

The author(s) shown below used Federal funds provided by the U.S. Department of Justice and prepared the following final report:

Document Title: Assessment of Portable HAZMAT Sensors for First Responders

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Document No.: 246708

Date Received: May 2014

Award Number: 2010-IJ-CX-K024

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2.0 INTRODUCTION

NIJ has identified a technology need for an unobtrusive, wide spectrum portable HAZMAT sensor for use by first responders. This requirement was called out by the Sensor & Surveillance Technology Working Group (TWG). This report is an assessment of commercially available HAZMAT sensor devices that might be utilized by first responders, with the end goal of determining whether:

1. A commercial sensor system meets the stated technology need requirements
OR
2. Further research and development (R&D) is needed to produce such a system.

As will be discussed in more detail throughout the report, it is the conclusion of the CoE that there **does not exist** a commercial off-the-shelf (COTS) device that meets the needs in full. As a result, further R&D is needed to produce such a system.

2.1 TWG Technology Need - Detection of Hazardous Conditions for First Responders

- **Issue:** Emergency first responders often arrive at accident and disaster scenes without any knowledge of potential deadly hazards. First responders need a way to determine whether they might be inadvertently entering a hazardous area while performing emergency services.
- **Desired Outcome:** A small detector, attachable to the officer's belt if possible, which will warn of multiple types of hazards.
- **Note:** If possible, systems capable of detecting illicit substances will be included in the investigation and related capabilities highlighted in device synopses
- **Note:** Existing chemical detection systems are likely to be larger than belt-worn; size and/or ergonomics of available devices will be summarized

2.2 About NIJ SSBT CoE

The NIJ SSBT CoE is a center within the National Law Enforcement and Corrections Technology Center (NLECTC) System. The Center provides scientific and technical support to NIJ's R&D efforts. The Center also provides technology assistance, information, and support to criminal justice agencies. The Center supports the sensor and surveillance portfolio and biometrics portfolio. The Centers of Excellence are the authoritative resource within the NLECTC System for both practitioners and developers in their technology area(s) of focus. The primary role of the Centers of Excellence is to assist in the transition of law enforcement technology from the laboratory into practice by first adopters.

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