

CVSA Level VI Inspection Program Peer Review: State Differences, Lessons Learned, Best Practices, and Recommendations

Updates from State Visits in 2014

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EXECUTIVE SUMMARY

INTRODUCTION—PURPOSE AND SCOPE

The purpose of the peer review of the Level VI inspection program is to identify and share best practices. Initially it was also intended that recommendations would be made to prepare the Level VI inspection program for shipments of spent nuclear fuel to Yucca Mountain. Thus, the first set of peer review site visits was conducted between March 2005 and August 2006. Peer review teams visited the following seven states:

- South Carolina
- Colorado
- Tennessee
- Washington
- Illinois
- New Mexico
- Michigan

The results of these site visits are documented in the January 2007 report *CVSA Level VI Inspection Program Peer Review: State Differences, Lessons Learned, Best Practices, and Recommendations*. Additional peer review site visits were made to New Mexico and Idaho in June and August of 2011. The results of these site visits are documented in the October 2013 report *CVSA Level VI Inspection Program Peer Review: State Differences, Lessons Learned, Best Practices, and Recommendations – Updates from State Visits in 2011*. Subsequent peer review site visits were conducted in Colorado and Illinois in November and December of 2014. This report is an update to the 2007 and 2013 reports based on these 2014 site visits. The additional findings are compared with the previous findings and presented using the same format as the previous reports. Although the status of Yucca Mountain is currently uncertain, there is still the opportunity from the 2014 site visits to provide recommendations for improvements to the Level VI inspection program.

The same scope and methodology described in the 2007 report apply to the 2014 site visits and this report. Rather than repeat the same information in this report the reader is directed to the 2007 report for these details. The two previous peer review reports may be obtained through CVSA’s website at www.cvsa.org. Once on the website, to locate the reports, select “Programs” at the top of the page then select the “North American Standard Level VI Inspection Program” link and then select the “CVSA/WIPP Updates & Reports” link. On the resulting page the link to the 2007 report is labeled “Level VI Peer Review Report January 2007” and the link to the 2013 report is labeled “CVSA Level VI Inspection Program Peer Review, Updates from State Visits 2011”.

As stated in the 2007 report, for each of the topic areas of interest the peer review teams were looking for:

- Variations across states;
- Lessons learned and best practices; and,
- Future improvement needs.

SUMMARY OF FINDINGS FROM THE 2014 STATE VISITS

Notable differences across states include:

- Whether or not escorts are required;
- Permit and escort fees;
- Types of survey instruments;
- The number of certified Level VI Inspectors for each state;
- Requirements for access to generator sites differ among states;
- Inspection duration varies from 45 minutes to 2 hours;
- Fines for violations and their disposition vary by state;
- Standardization issues among states in determining violations; and,
- Standardization issues among states in inspection procedures.

Key lessons learned and best practices across states include:

- Conducting the Level VI refresher training every year in 4-hour blocks may be optimal for participant attention and scheduling and to more quickly integrate new Level VI inspectors.
- Timing of refresher training soon after instructors receive their refresher training from CVSA ensures that inspectors receive the latest updates during their refresher training.
- Full-scale emergency response exercises involving RAM have been identified as effective learning tools.
- Close contacts with generator and destination sites (e.g., joint meetings and trainings, resident inspectors, etc.) promote and maintain good working relationships.

Suggestions for future improvements include both: (1) What states can do to improve their Level VI programs; and, (2) How CVSA, DOE, and other government entities can better assist states with their Level VI programs.

Suggestions regarding what states might do to improve their Level VI programs include:

- Provide opportunities for inspectors to participate in CVSA activities such as COHMED conferences.
- Invite shippers to attend Level VI basic and refresher trainings so that they can better prepare for the shipments.

Suggestions regarding how CVSA, DOE, and other government entities could better assist states with their Level VI programs include:

- CVSA to continue
 - Peer reviews.
 - Level VI courses and allow non-inspectors to attend the trainings.
 - Emphasizing uniformity of inspections.
- CVSA to provide
 - Paper Level VI inspection forms for use in situations when electronic entry of inspection information is not possible.
 - Timely updates on procedures and operations policy that impact the Level VI inspection process.

- Training/workshop for administrators on how to run a jurisdictional Level VI program.
- Refreshed training materials.
- Information on best practices across states.
- Support for regional exercises (e.g., sponsor a response drill for SNF).
- Information on national instructor selection process.
- DOE to
 - Update RAD refresher classes.
 - Increase number of MERITT and RAD in-depth classes.
 - Hold response drills.
 - Provide funding by implementing Section 180(c) of the Nuclear Waste Policy Act.
 - Structure fee for Section 180(c) so that funds are kept for the duration of the shipping campaign.

RECOMMENDATIONS FROM THE 2014 STATE VISITS

Recommendations were made by the peer review team at the close of one state visit and additional recommendations were developed after analyzing the data.

Peer review team recommendations made at visit closeout include:

- Program Management
 - Formalize lessons learned and disseminate to the field and the larger Level VI program community if applicable (with CVSA support).
 - Develop a repository for lessons learned (with CVSA support).
 - Provide feedback to inspectors on resolution of civil violations.
 - Invite shippers to Level VI trainings.
- Inspector Training and Support
 - Initiate replacement of older survey instruments, preferably with instruments that display units appropriate for inspection reports.
 - Certified Level VI inspectors need to use their survey instruments and not rely exclusively on the RAM inspector's survey.
 - When possible, use check sources before operating the survey instruments.
 - The driver must not be distracted when the inspector is checking the vehicle.

Recommendations based on the data analysis include:

- States should provide CVSA with timely inspector Level VI training status updates.
- States might provide opportunities for inspectors to participate in CVSA activities such as COHMED conferences.
- Because 49 CFR Part 385 requires a point of origin Level VI inspection of all shipments of Highway Route Controlled Quantities of Class 7 material, states are now impacted with inspecting not only US DOE shipments but HRCQ shipments by private industry. States concerned about funding might consider requesting FMCSA to support their Level VI programs by providing monies to conduct inspections and purchase and maintain equipment.

- CVSA to review the relevant Level VI training module to determine if there is a need to clarify the shipment information that is entered on an inspection report.
- CVSA to assist states in formalizing lessons learned and developing a repository of lessons learned that would be accessible by all program participants.
- CVSA to develop a standardized lesson learned reporting format for the Level VI program.
- CVSA to revitalizing the Level VI training materials.
- CVSA to consider creating a workgroup for best practices for the Level VI program.
- CVSA to develop an administrator workshop or class on how to run a Level VI program.
- On request, CVSA to provide the Level VI inspection form.

1 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 conducted an initial set of seven state site visits from March 2005 through August 2006 to peer review the Level VI inspection program. The states visited were:

- South Carolina
- Colorado
- Tennessee
- Washington
- Illinois
- New Mexico
- Michigan

The results of these site visits are documented in the January 2007 report *CVSA Level VI Inspection Program Peer Review: State Differences, Lessons Learned, Best Practices, and Recommendations*. Additional peer review site visits were made to New Mexico and Idaho in June and August of 2011. The results of these site visits are documented in the October 2013 report *CVSA Level VI Inspection Program Peer Review: State Differences, Lessons Learned, Best Practices, and Recommendations – Updates from State Visits in 2011*. Subsequent peer review site visits were conducted in Colorado and Illinois in November and December of 2014.

PURPOSE AND OBJECTIVES OF REPORT

This report is an update to the 2007 and 2013 reports based on the 2014 site visits. The additional findings are compared with the previous findings and presented using the same format as the 2007 report. Updated information is provided that supplements that given in the previous reports.

The same scope and methodology described in the 2007 report apply to the 2014 site visits and this report. Rather than repeat the same information in this report the reader is directed to the 2007 report for these details. The two previous peer review reports may be obtained through CVSA's website at www.cvsa.org. Once on the website, to locate the reports, select "Programs" at the top of the page then select the "North American

Standard Level VI Inspection Program” link and then select the “CVSA/WIPP Updates & Reports” link. On the resulting page the link to the 2007 report is labeled “Level VI Peer Review Report January 2007” and the link to the 2013 report is labeled “CVSA Level VI Inspection Program Peer Review, Updates from State Visits 2011”. The reader is encouraged to review the earlier reports as this report has many references to them.

The purpose of the peer review of the Level VI inspection program is to identify and share best practices. Initially it was also intended that recommendations would be made to prepare the Level VI inspection program for shipments of spent nuclear fuel to Yucca Mountain. Although the status of Yucca Mountain is currently uncertain, there is still the opportunity from the 2014 site visits to provide recommendations for improvements to the Level VI inspection program.

As stated in the 2007 report the peer review results identify and share: (1) variations in the implementation of the Level VI inspection program across states; (2) lessons learned and best practices; and, (3) perceptions of needed improvements. This information provided the basis for additional recommendations and suggested next steps resulting from the 2014 site visits.

APPROACH AND SCOPE

For the 2014 site visits the CVSA Peer Review Committee members represent various organizations including Illinois State Police, Iowa Department of Transportation, Florida Highway Patrol and CVSA. Appendix 1 lists the 2014 CVSA Peer Review Committee members and their organizational affiliations.

Colorado and Illinois agreed to participate in the 2014 peer review visits. Colorado was visited in November 2014 and Illinois in December 2014. A list of the peer review team members for each state visit and the specific dates of the visit are provided in Appendix 2.

The 2014 data collection effort covered all the same key areas of the Level VI inspection program as described in the 2007 report. The data collection process and selection of persons participating in the review used the same approach that is described in the 2007 report. The organization affiliations of the interviewees for each state are given in Appendix 3. The visit guidance and the peer review data collection instrument (Peer Review Master Interview Guide) are both identical to those used for the earlier site visits and are found in Appendix 4 and Appendix 5, respectively. The peer review teams also collected documents and other relevant materials during the visits and the materials collected from each state are identified in Appendix 6. The correspondence of the topic areas discussed in this report to the questions in the peer review data collection instrument (Appendix 5) is shown in Appendix 7 (this is the same as in the 2007 report).

The topic areas, the interviewee selection process, and the analysis methodology described in the 2007 report apply to both the 2013 report and the 2014 site visits and this

report. In addition the three sets of site visit findings were compared in order to report if there have been any notable changes over the elapsed eight years.

REPORT OVERVIEW

The findings of the data analysis comprise the body of the report and are presented in Sections 2 and 3. Section 2 reports findings that are integral to the Level VI inspection program by topic areas, including:

- State program policies and statutes;
- Organizational implementation and relationships;
- Inspector training and manpower;
- Types, locations, and number of inspections;
- Permits, notification, and scheduling;
- Conduct of inspections—inspection procedures and duration;
- Violations, enforcement, and penalties;
- Inspection equipment;
- Tracking and managing information;
- Public perceptions and program outreach; and,
- Sharing lessons learned and best practices.

Section 3 reports findings that may be relevant but are outside the purview of the Level VI inspection program per se. These topics include:

- Transportation issues and restrictions; and,
- Emergency preparedness.

Section 4 selects the most potentially useful information across all the topic areas and condenses this information into a more succinct summary of the following:

- Variations across state programs;
- Lessons learned and best practices; and,
- Future improvement needs.

Section 5 discusses recommendations that can be extracted from this exercise and next steps that may be necessary to develop and prioritize improvements to the Level VI inspection program. The peer review teams often offer recommendations at the close of the state visits. Additional recommendations were based on the analysis of the data.

2 LEVEL VI PROGRAM FINDINGS

This section presents:

- A discussion of similarities or differences between the previous findings and the 2014 state visits including variations across states; and,
- Lessons learned, best practices, and improvement needs from the 2014 state visits by topic area.

STATE PROGRAM POLICIES AND STATUTES

From the 2014 visits it was found that there continues to be variations among states regarding inspections of radioactive material shipments. Some states (including Colorado and Illinois) require that all shipments be inspected upon entry to the state. Drivers reported that for the states they have encountered, inspection levels vary and include Level I, Level II, Level III, Level VI and survey only inspections. The level of inspection may depend on location (e.g., point of origin, en route) or load (e.g., a driver reported that one state requires a Level VI inspection on HRCQ Remote-Handled shipments).

Risk, public perception, efficiency, and public health and safety were given as reasons for the state specific inspection requirements. Stakeholders in one state reported that the state's policies work well and provide assurance of competence and safety. Both states mentioned that local jurisdictions might have laws or temporary restrictions that impact routing or timing of radioactive material shipments. These may be due to oversized or overweight shipments, peak traffic time avoidance, or special events that impact traffic.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Respondents felt that their states have clear policies on inspector actions if violations are encountered and also that there are clear reporting guidelines. One state is converting to an inspection reporting system that includes a prepopulated Level VI form.

Carrier representatives and drivers noted a couple issues: waiting for the inspection at the state port of entry delays the shipment such that subsequent travel may be further postponed to avoid restrictions in metropolitan areas during rush hour and the requirement for an en route Level VI inspection during extremely cold or bad weather.

ORGANIZATIONAL IMPLEMENTATION AND RELATIONSHIPS

Both states have generator sites and reported very good relationships with them. One state has regular meetings and joint trainings with a generator site while the other state has an onsite contact at a generator site and resident inspectors at the nuclear power plant generator sites. Carrier representatives and drivers reported interactions with generator sites in multiple states and rated these working relationships as very good. For one state

the destination sites are also generator sites and relationships are very good. Drivers reported excellent relationships with their destination sites including regular communications regarding scheduling and delivery requirements.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Close contacts with generator and destination sites (e.g., joint meetings and trainings, resident inspectors, etc.) promote and maintain good working relationships.

No improvement needs were mentioned.

INSPECTOR TRAINING AND MANPOWER

The number of Level VI inspectors for the two states visited in 2014 ranged from 23 to over 70. The number of inspections performed by each inspector varies depending on the inspector's location. That is, inspectors on duty and located in regions near inspection sites generally have more opportunities to perform inspections. In recent years the average number of inspections conducted by an inspector per year ranged from 12 to over 40. It was noted that since the WIPP closure there have been significantly fewer inspections.

Both states report that inspectors received Level VI refresher training regularly in the classroom. One state schedules 4 hours of refresher training every year and conducts the training after the trainers have received their refresher and updates. The other state conducts either 8 hours of refresher training every two years or 4 hours of refresher training every year to satisfy the Level VI certification requirement. Also both states report that HAZMAT training is provided on a regular basis (ranging from every one to three years). Respondents noted that the instructors or management keep track of the training. One state utilizes their academy's learning management system to track inspector training.

Each state has two Level VI refresher instructors. These instructors receive their Level VI "train-the-trainer" training from CVSA every 2 years. Each state has HAZMAT instructors. In one state, the instructors are required to teach the course annually to maintain their certifications.

Both states report that inspectors receive updated FMCSR and CFR information once a year (books) or more often electronically via the online Guard (formerly RAID) system.

Other mentioned training RAM inspectors might receive besides general HAZMAT and the basic Level VI training include:

- MERRTT;
- Emergency Response;
- Radiation Specialist;
- Radiation Technician;

- HAZMAT Cargo Tank/Bulk; and,
- Instrumentation refresher.

The respondents rated the training they receive from “average/good” to “very good/the best”. One respondent mentioned that some training can be too repetitive and another saw a need for explosive devices training due to an increase in suspicious package reports. It was mentioned that funding is an issue for maintaining high quality training for a large cadre of inspectors.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

One state conducts the Level VI refresher training every year in 4-hour blocks for optimal participant attention and scheduling and to more quickly integrate new Level VI inspectors. Also timing of the refresher training is soon after the instructors receive their refresher training from CVSA, so that the inspectors receive the latest updates during their annual refresher training.

TYPES, LOCATIONS, AND NUMBER OF INSPECTIONS

From the 2014 visits it was found that there continues to be differences among states regarding inspections of radioactive material shipments. In one state a badge and sign-in at the security checkpoint is all that is needed to have access to a generator site. For the other state access requirements vary with the generator site. For example one site requires advanced notice, a badge, and vehicle search while another has no requirements but does provide a staff escort.

The carrier representatives and drivers report that for states they have encountered access requirements differ among generator sites. These may include site-specific training (e.g., watching a security video), testing, background check, security clearance, or a vehicle search.

For one state, the number of inspections over the past four years averaged approximately 500 per year except for the most recent year. For this year there were only 61 inspections as a result of the WIPP closure. The other state reported a range of approximately 70 to 110 inspections per year for the past four years. For this state approximately one third of the inspections were point-of-origin inspections and the remainder were en route inspections. Approximately 40% of the inspections were for WIPP shipments except for the most recent year where WIPP shipment inspections were 1% due to the WIPP closure.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Respondents provided no lessons learned, best practices, or improvement needs for this topic area.

PERMITS, NOTIFICATION, AND SCHEDULING

One state requires a Nuclear Materials Transportation Permit as well as a Hazardous Materials Transportation Permit for RAM shipments. If the load is oversize or overweight an Oversize/Overweight Permit is required from the state's Department of Transportation. There is an annual HAZMAT fee based on number of vehicles and ranges from \$10 to \$400 or a single trip HAZMAT fee that is \$25. The annual Nuclear Materials Permit fee is \$500 and there is a \$200 fee for each shipment.

Overweight/oversize permit fees range from \$15 to over \$3,000 depending on several factors including annual or per trip fee; single vehicle or fleet; and oversize, overweight or both. The HAZMAT permit funds are used for personnel costs and minimal direct costs. The Nuclear Materials Transportation permit funds are used to pay for equipment, calibration, maintenance and training. The other state requires a FMCSA Hazardous Materials Safety Permit. In addition an escort is required for all shipments of spent nuclear fuel, HLW, Highway Route Controlled Quantities of radioactive material and transuranic waste. The escort fee is \$2,500 per vehicle and \$25/mile for travel over 250 miles within the state with reduced fees for cobalt-60 and medical isotopes transportation under 100 miles within the state. The escort fees cover the actual cost of escorting which includes personnel time, travel, and equipment.

Both states use the DOE's 8-week rolling schedule to assign Level VI inspectors for WIPP shipments. One state prepares a schedule three months in advance with inspector assignments. This schedule is posted online for inspectors and updated as needed. For other shipments one state requires at least one week of advance notice for pre-trip inspections. This state's Emergency Management Agency keeps an online shipping calendar. The states feel that the 8-week rolling schedule is adequate to schedule inspectors for routine shipments. For a non-routine shipment one state noted that concerted efforts must be made to establish communications with both shipper and carrier to insure that state laws are followed. This may include discussions about routing, permits, inspection requirements, curfews, and advance notifications that assist in the development of a written transportation plan or a shared understanding through comprehensive emails.

Both states monitor certain shipments of radiological materials through their states. Mainly they use TRANSCOM to track shipments from DOE and NRC licensee facilities. TRANSCOM tracking is done routinely by one state's Regional Communications Center.

Carrier representatives and drivers report that the DOE's 8-week rolling schedule and the company's weekly schedule are used to schedule and update drivers. Drivers receive one week to one month advanced notice but in emergency cases or in busy times there may be just two days advanced notice. It was felt that that the scheduling and notification are adequate and in particular that the 8-week rolling schedule works very well. Drivers may notify states of their arrival by emailing route plans and times to the state POC or calling 2-4 hours in advance of arriving in state. They also noted that the WIPP Central Monitor Room (CMR) tracks shipments using TRANSCOM and notifies a state 2 hours before

vehicle arrival. It was mentioned that even if not required, maintaining contact with the states insures smooth coordination. Also mentioned were conditions that can impact their travel schedule: restrictions on time of day when inspections can be conducted, and inspector delays in arriving at inspection locations.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

As discussed in the 2013 report, the states and drivers are satisfied with the advance inspection notice provided them. States and drivers recognize that ongoing communications and tracking utilizing email, phone calls, TRANSCOM, and CMR insure adequate notification of vehicle arrival for timely inspections. In some cases inspection scheduling might be adjusted to avoid conditions that would delay travel.

CONDUCT OF INSPECTIONS – INSPECTION PROCEDURES & DURATION

In this topic area the findings of the 2014 visits were similar to the results discussed in the 2007 and 2013 reports. In particular:

- Number of inspectors per inspection is generally 1 or 2;
- Inspection duration typically ranges from 45 minutes to 2 hours (including paperwork); and,
- Factors impacting inspection duration include weather and number and severity of violations.

For one state the number of inspectors per inspection is usually one unless the number of shipments warrants a second inspector. For the other state it is typical for one Level VI certified inspector from the State Police and one RAM inspector from the Emergency Management Agency to conduct the inspection together.

Respondents from the 2014 visits noted the following factors impacting inspection duration:

- Number of inspectors;
- Number of vehicles to inspect;
- Inspector experience; and,
- Type of inspection (Level II or Level VI).

Respondents generally felt that inspection procedures and instructions for completing inspection reports are clear. It was noted that the CVSA Level VI inspection procedure checklist, inspection forms, and Aspen provide clear guidance for inspection and reporting. Two ambiguities regarding shipment information were mentioned: what to actually document for a product and what number to input for the shipment number.

Respondents agreed that there are clear policies on inspector actions if violations are detected and also that there are clear reporting guidelines. That is, document the

inspection and notify management. One state is converting to an inspection reporting system that includes a prepopulated Level VI form.

For both states lessons learned from inspectors are disseminated among inspectors and through supervisors at meetings and by email. For one state, any trends are noted in a quarterly report. Issues identified with informal communications are that emails may not reach each inspector and an inspector may not be at a meeting when lessons learned are discussed.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

There may be a need to clarify the shipment information entered on an inspection report. CVSA may want to review the relevant Level VI training module to determine if the instructions can be improved.

As noted in the 2013 report, capturing lessons learned from inspectors is important, not just for a particular state but also the larger Level VI Program community. States should insure that lessons learned reach each inspector and can be accessed as needed with a formal repository for lessons learned. CVSA will assist the states to disseminate relevant lessons learned to the broader community.

VIOLATIONS, ENFORCEMENT, AND PENALTIES

Respondents from both states report that RAM transportation violations are tracked using Aspen and SAFETYNET and their own databases or spreadsheets. Both states and drivers report very few violations (ranging from approximately 10 to 30) in the past 4-5 years. State respondents did not feel that there have been notable trends in the types of violations. However, drivers noted that there had been tie-down violations and some drivers initially had problems using electronic logbooks but these no longer appear to be issues.

Generally both states do not issue citations for violations. For one state a citation is \$69.50: a \$50 fine plus \$19.50 in surcharges. For this state civil penalties are rare and are evaluated on a case-by-case basis. All monies go to the General Fund. For the other state, violation information is submitted to the state's Department of Transportation for civil penalty determination. Any fines go to the Road Fund. As discussed in the 2007 and 2013 reports, the states have differing methods of assessing fines and the fines are used for various purposes.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Carrier representatives and drivers reported that there are variations among states. For example there appears to be "gray areas" in which some states will write violations while others do not. Another comment was that there are differences in inspections in certain

states. One respondent thought that the situation has improved over time and there is less variation among states. Although better, there may still be an issue (as identified in the 2007 and 2013 reports) in standardization among the states in determining violations.

INSPECTION EQUIPMENT

This topic area includes:

- Inspection survey equipment; and,
- Personal protection equipment (PPE).

One state lists Ludlum 2241-2; Ludlum 14-C; and probes 44-9 and 44-38 among the types of survey equipment they use. Also used are the Identifinder and GammaRAEII. A Ludlum 2241-2 and a GammaRAEII are assigned to each inspector with backup at ports of entry and Headquarters. Local HAZMAT teams and hospitals in the WIPP corridor use the Ludlum 14-C. In the other state the State Police inspectors have the Bicon RSO-50E ion chamber and a personal radiation detector (PRD). In addition the state's Emergency Management Agency has a variety of radiation detection, monitoring, and identification equipment. This includes a WIPP kit with the Ludlum 2221 Scaler/Rate meter, Ludlum 43-10 Alpha Wipe Counter, Ludlum 44-10 NaI 2x2, and Ludlum 44-9 Pancake GM; Ludlum 2241-3 Response Kit; additional Ludlum GM, scintillator, and rate meter models; Bicon RSO50E/RO5 Ion Chamber; Ramlon Digital Ion Chamber; Identifinder; Source Kits; Response/Contamination Kits; Dose Rate Kits; Neutron Detectors; Personal Dosimetry; and DetectiveEX Portable HPGe Gamma Spectrometer.

Procedures are in place for checking operation, maintenance, and calibration of the equipment. Equipment checks and maintenance are performed quarterly or annually depending on the equipment and calibrations are usually performed annually. Both states have a central person or organization that monitors inventory including calibration due dates and performs the calibrations and repairs or forwards the equipment for calibration or repair. Respondents from one state felt that they had great equipment that is very reliable and well maintained. One respondent noted that WIPP funds much of the equipment and maintenance. For the other state the equipment was rated adequate. It was noted that the Bicon instrument is analog, does not auto-scale, and has an issue with battery corrosion.

The PPE used that was mentioned by both states include personnel dosimetry (e.g., TLDs, dosimeter badges), gloves (e.g., nitrile), foot protection (e.g., steel toe shoes, rubber boots) clothing (e.g., Tyvek), and eye protection (e.g., safety glasses). Responders (includes the State Patrol in one state and the Emergency Management Agency in the other state) have additional PPE. For both states PPE is issued to the individual inspector. Respondents felt that the PPE is very good and well maintained by their organizations. A respondent indicated that WIPP funding is a significant contributor to the high quality of their PPE and maintenance. One state reports that inspectors attend initial and refresher trainings on their PPE.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Each state has procedures for checking survey equipment and has a central person or organization that maintains recalibration schedules. This insures that the equipment is available and ready to use when needed.

Personal dosimetry is being used by both states (a best practice recommendation from the 2007 report and confirmed in the 2013 report).

To minimize readout and calculation errors and to reduce inspection reporting time it is suggested to replace analog survey instruments with digital, auto-scale equipment.

A reduction in WIPP funding may impact quality of survey equipment, PPE and the maintenance of both.

TRACKING AND MANAGING INFORMATION

This topic area includes:

- Tracking shipments, inspections, and violations;
- Tracking inspector training; and,
- Tracking program changes and managing/sharing updates.

Tracking Shipments, Inspections, and Violations

Both states have personnel trained in satellite tracking systems like TRANSCOM. One state has over 50 persons trained to use TRANSCOM and will have more once the TRANSCOM account for Level VI inspections is activated prior to the reopening of the WIPP facility. The other state uses TRANSCOM for tracking WIPP and other DOE shipments. Inspections are tracked by both states using one or more of the following systems: Aspen, SAFETYNET, and state databases and spreadsheets. The same systems are used to track violations.

Tracking Inspector Training

Currently an inspector is required to complete refresher training every two years in order to remain Level VI certified. Thus having a system to track inspector Level VI initial and refresher training is essential. CVSA has a database that tracks inspector training status for each state but this system relies on prompt updates from the states. Both states maintain their own systems to track inspector training but they also should coordinate with CVSA to keep their inspector Level VI training data current in the CVSA database.

Tracking Program Changes and Managing/Sharing Updates

One state times the Level VI refresher training soon after the instructors receive their refresher training from CVSA so that the inspectors receive the latest updates during their annual 4-hour refresher training.

Both states report that inspectors receive updated FMCSR and CFR information once a year (books) or more often electronically via the online Guard (formerly RAID) system.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

The two states appear to be satisfied with the systems they are using to track shipments, inspections, violations, and inspector training. They should provide CVSA with timely inspector Level VI training status updates for their states.

PUBLIC PERCEPTION AND PROGRAM OUTREACH

From the 2014 visits it was found that higher management continues to support and recognize the importance and need of the inspection program to insure that shipments are safe. For one state, these perceptions have been influenced by over 20 years of higher management support for the safe transportation of nuclear materials throughout the state. Another influence is that a member of the Governor's Office participates on a WIPP transportation advisory group and is involved in major decisions and initiatives.

Both states indicate that public perception of RAM transportation in their states is very positive. For one state there has not been a public inquiry for years and the last perception study (conducted before WIPP shipments began) indicated that public confidence in emergency response was very high.

Factors given that influence public perception of RAM transportation positively in these states include:

- Outreach that details shipment safeguards, quality checks before shipment departure, and container testing;
- Explanations about inspections and surveys, double checks, and emergency response procedures;
- Educational efforts on the safety and compliance of RAM transport; and
- No accidents or incidents in recent years.

In one state there were community concerns about a local curvy route that the shipments take to get to the interstate but these concerns were resolved when an alternate "straight shot" route was used instead. In the same state there is a special interest group that is committed to ending nuclear power.

Both states have had public outreach programs in the past for various shipping campaigns including WIPP. One state conducts public outreach in advance of new campaigns, provides updates on the status of the WIPP facility, and has a RAM-trained public information officer to address any issues. In addition the State Patrol's website section on HAZMAT has recently included information on the Nuclear Materials Transportation Program and will address the needs of local emergency planning committees by expanding the information on this website. In the other state one of the generator/destination sites posts information for the public on their website. It was also

mentioned that another public outreach resource is the DOE-sponsored National Transportation Stakeholders Forum where meetings are open to the public.

Generally it was felt that current public outreach is adequate and there is no need to increase public outreach except, as noted by one state, if spent nuclear fuel starts shipping. In this case Section 180(c) funding would be used for awareness training.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

As discussed in the 2013 report it appears that many years of public outreach has resulted in a generally favorable public opinion of RAM shipments for the two states. The absence of recent transportation incidents and education of the public on the safety of the shipments have contributed to the positive perception in these states. Public outreach is considered adequate and would only need to be increased if there are new shipping campaigns.

SHARING LESSONS LEARNED AND BEST PRACTICES

From the 2014 visits it was found that there continues to be informal mechanisms to share lessons learned and best practices. Typical methods include email, word of mouth, and discussions at meetings and trainings.

When asked about what lessons had been learned or best practices identified, the following were given:

- Identification of violations that are out-of-service;
- Use of survey meter in cold weather; and
- Issues discovered and resolved (e.g. air leaks, hose rubbing).

Generally the lessons learned and best practices are reported to management as they occur (e.g., via email, in the inspection report, at the pre-penalty review) and disseminated through the various informal methods. In both states the inspection information is monitored for trends. One state noted trends in the WIPP Quarterly Report.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Most respondents reported that lessons learned are collected and disseminated in various informal ways. Unfortunately an inspector may not receive the email, or be present at the meeting or training where a lesson learned is discussed. And there may not be a repository of lessons learned that can be accessed. There were indications from the 2014 visits that there are inspectors that are not aware of lessons learned and don't know how to obtain information about lessons learned. Furthermore, as noted in the 2013 report, lessons learned and best practices identified by each state may be of interest and applicable to other jurisdictions. A formal mechanism to provide this information in the

state and to other jurisdictions should be available. CVSA will assist the states to disseminate relevant lessons learned and best practices to the broader community with resources such as the RAD Inspection News and the CVSA website.

3 ADDITIONAL FACTORS OF INTEREST (RELEVANT TO BUT BEYOND LEVEL VI INSPECTION PROGRAM)

The interviews included questions that are relevant to RAM transportation but go beyond the Level VI inspection program per se. These questions fall into two topical categories:

- Transportation issues and restrictions; and,
- Emergency preparedness.

TRANSPORTATION ISSUES AND RESTRICTIONS

This topic area includes the following issues:

- Route restrictions;
- Weather restrictions;
- Escort requirements; and,
- Safe parking requirements.

Route Restrictions

One state has preferred routes for RAM shipments. The other state, which requires escorts for all SNF, HLW, HRCQ and transuranic waste shipments, does not have predetermined routes. This state's Department of Transportation may advise shippers and carriers on routes to use. Also the State Police has the authority to reroute SNF shipments if there is an issue. One state restricts travel during rush-hour traffic times in larger (i.e., population over 50,000) municipalities.

According to carrier representatives and drivers, most states have preferred routes and the majority considers these routes convenient. They also noted that restricting travel to avoid rush hour traffic could be an inconvenience when holding up shipments for hours. These findings are similar to the results discussed in the 2007 and 2013 reports.

One state has no current construction projects but has plans in the near future that may impact RAM shipments. The other state does not have any construction planned but if it did, the state's Department of Transportation would be responsible for designating alternate routes.

Weather Restrictions

One state makes bad weather decisions based on the criteria from the Western Governors' Association WIPP Transportation Technical Advisory Group Program Implementation Guide. Depending on the location of the vehicle (en route to the state or within the state) during deteriorating weather or road conditions, options may include placing the vehicle into safe parking in the state it is located or returning the vehicle to the neighboring state. For the other state (which requires escorts), the State Police

monitor the Department of Transportation's website for weather alerts. The trooper that is providing the escort generally makes the decision if the vehicle can continue or must be placed into safe parking.

Escorting Requirements

One state requires escorts for all SNF, HLW, HRCQ and transuranic waste shipments. The other state may require an escort under certain conditions such as for an off-route shipment or when there are security concerns. The two states include armed, state employees on every escort. This is the same finding described in the 2007 and 2013 reports.

The drivers listed several states that use escorts and felt that generally there are no problems with escorting. One driver mentioned that escorts do not like to stop whereas drivers need to make occasional stops.

Safe Parking Requirements

Both states report that they have safe parking locations. One state refers to the Western Governors' Association WIPP Transportation Technical Advisory Group Program Implementation Guide for safe parking location criteria but also considers the amount of time the vehicle will be parked in determining a safe parking location choice. The other state has a list of approximately 60 safe parking locations for WIPP shipments that includes facilities such as military installations, weigh stations, and Department of Transportation yards. The carrier representatives and drivers reported that the states have convenient, safe parking locations.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

The drivers reported inconveniences with time-of-day travel restrictions in certain locations and escorts not willing to stop for breaks.

EMERGENCY PREPAREDNESS

This topic area includes:

- Exercises; and,
- Availability of trained responders on routes.

Exercises

One state has had full-scale emergency response exercises involving state and local agencies. These exercises have been largely dependent on world events and funding. To a greater extent, cost effective methods such as tabletop exercises have been employed. Participants and observers consider the exercises very good learning tools. In the other state, the State Police have had homeland security related exercises but these have not

been focused on transportation. There are discussions to have a full-scale emergency response exercise involving RAM in the future.

Trained Responders on Routes

Both states report that they have trained responders or personnel on RAM transportation routes in the following areas:

- First responders trained in RAM: In one state, on the WIPP corridor route, many local first responders have MERRTT training while others have some training in RAM from other courses. Also the State Patrol has HAZMAT technician level responders stationed throughout the state for response on any nuclear materials route. The other state has Emergency Management Agency personnel on every escort that are first responders trained in RAM.
- HAZMAT operations level responders trained in RAM: The one state has the State Patrol HAZMAT technician level responders and many localities have awareness level responders and some operations level capabilities. The larger municipalities tend to have technician level responders. The other state has Emergency Management Agency personnel on every escort that are HAZMAT operations level responders trained in RAM.
- HAZMAT technicians trained in RAM: The one state has the State Patrol HAZMAT technicians stationed throughout the state that are trained in RAM. The other state has Emergency Management Agency personnel on every escort that are HAZMAT technicians trained in RAM.
- Personnel trained in Critical Incident Command: The State Patrol in one state and the Emergency Management Agency in the other state have personnel trained in Critical Incident Command. Both states support the National Incident Management System.
- Personnel trained in HAZMAT Critical Incident Command: Both states have this capability through their primary Critical Incident Command organizations (i.e., State Patrol and Emergency Management Agency).
- Personnel trained in Radiological Emergency Operations: Both states have this capability through their primary Critical Incident Command organizations (i.e., State Patrol and Emergency Management Agency).

The state that has nuclear power plants has radiological response teams. In both states hospital personnel along WIPP routes have attended EMS/hazardous material training. In one state, hospital personnel near the nuclear power plants also have this training. The Emergency Management Agency for this state has a trainer for hospitals on how to handle contaminated persons.

Both states report that EMS or hospital personnel on RAM transportation routes are trained in the handling of radiation accidents and radiological emergency management. One state reports that hospital and EMS personnel on the WIPP corridor have participated in the radiological-specific training course offered through the DOE Carlsbad Field Office. It also notes that public health and environmental officials often attend FEMA's radiological emergency management course. The other state reports that the

trained personnel are either Emergency Management Agency staff or others that are commonly located near the nuclear power plants. If needed, this state would request NNSA's Radiological Assistance Program (RAP) support.

There is radiological emergency training available for local responders in each state. In one state there is a large variety of training available through the state's WIPP Program. In the other state the training is limited.

Respondents from one state felt that emergency preparedness in their state for events involving RAM transportation is good. However it was noted that the urban areas have more funding and long-term staff and may be in a better position than rural areas that don't have the same funding and are staffed by volunteers with a high turnover rate.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Full-scale emergency response exercises involving RAM have been identified as effective learning tools.

Funding and training for preparedness for an emergency involving RAM transportation may be limited for local responders and rural areas.

4 SUMMARY

NOTABLE VARIATIONS ACROSS STATES

The most notable differences across states include:

- Whether or not escorts are required;
- Permit and escort fees;
- Types of survey instruments;
- The number of certified Level VI Inspectors for each state;
- Requirements for access to generator sites differ among states;
- Inspection duration varies from 45 minutes to 2 hours;
- Fines for violations and their disposition vary by state;
- Standardization issues among states in determining violations; and,
- Standardization issues among states in inspection procedures.

Several of these variations listed are identical to variations discussed in the 2007 and 2013 reports.

KEY LESSONS LEARNED AND BEST PRACTICES

Key lessons learned and best practices across states were identified to include the following:

- Conducting the Level VI refresher training every year in 4-hour blocks may be optimal for participant attention and scheduling and to more quickly integrate new Level VI inspectors.
- Timing of refresher training soon after instructors receive their refresher training from CVSA ensures that inspectors receive the latest updates during their refresher training.
- Full-scale emergency response exercises involving RAM have been identified as effective learning tools.
- Close contacts with generator and destination sites (e.g., joint meetings and trainings, resident inspectors, etc.) promote and maintain good working relationships.

FUTURE IMPROVEMENT NEEDS

Suggestions for future improvements include both:

- What states can do to improve their Level VI programs; and,
- How CVSA, DOE, and other government entities can better assist states with their Level VI programs.

WHAT STATES CAN DO TO IMPROVE THEIR LEVEL VI PROGRAMS

- Provide opportunities for inspectors to participate in CVSA activities such as COHMED conferences.

- Invite shippers to attend Level VI basic and refresher trainings so that they can better prepare for the shipments.

HOW CVSA, DOE, AND OTHER GOVERNMENT ENTITIES CAN BETTER ASSIST STATES WITH THEIR LEVEL VI PROGRAMS

There were a few identified needs pertaining to the CVSA Level VI inspection program. Identified future improvements include:

- CVSA to continue
 - Peer reviews.
 - Level VI courses and allow non-inspectors to attend the trainings.
 - Emphasizing uniformity of inspections.
- CVSA to provide
 - Paper Level VI inspection forms for use in situations when electronic entry of inspection information is not possible.
 - Timely updates on procedures and operations policy that impact the Level VI inspection process.
 - Training/workshop for administrators on how to run a jurisdictional Level VI program.
 - Refreshed training materials.
 - Information on best practices across states.
 - Support for regional exercises (e.g., sponsor a response drill for SNF).
 - Information on national instructor selection process.
- DOE to
 - Update RAD refresher classes.
 - Increase number of MERITT and RAD in-depth classes.
 - Hold response drills.
 - Provide funding by implementing Section 180(c) of the Nuclear Waste Policy Act.
 - Structure fee for Section 180(c) so that funds are kept for the duration of the shipping campaign.

5 RECOMMENDATIONS AND NEXT STEPS

The peer review teams at the close of the state visits often make recommendations. Additional recommendations are developed after analyzing the data.

PEER REVIEW TEAM RECOMMENDATIONS MADE AT VISIT CLOSEOUT

At the conclusion of one of the 2014 state visits the peer review team provided recommendations specific to the agencies visited. These recommendations are grouped according to the following topical areas:

PROGRAM MANAGEMENT

- Formalize lessons learned and disseminate to the field and the larger Level VI program community if applicable (with CVSA support).
- Develop a repository for lessons learned (with CVSA support).
- Provide feedback to inspectors on resolution of civil violations.
- Invite shippers to Level VI trainings.

INSPECTOR TRAINING AND SUPPORT

- Initiate replacement of older survey instruments, preferably with instruments that display units appropriate for inspection reports.
- Certified Level VI inspectors need to use their survey instruments and not rely exclusively on the RAM inspector's survey.
- When possible, use check sources before operating the survey instruments.
- The driver must not be distracted when the inspector is checking the vehicle.

RECOMMENDATIONS BASED ON DATA ANALYSIS

The following are recommendations derived from the findings including lessons learned, best practices, and future improvement needs.

- States should provide CVSA with timely inspector Level VI training status updates.
- States might provide opportunities for inspectors to participate in CVSA activities such as COHMED conferences.
- Because 49 CFR Part 385 requires a point of origin Level VI inspection of all shipments of Highway Route Controlled Quantities of Class 7 material, states are now impacted with inspecting not only US DOE shipments but HRCQ shipments by private industry. States concerned about funding might consider requesting FMCSA to support their Level VI programs by providing monies to conduct inspections and purchase and maintain equipment.
- CVSA to review the relevant Level VI training module to determine if there is a need to clarify the shipment information that is entered on an inspection report.
- CVSA to assist states in formalizing lessons learned and developing a repository of lessons learned that would be accessible by all program participants.

- CVSA to develop a standardized lesson learned reporting format for the Level VI program.
- CVSA to revitalizing the Level VI training materials.
- CVSA to consider creating a workgroup for best practices for the Level VI program.
- CVSA to develop an administrator workshop or class on how to run a Level VI program.
- On request, CVSA to provide the Level VI inspection form.

APPENDIX 1: 2014 PEER REVIEW COMMITTEE

Peer Review Committee	
Member	Affiliations
R. Todd Armstrong	Illinois State Police
Lance Evans	Iowa Department of Transportation
Artez Lester	Florida Highway Patrol
Toni Slavich	Commercial Vehicle Safety Alliance
Carlisle Smith	Commercial Vehicle Safety Alliance
Larry Stern	Commercial Vehicle Safety Alliance

APPENDIX 2: 2014 VISIT DATES AND PEER REVIEW TEAMS BY STATE

State	Visit Dates	Peer Review Team Members
Colorado	November 18-20, 2014	R. Todd Armstrong
		Lance Evans
		Artez Lester
		Carlisle Smith
		Larry Stern
Illinois	December 9-11, 2014	Artez Lester
		Toni Slavich
		Larry Stern

APPENDIX 3: 2014 STATE ORGANIZATIONS COVERED AND FIELD OBSERVATIONS

State	Organization Covered/Field Visits
Colorado	Colorado State Patrol
	Colorado Department of Transportation
	Douglas County Sheriff's Office
	CAST Transportation
Illinois	Illinois State Police
	Illinois Emergency Management Agency
	Illinois Department of Transportation
	Argonne National Laboratory
	Cassidy Trucking
	Secured Transportation Services, LLC
	Visionary Solutions, LLC

APPENDIX 4: CVSA LEVEL VI PEER REVIEW SITE VISIT GUIDANCE

FOR CVSA LEVEL VI PROGRAM IMPLEMENTATION ORGANIZATIONS

- An initial Overview by Peer Panel followed by initial program overview and site visit overview session by Program Lead/Program Administrator with opportunity for questions/answers. [Full panel would participate]
- Review of inspection tools/checklists used by inspectors. [2-3 panel members]
- Interviews with inspectors (number depends on number of inspectors jurisdiction has). [2 panel members per interview]
- Observation of one or more different inspectors conducting a mock inspection (or actual inspection is available). [2 panel members per mock inspection]
- Review of training procedures/materials. [2 panel members]
- Interviews with trainers (number depends on number of trainers jurisdiction has). [2 panel members per interview]
- Site visit of equipment storage site and interview with equipment manager. [2 panel members]
- Interviews with key program sponsors—may be useful to include relevant legal counsel to address specific jurisdiction regulations of pertinence. [2 panel members]
- Interviews with key program stakeholders (customers, interest groups, key public/private stakeholders) as determined to be applicable--it may be useful to conduct interviews with more than one carrier. [2 panel members per interview]
- Interviews with relevant Emergency Management, CIC, ICS, HAZMAT personnel if not determined to be outside scope of review. [2 panel members per interview]
- Exit meeting with Program Lead/Program Administrator to address ambiguities, need for clarification, etc. [Full panel]

THE FOLLOWING IS WHAT CVSA WILL NEED FROM YOUR STATE TO EFFECTIVELY CONDUCT THE PEER REVIEW

- Please have the following information available at the start of the site visit:
 - The average length of inspections.
 - The number of inspections conducted each year for the past five years.
 - The number of violations identified and the number of violations cited each year for the past five years.
 - The number and amount of fines levied each year over the past five years.
 - The number of RAM movements through the jurisdiction each year for the past 5 years.

- The type and cost of RAM shipment permits (if applicable).
 - The number of jurisdiction HM refresher instructors.
 - The number and type of inspection equipment and personal protection equipment.
- How many inspectors they have, including their names, years of experience, so that we can jointly determine whom to interview. We will have to determine when you will set up interview times and mock inspection observation times with the selected inspectors in advance of the site visit.
- Discuss with jurisdiction how they will go about setting up mock inspection venue so that panel members can observe mock inspection by a few different inspectors.
- Let me know how many trainers they have, including their names, years of experience, so that you can jointly determine whom to interview. We will have to determine when you will set up interview times with the selected trainers in advance of the site visit.
- Let me know who the relevant equipment manager(s) are. We will have to determine when you will set up interview times with the equipment manager(s) and set up time for visit to equipment site(s) in advance of site visit.
- Let me know who the key program sponsors are and we will have to determine when you will set up interview times.
- Let me know what RAM generator sites exist within their jurisdiction and the key generator site personnel they interact with. We will have to determine when you will set up interview times with the selected generator site personnel in advance of the site visit—note that these interviews will most likely to done via the phone.
- Let me know who the relevant Emergency Management, CIC, ICS, HAZMAT personnel are in their jurisdiction. We will determine when you will set up interview times with the selected staff in these areas in advance of the site visit—note that these interviews may be done via the phone.
- Let me know who other key program stakeholders are (interest groups, key public/private stakeholders). We will determine when you will set up interview times with the selected stakeholders in advance of the site visit.
- Jointly set up time at start of the review site visit for an Initial Overview by Peer Panel followed by Initial Program Overview and Site Visit Overview session by Program Lead/Program Administrator.
- Jointly set up time at end of the review site visit for an Exit Meeting between the Program Lead/Program Administrator and the review team panel members.

FOR PRIMARY CARRIERS (if applicable)

- An initial meeting between Peer Review Panel and Carrier Site POC. [Full review panel team would participate]
- Interviews with drivers (number depends on number of drivers carrier has). [2 panel members per interview]
- Interviews with other relevant carrier staff. [2 panel members per interview]
- Exit meeting between Peer Review panel and Carrier POC. [Full panel]

THE FOLLOWING IS WHAT WE WILL NEED FROM YOU TO EFFECTIVELY CONDUCT THE PEER REVIEW

- Have carrier designate a POC to work with panel team lead.
- Have POC let you know how many drivers they have, including their names and years of experience, so that you can jointly determine whom to interview. Determine whether they or you will set up interview times with the selected drivers in advance of the site visit.
- Have POC help you determine what RAM generator sites you should interview.
- Jointly set up time at start of the site visit for an Initial Meeting between Peer Panel and Carrier staff.
- Jointly set up time at end of the site visit for Exit Meeting between Peer Panel and Carrier staff.

FOR GENERATOR SITES (if applicable)

- An initial phone interview between select members of the Peer Review Panel and Generator Site POC. [Select members of the review panel team would participate]
- Individual phone interviews with key generator staff (number depends on persons jointly identified as key staff of relevance). [2 panel members per interview]
- Have generator site designate a POC to work with panel team lead.
- Have POC let you know who relevant generator staff is, including their names and years of experience, so that you can jointly determine whom to interview. Determine whether they or you will set up interview times with the selected staff in advance of the site visit.

FOR DESTINATION SITES (if applicable)

- An initial phone interview between select members of the Peer Review Panel and Destination Site POC. [Full review panel team would participate]
- Individual phone interviews with key destination staff (number depends on persons jointly identified as key staff of relevance). [2 panel members per interview]
- Have destination site designate a POC to work with panel team lead.
- Have POC let you know who relevant destination staff is, including their names and years of experience, so that you can jointly determine whom to interview. Determine whether they or you will set up interview times with the selected staff in advance of the site visit.

APPENDIX 5: CVSA LEVEL VI PEER REVIEW MASTER INTERVIEW GUIDE

CVSA Peer Review Interview Guide

Data Collection Form: Jurisdiction questionnaire form – all questions

Jurisdiction	
Date/ Start & Finish times	
Interviewer(s): Lead Name Others	
Interviewee(s): Name/Title/Org/ phone #/e-mail	

Q #	Jurisdiction Program Baseline Parameters	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
	RAM Generator Sites			
1.0	How many RAM waste generator sites exist in your jurisdiction? (if none, skip to next section)			
1.1	[If applicable] What kind of working relationship does the jurisdiction have with these generator site(s)? Poor/Fair/Good/Excellent		Site 1: Site 2: Site 3:	
1.1.1	[If applicable] What kind of working relationship do you have with the generator site(s)? Poor/Fair/Good/Excellent		Site 1: Site 2: Site 3:	
1.2	[If applicable] What requirements must an inspector undergo to access the generator site in order to perform a pre-trip inspection?			
1.3	[If applicable] Is a pre-trip inspection schedule and notification established in advance of the shipment to assure inspectors are available as required to conduct the inspections?			

1.3.1	[If applicable] How far in advance of the shipment departure is the pre-trip inspection schedule and notice communicated?			
1.4	[If applicable] Is there a jurisdictional requirement pertaining to shipment notification?			
	RAM Destination Sites	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
2.0	Does the jurisdiction have a RAM destination site? (if none, skip to next section)			
2.1	[If applicable] What kind of working relationship does the jurisdiction have with the destination site? Poor/Fair/Good/Excellent			
2.1.1	[If applicable] What kind of working relationship do you have with destination site? Poor/Fair/Good/Excellent			
2.2	[If applicable] What requirements must an inspector undergo to access the destination site in order to perform a post-trip inspection?			
2.3	[If applicable] Is a post-trip inspection schedule and notification established in advance of arrival to assure inspectors are available as required to conduct the inspection?			
2.3.1	[If applicable] How far in advance of the shipment arrival is the post-trip inspection schedule and notice communicated?			
2.4	[If applicable] Is there a jurisdictional requirement pertaining to shipment notification?			
	Other Jurisdictional Factors, such as Transportation Routes, Safe Parking, Inclement Weather and Delays	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments

3.0	Has the jurisdiction established any preferred routes for RAM shipments?			
3.1	Does the jurisdiction have any major construction projects planned for any RAM routes that may impact the transportation of RAM shipments?			
3.1.1	What will be the duration of the construction (anticipated start/end dates)?			
4.0	Does the jurisdiction have any "safe parking" locations?			
4.1	If so, how many?			
4.2	What selection factors did the jurisdiction use to establish the "safe parking" locations?			
5.0	Does the jurisdiction currently require or have plans to require the escort of any shipments of RAM through its jurisdiction?			
5.1	If so, what will the RAM escort be armed or un-armed?			
5.2	Will the RAM escort be done by state employees or third party?			
6.0	How are inclement weather or other delays/issues handled to prevent the program from being overly burdensome?			
	Tracking and Level of RAM Transportation Activity	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
7.0	Are RAM inspections tracked?			
7.1	If so, how are inspections tracked?			
8.0	How many inspections have been conducted each year for the past 5 years?			
9.0	Are RAM transportation violations tracked?			
9.1	How are violations tracked?			
10.0	How many violations have			

	been identified each year for the past 5 years?			
10.1	How many violations have been cited each year for the past 5 years?			
11.0	Has there been a trend?			
12.0	Does the jurisdiction currently or is it planning to monitor/track shipments of radiological materials through its territory?			
13.0	How many RAM movements take place through the jurisdiction each year?			
14.0	Does the jurisdiction's program have personnel trained in satellite tracking systems (TRANSCOM)?			
	Specific or Additional Jurisdictional Regulatory Requirements/Policies	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
15.0	Are jurisdictional penalties levied for violations/deficiencies?			
15.1	If so, how much are these penalties?			
15.2	How many penalties have been levied each year for the past 5 years?			
15.3	What is the money used for?			
16.0	Does the jurisdiction have a law, policy, regulation that requires inspection of RAM shipments that move through the jurisdictional area?			
16.1	Does this policy include all RAM shipments or is it specific to just certain types?			
16.2	If the jurisdiction requires its own inspection of RAM shipments, is coordination with carriers and notification requirements in advance of the shipment adequate to assure inspectors are available to conduct the inspection?			
16.2.1	How far in advance of the shipments arrival (en-route) will the inspection schedule			

	be developed?			
16.3	Does the jurisdiction law, policy, regulation limit the transportation of RAM shipments during peak travel hours in any city within the jurisdiction?			
16.4	Does the jurisdiction require any additional permits for carriers transporting RAM?			
16.4.1	If so, what do the additional permits cost?			
16.4.2	What are the funds collected from the additional permits used for (what do they fund)?			
16.5	What is the basis for these jurisdictional policies – risk, agency perception, public perception, other?			
16.6	In your view, what is the perception of executive management concerning RAM transportation through the jurisdiction?			
16.6.1	What do you think has influenced executive management perception?			
16.7	In your view, what is the perception of the general public concerning RAM transportation through the jurisdiction?			
16.7.1	What do you think has influenced public perception?			
16.8	Are there any special interest groups (or other factors) influencing policy on RAM transportation through the jurisdiction?			
16.9	Are there any other jurisdictions (i.e., tribal) that have laws, policies or regulations that impact the transportation of RAM shipments?			
	Inspection Procedures	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
17.0	How many inspectors			

	typically conduct an inspection?			
17.1	How long does an inspection typically take?			
17.2	Do most inspections tend to take the same amount of time?			
17.3	When the length of inspections varies, what generally accounts for a shorter or longer inspection?			
17.4	Are inspection protocols sufficiently clear and precise?			
17.4.1	Are instructions for how inspectors should fill out inspection forms clear and precise?			
17.5	Are there clear policies specifying what an inspector should do if any violations or inadequacies are detected?			
17.6	Do clear reporting guidelines exist and, if so, what are they?			
17.7	Have mechanisms been established to capture lessons learned from inspectors?			
17.7.1	How are lessons learned captured?			
17.7.2	What lessons learned have been identified?			
17.7.3	How have these lessons learned been communicated and acted on?			
	Training/Experience	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
18.0	How many trained/certified Level VI inspectors does the jurisdiction have and how long has each inspector been performing this function?			
19.0	What is the number of inspections conducted per year by each of the inspectors?			
19.1	Approximately how many inspections do you conduct each month, each year?			
19.2	Is this basically the same			

	number as performed by the other trainers; other inspectors?			
20.0	Do inspectors receive both general HM & Level VI Refresher Training on a regular basis?			
20.1	Is there a set schedule established for refresher training or is this training provided on an as needed basis?			
20.1.1	If scheduled, what is the refresher training schedule?			
20.1.2	How often do you receive refresher training?			
21.0	How is training tracked?			
22.0	How is refresher training accomplished?			
23.0	How many general HM refresher instructors does the jurisdiction have and what is the frequency and type of training they receive?			
24.0	How many Level VI refresher instructors does the jurisdiction have and what is the frequency and type of training they receive?			
25.0	How often do CMV inspectors receive updated FMCSRs/CFRs?			
26.0	Do RAM inspectors receive any additional training in RAM regulation beyond the CVSA Basic Level VI Course?			
27.0	What training do you have?			
28.0	In your opinion, how good is the training you receive?			
	Inspection Survey Equipment	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
29.0	What type of radiation survey equipment is used by the jurisdiction to conduct inspections of RAM shipments (make/model)?			
30.0	What is the inventory of the equipment (how many of			

	each type)?			
31.0	Is the equipment issued to individual inspectors or to a division/squad/troop?			
32.0	Is the equipment certification/repair maintained by a central person or location?			
33.0	What is the jurisdiction standard to assure that instruments in the field are calibrated?			
34.0	In your opinion, how good is the equipment and equipment maintenance? Please explain.			
	Personal Protection Equipment.	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
35.0	What type of Personal Protection Equipment (PPE) is used by the jurisdiction concerning RAM?			
36.0	What is the make & model of this PPE equipment?			
37.0	What is the inventory of the PPE (how many are on hand)?			
38.0	Is the PPE issued to individual inspectors or to a division/squad/troop?			
39.0	What is the jurisdiction standard to assure that PPE is maintained in proper condition for use?			
40.0	What types of training courses are those persons issued PPE required to attend?			
41.0	In your opinion, how good is the PPE equipment and equipment maintenance? Please explain.			
	Emergency Preparedness	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
42.0	Does the jurisdiction have First Responders on RAM transportation routes that have been trained in RAM?			
43.0	Does the jurisdiction have			

	HazMat Operations Level Responders on RAM transportation routes that have been trained in RAM?			
44.0	Does the jurisdiction have HazMat Technicians on RAM transportation routes that have been trained in RAM?			
45.0	Does the jurisdiction have personnel on RAM transportation routes that have been trained in Critical Incident Command?			
46.0	Does the jurisdiction have personnel on RAM transportation routes that have been trained in HazMat Critical Incident Command?			
47.0	Does the jurisdiction have personnel on RAM transportation routes that have been trained in Radiological Emergency Operations?			
48.0	Does the jurisdiction have Radiological Response Teams on RAM transportation routes?			
49.0	Does the jurisdiction have hospital personnel on RAM transportation routes that have been trained in an EMS/Hazardous Material Course?			
50.0	Does the jurisdiction have EMS or hospital personnel on RAM transportation routes that have been trained in the Handling of Radiation Accidents?			
51.0	Does the jurisdiction have EMS or hospital personnel on RAM transportation routes that have been trained in the Radiological Emergency Management?			
52.0	Does the jurisdiction have any Radiological Emergency			

	Training available for local responders?			
53.0	Has the jurisdiction conducted any full-scale emergency response exercises involving RAM?			
53.1	If so, how many exercises have been conducted and when?			
53.2	Were you involved in these exercises?			
53.3	In your opinion, how good were the exercises and how well did those involved perform?			
53.4	In your opinion, how good is emergency preparedness for events involving RAM transportation?			
	Public Awareness	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
54.0	Has the jurisdiction conducted any public outreach in regards to the transportation of RAM?			
55.0	Does the jurisdiction have any plans to conduct any public outreach in regards to the transportation of RAM?			
55.1	Is there a need for greater outreach and, if so, what is needed?			
	Assistance	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments
56.0	What can the CVSA do to better assist you to efficiently and effectively address the shipment of RAM through the jurisdiction?			
57.0	What can the DOE do to better assist you to efficiently and effectively address the shipment of RAM through the jurisdiction?			

¹= number (type in numerical answer)

²=yes/no (type in yes or no response)

³= Poor/Fair/Good/Excellent (type in poor, fair, good, or excellent)

APPENDIX 6: 2014 MATERIALS COLLECTED BY STATE

Colorado MATERIALS COLLECTED

- **Various materials from Colorado State Patrol**
 - **Hazardous Materials Section Overview**
 - **Statutes Regarding Designated Emergency Response Authority**
 - **Route Map**
 - **Rules and Regulations Concerning Permitting, Routing, and Transportation**
 - **List of Active Highway Projects**
 - **Procedure for Level VI Inspection and Oversight of WIPP and Nuclear Waste Shipments**
 - **Summary of Transuranic Inspections**
 - **Regional Communications Center Directive for WIPP Shipments**
 - **Related Laws and Codes – Fines**
 - **Statutes Regarding Transportation of Hazardous and Nuclear Materials**
 - **Permit Application Information**
 - **Level VI Inspectors List**
 - **WIPP Program Training Matrix**
 - **Equipment List**
 - **Dosimetry Report**

Illinois MATERIALS COLLECTED

- **Various materials from Illinois State Police, Illinois Emergency Management Agency, and Illinois Department of Transportation**
 - **Lists of Inspectors and Training**
 - **Lists of Equipment and Instrumentation**
 - **Graphical Summaries of Inspections**
 - **Inspection Report Examples**
 - **Related State Rules and Regulations**
 - **Civil Penalty Assessment Information**
 - **Description of Response to Specific Event**
 - **Planning Guide for Shipments of Radioactive Material Through the Midwestern States**

APPENDIX 7: RELATION OF REPORT SECTION TOPICS TO QUESTIONS IN PEER REVIEW INTERVIEW GUIDE

Level VI Program Findings Topic	Relevant Interview Guide Questions
State Program Policies and Statutes	16.0, 16.1, 16.5, 16.9, 17.5, 17.6
Organizational Implementation and Relationships	1.0, 1.1, 1.1.1, 2.0, 2.1, 2.1.1
Inspector Training and Manpower	18.0, 19.0, 19.1, 19.2, 20.0, 20.1, 20.1.1, 20.1.2, 21.0, 22.0, 23.0, 24.0, 25.0, 26.0, 27.0, 28.0
Types, Locations, and Number of Inspections	1.2, 2.2, 8.0
Permits, Notification, and Scheduling	1.3, 1.3.1, 1.4, 2.3, 2.3.1, 2.4, 12.0, 13.0, 16.2, 16.2.1, 16.4, 16.4.1, 16.4.2
Conduct of Inspections—Inspection Procedures & Duration	17.0, 17.1, 17.2, 17.3, 17.4, 17.4.1, 17.5, 17.6, 17.7
Violations, Enforcement, and Penalties	9.0, 9.1, 10.0, 10.1, 11.0, 15.0, 15.1, 15.2, 15.3
Inspection Equipment	29.0, 30.0, 31.0, 32.0, 33.0, 34.0, 35.0, 36.0, 37.0, 38.0, 39.0, 40.0, 41.0
Tracking and Managing Information	7.0, 7.1, 8.0, 9.0, 9.1, 10.0, 10.1, 11.0, 12.0, 13.0, 14.0
Public Perception and Program Outreach	16.5, 16.6, 16.6.1, 16.7, 16.7.1, 16.8, 16.9, 54.0, 55.0, 55.1
Sharing Lessons Learned and Best Practices	17.7, 17.7.1, 17.7.2, 17.7.3
Additional Factors of Interest Topic	Relevant Interview Guide Questions
Transportation Issues and Restrictions	3.0, 3.1, 3.1.1, 4.0, 4.1, 4.2, 5.0, 5.1, 5.2, 6.0, 16.3
Emergency Preparedness	42.0, 43.0, 44.0, 45.0, 46.0, 47.0, 48.0, 49.0, 50.0, 51.0, 52.0, 53.0, 53.1, 53.2, 53.3, 53.4
Summary Topic	Relevant Interview Guide Questions
Notable Variations across States	All questions
Key Lessons Learned and Best Practices	All questions
Future Improvement Needs:	
What States Can Do to Improve Their Level VI Programs	56.0, 57.0 and other questions
How CVSA, DOE and other Government Entities Can Better Assist States with Their Level VI Programs	56.0, 57.0 and other questions