Technologies and Security Procedures for the Level VI Inspection Program

Interim Progress Report

Prepared for
U.S. Department of Energy

Prepared by
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September 2008

INTRODUCTION

The Commercial Vehicle Safety Alliance (CVSA) developed the Level VI inspection program for commercial vehicles transporting select radioactive materials under a cooperative agreement with the U.S. Department of Energy (DOE) that began in 1986. The Level VI inspection program includes:

- Inspection procedures that are enhancements to the CVSA North American Standard Level I procedures for commercial vehicles;
- A training and certification program for inspectors to conduct inspections on shipments of transuranic waste and highway route controlled quantities (HRCQ) of radioactive material;
- An inspection decal;
- Out-of-service conditions and criteria; and,
- Radiological surveys.

CVSA is examining current and emerging technologies and security procedures that may benefit the Level VI inspection program under another CVSA/DOE cooperative agreement titled "Level VI Inspections of Spent Nuclear Fuel and High-Level Radioactive Waste Shipments into Yucca Mountain." The objective of this work is to recommend technologies and procedures that will enhance the safety and security of shipments to Yucca Mountain. This report is a summary of the activities to date that CVSA has conducted to support this objective.

AD HOC RAM/SECURITY/ITS COMMITTEE

The CVSA RAM Subcommittee formed an ad hoc committee to address security and technologies for the shipment of spent nuclear fuel. The purposes of the AD HOC RAM/Security/ITS Committee are to:

- Enhance the security of vehicles transporting radioactive materials by providing a forum to identify, develop, and implement strategies concerning protection, education, enforcement, and information sharing.
- Provide for a safe, secure, efficient, and economically sound transportation system through the use of current and emerging technologies.

The AD HOC RAM/Security/ITS Committee meets on a regular basis. Table 1 is a list of the meetings to date. The Committee works with CVSA's RAM Subcommittee and ITS Committee and other groups including the DOE TEC Security Topic Group and Battelle to identify and examine technologies and security procedures. The AD HOC RAM/Security/ITS Committee also coordinates with national laboratories and other research groups to take advantage of their investigations into technologies and security procedures that might be applied to the Level VI inspection program.

Table 1. AD HOC RAM/Security/ITS Committee Meetings	
Date	**Location**
September 28, 2005	Indianapolis, IN
February 28, 2006	San Diego, CA
April 23, 2006	Hartford, CT
September 16, 2007	Pittsburgh, PA
March 29, 2008	Denver, CO
September 11, 2008	Winnipeg, Canada

COMMITTEE ACTIVITIES TO DATE

- Define Committee's purpose and goals
- Identify partner organizations for collaboration on issues related to vehicle/package transportation safety and security. The Committee has been working with the following organizations:
    - DOE/TEC Security Topic Group
    - Southern States Energy Board
    - Midwest Council of State Governments
    - Northeast Council of State Governments
    - Western Interstate Energy Board
    - Battelle
    - HMCRP Project HM-04 Team
- Provide input to the DOE/TEC Security Topic Group Questionnaire
- Develop data collection methods and establish site visits to review technologies and procedures
- Identify organizations (government agencies, companies, research laboratories, etc.) and invite their representatives to present on their products, services, research, or programs related to vehicle security
- Review documents on transportation safety and security related topics for promising technologies and processes

SITE VISITS

Site visits to observe and review promising technologies and security procedures have been a major activity. A data collection form was developed to capture system characteristics such as requirements, relevance to the Level VI program, and issues.

A team travels to each location to review the technology or sites. Each team member used the structured data collection form to gather information about the system,

technology, product, or process. Once all site visits are complete, the collected information will be analyzed to provide recommendations. Table 2 is a list of the site visits to date with a description of the reviewed items. The Committee plans more site visits in FY09.

Table 2. Site Visits to Review Technologies and Processes

Date	Location	System/Technology/Product/Process
2/27/06	CHP port of entry on the border with Mexico	Adaptable Radiation Area Monitor (ARAM) Portable radiation monitors to use at fixed facilities, vehicle mounted units, and as backpack units. Designed to detect and identify radioactive material in moving vehicles, cargo, and parcels.
2/27/06	San Diego	Zonar - Electronic vehicle information reporting system for pre and post trip inspections, tracking vehicle maintenance, in/out of yard tracking, workforce management, GPS, route auditing, vehicle status and information management. The system can also track driver medical, CDL, and other information and identify skipped inspections. Utilizes a handheld data reader that reads smart radio frequency identification tags.
2/28/06	Qualcomm, San Diego	Various systems for satellite tracking, untethered trailer tracking, panic buttons, vehicle disabling technology, and driver sign on theft prevention technology
2/14/07	TSMT, Joplin, MO	SkyBitz - Communications technology designed to track trailers, containers, and rail cars. Provides satellite tracking using Global Location System (GLS) technology.
2/14/07	TSMT, Joplin, MO	PC Miler Fleet Commander - Communications and satellite (GPS) tracking technology.
3/24/07	Atlanta, GA	IRRIS - Technology that offers a common operating picture of critical information to support logistics, transportation security, information sharing, and collaboration. The application is an Internet portal to a variety of live and operational infrastructure information.

PRESENTATIONS

At the AD HOC RAM/Security/ITS Committee meeting in March 2008, several organizations were invited to describe their work, technologies, products, or processes related to transportation safety and security. Table 3 is a list of the presentations given at this meeting.

Table 3. Presentations at March 29, 2008 AD HOC RAM/Security/ITS Committee Meeting

Organization/ Company	**Presentation**
Battelle	Overview of DOT FMCSA Hazmat Safety and Security Technology Field Operational Test (FOT)
Battelle	Review of the Data Base on Commercially Available Hazmat Technologies Developed for the Hazmat FOT
XscapeEz, Ltd & iQmove	Wireless Technology Commercial Vehicle Safety & Security
DOE, Carlsbad Field Office	TRANSCOM Tracking and Communications System
GeoDecisions	IRRIS Systems
HMCRP	Hazardous Materials Cooperative Research Program-Project HM-04
DHS, Domestic Nuclear Detection Office (DNDO)	Overview of the Domestic Nuclear Detection Office's Southeast Transportation Corridor Pilot Program
Core Street, Ltd	Review of Credential Programs Coming Down the Pike
Private Pallet Security Systems, LLC	Security in the Transportation Phase

Of particular interest to the Committee is the Hazardous Materials Cooperative Research Program – Project HM-04. The goal of this project is to identify emerging technologies applicable to the safe and secure transportation of hazardous materials. The Committee is working closely with the Project HM-04 Team to capture those technologies that will be relevant to the Level VI inspection program.

The final report with recommendations to the U.S. Department of Energy on technologies that will enhance the Level VI inspection program and safety for the spent fuel shipments to Yucca Mountain will be published in the fall of 2009.