TECH b•e•a•t

Dedicated to Reporting Developments in Technology for Law Enforcement, Corrections, and Forensic Sciences

Keeping Bad Guys Behind Bars

*S*ecurity technologies generally are designed to keep people out of certain areas—alarm systems and bars keep the bad guys out of homes and businesses. More sophisticated technologies, like cameras and electronic access systems, keep an eye on visitors or deny access to unauthorized personnel. But a prison is an entirely different animal. Here, the primary purpose is to keep people in.

Prisons are about to get a little help in accomplishing this task from some of the Nation's foremost security experts. Sandia National Laboratories (SNL), the lead laboratory in physical security for the U.S. Department of Energy's nuclear facilities, is teaching prison officials how to perform a "vulnerability analysis," a task that uses security methodology to spot potential weaknesses in correctional facilities.

"What you're trying to accomplish in a nuclear facility is much different than in a prison," says Debbie Spencer, Ph.D., Distinguished Member of Technical Staff at SNL and formerly the program manager of the National Institute of Justice (NIJ) satellite facility at SNL. "With a nuclear facility, people are trying to break in and either steal nuclear material or blow things up. With a prison, people are trying to escape. So the first thing we have to look at is, what is the threat? We have to look at the probability of escape, as well as preventing and containing violence and detecting contraband that might be smuggled in."

With funding from NIJ, SNL security experts have looked at several correctional facilities in Pennsylvania and Texas, as well as the blueprints for a Nebraska prison and a Michigan jail. Spencer says that SNL scrutinizes the physical facility and learns about all areas of prison life, from education, recreation, and inmate movement to staffing, existing security systems, and the nature of the surrounding community. "We analyze everything and then assess where the weaknesses are," she says. "It's a great partnership because we look at things from a system perspective and we combine that with the prison staff's knowledge of their own facility."

Superintendent Jim Morgan, who heads the State Correctional Institution at Smithfield (Huntingdon,

PRISON INMATE POPULATION

A report by the U.S. Department of Justice Bureau of Justice Statistics states that the total prison population in the Nation grew to 1.3 million inmates during 1998; however, the 4.8-percent rise is less than the average annual growth of 6.7 percent since 1990. There are an additional 592,462 inmates awaiting trial and serving short sentences in local jails. In 1998, there were an estimated 461 inmates sentenced to at least 1 year in prison for every 100,000 U.S. residents, which is 169 more inmates per 100,000 residents than in 1990.

Louisiana, Texas, and Oklahoma had the highest incarceration rates, while Minnesota, Maine, and North Dakota had the lowest. Fourteen States have reported an increase of more than 75 percent in their prison populations since 1990, the report says. Four States—Alaska, Hawaii, Maine, and Massachusetts—had decreases in their inmate populations. In 1998, the number of women incarcerated grew 6.5 percent, which is higher than the 4.7-percent increase of men incarcerated for the same year. Since 1990, the number of women in prison has increased 92 percent, while the number of men has grown by only 67 percent, says the report. As of the end of 1997, black men and women were six times more likely than whites to receive prison sentences. Parole violations have increased 39 percent. Inmate release rates have dropped 6 percent since 1990, and 10 percent of inmates will serve more than 20 years in prison.

Because of the overall increase in inmates, State prisons are operating 13 percent to 22 percent over capacity, while Federal prisons are 27 percent over capacity, according to the report. California had the most crowded prison system in 1998, operating at 50 percent over capacity. Utah had the least crowded system, operating at just 81 percent capacity.

Pennsylvania), agrees. "Wo are SNL's prison experts, and they are our vulnerability analysis experts. It's a wonderful marriage of those two disciplines, and we're very excited about it."

Morgan serves as the Pennsylvania Department of Corrections (DOC) liaison with SNL to develop corrections-specific vulnerability assessments with an emphasis on video surveillance applications. Morgan says that one of two assessments carried out in Pennsylvania was done at the facility adjacent to his, the State Correctional Institution at Huntingdon, which was the scene of an inmate escape in August 1999.

According to Martin Horn, Secretary of Corrections for the Commonwealth of Pennsylvania, prior to the escape, the Pennsylvania DOC—based on SNL's recommendations—had increased the budget for perimeter intrusion detection and surveillance cameras at Huntingdon. However, Horn says, because of appropriation and procurement constraints, the fixes had not been made at the time of the escape. "This was a case of being 'a day late and a dollar short,' he says. "Had we the benefit of SNL's assessment 12 months earlier, this escape might have been prevented."

In its assessment, the SNL team pointed out things prison officials had not considered, or in some cases, had not noticed. "Wo had a secure exercise yard that was next to a wall with a doorway in it. Although the door was secure, it was still a door," Horn says. "The assessment team found a means of egress and ingress that had not been used for years and was not sufficiently secured. They also gave us a lot of advice with respect to our perimeter intrusion detection and the use of cameras and lights."

In one Pennsylvania facility, SNL recommended that prison officials cut trees along a fenceline and staff one of its posts full-time, instead of staffing it only at night. SNL also noted that while one unit's 25 perimeter cameras were effective, there were problems relating to the internal monitoring of inmate movements through the facility and in the dining hall that had to be addressed. The team also recommended that staff change some of the locks and locking systems, as well as upgrade camera units and rethink where the cameras were placed.

The use of surveillance cameras was of particular interest to Pennsylvania prison officials. Five years ago such a technology was rarely used in a prison setting. In recent years, however, it has become a popular security alternative. "In their rush to use surveillance cameras, everyone has perhaps not used them to their optimum or has put in more cameras than their staff can even look at," Horn says. "This assessment gave us a lot of advice with respect to how we can use cameras effectively while preventing an information overload, which is a security system that is more than we can staff."

The vulnerability analysis gave prison officials a fresh perspective on security and on the use of security technologies. It also offered them a way to extend the life of an older prison unit by employing new types of technology. The ultimate goal of the project, however, is to create a methodology that corrections officials can use to conduct their own vulnerability analyses.

"This has been a pilot program that looked to refine the methodology of vulnerability analysis so we could teach the methodology to prison and jail personnel," says Nick Nicholson, Ph.D., a security systems analyst at SNL. "It is not something we want to be the sole owner of. With the funding from NIJ, we'll have a publication and a training program that administrators can send their personnel to. We hope that they'll become self-sufficient after that."

For more information about Sandia National Laboratories' vulnerability analysis project for prisons, contact Steve Morrison at the National Law Enforcement and Corrections Technology Center (NLECTC)–Southeast, 800–292–4384, or Joe Russo at NLECTC–Rocky Mountain, 800–416–8086.

[Editor's note: In addition to serving as Secretary of Corrections for the Commonwealth of Pennsylvania, Martin Horn is vice chair of the Law Enforcement and Corrections Technology Advisory Council, which serves as an advisory body to the NLECTC system.]

The National Institute of Justice is a component of the Office of Justice Programs, which also includes the Bureau of Justice Assistance, Bureau of Justice Statistics, Office of Juvenile Justice and Delinquency Prevention, and Office for Victims of Crime.