it is concluded that the proposed explosives tagging program will not significantly affect the quality of the human environment with the meaning of Section 102(2)(C) of the National Environmental Policy Act of 1969, and that the filing of an environmental impact statement on the project is not required.

3. IDENTIFICATION TAGGING

3.1 BACKGROUND - EXPLOSIVES IDENTIFICATION TAGGANT DEVELOPMENT

Tagging explosives at the time of manufacture with a taggant material that can survive detonation, be recovered, and provide an investigative lead has been seriously studied for several years. This concept has gained widespread support among many law enforcement groups because of the scant clues that can presently be found among bombing residues.

In 1972, the efforts of private and Government investigators in the area of explosives tagging began to gain National visibility through the joint establishment by the Bureau of Alcohol, Tobacco and Firearms (ATF) and the Federal Aviation Administration (FAA) of an ad hoc committee on explosives seeding. This lead to the formation in 1973 of the Advisory Committee on Explosives Tagging chaired by ATF, which acts to coordinate the activities of the various Federal agencies concerned with the control of the illegal use of explosives.

The Bureau of Mines, because of its longstanding interest in ensuring the use of only permissible explosives in underground mining operations, was active in the development of explosives tagging concepts in the early 1970s. The Westinghouse Electric Corporation filed a patent for a method of explosives tagging in May 1971. The Bureau of Mines and Westinghouse worked together to determine the feasibility of this tagging method. The Atomic Energy Commission funded early development efforts in 1972, 1973, and 1974 at Ames Laboratory, Ames, Iowa, to develop another tagging method. The 3M Company also became active in the field and developed a third approach to tagging.

In 1974, the Law Enforcement Assistance Administration funded the Lawrence Livermore Laboratory to determine the technical feasibility of explosives identification tagging using these three existing candidate taggants. The Lawrence Livermore Laboratory effort clearly demonstrated the feasibility of explosives identification tagging with the Westinghouse rare-earth taggant.

In 1974, the Commonwealth of Massachusetts passed a law requiring all explosives used in that State to be tagged but, to date, its implementation has been deferred due to the lack of a fully tested tagging scheme. Also in 1974, the Advisory Committee on Explosives Tagging issued a list of National priorities for explosives tagging which emphasized the need for explosives identification tagging. In 1975, the 3M Company developed a new taggant which has since shown considerable promise and is now the leading candidate.

In 1976, desirous of advancing the identification tagging concept and responding to the need for interagency coordination, the Bureau of Mines untertook the task of developing a National Implementation Model for explosives identification tagging. The Bureau of Mines also undertook the development of a pilot test plan for testing the identification tagging concept. Furthermore, the Bureau of Alcohol, Tobacco and Firearms received funds to conduct the actual pilot test on a significant percentage of the National explosives production in accordance with this pilot test plan and to conduct a detailed cost-benefit analysis for tagging explosives. Currently pending before Congress is a bill (S.2013) that would require tagging of all explosives materials. A second bill from the Department of the Treasury has been submitted to the Congress but is not yet being considered.

3.1.1 Objectives

The explosives identification and tagging program is intended to clearly demonstrate and document the technical feasibility of adding identification taggants to all commercially manufactured cap-sensitive explosives. The explosive identification tagging concept has three major parts: adding tiny, nonexplodable, coded particles to explosives during their manufacture; recovering and decoding them (see Section 2.2); and tracing them through distribution records to the last legal possessor. Development of this concept has been pursued as an effort to improve the ability of law enforcement personnel to apprehend bombers and to increase the accountability of those presently responsible for the security of explosives being stored or transported.

There are two major efforts proceeding concurrently toward successful tagging of all significant explosives categories. A pilot test program (Section 3.4) is underway. The initial phase of the pilot test involves the addition of identification taggants by seven explosives manufacturers (duPont, Hercules, Atlas, Independent, IRECO, Gulf, and Trojan) into 5 million pounds of packaged high explosives. The manufacturers are to tag permissible/nonpermissible dynamites and slurries/water gels. Another major program effort is directed toward the appraisal of the identification taggant addition feasibility to other broad categories of explosives such as smokeless and black powders, blasting caps, emulsions, fuse and detonating cord, two-component explosives, and cast boosters. The results and status of these feasibility studies are outlined in Sections 3.2 through 3.5.

3.2 IDENTIFICATION TAGGANT SOURCES

There are three identification taggant concepts under active consideration. The 3M Company manufactures a multilayered, polyethylene-coated chip containing a magnetic layer and spotting phosphors for taggant retrieval. These 3M Company identification taggants have been used in the pilot test program. Negotations are presently underway to secure an additional 2500 pounds of the 3M Company taggants to complete the pilot test. To enhance the identification taggant's fire and high-energy explosives survivability, the 3M Company is developing a more resistant-type particle.

The Westinghouse rare-earth-doped ceramic taggants are no longer being considered for the pilot test program because of an impasse in a tort liability issue. (See Section 3.2.2.2.) A new taggant concept involving Curie point properties of magnetic ferrites is being explored. The Curie point taggant development is being actively pursued to appraise its attractive features (large vocabulary, low cost, fire survivability, etc.) and to ensure retention of a cost-competitive posture by the 3M Company.

3.2.1 The 3M Company Taggant

3.2.1.1 Description

This taggant particle consists of an irregularly-shaped, eight-layer sandwich of thermosetting melamine formaldehyde. Seven of these layers, subject to certain minor restrictions, can each be assigned one color from a 10-color library which corresponds to the electrical resistor color-coded index. The colors and their numerical designators are as follows:

0 : Black (magnetic)	5 : Green
1 : Brown	6 : Blue
2 : Red	7 : Violet
3 : Orange	8 : Grey
4 : Yellow	9 : White

One outside layer will visibly fluoresce when illuminated with 366 nanometers of ultraviolet radiation. The color of the fluorescence can be selected to satisfy various performance criteria or to overcome expected postblast environmental conditions. This layer is termed the "spotting" layer because this fluorescence is extremely useful as an aid in locating, or spotting, the taggants following an explosion.

A black layer, which must always be present, contains a quantity of iron powder sufficient to make the taggant particle respond to a medium- to high-strength, permanent magnet. This magnetic property serves as an additional recovery aid.

A typical 3M Company taggant particle is shown in Figure 3-1. The density of the 3M Company taggant is in the range from 1.80 to 1.85 g/ml. The fully structured taggants are encapsulated in a layer of transparent polyethylene which approximately doubles the weight of the final taggant. This coating serves to reduce any sensitizing characterisitics of the taggants when combined with various explosive ingredients, to reduce the absorption of those ingredients into the taggants themselves, and to attenuate detonation shock wave, thus increasing taggant survivability. The encapsulated taggants have a specific gravity of approximately 1.4 and vary in shape from an irregular iceberg to a roughly spheroidal with an average largest dimension of approximately 0.9 mm.

A large percentage (90 percent or greater) of the taggants are completely consumed in a detonation (see Section 3.3.3). For those that survive, the polyethylene coating is completely absent; the average taggant size is reduced due to fracture by about one-third in the greatest dimension, but in general, the thickness is unchanged and all layers are intact. Properly trained and equipped investigators, making use of the magnetic and fluorescent characteristics of the taggants, can usually recover at least a portion of those taggants that survive detonation. These can then be visually decoded quickly using a microscope (~100x) with adequate illumination.

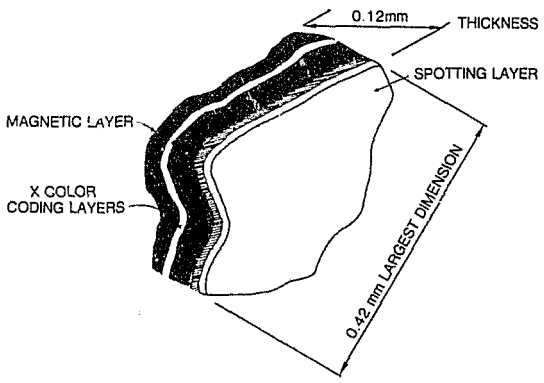

Figure 3-1. 3M Company Identification Taggant Particle

27-428 O - 78 - 71

3.2.1.2 Status

Two quantities of taggants were purchased from the 3M Company. The first was a 40-pound order in 20 code configurations, 2 pounds each, for preliminary analysis and testing by Aerospace and selected explosives manufacturers. This material was produced by the 3M Company on a "special run" basis, with minimal documentation and procedural control. The second purchase was for 2500 pounds in 306 code configurations for use in the first portion of the pilot test (see Section 3.4 for a more complete discussion of the pilot test). The manufacture of this second quantity of taggants was intended to duplicate as nearly as possible the actual production conditions that would be in effect when Nationwide tagging for identificaton becomes a reality. The purchase was based on a complete Statement of Work which included the production and acceptance of a proof set of taggants (referred to as the First Article) prior to the manufacture of the full 2500 pounds. A series of tests were defined, and a test program was satisfactorily conducted to verify the 3M Company's capability of providing a quality product, complying with requirements, and providing a taggant free of contamination. In addition, batch-by-batch acceptance tests were run throughout the production period. Taggants were packaged either in bulk (loose-pack) or in premeasured pouches, as requested by the participating explosives manufacturers, and shipped following authorization by Aerospace directly from the 3M Company to the explosives manufacturer. Of the 306 batches making up this 2500 pounds, only five required rework; four batches exhibited slight color variations; and a fifth batch was redone because of the 3M Company's own dissatisfaction with the results.

This 2500 pounds of taggant material is committed to the participants of the pilot test program and is sufficient to tag approximately 5 million pounds of packaged high explosives. Negotiations with the 3M Company to supply an additional 2500 pounds of taggants to be used in an extended pilot test for another 5 million pounds of explosives are in progress. The 3M Company quoted a price of $119,000 in July 1977 for the additional taggants. However, this has since been withdrawn in view of the 3M Company's experience with the initial contract resulting in a revised purchase price of $141,000. The 3M Company has been requested to expose their cost history for taggant production for review by Aerospace accountants. To date, they have refused to allow review by Aerospace of back-up materials justifying actual quoted prices, but are willing to submit to Government audit. Further negotiations and discussion regarding the 3M Company pricing structure are in progress.

There are a number of areas where taggant improvements are being investigated. One of these involves the elimination of certain color interfaces which are difficult to resolve visually, such as black/brown, red/brown, or red/violet. Those interfaces which present undue difficulty are being identified, and they will be eliminated within the constraints of total code vocabulary requirements. It is expected that most of the troublesome interfaces can be removed without excessive reduction of the 964,000 possible codes associated with a given spotting layer. The code vocabulary will be somewhat increased by allowing the black magnetic layer to be located elsewhere within the six coding layers, thus effectively making seven coding layers available.

In addition, the 3M Company and Aerospace are working to prepare a color standard (i.e., a color-brearing card) that can be used to identify correct spotting layer colors in the field and can provide an accurate, through-the-microscope color comparison to assist in the correct decoding of a candidate taggant recovered from a bomb scene. This color standard will be supplied to bombing investigation teams when it is available. The 3M Company is also conducting reseach into various methods of enhancing taggant detonation survivability and fire resistance.

3.2.2 The Westinghouse Taggant

3.2.2.1 Description

The Westinghouse taggant is made up of a homogeneous mixture of rare-earth-doped compounds. Each compound emits a characteristic radiation (fluorescence) when excited with 325 nanometers ultraviolet radiation, such as from a helium cadmium laser. The presence or absence of a characteristic fluorescence, and thus the presence or absence of a fluorescing compound, determines the code structure of the taggant particle.

The fluorescent coding compounds are bound together into a ceramic-like kernel containing a powdered iron material to permit magnetic pick-up, plus a material (the "spotter") which will fluoresce in visible light when illuminated with shortwave (254 nanometers) ultaviolet radiation. The visible fluorescence permits locating the taggants in most postblast scenarios. The entire particle is covered with a coating of polyethylene, sufficient to quadruple the weight. This coating also serves to minimize sensitization of explosives and explosive ingredients. The polyethylene further enhances the detonation survival characteristics of the taggants by minimizing absorption of the explosive materials and by providing an ablative coating to reduce shock wave input to the taggant kernel. The polyethylene is also coated with a graphite-based antistat for ease and safety in handling.

The rare-earth-doped compounds which are available, along with their emission peak wavelengths in nanometers for 325-nanometer excitation, are:

Strontium Chlorophosphate: Europium	447
Yttrium Vanadate: Thulium	476
Yttrium Phosphate: Cerium, Terbium	546
Yttrium Vanadate: Erbium	555
Yttrium Vanadate: Dysprosium	575
Yttrium Vanadate: Samarium	608-648
Yttrium Vanadate: Europium	618
Yttrium Oxysulfide: Europium	626
Strontium Fluoroborate: Europium, Samarium	687
Strontium Fluoroborate: Europium	375

Codes are not dependent upon emission peak intensities (or relative intensities) which could be varied by the concentration of the rare earths. Although the concentration levels are not a code parameter, they must be sufficiently controlled to permit a clear decision on the presence or absence of each compound in the coding scheme.

With three available spotting phosphors, a single-particle coding capability of 3069 different configurations can be achieved. Additional coding rare earths have been considered. However, because of difficulties with availabilitly, cost, or interpreting the code (due to overlapping and masking spectra), only those listed earlier are deemed practical at present. Because of limitations in the total number of available codes, a two-particle tagging scheme must be used. The two particles would be differentiated by the color of the spotting phosphor. The use of two particles expands the code capacity of the Westinghouse taggants to 1,046,529 codes. However, the need to restrict the number of actual combinations of particles to reduce readout ambiguity will reduce the number of available codes to approximately 600,000.

The Westinghouse unencapusulated taggant particles have a specific gravity of approximately 3.4, are shaped like a grain of sand, and are about 0.2 mm in the largest dimension. After polyethylene encapsulation, the taggants are nearly spherical with an average diameter of 0.7 mm and have a specific gravity of about 1.0. In the postblast condition, due to fracture, they are, like the 3M Company taggants, without encapsulation and are smaller by a factor of between 2 and 10, depending on the blast environment.

One quantity of taggants--20 batches, 2 pounds each--was purchased for analysis by Aerospace and for preliminary testing by the explosives industry. Dynamite, in four different formulations, and slurry, in two formulations, were tagged and tested by

detonation. Analyses of the results of these tests are still proceeding but survival appears to be high (20 to 40 percent). See Section 3.3.3 for a further discussion of these tests.

3.2.2.2 Status

In early January 1977, Aerospace issued a Request For Proposal to Westinghouse for the purchase of 2450 pounds of taggants. Their response in February 1977 included some exceptions to our standard terms and conditions. The effect of these exceptions was to limit any potential risk of loss on the part of Westinghouse to a figure not to exceed the value of the subcontract (approximately $200,000). Their intent was to limit their risk for any reason, including their own acts such as negligence or willful misconduct. This limitation was such that, if a circumstance arose wherein an innocent third party was wronged because of an act on the part of Westinghouse, that party would expect to collect from whomever agreed to permit Westinghouse to limit their liability.

In an effort to achieve an acceptable modification of this limitation of liability, Aerospace agreed to inspect all taggant batches shipped by Westinghouse and to certify in writing that they met contractual specifications. On this basis, Westinghouse agreed to raise their assumption of risk level to $1 million. Aerospace would be subject to any shortfall and has no valid reason to assume this risk. Although Westinghouse has increased their liability, their continued refusal to accept responsibility for their own actions is the crucial issue.

A contract for the purchase of the Westinghouse taggants could be issued if the Bureau of Alcohol, Tobacco and Firearms would indemnify Aerospace for the risk which Westinghouse wishes to avoid; however, it is unclear if any statutory provision exists which would permit the Bureau to assume that risk.

Westinghouse has been given every opportunity through telephone conversations, correspondence, and meetings which invovled their technical, contractual, and legal personnel, and even a vice presidential contact, over a period of several months, to reappraise and reassess their position. These extended negotiations have caused a delay, in manufacture and delivery of taggants necessary for the pilot test program, and the delay would have had an adverse impact on projected completion dates. Because of the above factors, ATF authorized Aerospace to terminate any further efforts to negotiate a subcontract with the Westinghouse Electric Corporation for production of its taggants for identification of explosives. Since that time, efforts in this area have been limited to

completing the taggant-decoding effort from earlier tests. This will permit, for the record, an accurate characterization of the Westinghouse taggants in a variety of explosive environments.

3.2.3 Magnetic Tagging by Curie Point Detection

3.2.3.1 Description

Curie point tagging was developed and patented by the General Electric Company for use in tagging bulk shipments of crude oil. The concept embodies the use of magnetic particles (ferrites) which possess fixed known Curie temperatures. The Curie point is the temperature at which ferromagnetic materials lose their magnetism and is easily detected as a drop in the magnetization of the sample. The Curie temperature itself is a physical property of the individual ferrite and is dependent only on the composition of the ferrite. Because ferrites are ceramic materials, they are quite stable at high temperatures and are not readily susceptible to heat damage. For use as a code, several ferrites would be mixed together with a binder and a spotting phosphor. Following polymer encapsulatoin, these formulated taggants would then be added to explosives as are other identificaton taggants. Figure 3-2 depicts the laboratory analysis of a particle containing five ferrites. Each of the step-like reductions in magnetization represents the Curie temperature of one of the constituents ferrites.

In order to analyze a taggant, as depicted in the graph, a particle containing several ferrites is heated and its magnetization is simultaneously measured; a sharp drop in magnetization is indicative of a Curie point. The Curie point transitions are a permanent molecular property of ferrite materials. After the Curie point transitions have been measured at elevated temperatures, the original transitions are reinstated by cooling the material to room temperature.

In general, the composition of ferrites is $MOFe_2O_3$, where M can be any divalent metal, such as manganese, zinc, nickel, etc. By manufacturing ferrites containing stoichiometric mixtures of divalent metals, thousands of ferrites can be formulated. Two examples of this type of ferrite are $Ni_{0.4}Zn_{0.6}Fe_2O_4$ and $Ni_{0.6}Zn_{0.4}Fe_2O_4$. The former has its Curie temperature at 190°C and the latter at 360°C. The analysis of the Curie point taggant can be accomplished by any sensitive magnetometer or by more elaborate means such as Mossbauer or electron spin resonance spectrometry.

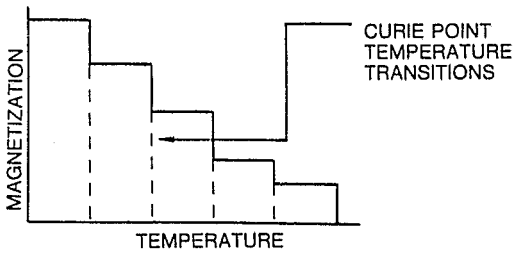

Figure 3-2. Analysis of a Five-Ferrite Particle

3.2.3.2 Status

At the present time, Aerospace has entered into an agreement with General Electric whereby General Electric will manufacture several different ferrites for testing, provide consultation and access to necessary instrumentation. Some of these ferrites have already been formulated into Westinghouse-like potassium silicate taggants containing a fluorescent marker to assist in retrieval. These taggants are being tested for retrievability and readability by placing them in explosives and analyzing the postdetonation residue. Simultaneously, NCR Corporation has utilized its company-developed techniques to encapsulate the taggants with several different types of wall materials. These coatings will be tested for compatibiilty with explosives and resistance to absorption of explosive oils and slurry liquids. An in-depth technical evaluation of Curie-temperature-measuring apparatus has been undertaken. This study indicated that a sensitive prototype portable instrument could be built for less than $10,000, and a production unit for about $3000.

The Curie point taggants have substantial potential. The ferrites themselves would cost only a few dollars per pound and could provide more than 2 million possible codes with only five used at any one time. The detection apparatus could be readily fabricated and be made portable.

3.2.4 Identification Tagging Environmental Assessment

An environmental assessment has been written in order to comply with the Environmental Protection Agency's regulations to evaluate the potential impact of explosive taggants on the environment. The assessment includes a synopsis of the background and development of the taggant particles and alternatives to their proposed use. It is agreed that the alternative of not implementing a Nationwide explosives tagging

program would severely handicap attempts to control the illegal use of explosives. An environmental assessment of the components of the identification taggants as formulated by the 3M Company and Westinghouse has been submitted to the Bureau of Alcohol, Tobacco and Firearms (see Appendix).

The environmental considerations include the physical environment and human environment. The physical environment considered includes air, water, and land. The materials which may be introduced into these environments from the tagging program are the potassium and zinc silicates, iron and its oxides, the rare earths, vanadium, polyethylene, silicon dioxide, and aluminum dioxide. Polyethylene is nonbiodegradable and is not considered an air pollutant. Upon burning, CO_2 and H_2O are disseminated into the atmosphere. Silocon is second only to oxygen in natural abundance, composing 25.8 percent of the known land, sea, air, and water. Iron consitutes a 5.12 percent of the lithosphere. The usual sources of the metal are magnetite (Fe_3O_4) and hematite (Fe_2O_3). Zinc silicate occurs in nature as the mineral willemite. Zinc exists in the lithosphere at 130 parts per million. The rare earths and vanadium exist in the lithosphere at an abundance of 160 and 150 parts per million, respectively. Vanadium will be added to the atmosphere at 0.16 parts per million based on 6×10^8 pounds of dynamite per year (assuming 2 tons of ore per pound of dynamite).

The diluent aluminum oxide would be added to the atmosphere at the rate of 2.2 parts per billion per year based on 6×10^8 pounds of dynamite per year. The pigments used by the 3M Company are in a thermoset state and are chemically inert.

Silicon dioxide (SiO_2), zinc silicate ($ZnSiO_4$), the yttrium vanadate phosphor ($YtVO_4$), the diluent (Al_2O_3), and magnetite are all insoluble in water and therefore are not considered as water pollutants. Varying concentrations of vanadium are found in sea water and drinking water in vanadium-rich areas. The di-, tri-, and pentoxide forms of vanadium are insolubie in water. The pigments in the 3M Company taggants are not miscible with water and are not water contaminants.

In considering the effects of taggants on land quality, soil is of prime interest due to nutrient uptake in plants. Regardless of their respective soil contents, neither the rare earths nor vanadium are metabolized directly from soil in measurable quantities.

Exposure in the human environment includes those involved in mining, processing, transportation, production, and the wounded survivors and victims in postdetonation

areas. Manufacturers of explosives and employee exposure have been analyzed. Reportedly, the working environments are well controlled and chances of employee exposure through direct contact is almost nonexistent and would be purely coincidental. Inhalation of the dust particles is minimized by adequate hood ventilation.

The potential introduction of taggants through salt mines has been studied. The various processes of salt purification would eliminate the explosive taggant. Magnetic procedures used for extracting the lead wires of explosives would also attract and remove the taggant particles. Rigid specifications applicable to consumer salt minimize the chances of taggants appearing in table salt. It is concluded that the explosives tagging program will not significantly affect the quality of human environment and an environmental impact statement on the project is not required.

3.3 IDENTIFICATION TAGGANT COMPATIBILITY

The following sections cover the areas of identification taggant compatibility with the explosives industry. It is a major requirement and responsibility of The Aerospace Corporation to conduct and document studies evaluating the hazard potential associated with the inclusion of new materials in explosive formulations. It was critical at the outset to resolve the issues of identification-tagged explosives transportability, permissibility certification, and compatibility with dynamites and slurries/water gels.

3.3.1 Transportability of Tagged Explosives

The Federal regulations governing transportation of explosives (Code of Federal Regulations, Title 49, Section 173.86) provide that a change in the formulation of an explosive mixture makes the material a "new explosive" which then must be requalified by extensive testing before it is approved for transportation. For commercial explosives, classification and approval for transportation are the prerogative of the Bureau of Explosives (a component of the Association of American Railroads), subject to the review of the Office of Hazardous Materials Operations, Materials Transportation Bureau, U.S. Department of Transportation. The addition of taggants to a standard explosive formulation was considered by the Bureau of Explosives and the Department of Transportation as a change in formulation, pending presentation of evidence that there are no significant differences in hazard characteristics relative to the previously approved explosive.

A letter was sent on 23 May 1977 from Aerospace to the Bureau of Explosives describing the taggants, summarizing and evaluating the compatibility data obtained in

prior programs and this one. Visits were also made to the Bureau of Explosives laboratory and to the Department of Transportation. As a result of the evidence presented, the Bureau of Explosives concluded (and the Department of Transportation concurred) that the addition of 0.05 percent to 0.1 percent of the 3M Company plastic laminate taggant or the Westinghouse taggant to explosives did not create explosives of essentially new composition or character. The tagged explosives may, therfore, be transported under the same regulations that govern transportation of the corresponding untagged explosives.

3.3.2 Explosive Permissibility Certification

To be approved for use in underground coal mines in the United States, explosives must pass certain tests prescribed by the Mining Enforcement and Safety Administration (MESA) and carried out by the Bureau of Mines. Explosives passing these tests are placed on the permissible list (i.e., they are considered to present no danger of initiating a secondary gas or dust explosion in the mine or of emitting hazardous fumes).

It is quite reasonable to expect that the insignificant amount of taggants added to a permissible explosive formulation will not affect its permissible character. To confirm this, tests are being scheduled at the Bureau of Mines facility at Bruceton, Pennsylvania. One hundred pounds of tagged (0.1 percent of 3M Company Type C polyethylene-coated) Atlas Coalite 8S dynamite and 100 pounds of untagged Coalite 8S for comparison have already been shipped to Bruceton. One hundred pounds of similarly tagged duPont Tovex 300 slurry/water gel and 100 pounds of that untagged formulation for comparison will be available there by the end of September 1977. This testing of representative types should result in a report from the Bureau of Mines to MESA recommending that any permissible explosives similarly tagged be still considered permissible. With MESA concurrence in that report, it should be possible to proceed with the pilot test program on permissible explosives.

3.3.3 Identification Taggant Compatibility Studies on Dynamites and Slurries/Water Gels

Prior to starting the pilot test program on the cap-sensitive packaged explosives which are produced in the largest quantity (i.e., dynamites and slurries/water gels), it was necessary to establish:

- Compatibility of the taggants with the explosives production processes and products;

- Extent of cross-contamination of taggants at the interface between differently tagged batches; and
- Survivability of the taggants when an explosive which contains them is detonated.

In order to determine whether taggant survivability would change during the shelf life of tagged explosives, it was also necessary to conduct aging (and accelerated aging) programs on the explosives prior to detenation. In studies begun under Bureau of Mines sponsorship:

- Aging was done by the manufacturers of the explosives;
- Detonation and residue recovery were performed in a cylindrical test chamber (4-feet diameter, 15-feet long) by Rollins and Associates, Rolla, Missouri; and
- Measurements of surviving taggant content were done by The Aerospace Corporation.

Explosives containing color-coded plastic laminate (3M Company) taggants and rare-earth-doped (Westinghouse) taggants were manufactured and detonated, but detailed survivability measurements have been made only on the 3M Company taggants so far. This was the case initially because readout of the 3M Company taggants requires much simpler apparatus. Lately, deletion of the Westinghouse Taggants from the pilot test program (because of failure to come to agreement on the question of liability) has resulted in assigning a lower priority to investigation of those taggants.

Independent Explosives Company manufactured two lots of permissible dynamite, one containing 0.1 percent of 3M Company taggants and one containing 0.1 percent of Westinghouse taggants. Atlas manufactured five lots of dynamite in all, each lot containing 0.1 percent of 3M Company taggants and 0.1 percent Westinghouse taggants. Differently coded taggants were used in each of these five lots. The five lots comprised two sequentially manufactured lots of gelatin dynamite and two sequentially manufactured lots of permissible dynamite followed by a nonpermissible ammonia dynamite. Hercules manufactured two sequential lots of slurry/water gel explosive, each containing 0.1 percent 3M Company taggants and 0.1 percent Westinghouse taggants, with differently coded taggants in each lot. One of the slurries was intended to be a permissible but has not yet been so certified. Atlas and Hercules each stored portions of their explosive lots at ambient and 110°F temperatures fo up to 4 months.

Detonations at Rolla, Missouri, were originally initiated with one or two blasting caps, but the high weight of solid residue that was obtained following each detonation of an unconfined stick of explosive indicated that substantial amounts of material were being dissipated during the run-up-to-detonation state. This could lead to survivability ratios that are higher than those attainable in multiple-stick or initially confined detonations. Therefore, to ensure completeness of detonation, boosters were used in the subsequent initiation of tagged dynamites and slurries/water gels.

When a tagged Independent E permissible dynamite was initiated with an electric blasting cap plus a stick of untagged gelatin dynamite (bound end-to-end to the same-diameter tagged stick), 7 to 11 percent of the taggants added were recovered and identified. Tagged Atlas Power Primer, an energetic ammonia gelatin dynamite, initiated under the same conditions, never yielded more than 0.25 percent of identifiable taggants. When detonation of the tagged Atlas Power Primer was initiated with a single electric blasting cap (and no booster), 2.3-percent identifiable taggants were obtained.

When detonation of tagged Atlas 60% Extra, a nonpermissible ammonia dynamite, was initiated with a single cap and no booster, 13-percent identifiable taggants were obtained. The same dynamite initiated with a cap plus a stick of untagged gelatin dynamite gave to 7- or 8-percent identifiable taggants from explosives that had been aged one month at 110°F and 5 percent from explosives that had been aged 2 months at 110°F. Tagged Atlas Coalite 8S, a permissible dynamite, initiated with a cap plus a stick of untagged gelatin dynamite, gave 9- to 20-percent identifiable taggants after one month's aging at 110°F and 10 to 14 percent after 2 months' aging at 110°F.

The tagged dynamite data discussed above can be briefly summarized: (1) no significant effect on detonation survivability of taggants has been observed yet for aging of tagged dynamites; and (2) dynamites which are very energetic (e.g., as measured by detonation pressure) show low survival ratios for the 3M Company taggants. (Detonation pressures are 135, 50, and 34 Kbar, respectively, for Atlas Power Primer, Atlas 60% Extra, and Atlas Coalite 8S.)

Because questions were raised about the survivability of taggants in a larger-scale explosion, a test was conducted in which 25 pounds of taggant dynamite were detonated in a single shot. This test, performed at Atlas' Reynolds Plant near Tamaqua, Pennsylvania, used 5 pounds from each of the five tagged lots that had been manufactured

by Atlas, providing a mix of 10 pounds of Power Primer, 10 pounds of Coalite 8S, and 5 pounds of 60% Extra. The detonation resulted in a dust cloud that drifted away at an estimated altitude of 100 feet. No attempt was made to recover taggants quantitatively. Using a jerry-rigged, magnetic, mine-sweeper-like device, most of the taggant recovery came from the surface of the 2-feet-deep crater (in which the dynamite had been placed) and the surrounding area. Microscopic identification of the recovered taggant codes revealed that 2 percent came from one Power Primer lot and none from the other; 52 percent came from one Coalite lot and 22 percent from the other; and 24 percent from the 60% Extra lot. The data indicated that adequate survival of taggants occurs in large detonations, except for the very energetic explosives in which survival may be marginal. Other tests were carried out at Rolla involving large-scale or confined detonations. Five pipe-bomb tests were carried out, each with Atlas Power Primer and Coalite 8S. Each pipe bomb contained two 1¼- by 8-inch sticks. Identifiable taggants were recovered in each case. An open field shot with 10 pounds of Power Primer also produced recoverable taggants.

Data obtained to date on the Hercules slurry/water gel, GEL-POWER, provide information on the survivability of taggants in detonation and also on the extent of cross-contamination from taggants in the preceeding lot of explosives. Sustained detonation of the slurry required initiation by a PETRON booster (20 grams of PETN in aluminum casing) with a blasting cap in its well, plus an 8-inch-long stick of gelatin dynamite with a cap in it, taped alongside the 16-inch-long slurry sausage. In eight shots, taggant survivability ranged from 1 to 4 percent; cross-contamination in the surviving taggants ranged from 1 to 12 percent, and averaged 4 percent. Open field shots of 10 pounds of each of the Hercules slurries/water gels produced recoverable taggants in both cases.

3.4 PILOT TEST PROGRAM

3.4.1 Scope

The pilot test program encompasses the tagging of a significant quantity of explosives using both the color-coded (3M Company) and rare-earth (Westhinghouse) identification taggants.* It also includes tracing the distribution of the tagged explosives.

*Subsequent to the initiation of the pilot test activities, negotiations were terminated with the Westinghouse Electric Corporation for the acquisition of rare-earth taggants for use in the pilot test program. This termination was directed by the funding agency, the Bureau of Alcohol, Tobacco and Firearms, and resulted from an impasse in negotiations over the division of tort liabiilty between Aerospace and Westinghouse (see Section 3.2.2).

The program will provide the data necessary for reasonable extrapolation to a program of National proportions. Approximately 10 million pounds of various types and grades of cap-sensitive dynamites and slurries out of an annual production of approximately 600 million pounds will be tagged, which is considered to be a large enough quantity to satisfy this goal.

The efforts described here provide for the manufacture and purchase of the taggant particles, their introduction into manufactured explosives, the subsequent entrance of the tagged explosives into the distribution chain down through the users of the tagged explosives, detonation of selected tagged explosives in mines, quarries, and other representative scenarios (including simulated clandestine bombings), collection and analysis of the debris resulting from the detonations, and analysis and tracing of the recovered taggants.

This will involve participation in the program by selected taggant manufacturers, explosives manufacturers, and distributors and users of explosives. Cooperation will also be required from Federal agencies such as the Bureau of Alcohol, Tobacco and Firearms, the Federal Bureau of Investigation, and the Bureau of Mines, as well as from local law enforcement agencies. This activity will be monitored and coordinated by The Aerospace Corporation under contract to the Bureau of Alcohol, Tobacco and Firearms of the U.S. Department of the Treasury.

3.4.2 Status

The Nationwide identification tagging pilot test program will provide data and experience in the areas of:

- Large-scale production of the 3M Company taggant;
- Control and dispensing of taggant materials by participating explosives manufacturers on a production basis; and
- Recordkeeping methods appropriate to ensure traceability of tagged materials.

The pilot test program will be performed in two steps, each step resulting in the production of 5 million pounds of tagged explosives. This approach has been necessitated by the elimination of Westinghouse as a source of pilot test taggants, but it will provide the advantage of permitting refinements and adjustments to the various methods selected by the test participants.

The participation of each of the nine manufacturers of commercial, packaged, cap-sensitive explosives has been solicited. Various levels of commitment have been established with seven of these nine companies. The overall status of activities with each manufacturer is summarized in Table 3-1, and a detailed discussion is contained in the following paragraphs. The pilot test schedule is shown in Figure 3-3.

The pilot test will provide answers to the following questions:

- What is a workable level for explosives tagging from the viewpoint of the explosives manufacture and the law enforcement community?
- What methods of taggant packaging and dispensing are useful and provide adequate controls?
- What methods of recordkeeping are useful and complete--both at the manufacturer's facility and at the distributor/user points?
- To what extent is there batch-to-batch contamination for the varoius manufacturers? Is rework a problem?
- How well do the 3M Company taggants survive in various explosives products?
- What are the actual costs to be incurred in implementing a Nationwide tagging program?

3.4.3 Pilot Test Activities--duPont

The duPont Company will produce approximately 1 million pounds of tagged slurry/water gel at their Martinsburg, West Virginia, plant. Approximately one-sixth of this amount will be classed as permissible. Some preliminary testing has been performed by duPont in taggant compatibility with their materials and processes and more detailed tests are in process. Present results do not indicate any problems.

One hundred pounds of tagged permissible slurry, plus 100 pounds of untagged control material, have been manufactured by duPont and provided to the Bureau of Mines' testing facility at Bruceton, Pennsylvania. This material will be used to verify that a slurry which is formally tested and accepted as a permissible can still be so accepted with the addition of 3M Company taggants at the 0.05-percent concentration level.

Detailed methods and procedures for performing the tagging have been roughed out by the duPont personnel to be involved. The proposed recordkeeping methods have been described, and the cooperation of a number of their distributors and users is being

Table 3-1. Pilot Test Program Status Summary

Manufacturer	Explosives Type	Procurement Status	Total Amount of Explosives to Manufacture (pounds)	Subcontract Cost or Estimate
duPont	Slurry	Quote received; purchase order in preparation; taggants shipped	1,000,000	$11,700 actual
Atlas	Dynamite	Tagging nearly complete; report to be submitted	1,000,000	$7,250 actual
Hercules	(a) Slurry (b) Dynamite	Preliminary quote received	(a) 300,000 (b) 1,000,000	$25,000 estimate
Independent	Dynamite	Purchase order issued and taggants shipped	460,000	$8,050 actual
IRECO	Slurry	Has not yet submitted a quote	400,000	$14,000 estimate
Gulf	Slurry	Has not yet submitted a quote	300,000	$10,000 estimate
Trojan	Dynamite	Negotiations in preliminary stages	460,000	$10,000 estimate
Apache	N/A	Will not participate in test	N/A	N/A
Austin	N/A	Will not participate in test	N/A	N/A

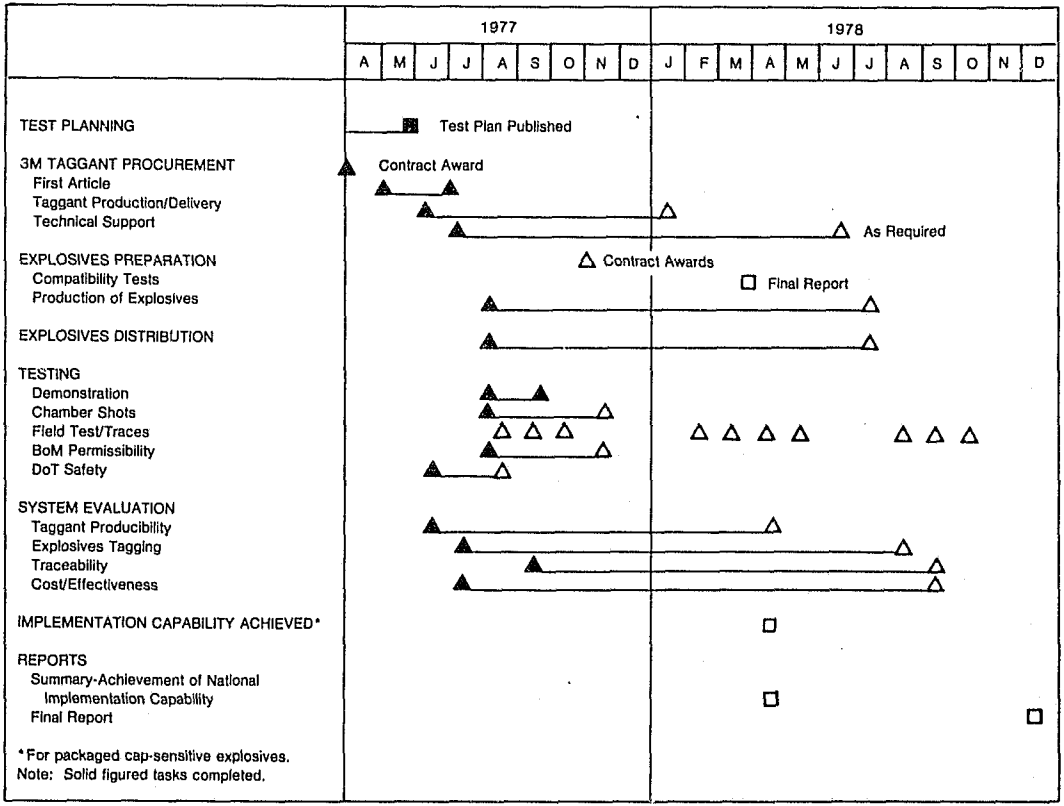

Figure 3-3. Pilot Test Program Schedule

sought. A firm quote of $11,700 has been submitted to cover all costs involved, and 505 pounds of taggants in 101 code configurations have been shipped from the 3M Company to Martinsburg. Testing should be completed and tagging initiated in late January 1978.

3.4.4 Pilot Test Activities--Hercules

The initial Hercules activity will involve the quantitative analysis of the possible hazards involved in modifying procedures and/or equipment to accomplish the tagging and the analysis of the compatibility of the taggants with the materials involved. This effort will be done quite formally by an experienced hazards analysis team at the Allegheny Ballistics Laboratory in Cumberland, Maryland. The results of this analysis will be broad enough to be meaningful across the industry.

Hercules will tag 1 million pounds of dynamite, 95 percent of it nonpermissible, at their Carthage, Missouri, plant. In addition, 300,000 pounds of nonpermissible slurry will be tagged at Bessemer, Alabama.

3.4.5 Pilot Test Activities--Atlas

Atlas has completed the tagging of 500,000 pounds of nonpermissible dynamite at their Joplin, Missouri, plant, and 400,000 pounds at their Tamaqua, Pennsylvania, facility. Still to be tagged are 60,000 pounds of permissible dynamite at Tamaqua. The tagged material has been distributed throughout the country from Oregon to Florida, with heavy concentrations in the Midwest and Atlantic mining regions.

The Atlas Tamaqua plant has produced, separately, 100 pounds of tagged permissible and 100 pounds of untagged control for permissibility testing by the Bureau of Mines. As in the case of the duPont permissible slurry, the acceptance of this tagged dynamite as a legitimate permissible will indicate continued permissibility after tagging of all other previously qualified permissible dynamites.

Atlas is preparing a final report summarizing their experience and recommendations. They are prepared to support tracing activities and to make tagged material available to law enforcement personnel at various locations throughout the country.

3.4.6 Pilot Test Activities--Independent

The Independent Explosives Company of Pennsylvania is prepared to tag 460,000 pounds of dynamite, approximately 75-percent permissible, at their Scranton, Pennsylvania, facility. Before this can be done, the Bureau of Mines must provide certification of Independent's tagged permissible line based on the tests of Atlas material as discussed in Section 3.4.5.

Taggants have been shipped from the 3M Company to Scranton, and the tagging of the nonpermissible material (about 120,000 pounds) can begin at once.

3.4.7 Pilot Test Activities--IRECO

The IRECO Chemicals Company has agreed to participate in the pilot test program, and a firm description of tasks and mutual responsibilities has been negotiated with them. They anticipate the need for some minor equipment modifications which are presently being defined. They have agreed to tag approximately 400,000 pounds of slurry at their West Jordan, Utah, facility. To date, no firm quote or signed agreement has been received.

3.4.8 Pilot Test Activities--Gulf

Approximately 300,000 pounds of tagged slurry are to be produced by Gulf at their McLeansville, North Carolina, plant. Discussions have been held with production personnel and a working agreement has been produced. A formal Request For Quote was submitted to Gulf and they have indicated their response is in preparation.

3.4.9 Pilot Test Activities--Trojan

Trojan has recently completed testing of the 3M Company taggants for compatibiilty with the materials and processes in use at their Wolf Lake, Illinois, plant. The test results have been sufficiently satisfactory to prompt them to tentatively support the pilot test program in the amount of 980,000 pounds. Discussions will be scheduled with their production and management personnel. No firm commitment from Trojan has been given.

3.5 IDENTIFICATION TAGGANT FEASIBILITY STUDIES

The pilot test program (Section 3.4) focuses on the tagging of dynamites and slurries/water gels. However, there are additional categories of explosives which pose a significant threat for potential illegal uses. This section documents the status of feasibility studies to effect an identification taggant system on other major categories of explosives which are packaged and cap-sensitive or which are often used in pipe bombs.

3.5.1 Smokeless Powders

3.5.1.1 Description

Pipe bombs filled with smokeless powder are often used by criminal bombers, presumably because of the ready availability of smokeless powder. The powder granules are initiated to a rapid deflagration, which results in a pressure burst, scattering lethal

metal fragments and flaming propellant. (Detonation of smokeless powder is also possible.) The pressure drop incident to bursting of the pipe quenches propellant combustion so that partially burned and unburned granules are often recoverable. Sieving material from the bomb scene allows investigators to recover powder grains very effectively. This can often lead to the manufacturer of the powder because there are only three in the United States: duPont, Hercules and Olin. The shape of Olin's ball powder is unique, and Hercules material can often be identified by locating colored granules (e.g., "red dot").

Investigators would like to be able to trace to the vendor of the powder. This would require, in addition to the development of a technologically feasible tagging method, legislation requiring recordkeeping and accountability for smokeless powder similar to that in existence for high explosives and black powder. The Gun Law of 1968, as amended, does not require identification of purchaser by lot number.

The smokeless powder chain is quite complex. Excluding from consideration sales to the Armed Forces or to commercial ammunition loading companies, and concentrating on smokeless powder sold in cannisters at retail for hand-loading, there is a total market of 4 to 4.5 million pounds per year. Hercules sells to 9 National distributors; Olin sells to 19; and duPont sells to 9. The distributors sell to hundreds of jobbers and compete with each other on this level. The jobbers sell to retailers. Hercules states that roughly half the time more than one distributor receives material from a given lot. Powder lots run from a few thousand to 20,000, 30,000, or 50,000 pounds, depending on manufacturer. At retail, cannisters may contain as little as one-half pound. A further complication is that the largest distributor repackages powder under its own brand name.

3.5.1.2 Status

The smokeless powder manufacturing process in general involves the production of master lots or sublots of varying ballistic properties. From these sublots in storage, blending of specified proportions is used to produce a final lot with desired ballistic properties and bulk density. Tagging must, therefore, be done during this final blending stage.

Two methods of taggant addition can be considered, either the addition of taggants as discrete particles or the incorporation of taggants into a propellant matrix. Because all propellant manufacturers include a stage in which extruded material is cut by rotating knives, incorporation of taggants into a propellant matrix would exclude use of

taggants containing abrasive particles, even if encapsulated (e.g., the Westinghouse taggants). Also, for incorporation of identification taggants into a propellant matrix, separate batches of propellant containing a high concentration of unique taggants would have to be made to be blended in with each final lot of propellant. This is likely to be more costly than addition of identification taggants as discrete particles. With either mode of addition, segregation of taggants may be a problem, and ballistic variations in cartridges and fouling or excessives wear of guns might result.

The propellant manufacturing process which appears to be most compatible with addition of currently available taggants is the Olin ball powder process. Olin propellants sold for hand-loading consist of discs or flattened spheres with an original average diameter of 0.37, 0.65, or 0.76 mm. The polyethylene-coated taggants are spheroids ranging from 0.43- to 1.2-mm diameter for Westinghouse, and 0.18- to 1.0-mm diameter for the 3M Company (which also exists in flatter shapes). The Hercules and duPont powders range from discs to cylinders, and many are perforated for burning-rate control. It seems advisable therefore to first establish the feasibility of discrete particle tagging with Olin propellants. If it proves to be infeasible there, it will not work with the other manufacturers' products.

Therefore, a Statement of Work has been prepared for a subcontract with Olin on evaluating the technological feasibiilty of postexplosion identification of smokeless powder lots. The questions to be answered by this proposed investigation are:

- Can identification taggants be added in the final blending process of a lot of propellant so that the desired tagging concentration (0.05 to 0.1 percent) appears in each powder cannister?
- What cross-contamination of taggants will result when successive lots of propellant are tagged with different taggant lots? How will this cross-contamination vary within the lot?
- What are the effects of taggants on ballistic variation in cartridges, on fouling guns, and on wear of guns?
- To what extent will taggants segregate in the propellant cannisters during normal storage and handling?
- Following pipe-bomb explosions of tagged propellant, what will be the recoverability of taggants?

- What would be the increase in manufacturing cost of propellant attributable to addition of taggants on a regular basis?

Olin's review of the proposed Statement of Work was slow; consequently, the final Request for Proposal was not sent to them until September 1977. In the interim, the Westinghouse taggant was deleted from the Request for Proposal and, in its place, an alternative taggant was specified. The alternative taggant is likely to be depending on progress of development, an encapsulated detection taggant.

Meanwhile, a contract has been negotiated with Hercules to provide for testing (scheduled for October 1977) of hand-mixed tagged smokeless powder and black powder pipe bombs. Four different modes of initiation of explosion are to be used: blasting cap, squib, safety fuse, and external burning fuse. Both the 3M Company and Westinghouse taggants will be used. Using the Westinghouse taggants in the test involves no additional cost, and the recoverability data may be useful in ferrite taggant development (see Section 3.2.3).

If the results of the experiments carried out under the subcontracts indicate the technological feasibility of identification tagging, it may then be necessary to do further work on taggant development in order to prevent defeat of ID tagging by hand-pick removal of the taggants. For example, magnet-sensitive additives may have to be removed because a magnet might be able to separate taggants from smokeless or black powder easily. Also, the shape of the taggants would have to be modified to make them more difficult to distiguish from the powder grains. Even with these modifications, a knowledgeable criminal equipped with a suitable ultraviolet source might be able to locate the taggants in the powder by their phosphorescence and remove them by hand-picking. However, since a chief attraction of smokeless powder to the bomber is its ready accessibility (with anonymity), introducing complications into its illegal use and required recordkeeping may serve as a deterrent.

3.5.2 Black Powder

3.5.2.1 Description

Black powder has a much smaller market than smokeless powder. It is more easily ignited to rapid deflagration than is smokeless powder, although smokeless powder is capable of higher energy release. Black powder is also used in pipe bombs in the same manner as smokeless powder.

Because the Federal law relating to explosives (18 U.S.C., Chapter 40, as amended by Public Law 93-639, 4 January 1975) exempts from control "commercially manufactured black powder in quantities not to exceed 50 pounds . . . intended to be used solely for sporting, recreational or cultural purpose in antinque firearms . . . or devices," black powder becomes readily available in a manner similar to smokeless powder. There is a substantial and growing market for black powder in antique and replica firearms. Other substantial markets are manufacturers of display fireworks, safety fuses, and military devices.

There is only one manufacturer of black powder in the United States--GOEX, Inc., a subsidiary of Gearhart-Owen. The manufacturer sells in truckload quantities to the Departmnet of Defense, to 2 exporters, to 7 large commercial users, and to 12 master distributors. The master distributors resell sporting and blasting powders to hundreds of jobbers, retailers, and fireworks manufacturers.

There is also a black powder substitute (or modified black powder) called Pyrodex, which has recently gone into large-scale production. It has received an advantageous transportation hazard classification as compared to black powder. However, earlier this year the entire facilities of the company (in Washington State) were leveled by an explosion. The Pyrodex Corporation is now building a manufacturing plant in Kansas and expects that initial production (beginning about January 1978) will go to the domestic sporting arms market.

3.5.2.2 Status

In the manufacturing process for black powder, potassium (or sodium) nitrate and premixed, pulverized sulfur and charcoal are combined with a little water in a wheel mill. This is followed by hydraulic pressing, chipping, grinding into fine grains, screen-sorting into size ranges, glazing with graphite (not all powder is glazed), and drying. A final screening (sifting to ensure uniform sizing, packing, and storing completes the process. Each batch has a unique date/shift code affixed.

Batch-identifying taggants can be added only at the glazing mill because that is the first place at which a batch exists. The encapsulated Westinghouse taggants are too large; they would be screened out of sporting powders during manufacture. Cross-contamination will result from taggants being screened out at the sifter along with black powder. The powder which is screened out goes back to the wheel mill; cross-contamination of 10 percent is estimated. A more serious problem is that the great shearing

stresses applied in the wheel mill may be expected to rupture the taggants or strip the polyethylene coating from them. It was therefore important to measure the compatibility (impact and friction sensitivity) of encapsulated 3M Company taggants with a very fine black powder dust; Aerospace has arranged to have this done by the Bureau of Mines. The results indicate that the unencapsulated Type A 3M Company taggants do not sensitize black powder.

Following these compatibility tests and a subsequent discussion with GOEX, Inc., a proposed Statement of Work was prepared for a subcontract to examine the feasibility of adding unique coded taggants in the black powder manufacturing process. Because of the solid by-products normally resulting from use of black powder, fouling or excessive wear of firearms by added taggants is not considersed to be a likely problem. However, recognizing the concern of users of sporting black powders, the proposed Statement of Work includes provisions for testing of ballistic variation in cartridges and of fouling and wear in guns. The proposed Statement of Work was sent to GOEX, Inc., on 23 August 1977 for review. A reply is awaited. Tests of tagged black powder pipe bombs are already scheduled at Hercules, as indicated above.

Sporting black powders are used in antique and replica muzzle-loading weapons and are made in various granulations. Sporting powder is packed in 1-pound cans and in 25-pound kegs. It is also packed for export in 10-pound denim bags. A single date/shift code goes from the plant directly to an average of 1.2 locations.

A cost analysis shows that the present date/shift code recordkeeping adds 0.4 cent per pound to the cost of black powder. The anticipated cost involved in adding taggants is 1.5 cents per pound of black powder, exclusive of the cost of taggants and associated waste. Cleanup of the glazing mill and packing house each shift to minimize cross-contamination would add some cost to the operation. However, if normal processing cross-contamination is acceptable, there should be no black powder waste or clean-up costs due to tagging.

3.5.3 Blasting Caps

Initiation of explosives to detonation requires a blasting cap except in unusual circumstances. The criminal bomber customarily uses a blasting cap except for the cases where a fuse, squib, or improvised system is used to ignite smokeless powder, black powder, and similar pipe bombs. Consequently, there are strong arguments for tagging

blasting caps. There are, however, major difficulties involved in any attempt to tag the sensitive explosives in blasting caps or to modify the cap design to accommodate taggants.

Because each manufacturer uses or will use melt-extruded polyethylene or nylon for the insulating coating of nearly all blasting cap leg wires, the concept of tagging the leg wires by the addition of taggants to the molten insulation was investigated. Discussions with the manufacturers and inspection of blasting cap production processes led to the conclusion that this was not a feasible means of identification tagging of blasting caps for the following reasons:

- Multiple, large (e.g., 500 pounds) spools of insulated wire feed into automated cap production lines. Correlating production of specific spools with a specific group of caps for shipment would add considerable cost and complexity in the manufature.
- The plastic insulation is heated as high as 500°F to 520°F before extrusion. Survivability of melamine-formaldehyde laminates at this temperature is doubtful.
- Before the extrusion die, the plastic melt goes through a screen pack which would remove even the 140 to 200 mesh superfine 3M Company particles (and the full code is retained in only about 20 percent of particles that small).
- The wall thickness of the insulation is generally 10 to 12 mils and can go as low as 8 mils (0.2 mm). The standard 3M Company unencapsulated taggants are 0.12-mm thick and have an average largest dimension of 0.42 mm. Even if the largest dimension could be reduced, the particles of this thickness would almost certainly affect the dielectric properties of the insulation.

A more promising approach to be investigated is the addition of taggants to the adhesive of a label to be externally applied to caps. (The label approach is discussed further in Section 4.2.)

3.5.4 Emulsions

Atlas has made packaged NCN emulsions since 1970, but packaged cap-sensitive emulsions (in 1-inch and larger diameters) only since January 1977. This product consists of a mayonnaise-like emulsion of water, inorganic oxidizers, oil and wax (and sometimes granular aluminum) as fuels, and glass microballoons for sensitization. The cap-sensitive product is packaged much like dynamite, and substantial production can be anticipated.

CONTINUED

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Therefore, an investigation of the feasibility of tagging emulsion explosives is underway. Atlas has manufactured two consecutive 300-pound lots of tagged emulsion explosives by their continuous process in their pilot plant. Each lot was tagged with 0.05 percent each of unique 3M Company and Westinghouse codes. (The Westinghouse taggants were used to provide information relevant to the Curie point magnetic taggants now under development and did not affect the cost of the procurement from Atlas.) Packaging was in 1¼- by 8-inch convoluted paper shells. Atlas is to perform sensitivity and output tests on the tagged and identical untagged emulsion explosives to ascertain whether tagging affects performance; this will include the comparative performance of aged explosives. Portions of each lot are being shipped to Rollins and Associates at Rolla, Missouri, where tests of survivability of the taggants during detonation of the explosives will be carried out. Uniformity of taggant distribution and degree of lot-to-lot cross-contamination will also be measured. The polyethylene coating of the taggants is expected to be softened, and possibily completely dissolved, by the oil of the emulsion; this may adversely affect taggant survivabilitly.

3.5.5 Detonation Cord and Safety Fuse

Contacts have been made with the three United States manufacturers of detonation cord and safety fuse. Austin Powder, Apache Powder, and Ensign-Bickford are the only domestic manufacturers of detonation cord, while Apache Powder and Ensign-Bickford are the sole United States producers of safety fuse.

It is estimated by an industry spokesperson that 500 million feet of detonation cord are produced annually in this country, some of this for export. The explosive generally used is PETN, but some RDX is also used. Typical loadings range between 20 and 50 grains per foot. On the average, detonation cord contains about 5 pounds of PETN per 1000 feet and has a detonation velocity of about 5 miles per second.

Some safety fuse, manufactured by the Canadian firm CIL, is imported but it is believed that the quantity is small. The domestic manufacturers produce about 100 million feet of safety fuse annually. The safety fuse has a burning rate of about 1 foot per 40 seconds and is packed with only 3 pounds of black powder per 1000 feet.

The above mentioned domestic manufacturers have declined to allow Aerospace personnel into their production facilities. Apache Powder initially invited Aerospace to their facility at Benson, Arizona, but revoked the invitation stating that they needed the

concurrence of the attorney for the Institute of Makers of Explosives (IME). The IME was sent a detailed list of questions about detonation cord and safety fuse manufacturing processes in July 1977. Aerospace has yet to receive response. The evaluation of the possibility of tagging either of these materials will continue, but some industry assistance will necessarily have to be obtained.

3.5.6 Two-Component Explosives

Two-component explosives consist of dry and liquid components. The dry component is finely ground ammonium nitrate with glass microballoons and sometimes silica clay anticaking agents. The liquid component is nitromethane with other nitroalkanes. As long as the two components are kept apart, the product is safe to transport and store as a nonexplosive. When mixed, which is generally done at a job site, it becomes a cap-sensitive explosive. Mixing is very easily done by pouring the liquid component of a package into the powdered solid.

One product, Armed Kinepak Power Booster, has the liquid and solid components premixed in a 1-pound package, which is essentially a 2-3/4-inch-diameter by 5-inch-high polyethylene cylinder. It is sold as an "economical replacement for cast boosters." A dozen of these were prepared with 0.05 percent each of the 3M Company and Westinghouse taggants added to the solid component by hand-stirring. In tests of the tagged Armed Kinepak at Rolla, Missouri, the taggants were observed prior to detonation by shining ultraviolet light of the appropriate wavelength through the container wall. Following detonation, only one or two of the 3M Company taggants were recovered from each package. This low recovery is consistent with results for other energetic explosives, such as Atlas Power Primer gelatin dynamite (see Section 3.3.3) and cast boosters (see Section 3.5.7). Atlas reports a detonation pressure of 90 kbar for their two-component explosives.

3.5.7 Cast Boosters

Cast boosters are prepared by melting trinitrotoluene, adding more powerful explosive compounds such as PETN or RDX, and pouring the mixture into molds where it solidifies in the desired rigid shape. The shape generally includes an axial tunnel for detonating cord and a well for blasting cap insertion. Surplus military explosives are preferred for the ingredients because of low cost. Boosters are used for the initiation of noncap-sensitive blasting agents such as ANFO.

There are three manufacturers of industrial cast boosters in the United States: Trojan, Sierra Chemical, and GOEX, Inc. GOEX, Inc., is a recent entry in this field. Trace-X Chemical of East Camden, Arkansas, discontinued production this spring after experiencing manufacturing difficulties related to ingredient purity. Sierra Chemical had shown early interest in participating in tagging feasibility investigations but apparently has not yet been able to fit this into their schedule. Trojan prepared a laboratory-scale batch of 20, 1-pound Pentolite (PETN/TNT) boosters containing 53-percent PETN; 0.05 percent of the 3M Company taggants were added to the molten mix. Because the taggants were less dense than the molten explosive solution/suspension, they floated on top of the mix. Only by allowing the melt to cool until it was quite viscous could the taggants be dispersed in it. Normally, of course, the melt is poured while free-flowing.

Detonation tests at Rolla, Missouri, resulted in zero survivability of the taggants. If this type of taggant is to be used in boosters, a thicker shock-attenuating coating will be needed for survivability, and a denser coating or mechanical restraint will be needed to avoid floating.

3.6 CONCLUSIONS AND RECOMMENDATIONS

The current 3M Company taggants provide a sufficient number of codes for tagging all packaged cap-sensitive explosives production. They can be produced on a large scale with adequate quality and uniformity. These taggants appear to introduce no hazard into the explosive products or manufacturing processes and no degradation of performance. Taggant cross-contamination in manufacture does not seem to be a problem with dynamites or slurries/water gels; data on other types of explosives are not yet available. No effect of aging on taggant survivability is evident. Adequate recovery has been demonstrated of identification taggants from dynamites detonated under typical criminal use conditions (unconfined in or against houses or in cars; confined in pipe bombs).

Survivability ratios for the 3M Company taggants vary from low to zero with the explosives that can function as boosters (e.g., high-strength gelatin dynamites, two-component explosives, and cast boosters). Their incorporation into normal cast booster manufacture does not appear to be feasible. Increasing the amount of encapsulating material to further attenuate the detonation shock wave may be necessary to increase taggant survivability in high-detonation-velocity explosives. Incorporating densifiers into

the polyethylene encapsulant may be necessary for cast booster applications so that taggants do not float on the molten trinitrotoluene or Pentolite; this may also increase survivability.

Because of tort liability problems, evaluation of the Westinghouse taggants has essentially ceased, except for their use as simulants for other tagging systems. The need for an alternate identification tagging approach in order to avoid the cost escalation characteristic of sole-source suppliers had led to work on using the Curie point of ferrites as a tagging code. This has considerable potential and should be evaluated thoroughly.

The pilot test program on dynamites and slurries/water gels is well underway. The feasibility of identification tagging of other components in the detonation chain (fuse, detonating cord, primers, and blasting caps), other packaged cap-sensitive explosives (emulsions, two-component explosives, and cast boosters), and other materials which represent a substantial bombing threat (black and smokeless powders) should continue to be investigated. When feasibility is established, a pilot test program should be considered. Identification tagging of smokeless powders to assist forensic scientists analyzing gunshot residues should also be investigated; this will entail an approach considerably different from tagging for tracing of pipe bomb charges.

4. DETECTION TAGGING OF EXPLOSIVES

Detection of explosives is a high priority mission in the overall program for the control of the illegal use of explosives. The number and severity of bombing incidents, especially those at various airports and via mailed packages, are ample justification of the need for appropriate means of detecting such bombs. One particularly effective technique is the tagging of explosives or components with a material that can be detected by a trace vapor method. Following the study of the emission rates of vapors characteristic of explosives carried out by the Analytical Research Laboratories, Inc., it became abundantly clear that the bulk of explosives could not be successfully detected by their natural vapors. This was further confirmed by Stanford Research Institute which reported that a major volatile component of smokeless powder (diphenylamine) is ubiquitous in locations such as a post office sorting room. It is likely to be present in all locations where rubber belts, pulleys, and rollers are used since it is an antioxidant used in rubber products.

The lack of distinctive vapors from several major categories of explosives is cause for concern. All of the major manufacturers of packaged high explosives have introduced replacement for nitroglycerin/EGDN dynamites, such as slurries/water gels, emulsions, and two-component mixtures. Moreover, smokeless and black powders also lack distinctive vapors. Pipe bombs of these powders accounted for more than 50 percent of bombing incidents in 1976, as reported by the Federal Bureau of Investigation Bomb Center Data. These results reinforced the need and urgency to tag explosives to increase their detectability.

Results of earlier studies, reinforced with improvements in electron capture detection capability, have demonstrated the feasibility of vapor detection. Of crucial importance to this feasibility demonstration were the studies of sulfur hexafluoride tagging carried out by Brookhaven National Laboratories under Law Enforcement Assistance Administration sponsorship during 1975-1976. These studies demonstrated the possibility of tagging blasting caps using sulfur hexafluoride but, more importantly, demonstrated the general concept. Presently, the Federal Aviation Administration is supporting a continued feasibility investigation for sulfur hexafluoride; however, this particular vapor (and its necessary substrate, Teflon) has operational drawbacks which make the search for more suitable materials an important objective.

Through endorsemsent by the Interagency Advisory Committee of Explosives Tagging, and with ATF support, The Aerospace Corporation is tasked to study all viable

detection tagging concepts. Studies of polymer/taggant sorption phenomena, of microencapsulated liquids, and of sublimable salts have been initiated by the Brookhaven National Laboratories and Science Applications, Inc., The National Cash Register Company, and The Aerospace Corporation laboratories in El Segundo, California, respectively.

All of these evaluation efforts are operating under similar constraints. The net emission rate of the vapor taggant must be greater than 1 nanoliter per minute. This minimum emission rate is required to ensure an adequate level of detectability of the taggant with instrumentation sensitive to 0.1-part-per-billion concentration levels. The vapor taggant must also have a useful lifetime of 10 years. Therefore, techniques that offer the potential for long-term controlled emissions (such as plug closure vapor taggant sorption, room-termperature sublimation of a salt, or microencapsulated taggant diffusion) provide mechanisms with adjustable parameters balancing net emission rate and total quantity of material necessary for extended lifetime usefulness.

Blasting caps and smokeless powders have an indefinite shelf life; however, sales and stock rotation should cycle the product within a decade. Other vapor tagging selection criteria include: low toxicity, lack of any adverse environmental impact, low ambient background levels, molecular properties that lend themselves to instrumental detection (e.g., high electron affinity), and compatibility with present manufacturer's products and processes.

The Federal Aviation Administration is also sponsoring a study at Science Applications, Inc., focused on the heavy metal tagging of blasting cap shells to enhance their detection by x-ray fluorescence. This work is being followed carefully but is not reported on herein because definitive results have not yet been achieved.

4.1 VAPOR TAGGING OF BLASTING CAP PLUGS

Brookhaven National Laboratories has demonstrated the potential of detecting blasting caps by the addition of a distinctive and uniquely detectable vapor (sulfur hexafluoride) impregnated into a fluoroplastic (Teflon). The limitations of this previous method required investigation of alternate vapor taggants and polymeric substrate pairs.

Detection tagging efforts have focused on electric blasting caps because the available information indicated that the majority of clandestine devices are activated by such devices. There are three manufacturers of blasting caps in the United States: Atlas,

Hercules, and duPont. The total annual blasting cap commercial production is estimated to be 90 million caps. Approximately 70 million of these are electric blasting caps. The majority of clandestine devices have been thought to have electric blasting caps. Due to the controllability of activation mechanisms by motion, clock- or radio-remote-actuated switches, electric-actuated blasting caps represent a "common denominator" in the construction of the detonation chain of clandestine devices.

Electric blasting caps presently use polymeric closure materials such as Buna-N or Kraton elastomers. In order to ensure incorporation of a vapor taggant with a sufficient lifetime, the taggant must be solubilized within the elastomer to greater than 5 percent by weight. The subcontracted efforts at Science Applications, Inc., and Brookhaven National Laboratories are focused on finding a suitable pairing of vapor taggants with polymeric substrates subject to the criteria for taggant selection as outlined above.

4.1.1 Science Applications, Incorporated

Science Applications, Inc. (SAI), has been under subcontract since 17 April 1977 to conduct an evaluation of potential vapor taggant/polymer combinations for detection tagging of blasting caps. They have investigated the percent-mass-loading of vapor taggants in several polymeric substrates and measured the emission rate of the solubilized vapor taggant. To date, SAI has investigated 66 pairs of taggants and polymeric substrates.

Eleven vapor taggants have been considered to date. These include moderate-to-low molecular weight perfluoroaromatics, chlorofluorocycloalkanes, fluoronated aliphatic and cyclic ethers, fluoroketones, and fluoroesters. The most promising groups are the perfluorinated aromatics and chlorofluoroalkane analogs. Higher molecular weight homologs of these types of chemical vapor taggants will be investigated during the next few months. A total of six polymeric material pairings were simultaneously investigated. None of the presently used blasting cap manufacturers' closure materials (Buna-N or Kraton) possess adequate solubility and controlled taggants release properties. Other substrates such as a fluroelastomer (Viton V14) appear to have the desired physical properties.

The results to date indicate that an optimal pair, balancing required emission rate with required useful lifetime, has not been found. Trends show that higher molecular

weight, less volatile vapor taggants combined with various fluoroelastomers offer the most promise but result in a significant caveat: they may have a significantly lowered ability to escape packages and luggage compared to sulfur hexafluoride and other gases.

4.1.2 Brookhaven National Laboratories

Brookhaven National Laboratories is performing a similar material evaluation of potential taggant/polymer combinations for detection tagging of blasting caps. Under subcontract since 1 July 1977, Brookhaven efforts have focused on the perfluorinated linear and cyclic alkanes. A total of 8 potential vapor taggant pairings with 11 polymeric substrates have been investigated. The polymeric substrates considered to date include fluoreoelastomers, fluorochloroelastomers, fluoroplastics, and the present closure materials used by the blasting cap manufacturers (i.e., Buna-N and Kraton).

A total of 88 pairs have been investigated to date. As found by Science Applications, Inc., none of the present cap closure materials appear adequate to solubilize and release the adsorbed vapor taggant. Viton (a fluoroelastomer) combined with the perfluorocyclic alkanes appears to offer the most promise, with greater than 5-percent mass loadings and measured emission rates of 1 to 2 nanoliters per minute. Future investigations will include the evaluation of perfluorinated aromatics as potential vapor taggants (e.g., perfluorobenzene and perfluoronapthalene). Measurements of the long-term emission rates of all promising pairings is soon to be initiated.

4.2 MICROENCAPSULATION OF VAPOR TAGGANTS

The microencapsulation of molecular vapor taggants within a polymeric membrane provides a convenient mechanism to directly add detection taggants to a variety of explosives: blasting caps, gun powders, or bulk explosives. The thin membrane wall serves as a permeation source of the taggant as the encapsulated vapor diffuses through the membrane to the surface of the sphere.

The NCR Corporation holds many of the pioneering patents on the coacervation process leading to the microcapsule formation. The NCR aqueous system process involves emulsification and dispersion of a three-phase matrix: water, gelatin, and the raw material to be encapsulated. The raw material must be nonwater-soluble in order to use the gelatin system. The application of microencapsulation technology has led to numerous commercial products (i.e., pharmaceuticals, fertilizers, carbonless paper products, paints, flavors, scents, etc.). The NCR processes have the capability of encapsulating a large

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variety of gases, liquids, or solids. Typically, the microsphere capsule wall is a cross-linked gelatin, polyvinyl alcohol, or ethyl cellulose. Once a raw material is encapsulated, the membrane can be "post-treated" with formaldehyde or glutaraldehyde to prevent dissolution of the water-soluble gelatin and/or halogen gas (Br_2) treatment to reduce flammability. Other treatments can be done to obtain desired capsule performance characteristics.

The capsules can be selected to range from 10 to 500 micrometers in diameter. The raw material encapsulated within the membrane wall comprises 80 to 90 percent of the total capsule weight. Once the encapsulation is complete, the microsphere can be mixed with acrylic latex, gum arabic, or polyvinyl alcohol binders for application as a paint, coating, or paper stock coating.

NCR has provided to The Aerospace Corporation microencapsulated hexafluorobenzene using 100-percent formaldehyde post-treated gelatin as the wall membrane of a 400-micrometer-diameter particle. Gravimetric determinations have shown an emission rate ranging from 4 to 0.01 nanoliters per minute per milligram of microcapsule material.

The microencapsulation of vapor tags in explosive formulations is an attractive method of accomplishing predetonation detection of a potential clandestine device. This "micro-packaging" allows for the direct tagging of explosive materials during manufacturing processes. In addition to the NCR coacrevation concept of taggant microencapsulation, there are several other patented capsule forming techniques (i.e., spray drying, fluidized bed, chemical vapor deposition and mechanical method). The capsular wall chemical composition and structure can readily be adjusted to meet release performance criteria.

4.2.1 Black and Smokeless Powders - Microsphere Vapor Taggants

Microencapsulated liquids could be incorporated directly into the powder blends. Free-flowing microspheres are available in various diameters (10 to 500 micrometers). NCR has the technology to post-treat the vapor-taggant-containing capsules with graphite or carbon. This black coloration would help to mask the presence of the vapor taggant to the powder user. Some powder manufacturers have substantial residues of benzene or diethyl ether solvents in the finished product under normal manufacturing procedures. Selection of perfluorinated analogs of these solvents for inclusion as vapor taggants may

minimize chemical compatibility concerns. Assuming a pipe bomb would contain approximately 0.5 kg of powder, and because only 10.0 mg of microencapsulated vapor taggants would meet the emission and useful-lifetime criteria, the detection taggants need only be added to the powders at the 10-mg-per-pound, or 0.002 percent, level at minimum. However, a one-order-of-magnitude increase would add a margin of safety.

NCR has provided test samples of hexafluorobenzene encapsulated in 100-percent cross-linked gelatin. The Aerospace laboratory in El Segundo, California, is the process of measuring the net vapor emission rate of the hexafluorobenzene. These taggants will then be added at the 0.1-percent level to commercially available Olin ball smokeless powder. The powder will be added to a simulated pipe bomb of dimensions 3/4 by 8 inch, with a ¼-inch fuse hole. The net emission of the hexafluorobenzene from the simulated pipe bomb will then be measured.

4.2.2 Blasting Caps - Microsphere Vapor Taggants

There are potential methods for microencapsulated vapor taggant application to blasting caps. One method involves the detection-tagged microspheres incorporated on the surface of an adhesive-backed label. The adhesive and paper stock to which the microspheres are applied can be made nonremovable (i.e., similar to license plate stickers). The microspheres would adhere to the label surface via a polymer binder matrix of acrylic latex or gum arabic. These labels could then be applied to the cap shell following their deep-draw formation in manufacture or after the entire cap is assembled prior to final packaging. The label can also contain printing of the manufacturer's logo, the words "Dangerous -- Blasting Cap" (which is presently ink-printed on the exterior of the shells), or the cap delay period. The labels have the potential of serving a useful function to the blasting cap manufacturers and users as well as providing a measure of detectability.

Location of the vapor taggant absorbed into a polymer plug closure, as discussed in Section 4.1, is only applicable to those products using such plugs. However, there is also a significant portion of nonelectric caps not using polymeric closures. Annual production of blasting caps by Hercules, Atlas, and duPont is estimated to be 90 million. Of these approximately 70 million are electric blasting caps. The remaining nonelectric cap products use various modes of activation. For example, duPont manufactures an "MS connector" activated by a detonating cord which is entirely metal (shells are placed

together and crimped). Labels containing a microencapsulated vapor taggant are potentially applicable to the entire annual production of blasting caps regardless of the closure method or material.

Typically, the microspheres used in label stock are 10 to 20 micrometers mean diameter. There are approximately 200,000 capsules/inch^2 with a total capsule gross weight of 5 to 50 mg/inch^2. The raw material detection taggant liquid would comprise 60 to 90 percent of the total capsular weight. Blasting caps range in length from 2-1/8 inches to 5½ inches, with an external diameter of 9/32 inch. The labels should be one standard size (i.e., 1-inch width by 2-inch length). The 1-inch-width dimension would be wrapped around the shell of the cap with a labeling machine. The 2-inch length would cover the exterior of the cap. The total exposed surface would be approximately 1½ inch^2.

It is estimated that to provide a suitable measure of detectability, the net emission rate of the taggant must be greater than 1.0 nanogram/min. Over a 10-year useful lifetime, this extrapolates to a requirement of approximately 10.0 milligrams of taggant material required as a minimum. NCR has previously microencapsulated hexafluorobenzene for evaluation. Test results have shown that the emission rate is approximately 0.01 ml/min per milligram of taggant from free-flow microcapsules with a nominal diameter of 400 micrometers. However, additional experimental work is necessary to measure the net emission rate from the label surface once the microspheres are imbedded in a latex or gum arabic binder.

One other attractive aspect of the labeling vehicle of vapor detection taggant application is the notion of simultaneously incorporating identification taggants onto the adhesive side of the label (see Section 3.5.3). The labels could then be serialized and printed with the identification taggant code (or facsimile) for visual reading. The label could then serve a dual purpose of containing both detection vapor taggant microspheres on the surface and identification taggant particles in the adhesive, as well as manufacturer/user information such as delay period, manufacturer's logo, or precautionary measures.

4.2.3 Bulk Explosive Detection Tagging with Microencapsulated Vapor Taggants

Presently, the Bureau of Alcohol, Tobacco and Firearms program is emphasizing detection tagging of detonation-chain components (blasting caps). However, the

application of microencapsulated vapor taggants to the bulk explosives is also possible. The detection taggant microspheres (free-flowing) could be added to the mixing bowls in a manner similar to the methods used for identification taggant addition. This has the potential to allow the detection tagging of slurries/water gels, dynamites, and emulsion packaged high explosives. Alternatively, microspheres could be coated on the surfaces of all paper or plastic explosive wrappings presently used. Unfortunately, the microspheres would not survive casting temperatures of Pentolite boosters or primers.

Procurements are being drafted for NCR to cast several types of taggants containing microspheres into various binders. The binder, cross-linking agent, and particle diameter will be adjusted to effect the required 1 nanoliter/min emission rate.

4.3 SUBLIMABLE SALTS

Salts of weak acids and bases that sublime at room temperature present an attractive method of placing a stable emission source in explosives. Candidate salts, ammonium salt of carbamic acid or carbonic acid, have a sufficient sublimation vapor pressure. By fully or partially deuterating ammonia, a laser optical detection of deuterated ammonia gas is extremely sensitive. Other salts such as fluorinated amine salts or boron trifluoride salts will be investigated.

The Aerospace laboratory in El Segundo, California, has initiated experimental work (1 September 1977) to measure: (1) the deuterated isotope exchange rate of deuterated ammonia with atmospheric quantity of water vapor at 20 Torr; (2) the emission rate of ammonia, amine, or boron trifluoride salts; and (3) the addition of the optional salt to blasting caps.

Initial measurements of the deuterium/hydorgen exchange rates indicate that a vapor taggant relying on the presence of an N-D bond would rapidly equilibriate to N-H via proton exchange with water. Other salts of amines and boron trifluoride are presently under investigation.

4.4 ENVIRONMENTAL ASSESSMENT - DETECTION TAGGING

Analyses of fluorocarbon toxicity indicate that the addition and substitution of halogens has an effect on toxicity. The analogs used in providing toxicity information have not provided the necessary accuracy of toxicity. Brookhaven National Laboratories and Science Applications, Incorporated, have investigated to date a total of 19 potential vapor taggant molecules. The information below for six of them was available through the

National Institute of Occupational Safety and Health (NOISH) registry. Because of the required uniqueness of potential taggants, little information exists in the scientific literature regarding toxicity and environmental data. The preliminary information accumulated to date includes the following:

- Hexafluorobenzene (C_6F_6) -- Hexafluorobenzene has a narcotic effect on mice. Thirty-five to 40 mg/l of C_6F_6 produced relaxation and sleep. In concentrations of 80 to 90 mg/l, a deep anesthesia prevailed. A higher concentration of 95 to 110 mg/l severely depressed breathing which eventually ceased. Death was caused by paralysis of the respiratory system. The established LD_{50} is 95 to 100 mg/l resulting from exposure of the mice to toxic vapors for 2 hours.
- Perfluorodimethylcyclohexane (C_8F_{16}) -- The lowest published lethal concentration (LCLO) for inhalation toxicity is 110 ppm/14 hours. The LCLO for mouse inhalation is 500 ppm/14 hours.
- 2,2,3,3-Tetrachlorohexafluorobutane ($C_4F_6Cl_4$) -- This compound is expected to have a low order of acute toxicity; however, toxicity of its by-products of combustion are questionable.
- 2-Chloro-1,1,1,4,4,4-Hexafluorobutane -- This compound has a lowest published toxic concentration (TCLO) for human inhalation of 10 ppm/1 hour and for rat inhalation an LC_{50} of 3 ppm/6 hours. This material should be treated with caution due to its high order of acute toxicity.
- 1,2-Difluorotetrachloroethane -- This compound requires an inhalation dose of 15,000 ppm/4 hours in order to manifest toxic effects.
- 1,1-Difluoro-2,2-Dichloroethane -- This compound is not listed in the NIOSH registry and has been compared to its closest analogs--dichlorotetrafluoroethane and dichlorotrifluoroethane--the latter having a toxic dose of 14 to 15 percent by volume for 1 to 4 minutes.

The atmospheric fate of the potential candidate taggants will be assessed at that time when the atmospheric background concentration information is available and a more suitable candidate has been ascertained.

4.5 CONCLUSIONS AND RECOMMENDATIONS

The vapor taggant development effort underway at Brookhaven National Laboratories and at Science Applications, Incorporated, will in the next few months generate sufficient data to allow for an accurate determination of the viability of the vapor taggant/polymer substrate sorption process.

The microencapsulation of vapor taggants shows potential for detection tagging gun powders, blasting caps, and bulk explosive materials directly. Procurement with NCR to provide test samples for subsequent laboratory measurement of emission rates are in process.

Sublimable salts also offer the potential of a slow, controlled release of distinctive vapor taggant materials. Laboratory study of this concept has recently been initiated (i.e., September 1977).

The development of all the above techniques of vapor taggant addition to explosives presupposes the availability of a sensitive and selective detection apparatus for on-site implementation of screening procedures. Several techniques, such as modified electron capture detection (Brookhaven National Laboratories), plasma chromatography, atmospheric pressure ionization mass spectrometry, and gerbils have been identified as promising techniques. As the taggant selection and development process continues, detection capabilities must be closely assessed.

Because no highly promising vapor/substrate pair has emerged, a close scrutiny of the Science Applications, Incorporated, and Brookhaven National Laboratories studies is being made. The study of encapsulated liquids and sublimable salts should be pursued with all deliberate speed. Additional studies of means to include microcapsules in blasting cap plugs should be initiated, and more attention should be given to the tagging of nonelectric blasting caps.

Although of lower overall priority, some attention should be given to the problem of detection tagging of detonating cord and safety fuse, where the use of microcapsules may be the natural choice.

5. NONTAGGED DETECTION DEVELOPMENT

The detection tagging efforts outlined in Section 4 require taggant addition at manufacture. It is anticipated that the addition of a detection taggant will greatly reduce the severity of the explosives threat. However, certain categories of explosives are not amenable to detection tagging, such as military, homemade, and smuggled foreign explosives. An increasing proportion of the threat that will remain after detection tagging is implemented may be expected to comprise these explosives. Under the terms of a contract with the Law Enforcement Assistance Administration, Aerospace has evaluated a broad spectrum of techniques for the detection of untagged explosives. The most promising of these techniques have been selected for further investigation and development under Bureau of Alcohol, Tobacco and Firearms sponsorship and with the concurrence of the Technical Subcommittee to the Advisory Committee on Explosives Tagging. A small subcontract has been awarded to assess the feasibility of dual-energy tomography, sources have been selected, and subcontracts are presently being negotiated to investigate plasma chromatography and letter- and book-bomb detection by dielectric measurement techniques.

5.1 LETTER- AND BOOK-BOMB DETECTION BY DIELECTRIC MEASUREMENT TECHNIQUES

5.1.1 Description

Explosives have been empirically found to have somewhat higher dielectric constants than most of the materials commonly found in letters or report-size envelopes (flats). Explosives may also exhibit conductivities which have a characteristic dependence on frequency. These dielectric properties may be employed in conjuction with the weight, size, and metal content of an envelope to discriminate between letter- or book-bombs and innocent mail.

5.1.2 Status

A subcontract is currently being negotiated between Aerospace and the Georgetown University Physics Department to investigate dielectric letter- and book-bomb detecton techniques. The purposes of this contract are the following:

- Determine if the frequency dependence of the conductivity of explosives is indeed unique;
- If it is unique, determine if it provides a greater capability of detecting explosives than a capacitance-measuring technique (e.g., does it allow for the detection of bombs in packages);

- Determine the effectiveness of the capacitance-measuring technique against a broad spectrum of mail, using equipment previously developed using U.S. Postal Service funds; and
- Obtain design parameters for an optimal dielectric letter- and book-bomb detector.

5.1.3 Plans

The subcontract with Georgetown University should run through FY 78. The results of this subcontract should be definitive as far as the potential capabilites and limitations of this technique are concerned. No plans beyond this point have been made.

5.2 DUAL-ENERGY TOMOGRAPHY

5.2.1 Description

Computerized tomography is a rapidly evolving technology wherein cross-sectional radiodensity mappings of an object ("slices") are analytically reconstructed from sets of one-dimensional x-ray projections. To date, computerized tomography has found application exclusively in the medical field, with some 13 companies producing and marketing computerized tomographic scanners capable of imaging any slice through the human body.

The techniques embodied in medical computerized tomograpic scanners can also be employed to scan suitcases or packages to automatically detect concealed explosives based on the relatively high density and low atomic number of these materials. (Density and atomic number may be obtained by performing radiodensity mapping at two energies.) The vast majority of packaged high explosives, including slurries/water gels, have densities of between 0.95 and 1.6 g/cm^3, and typically have densities of approximately 1.2 g/cm^3. Military explosives and commercial plastic explosives typically have even higher densities: 1.5 g/cm^3 up to 1.85 g/cm^3. The effective atomic numbers of explosives are unknown and will have to be determined empirically.

A dual-energy computerized tomographic device configured specifically for explosives detection would consit of a conveyor belt to transport the suitcases or packages, a stationary x-ray source, a stationary array of radiation detectors, associated electronics, and dedicated minicomputer. Detection would be automatic, based on composition (rather than shape), although an image could be readily provided to an operator.

5.2.2 Status

A small, fixed-price contract has been awarded to the Georgetown University Medical School to perform dual-energy computerized tomographic scanning of a test box containing simulated explosives as well as typical suitcase contents (books, toiletries, etc.) using an existing research medical scanner. Data obtained in this manner will be of great use in assessing the capabilities of this approach, although the low energy of the medical unit (120 kVp maximum) makes it unsuited for taking measurements through densely packed suitcases. Preliminary scans taken of the test box at 75 and 120 kVp indicate that the simulated explosives (cast dinitrotoluene and an ammonium nitrate, sugar, and water slurry) can be readily identified. Computer simulation studies have also been initiated at Aerospace in El Segundo, California, to model the performance of a dedicated computerized tomographic explosives detector. These studies utilize a reconstruction algorithm previously developed at Aerospace and should provide the foundation for the software required for a practical system.

5.2.3 Plans

Preliminary studies should be completed during the second quarter of FY 78 and system requirements determined for breadboard detector. A competitive subcontract will be let for the construction of a breadboard detector capable of imaging a single plane through a large suitcase or package. Off-the-shelf hardware will be employed to the greatest extent possible and reconstruction will be performed by a nondedicated computer. Once constructed, this breadboard will be used to fully assess the capabilities of this technique, using a broad spectrum of actual explosives within ralistic packages and suitcases.

5.3 PLASMA CHROMATOGRAPHY

5.3.1 Description

If the vapor detection of explosives, either tagged or untagged, is to be realized, it will be necessary to obtain a detector with a detection threshold and selectivity suitable for the explosive-specific vapor species sought. Plasma chromatography is a technique identified as having a detection threshold and selectivity sufficient to justify further evaluation as a vapor detection device based on the differential mobility constants of specific ions.

5.3.2 Status

Several researchers have been active in advancing the state-of-the-art in plasma chromatography. Plasma chromatography has been demonstrated to be a technique with an outstanding detection threshold for the detection of trinitrotoluene vapors (1 part in 10^{12}). It has also been shown to have a potential for good selectivity. The plasma chromatograph has the advantages of operating at atmospheric pressures while being relatively simple and rugged. Therefore, it has the potential to be configured as a field instrument. Unfortunately, many questions remain to be answered concerning plasma chromatography before it may be deemed suitable for specific development as a detector of explosives or taggant vapors. These questions involve: (1) the response of the plasma chromatograph to explosives vapors other than trinitrotoluene; (2) the response of the plasma chromatograph to potential vapor taggants; (3) the response of the plasma chromatograph to identified background interferents at concentrations less than 1 part per billion (where the plasma chromatograph can still operate); and (4) the effect of background interferents on the detectability of explosives or taggant vapors.

5.3.3 Plans

Under direction from the Advisory Committee on Explosives Tagging, chaired by the Bureau of Alcohol, Tobacco and Firearms, Aerospace has drafted a Statement of Work and other necessary procurement materials to proceed with an evaluation study for the plasma chromatograph.

5.4 CONCLUSIONS

These techniques offer substantial promise for the detection of untagged explosive devices. The dual-energy tomography effort (experimental effort started 23 September 1977) has already produced distinct images with excellent resolution of a box containing explosives and other objects. The explosive dinitrotoluene and a simulated slurry were clearly discernible. These three techniques are not viewed as mutually exclusive, but rather as complementary depending on the operational scenario. The dielectric method, as presently viewed, is only suitable for letter or flat determination and is ideally suited for mailroom security. The dual-energy tomograph is excellent for package and baggage screening scenarios (i.e., transportation facilities). However, due to the requirement of the use of ionizing radiation (approximately 300 kVp rays), the screening of people is precluded. Plasma chromatography has the potential to perform controlled-access or large-area searches of packages or personnel via natural vapor or taggant vapor detection.

6. OTHER RECOMMENDED STUDIES

6.1 NONTAGGED, POSTDETONATION IDENTIFICATION OF EXPLOSIVES

Despite the present efforts in identification tagging of explosives, there are substantial categories of explosive materials for which identification taggant addition is anticipated to be difficualt (see Section 3.5) or impossible. Identification taggant addition to flake smokeless powders, high energy boosters or primers, military explosives, homemade explosives,* and those explosives in inventory prior to National implementation of the identification tagging concept represent broad categories of explosives for which conventional bomb debris analysis will be required for some time and, in some cases, indefinitely.

Present analytical method results, summarized by the Federal Bureau of Investigation National Bomb Center, reveal that in only 60 percent of the incidents is the type of explosive material used in a clandestine device known by laboratory analysis. Failure to identify the material responsible for the 29 December 1975 La Guardia Airport blast is a glaring example. The following section on enzyme, chromatographic, and powder matching methods development is designed to improve the forensic laboratory's successful analysis percentages.

6.1.1 Enzymes

6.1.1.1 Description

Enzymes are complex organic molecules that are capable of catalyzing highly specific biochemical reactions. By coupling an enzymatic reaction to a second, light-producing reaction, it is possible to detect extremely small amounts of the initial reactant materials. The high specificity and low threshold of detection of this technique thus make it a prime candidate for use in the postdetonation identification of explosives residue. Following standard procedures to extract explosives residue from debris and to separate the residue by thin-layer chromatography, an enzymatic technique could be employed to detect explosives on a thin-layer chromatographic plate that would otherwise be judged to be blank.

*An excellent example of the damage potential of homemade explosive devices is the fatal bombing at the Los Angeles International Airport by the widely publicized "Alphabet Bomber." The explosive charge consisted of properly initiated nitrobenzene as confirmed by the Los Angeles Police Department forensic laboratory analysis.

6.1.1.2 Status

The Microbics Division of Beckman Instruments, under contract to USAMERADCOM, has isolated and produced in quantity an enzyme called TNTase which reduces TNT, with the concommitant oxidation of a material known as NADH to NAD. The amount of NADH remaining after a fixed reaction time was determined by oxidizing the NADH in the presence of the luciferase enzyme, producing light. Using this technique and rather simple instrumentation, Beckman Microbics was able to demonstrate the detection of 10^{-14} mole of TNT. The ATO Division of Beckman, also under a Defense Department contract, has performed a rather extensive parametric analysis of the enzymatic detection process and has developed a breadboard detector which promises greater reproducibility and sensitivity than the system used by Microbics. However, quantitative tests with this breadboard have not been performed to date.

6.1.1.3 Plans

The use of enzymes as a means of identifying the explosives in debris collected from a bomb scene has significant merit; however, the number of questions remaining to be answered is extensive and the cost of the development is high. For these reasons additional development of this technique has not been given a high priority. Further work in Fiscal Year 1978 should be considered only if significant additional funding becomes available.

6.1.2 Chromatographic Methods - High Performance Liquid Chromatography

6.1.2.1 Description

Chromatographic separation of the molecular components of bomb-generated debris is necessary for the detection and identification of explosives residue. Recently, thin-layer chromatography has been extensively applied in the analysis of debris. However, thin-layer chromatographic methods are nonquantitative, possessing limited sensitivity and resolving power. High-performance liquid chromatography offers fast, quantitative analysis of nanogram quantities of materials and the ability to resolve components which are readily thermally decomposed (i.e., explosive molecules).

6.1.2.2 Status

Many investigators have applied high-performance liquid chromatography techniques for laboratory analysis of synthetic mixtures of explosives. To date, no

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attempts have been made to analyze bomb debris for residual explosives by this technique. Limited investigations of bulk explosives analysis have been demonstrated by the Bureau of Alcohol, Tobacco and Firearms, Cincinnati, Ohio, office on smokeless powders and the Federal Bureau of Investigation laboratory in Washington, D.C., on nitrate salts.

Two high-performance liquid chromatography detectors are appropriate for residue analysis. Ultraviolet photometry at low wavelength (200 nm) is particularly sensitive to organic nitrate esters, nitramine, and nitroaromatic explosives. High-performance liquid chromatography column resolution of these components from debris is required for distinctive analysis. The other detector type, a thermal energy analyzer developed by Thermo Electron Corporation, involves a specific chemiluminescence detection technique specific to explosives containing oxides of nitrogen-containing organic molecules (RONO, RNO_2, $RONO_2$, etc.).

6.1.2.3 Plans

The use of high-performance liquid chromatography is a very promising candidate for post-detonation explosives identification. An exploratory study on sample extraction and preparation for analysis, as well as chromatographic conditions, techniques, response limit and specificity is being planned.

6.1.3 Powder Matching

The concept of powder matching is that one can compare smokeless powder recovered from a pipe bomb explosion with smokeless powder in the possession of a suspect and, by comparing intimate details of the powder composition (e.g., the amount of each stabilizer decomposition product, degree of penetration of surface deterrent), provide conclusive evidence. The chief limitation of this concept is that the powder in a can represents a blend of many sublots manufactured at different times and varying in properties. Blending is done to achieve optimal ballistic properties. Therefore, comparing properties of a few recovered smokeless powder grains with powder in the suspect's possession may be fruitless. The first part of any investigation of the feasibility of this concept would have to be a study of the detailed composition of each of several randomly selected grains in powder cans from different lots to see if the variation within a blended lot is less than the variation between lots.

Although this technique is attractive in principle, there are many unknowns and any such development program would be long-term. It is not clear that a high priority should be placed on this effort. Such a decision could be made following the conclusion of the initial studies ofidentification tagging of smokeless powders

6.2 EXPLOSIVES DETECTION - TECHNIQUE DEVELOPMENT

A key aspect of the Aerospace contract with the Bureau of Alcohol, Tobacco and Firearms involves the tagged and nontagged detection of explosive devices. The following sections describe detection techniques which are potentially applicable for explosive detection. The atmospheric pressure ionization mass spectrometry (API/MS) method is a trace vapor detection device applicable to both explosive natural vapors as well as vapor taggants. The device has a high degree of specificity and has demonstrated outstanding lower limits of detection.

The harmonic and magnetic tagging concepts are targeted toward implementation by incorporation of miniaturized electronic components directly into the electric blasting caps as a detection tagging mechanism. Both of these detection tagging mechanisms are passive devices, actuated electromagnetically (i.e., by magnetic field or radio frequency).

6.2.1 Atmospheric Pressure Ionization/Mass Spectrometry (API/MS)

6.2.1.1 Description

Due to the variety of vapor tagging compounds under consideration, as well as natural explosive vapors available, a detection system with universal detection ability is most desirable. Mass spectrometry offers such versatility. The application of mass spectrometry for direct vapor sample analysis has evolved over several years of investigation. Typically, such systems contain a sample enrichment zone, sample ionization zone, and quadrupole mass filter. Initial efforts used electron impact ionization sources with silicon membranes for sample enrichment and vacuum barrier. Electron impact ionization leads to extensive sample molecule fragmentation and is unsuitable for explosives vapor analysis. Recent developments in atmospheric pressure ionization source design have allowed the direct observation of the molecular ions of trace components in vapor streams.

Atmospheric pressure ionization is an attractive method of ionizing labile sample molecules. Typically, the sample in a carrier gas stream at atmospheric pressure

is ionized by thermal electrons in the source region which are generated by a ^{63}Ni source. Due to the mild exothermicity of the reactions within the ionization source, assisted by the high pressure and collisional quenching of the generated ions, this source produces predominantly the pseudomolecular ion fragments M^+ or $M+H^+$ in the positive mode or M^- or $M-H^-$ in the negative mode. The application of API/MS for detection of picogram quantities of materials was pioneered by E.C. Horning of Baylor University and coworkers. However, utility of the technique for ambient air samples is hampered by reactant ion clusters such as $H_3O^+ (H_2O)_n$, $NH_4^+ (H_2O)_n$, $N_2^+ (H_2)_n$, where $1 \leq n \leq 28$. These cluster ions generate a background mass spectra which seriously interferes with desired sample molecule mass windows. However, B. French of Sciex, Limited, has found a method of declustering these adducts through ion optic potential adjustment. The result is near cancellation of all cluster ions.

6.2.1.2 Status

Sciex, Limited, of Canada has developed a system which overcomes the limitations of previous applications of mass spectrometry. The Sciex system realizes a combinaton of sensitivity and specificity for explosives-derived molecules which were previously unattainable. This commercially available instrument has demonstrated a threshold limit of detection for trinitrotoluene vapors of 1 part in 5×10^{-14} (S/N=3). Being a mass spectometer-based vapor detector system which observes either positive or negative molecular ions, this system provides a universal vapor detection capability for either explosive natural vapors or potential explosive vapor taggants.

Sciex, Limited, is presently under contract to the Defense Research Establishment, Vacartier (DREV), Canada, to deliver a Trace Atmospheric Gas Analysis (TAGA) 3000 system for vapor detecton of military and paramilitary explosives. The DREV instrument is to be delivered in March 1978 and will be jeep-mountable, require nontrained technician operation via computerization with alarm output, and demonstrate a sensitivity threshold for trinitrotoluene vapors of less than 1 part in 5×10^{-14} (S/N=3).

6.2.1.3 Plans

The API/MS system has potential application to commercial explosives detection or to respond to vapor detection taggants. However, critical information is lacking for a complete assessment of the instrument's potential for detection of commercial explosives, potential taggants, and possible interferents. The TAGA 3000 system has

demonstrated sensitivity to 1 part in 5×10^{-14} of trinitrotoluene and allows for specific detection of parent molecular ions by mass spectrometer assignment of m/e values. The instrument has the versatility of being able to specifically detect several trace vapor molecules simultaneously based on distinctive m/e values. A feasibility demonstration program awarded to Sciex, Limited, to answer some of the above questions and provide data is likely to be highly productive.

6.2.2 Detection of Explosives Vapors by the Olfactory Discrimination of the Mongolian Gerbil

6.2.2.1 Description

Mongolian gerbils (Meriones ungriculatus) possess extraordinary olfactory discriminaton abilities. This small rodent has been trained and demonstrated to respond to subparts-per-trillion quantities of explosives vapors.

6.2.2.2 Status

These animals have been trained and used to detect nonobvious or nonmetallic weapons that are used to hijack planes. Associated with stressful individuals is a manifestation of criminal intent as evidenced by the appearance of epinephrine (adrenalin) on the skin surface. The Mongolian gerbil has been demonstrated by Dr. G.B. Biederman (University of Toronto) as a reliable, socially acceptable, and accurate detector of stressed individuals. These animals have also been trained to identify dinitrotoluene, trinitrotoluene, C-4, ANFO, NOREX 207, CIL POWDERMEX 300, and double-base smokeless powders.

6.2.2.3 Plans

A procurement is planned with General Behavior Systems (Dr. Biederman) to: (1) determine sensitivity of gerbils for specific explosive vapors; (2) determine the cause of gerbil false alarm; (3) repeat Dr. Biederman's experiments to ensure validation of the results; and (4) determine the specific number of vapors for which a gerbil is trainable. The gerbil explosive detection system has potential in the scenario of passenger screening at airports or building entrance security.

6.2.3 Harmonic Radar Detection Tagging

6.2.3.1 Description

In a harmonic radar, the receiver is tuned to a second or third harmonic of the transmit frequency to eliminate reflected signals from all but the very limited class of

objects which produce a harmonic signature. In order for a blasting cap to provide a very strong second harmonic signal, a diode in series with a capacitor (to block dc current flow) must be connected between one of the wires and the cap shell. A unique harmonic signature may be produced by the inclusion of some type of encoder, such as an oscillator circuit. Signal strength would be unaffected by twisting the leg wires, but would be attenuated by doubling back the lead wires over the cap. The signal could be totally eliminated by careful RF shielding.

6.2.3.2 Status

The Mine Detection Division of USAMERADCOM has developed instrumentation designed to detect the third harmonic produced by imperfect metal-to-metal junctions in noncooperative targets. At the present time, a prototype system exists that is man-portable and helicopter-mountable. The extension of harmonic radars to cooperative tagging systems has already been made, as manifested by diode-containing taggants attached to merchandise in many stores, and by a medium-range (~20 feet) tagging detection system marketed by the Microlab Corporation. Utilization of this technology for the detecton of tagged blasting caps would appear to involve an appreciable engineering effort, but no significant extension of the state-of-the-art.

6.2.3.3 Plans

Feasibility of the concept will be explored. Further contacts will be made with Microlab Corporation and USAMERADCOM.

6.2.4 Magnetic Detection Taggants

6.2.4.1 Description

A magnetic reed relay may be incorporated into an electric blasting cap in series or parallel with the bridge wire of the cap. The cap could then be deactivated by an external magnetic field (either dc or audio frequency, depending on configuration) and permanently latched in a deactivated condition. Because magnetic fields are extremely difficult to shield against, deactivation of shielded caps would be essentially assured. Accidental disablement could be minimized by selecting deactivation field strengths well above normal stray field values. In addition, even if accidental disablement did occur, it would be detected by the conventional continuity test prior to detonation.

6.2.4.2 Status

Magnetic reed relays or switches are currently manufactaured by two commercial concerns (i.e., Potter Brumfield, Inc., and Sigma Instruments)[3], although the specific performance requirements proposed for a deactivation switch will probably require that a special-purpose device be developed. Concept feasibility is essentially assured. Major technical concerns are size, cost, and reliability.

6.2.4.3 Plans

The suitability of this approach will be investigated during FY 78.

APPENDIX
DOCUMENTS/REPORTS DELIVERED TO THE
BUREAU OF ALCOHOL, TOBACCO AND FIREARMS

Date	Title
2 December 1976	First Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
28 December 1976	Comments on the Bendix Proposed Techniques for the Detection of Explosives Vapors
3 January 1977	Second Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
25 January 1977	Third Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
25 January 1977	Statement of Work -- Evaluation of Potential Taggant/Polymer Combinations for Detection Tagging of Blasting Caps
25 January 1977	Comments on the Potential of Plasma Chromatography as Developed by PCP, Inc., for the Detection of Explosives Vapors
26 January 1977	Assessment of the Proof Technology Associates Proposal for the Development of an Electromagnetic Security Device
31 January 1977	Statement of Work for Brookhaven National Laboratories Study on Taggant/Substrates
28 February 1977	Fourth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
3 March 1977	Assessment of the Stanford Research Institute Preproposal, entitled "Identification of Smokeless Powders by Field Ionization Mass Spectrometry"
16 March 1977	Fifth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
22 March 1977	Explosives Tagging and Control Inflation Impact Analysis

Date	Title
29 March 1977	The Use of Deuterated Ammonium Salts for Detection Tagging Explosives -- A Preliminary Study
30 March 1977	Technical Evaluation Package for the Cost Benefit Analysis of Explosives Tagging Proposals
15 April 1977	Assessment of the Predetonation Detection of Bulk Explosives by U.S. Customs Service-Developed Vapor Analyzers
10 May 1977	Explosives Tagging and Control Program -- Progress to Date
10 May 1977	Sixth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
16 May 1977	Seventh Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
20 May 1977	Proposed Subcontract on "Process and Product Taggant Compatibility Demonstration Test for Cast Explosive Boosters
20 May 1977	Proposed Subcontract on "Process and Product Taggant Compatibilty Demonstration Test for Smokeless Ball Powder"
5 July 1977	Statement of Work for Georgetown University Letter- and Book-Bomb Detection by Dielectric Measurement Techniques
5 July 1977	Statement of Work -- Preliminary Investigation of Nonvapor Explosives Detection by Dual-Energy Tomography
7 July 1977	Statement of Work -- Plasma Chromatography Evaluation
7 July 1977	Eighth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
20 July 1977	Proposed Procurement of Special Order Cap-Sensitive Packaged Emulsion Explosives
21 July 1977	Ninth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"

Date	Title
26 July 1977	Proposed Subcontracts on Postdetonation Identification Tagging for Blasting Cap Leg Wires
2 August 1977	Identification-Tagged Explosive Transportation Classification Authorization
12 August 1977	Tenth Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"
16 August 1977	Environmental Assessment, Bureau of Alcohol, Tobacco and Firearms Explosives Tagging Program
2 September 1977	Explosives Vapor Detection by Atmospheric Pressure Ionization/Mass Spectrometry -- Status Report
7 September 1977	Program Plan -- The Use of Deuterated Ammonium Salts for Detection Tagging of Explosives
19 September 1977	Preliminary Toxicology Assessment of Candidate Vapor Taggants
20 September 1977	Eleventh Monthly Progress Report on the Bureau of Alcohol, Tobacco and Firearms Project, entitled "Explosives Tagging and Control"

DEPARTMENT OF MINES AND MINERALS
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LIAN M. CARROLL
GOVERNOR

H. N. KIRKPATRICK
COMMISSIONER

Testimony of D. T. Froedge
Kentucky Department of Mines and Minerals
Division of Explosives and Blasting
before the
Subcommittee on Criminal Law and Procedures
of the Senate Committee on Judiciary
Concerning Legislation Requiring the Tagging
of Explosives for Identification Purposes

Gentlemen:

We thank you for the opportunity to be here today to speak on the subject of tagging of explosives. Although we are not as directly involved in the subject as our counterparts in criminal enforcement, we nevertheless have interest in the tagging bill. The state of Kentucky uses over 500 million pounds of explosives per year which is far more than any other state in the nation and represents a significant percentage of the total used in the nation. Because Kentucky is developing rapidly and most construction requires rock excavation, explosives are used extensively in mining, quarrying, road construction, and general contracting. The state has been very active in explosive regulation, enforcement, and training since 1972 at which time it was apparent that there was a need for controlling the excesses in blasting and in the misuse of explosives. Since that time, other activities including transportation, storage, and training

in the use of explosives have been assigned to the Department of Mines and Minerals.

The advantages of a national tagging program for explosives are obvious and have been stated and restated. We endorse the concept and feel that it will help us directly in our explosives program along three particular lines - prosecuting illegal mining activities, detering the illegal use of non-permissable explosives in underground mining, and detering theft of explosives.

In the state of Kentucky we have had in the past a considerable number of outlaw mining operations. Tracing these activities has proven to be a most difficult task in the mountainous area of Eastern Kentucky. Since most mining and reclamation violations are civil matters and are handled by the civil courts, little pressure can be brought to bear on these highly illegal operations. But, since blasting and explosive control falls generally in the areas having criminal sanctions, determining tracing and prosecution is more effective. By being able to trace the explosives and determine the point of sale, we can in effect cut-off supplies of explosives to these operations.

In underground mining operations there is a requirement that only permissable explosives be used and using high explosives presents a dangerous condition. With identification tags added to both the permissable and non-permissable and presumably a different code, it would be easy, after the fact, to determine whether or not non-permissable explosives were being used. Since there are magnetic systems already in use for removing the iron leg-wires used on blasting caps, presumably, the taggant would be removed at this

point also which means that samples of material taken from these magnets could be examined periodically to determine what type of explosives were being used. We would recommend that the code for permissable and non-permissable should be significantly different that an aggregate quantity is still distinquishable. We feel that the incorporation of the taggant will have a significant detering affect on availability of explosives for illicit purposes. Since the presence or absence of the tag is indistinquishable, the presence or the non-presence of the tag will always be in question and, therefore, will lend a certain scare mistique to the potential abuser. We might add, however, that to the professional terrorist, it is unlikely to have little affect since there is certain to be methods of removal or destruction of the taggant i.e. magnetic, thermal or chemical.

There are some items of which we would like to see incorporated into the bill regarding the economics of the program that generally fall along two lines: cost and monopolistic status of the supplier of taggants. In regard to the cost, from reports it is estimated the cost would be approximately 1-1/2¢ per pound of explosives. This does not seem to me to be an unreasonable cost to be added to high explosives. However, the system is not fully developed at this time and so the cost of the finished taggants may go well beyond this. If it should be so, there should be some discretionary capability on the part of the Bureau of Alcohol, Tobacco, and Firearms to suspend the operation when the average cost exceeds a certain percentage of the cost of the explosives i.e.3-4%. The logic for this is that ultimately these costs are passed on to the.

consumer and tax payer and should the cost of the program far exceed other methods of detering criminal activities of the use of explosives in affect the tax payers money would be wasted. The other point would be that we should not legislate a system which is proprietary or patented by a single company giving it total control over the supply of taggants. We would suggest that any approval program would require that the company supplying the taggant give up any proprietary rights or at least requires the manufacture and sale of the taggant on a reasonable royalty basis. We would like also to see incorporated into the bill an evaluation program required, and the Bureau of Alcohol, Tobacco, and Firearms Director required to review the program and report back to the Congress on the progress, effectiveness, and utility of the program and recommendations for changes after a specified period of time i.e. four years.

I am Lieutenant Howard Bachman of the East Brunswick Police Department, East Brunswick, New Jersey. I am a veteran of 16 years with the East Brunswick Police and have served in the Patrol Division, Detective Division and am presently assigned to the office of the Director of Public Safety. I have had numerous courses in arson, attended numerous seminars on the subject, served 10 years as a volunteer fireman in the East Brunswick community, serving in all command offices and I have been doing arson investigations approximately 12 years. I am also Region Five Director of the International Association of Bomb Technicians and Investigators. I do bomb investigations and in the Organization, I serve as Director of all of the New England States, (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut) and the states of New York, Pennsylvania and New Jersey.

I am presently in attendance at the FBI Quantico, Virginia, Training Center for a one week course on "On-scene Bomb Investigations". I would like to say that I am very appreciative for the opportunity to present this statement and I do so on behalf of the International Association of Arson Investigators of which I am a member since the early sixties.

Might I begin by stating that the Insurance Service Office, which is an insurance statistical, advisory and rating organization, estimates that the total actual fire loss due to arson for 1976 could exceed four billion dollars. The American Insurance Association states that incendiary fires currently account for 21% of the number of fire insurance claims and 40 to 50% of dollars lost to fire. So as one can see from these figures, the crime of arson does have a tremendous economical impact upon both the citizens and the government of this country.

Like cancer, arson is a malignant type of crime. In both urban and rural areas, we have seen it spread where it's roots are not stopped, proliferating into new neighborhoods. Using the same analogy, we have been made aware that also like cancer, arson has a complex collection of root causes. In addition to the collection of causes, there is also a large quantity of substances that can be used to institute the crime of arson. It is in this area that I would like to direct my comments to the Committee.

It is recognized by arson investigators that there has been a minimal amount of research and development in both equipment and investigative techniques used in the investigations of this crime. Almost all scientific appartus used in arson has been adapted from some other discipline. Investigators need good, inexpensive portable equipment. They also need the expertise, understanding and incentives to employ scientific equipment and the funds to buy it. Such development should be encouraged.

There is a definite need for more and better basic information pertaining to the identification and collection of residues and other evidentiary burned remains and of scientific techniques for such identification. This is true because arsonists constantly are using new types of incendiary devices. This enhances the problem of an investigation, particularly when one recognizes that with today's economics, an unusual amount of temptation is offered for the fraudulent type of arson. It must be recognized that a lot of businessmen aren't able to face financial failure so they take the easiest available way out - they burn and sell out to the insurance company. It is not uncommon today for a businessman who has never committed a crime in his lifetime, to commit his first crime by burning his business - his belief being that collecting the fire insurance will solve all his problems.

It was not unusual in previous years to find a businessman himself doing the torching but today a professional torch can be contacted through many sources and hired to do the job, working strictly on an insurance percentage basis. Because of the aforementioned problems, the professional torch of today stands little risk of being apprehended, brought to trial and convicted. It is thus imperative that any means of improving evidential material is needed. It is my belief that tagging in explosives can be a response of this nature.

The tagging material that is presently being used in explosives can have an impact on arson investigations when any of these explosives are used. It is accepted that the two predominant materials that would have a major impact on this crime are black powder and smokeless powder. Both of these items can and are used as sources of ignition and as streamers which would be used to move the fire to various locations throughout the area to be burned.

It is unfortunate, but because of the chaos in arson recording, little or no value can be placed on any statistics that might be used to research the use of these items in arson. Yet when they are used, the fact that the tagging can be used as a tool by the investigators to indicate what the material was, where it was produced, to whom it was sold on the first order, without any doubt offers more opportunity for a successful investigation than any that presently exists.

It must also be recognized that fire is an aftermath of crimes that might be associated with bombs of various types when the bombs were used as a source of ignition. This could run from pipe bombs through dynamite, chemicals, water gels - just about all explosives may induce fire as an aftermath.

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But the knowledge that taggants are in explosives can simplify the amount of time and effort that an investigator might spend looking for sources of ignition by the use of the infrared light. The knowledge that taggants can be found can be investigated quickly, eliminating this method as a possible source of ignition. Without the taggant, this type of process would require lengthy periods to accumulate physical evidence from the rubble, packaging and forwarding same to forensic laboratories for lengthy chemical analysis that at it's conclusion, would only tell the investigator that an explosive was used.

As you can see, comparing the two methods, the tagging most assuredly can be beneficial in time, economics and furtherance of the investigation. It is for this reason, gentlemen, that the International Association of Arson Investigators are 100% behind the continuance of the explosive tagging as it has presently been proposed.

I would also like to suggest that the Committee in viewing the criminal justice process regarding arson, consider additional research into new and more scientific methods of tagging or identifying hydrocarbons which is by far the overwhelming weapon in the commission of the crime of arson.

I would also like to bring to the attention of the Committee that a review of the late 1960 riots most clearly shows the helplessness of the cities in combating the burning that took place. If one examines this, you can readily see how our industrial giants could be brought to a standstill -- if not completely, for lengthy periods of time. The country could suffer severe losses of economics and production, having a tremendous impact on our government and the well-being of our citizens.

It is not impossible to understand how fire, arson if you wish to use that term at this point, can certainly become a very important weapon in the arsenal of the political terrorist groups. Although it may not induce the same psychological impact on people that bombs do, I ask you to visualize a terrorist group dividing a city like New York into five sections and at a given planned time, igniting major fires in industrial and residential areas.

This is why the IAAI believes that for reasons like those that have just been mentioned, arson be examined for it's potential threat to our society by our Federal Government.

Again, I thank you gentlemen for the opportunity to be here and be heard. If your Subcommittee should require or desire additional information or answers to specific questions I have not covered here, the Association and I would be more than willing to provide further assistance.

32-76

Fire Marshals Association of North America
1800 M Street, N.W. — Suite 570 South — Washington, D.C. 20036

Statement
of the

Fire Marshals Association of North America

before the

Senate Subcommittee on Criminal
Laws and Procedures

Senate Committee on the Judiciary

S.2013

The Explosives Materials Taggant Act

Mr. Chairman, my name is Robert B. Smith, I am the Washington Representative of the National Fire Protection Association. I am also the Executive Secretary of the Fire Marshals Association of North America. With me is Mr. Thomas Broumel, Assistant Chief Fire Investigator from the Maryland State Fire Marshal's Office. Mr. Broumel is in charge of the Maryland Bomb Squad.

I am here today on behalf of the Fire Marshals Association of North America. I have a brief statement regarding S.2013. Following my statement, Mr. Broumel and I will be happy to answer any questions.

As a matter of background: the Fire Marshals Association was organized in 1906, and in 1927 became associated with the National Fire Protection Association. The membership of the Fire Marshals Association is composed of State, County and local Fire Marshals and designated members of their staff. Fire Marshals generally are officials with statutory responsibilities, which include the enforcement of fire codes within a jurisdiction, review of building construction fire safety plans, fire prevention inspections, fire cause and arson investigation, fire data collection and fire legislation development. Fire Marshals also provide advice to other officials or agencies within a jurisdiction on matters concerning fire safety, and are responsible for public fire safety education. In many State, County and

local jurisdictions, the Fire Marshal is the official assigned the responsibility for explosives licensing, issuance of permits, and investigation of incidents involving the misuse of malicious use of explosives.

The search for evidence at a fire or explosion scene is often difficult. Any process or procedure which facilitates the gathering of evidence at an explosion site, or allows the ready detection and identification of explosives, facilitates the investigation conducted by the Fire Marshal. It is for this reason that the Fire Marshals Association strongly endorses the concept of providing readily identifiable taggants for explosive materials in order to facilitate the detection and identification of explosive materials present or used in an incident.

I would like to emphasize that our endorsement is conceptual only, since at this time we cannot comment with regard to the technical feasibility of such desired taggants.

This concludes my statement, Mr. Chairman. Thank you for the opportunity to testify before this Subcommittee.

AEROSPACE TESTIMONY

F.R.: EVI
AUG 31, 1977

Testimony of Dr. Robert Moler of The Aerospace Corporation Before the Subcommittee to Investigate Criminal Laws of the Committee on the Judiciary, United States Senate.

Mr. Chairman and members of the Subcommittee, I am Robert Moler, Director of Explosives Control Programs for The Aerospace Corporation. I am here in response to your request to provide information on Aerospace's participation in the Bureau of Alcohol, Tobacco and Firearms tagging program.

My discussion will address the technical aspects of, first, identification tagging and, second, detection tagging. Before beginning, I would like to acknowledge the cooperation and goodwill which have been exhibited by the various manufacturers of explosives, without which this development effort would have been severely hampered.

EXPLOSIVES IDENTIFICATION TAGGING

The explosives identification tagging concept has three major parts: adding tiny, nonexplodable, coded particles to explosives during their manufacture; recovering and decoding them; and tracing them through distribution records to the last legal possessor. Development of the concept has been pursued in an effort to both improve the ability of law enforcement personnel to apprehend bombers and other illegal users of explosives and to increase the accountability of those who are responsible for the security of explosives being stored or transported.

Description of Taggants

Several types of taggants have been proposed as candidates for explosives identification tagging. Initial development began in 1969 by the Westinghouse Electric Corporation, supported by the Bureau of Mines. Since then, various candidate tags have been developed by the 3M Company, Ames Laboratories, and the General Electric Company. At present, two taggants have been tested enough to indicate that they are capable of surviving the severe environment of detonation and of being recovered from the debris and decoded. Hence, only these two were considered as candidates for national implementation in a tagging program. One taggant is a color-coded polymer laminate made by 3M and is referred to as a color-coded taggant. The other is an inorganic particle coded with rare-earth doped compounds and is made by Westinghouse.

Both of these taggants have been tested extensively for survivability and compatibility with explosive products and manufacturing procedures, and both have shown their utility for national implementation. While it was desired to include both in the national pilot test, negotiations with Westinghouse for its participation broke down over who should bear the liability in the case of negligence resulting in a loss. At this time, the only participant in the program to pilot test the taggants is the 3M Company.

The search for alternate taggants will, however, continue in order to find cheaper and more effective methods and establish a competitive market.

Testing of 3M Taggant

The testing to date on the 3M taggant indicates that it can be added to the production of packaged cap-sensitive water gels/slurries and dynamites without seriously disrupting the manufacturing process. Six manufacturers have tested this taggant for compatibility with their products, and three manufacturers have demonstrated the capability to add taggants during their normal production runs. During the next several months, most of the nine manufacturers of cap-sensitive packaged explosives in the United States will conduct detailed evaluations of their capability to add taggants during normal production, to mark the shipping cases of tagged explosives designating the added code, and to maintain records indicating to whom the various tagged explosives were distributed.

Evaluation of test data by the Bureau of Explosives under the auspices of the U.S. Department of Transportation has determined that because the addition of taggants did not change the hazard characteristics of an explosive, such explosives could be transported in the same manner as untagged explosives. Testing is being conducted by the Bureau of Mines for the Mining Enforcement Safety Administration in order to determine if the addition of taggants will have an effect on the status of certain explosives that are otherwise designated as permissible to use in an underground coal mine. The preliminary indications are that the taggants will have no impact on permissibility.

Field testing of taggants has been conducted using explosives tagged either in the normal course of production or in the field (i.e., by slitting open the packaged explosive and adding the taggants). Such field tests have been conducted in Birmingham, Alabama; Seneca, Maryland; Phoenix, Arizona; and Quantico, Virginia. At each of these tests, law enforcement agents (untrained in two cases and with less than 2 hours training in others) have been able to recover and decode taggants at the bomb scene.

Extensive laboratory testing has been conducted to determine the rate of survivability of taggants and the presence of any contaminate taggants. This testing has indicated that while many of these taggants will be destroyed during detonation, a sufficient number will survive to ensure recoverability by law enforcement officials.

National Pilot Test

A national pilot test of explosives identification tagging is now underway. All but two of the explosives manufacturers who produce cap-sensitive packaged explosives are participating. These manufacturers are E.I. duPont de Nemours & Co., Inc.; Hercules Inc.; Atlas Powder Company; Independent Powder Company; Gulf Oil Chemicals Company; IRECO Chemicals; and Trojan Powder. The test will result in over seven million pounds of explo-

sives being tagged during the normal production process. The tagged explosives will enter the regular distribution chain with only slight modifications of their manufacturers marks of identification--the basis of existing distribution records. Random, tagged explosives will be diverted from normal distribution and will be used to simulate illegal bombings. Law enforcement agents, with a few hours training, will investigate these simulated bombings and attempt to recover and decode the taggants. The Bureau of Alcohol, Tobacco and Firearms, through its national explosive tracing center, will then attempt to trace the taggant back to the appropriate explosives manufacturer, distributor, and final user. A pilot test on this vast a scale should provide the required data on the processes of taggant manufacturing and distribution, taggant addition, recordkeeping, bomb-scene investigative taggant recovery, and crime laboratory decoding.

Cost of National Implementation - ID Tagging

The principal cost item in the explosives identification tagging program is the cost of the taggants. The most realistic acquisition cost of the 3M color-coded taggant is about $25 per pound delivered to the explosives manufacturer. At a concentration of .05 percent, the taggant cost per pound of explosive is one cent. The nominal cost of these explosives is 50¢ per pound. The burden placed on the explosive manufacturer to add the taggants and to modify his recordkeeping is considerable. There are increased costs resulting from: (1) receiving and inventorying taggants, (2) measuring and adding the taggants, (3) controlling cross-contamination at taggant change-over points, (4) controlling the amount of rework material that can be added, (5) modifying explosives packages and shipping cases to reflect the added taggants, (6) modifying the inventory, invoicing, and other recordkeeping systems, and (7) establishing increased quality assurance measures. The resulting cost from these burdens cannot be accurately determined without the experience of the national pilot test. The Institute of Makers of Explosives and individual manufacturers are actively assisting in trying to determine realistic costs. We currently estimate that these increased burdens could be handled by the addition of one trained individual to each plant for each shift of production.

It is realistic to consider national implementation of explosives identification tagging by March 1978. Seven of the nine explosives manufacturers will receive training and experience in tagging during the pilot test as will explosives distributors and law enforcement officials. The only critical technical consideration is the tooling up of the taggant manufacturing process so that sufficient taggants (25,000 pounds a month) can be produced. The required lead time is about 6 months, which means that this tool-up must begin by the first of October in order for full-scale national implementation by March 1978 to be possible.

This initial identification tagging pilot test program has been directed only at packaged, cap-sensitive, dynamites and water gels/slurries. However, the feasibility of tagging smokeless powders, boosters, safety fuses, detonating cords, blasting caps, emulsions, two-component binary mixtures,

and black powder is currently being determined. While tagging these materials is more complex that the tagging of dynamites and water gels/slurries, the initial indication is that it can be undertaken in the next several years.

EXPLOSIVES DETECTION TAGGING

Explosives detection tagging is not as far advanced technically as explosives identification tagging. A detection tagging development effort was initiated in 1975 under the sponsorship of the Federal Aviation Administration, the Law Enforcement Assistance Administration, and Brookhaven National Laboratory.

During most of the early development efforts on explosives detection, the idea of an intrinsic vapor detection method had great appeal to the research community. Consequently, various methods using vapor detection concepts were developed. An impetus for the initial optimism concerning intrinsic vapor detection was the fact that the commercial explosives market was dominated by nitroglycerine-based dynamites. A number of early studies had suggested mistakenly that most other materials (e.g., smokeless and black powders and military explosives) emitted distinctive vapors in sufficient quantities to be detectable.

Over the past several years, a number of carefully designed studies have been conducted to characterize, compute, and measure the vapor effluents from explosives under laboratory and simulated real-world conditions. While these studies (which were sponsored by the Law Enforcement Assistance Administration, the Federal Aviation Administration, the U.S. Postal Service, and the U.S. Army Mobility Equipment Research and Development Command (USAMERADCOM)) disagree on the specifics, they concluded that only dynamites based on ethylene glycol dinitrate or nitroglycerine, and possibly TNT, have sufficiently high vapor pressures and emission rates to allow for reasonably reliable vapor detection at a point of controlled access. When the military explosive, Composition C-4, was not exposed to the air for long periods before use, it was found to emit significant amounts of cyclohexanone, a solvent used in the manufacturing process. Therefore, cyclohexanone vapor could be a potential aid in detecting the presence of C-4. However, slurries/water gels, black and smokeless powders (commonly used in pipe bombs), PETN, RDX, HMX, and tetryl were found to have vapor pressures so low that reliable detection would not be possible even if detection thresholds of 1 part in 10^{12} were attained. Because slurries/water gels are rapidly replacing dynamites on the American market and because pipe bombs accounted for more than 20 percent of the bombing incidents in 1976, the serious limitations of all intrinsic vapor detection techniques are now realized.

While there are promising nonvapor techniques for detecting some intrinsic characteristics of explosives (e.g., tomography), they have four characteristics that limit their implementation. First, they are applicable only for a limited access search. Second, they are easily foiled. Third, they involve the use of ionizing radiation and cannot be used on people. Fourth, they are only in the early stages of research.

Therefore, the only way to detect explosives before detonation, at least in the near term, is to add something to the explosive during its manufacture, i.e., tag it for detection. The taggant might be a vapor tag, or it might be something which could be sensed by electromagnetic radiation or other nonvapor methods.

Currently, the major areas of study for vapor taggants are the methods of incorporating the taggants into the explosives or the detonation chain and of selecting appropriate vapor tags. An area of intense study deals with the addition of a vapor taggant to the seal plug of the blasting cap. (Electric blasting caps are commonly used in clandestine devices.) One method of addition involves dissolving the taggant in the blasting cap rubber closure plug. Another method involves the microencapsulation of the taggant material and the subsequent addition of the microcapsules to the blasting caps. Several different potential taggants are currently being studied. The most promising of these are a number of perfluorocyclo-alkanes, deuterated ammonia, and perfluoroaromatics. The emphasis in these studies is on determining taggant materials which are safe, capable of being incorporated into existing plug material, do not exist in the environment, are tropospherically degradable, and provide a constant source of a distinctive tag for 5 to 10 years.

The incorporation of vapor taggants into explosives requires appropriate sensing instrumentation for detection. In order to avoid false alarms from normal or naturally occuring ambient pollutants, vapor detectors that are specific and sensitive to trace quantities of the incorporated vapor tags merit primary consideration. Such techniques as ion mobility spectrometry, atmospheric pressure ionization mass spectrometry, laser optoacoustics, and others have shown potential applicability. The first two techniques represent commercially available instrumentation while the latter is a technique in the breadboard design phase. The possible utility of each technique must be documented and the instrumentation optimized for vapor tag detection prior to field deployment in a test program. Other potential detection techniques that are in the exploratory feasibility phase include the use of coded harmonic radar tagging, x-ray fluorescence detection of heavy metal alloyed blasting caps, and electromagnetic deactivation.

The tagging for detection of other explosive materials is under active study. Both smokeless and black powders are expected to be amenable to tagging with a microencapsulated material. Detonating cord and fuse cord tagging are being studied, and the use of microencapsulated material is a promising candidate taggant.

One or more of the above detection tagging methods should reach the point of demonstrable feasibility within a year and will be tested on a pilot scale in order to ensure that no unforeseen problems in manufacturability, compatibility, or detectability emerge.

STATEMENT OF

LYMAN G. WATT, FIRST VICE PRESIDENT

AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

BEFORE THE

SUBCOMMITTEE ON CRIMINAL LAWS & PROCEDURES

OF THE

COMMITTEE ON THE JUDICIARY

UNITED STATES SENATE

MAY 2, 1978

EXPLOSIVE MATERIALS TAGGANT ACT

Mr. Chairman, I am Captain Lyman G. Watt, First Vice President of the Air Line Pilots Association (ALPA) representing the interests and concerns of 30,000 professional pilots dedicated to assuring the concept of safe air travel.

I am most grateful for the opportunity to appear before this Subcommittee and am even more grateful that this Subcommittee is considering legislation that can have such a salutary effect on our continuing efforts to safeguard civil aviation against terrorist and criminal attacks.

Beyond the personal concerns of thousands of pilots and their families in improved security of air carrier operations, I must point out that the pilot-in-command of an air carrier transport is ever conscious of the traditional, philosophical and legal burden of assuring the highest degree of flight safety possible. Therefore, I welcome this opportunity to voice the support of the Air Line Pilots Association for the enactment of S.2013, the Explosive Materials Taggant Act.

As we meet here this morning, there are few governments in the world which do not face the real possibility of extortion or even overthrow by terrorism.

Terrorism spreads far beyond the bounds of a particular incident to threaten the very structure and authority of government in its ability to govern and to institute both foreign and domestic policies. Terrorism evokes a real image of anarchy and rule by threat. This creates a problem of international magnitude, for while incidents or campaigns of terrorism are often parochial in intent, they can and do cause repercussions far beyond the target nation's borders.

As airline pilots, we must endure a constant exposure to the threat of terrorist attack for our aircraft have become an attractive target for terrorist activities. I think the reasons for this are fairly understandable:

1. Most air carrier aircraft are highly identifiable with their country of registration. For example, TWA and PAN AM are considered to represent the U.S.A.
2. The place for attack can be chosen from a wide selection of countries with an eye to the convenience of those countries in terms of the existing security arrangements, geographical proximity, political sympathy, etc.
3. Aircraft cost up to 50 million dollars. Threatening or holding such a prize for ransom can be very effective.
4. Aircraft are relatively fragile and are easily destroyed with a few dollars worth of readily obtainable materials.
5. Aircraft can carry over 400 passengers which on any given day probably have a diversity of nationalities represented among them. They make great hostages.
6. An aircraft, as a target, can also provide the terrorist with a means of escape to virtually any part of the world.
7. Terrorists seek international new attention for their cause: aircraft destruction and related events are proven headline-grabbers.

In civil aviation, we find we are trapped in a paradox. The early threat to aircraft was essentially one of hijacking. As a result, a massive congressional, government and industry effort was mounted which finally resulted in the passage of the Anti-Hijacking Act of 1974. Since that time, by means of unflagging activity from the regulatory and industry security specialists, additional safeguards have been developed. Pending legislation before the Congress will provide further and stronger safeguards. The Omnibus Anti-Terrorism Act of 1977 (S.2236) introduced by Senator Ribicoff will provide an important addition to our defense arsenal against international terrorism. We have so testified and hope for swift passage and implementation of this legislation.

The paradox I refer to is that created by our success in combatting hijackings. If a terrorist cannot hijack, he will sabotage. The more successful a nation becomes in preventing hijackings, the more susceptible it becomes to sabotage attempts on aircraft. If terrorists cannot hijack, they will destroy.

This frightening situation in the Middle East has created a brand of terrorism which apparently revels in a bloodbath of death and maiming. The aim is to shock by body count; the greater the count, the greater the shock and consequently the greater the attention paid to the terrorists cause. To further complicate the matter, it seems that fewer terrorist groups follow any particular flag and consequently devote themselves to incredibly narrow ideologies of convenience. This fragmentation only increases the difficulty of eliminating such groups. Any technical aid that can be afforded to law enforcement officials in frustrating terrorist activities must be encouraged.

I mention these matters to lift the consideration of S.2013 from the mundane environment of a manufacturing requirement and to illustrate how it has a direct effect upon the course of domestic and international terrorism.

The Air Line Pilots Association believes that the provisions of S.2013 requiring the inclusion of identification taggants in manufactured explosives will be an invaluable aid in investigating and apprehending those who use explosives for criminal or terrorist activities. We believe that they would be of equal value for tracing the source of unexploded devices as well as those which have been detonated. We strongly support the use of such taggants, for they present a major obstacle to those who seek to prey on the vulnerability of a fully-loaded air carrier aircraft.

Our principal interest is, of course, in the development and use of detection taggants since we obviously prefer that explosive devices in air terminals or aircraft be located well before they have an opportunity to frighten, kill, or maim. Trained "sniffer" dogs would have an easier task if such taggants were currently in use.

Technology is also rapidly reaching a point where mechanical devices can be developed to "sniff out" the presence of explosives. It is entirely conceivable that an aircraft could be equipped with a device that would show the captain of a flight, prior to it's leaving the boarding gate, if there were any amounts of explosives on board his aircraft. Imagine what this would mean in terms of flight security. Consider how effective this would be as a defense against the false, but still dangerous bomb threats which plague airlines daily.

We recognize that it will be a number of years before existing stockpiles of "untagged" explosives are exhausted, but we are grateful that this proposed legislation, will, if passed, provide the American public with a greater degree of safety and security than they now enjoy. It is an excellent example of prospective legislation and its effects will be significant. We also feel that passage of such legislation will encourage similar requirements to be enacted in other countries engaged in the manufacture of explosives, for they, too, face

the same horrendous threat as we do. We would also hope that the U.S. Government would actively seek to cooperate with other explosive producing nations in order to achieve similar requirements for taggant materials.

Mr. Chairman, the Air Line Pilots Association believes that consideration of S.2013 is important and timely. We believe it will be a significant measure in the continuing efforts to combat the evils of terrorism, and we urge its prompt passage.

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