

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

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Prepared by
Commercial Vehicle Safety Alliance

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
1 INTRODUCTION	10
PURPOSE AND OBJECTIVES OF REPORT	10
APPROACH AND SCOPE	11
REPORT OVERVIEW	14
2 LEVEL VI PROGRAM FINDINGS.....	16
STATE PROGRAM POLICIES AND STATUTES	16
ORGANIZATIONAL IMPLEMENTATION AND RELATIONSHIPS	17
INSPECTOR TRAINING AND MANPOWER	19
TYPES, LOCATIONS, AND NUMBER OF INSPECTIONS	21
PERMITS, NOTIFICATION, AND SCHEDULING	23
CONDUCT OF INSPECTIONS – INSPECTION PROCEDURES & DURATION ..	24
VIOLATIONS, ENFORCEMENT, AND PENALTIES	25
INSPECTION EQUIPMENT	27
TRACKING AND MANAGING INFORMATION	28
PUBLIC PERCEPTION AND PROGRAM OUTREACH.....	30
SHARING LESSONS LEARNED AND BEST PRACTICES.....	31
3 ADDITIONAL FACTORS OF INTEREST (RELEVANT TO BUT BEYOND LEVEL VI INSPECTION PROGRAM).....	33
TRANSPORTATION ISSUES AND RESTRICTIONS.....	33
EMERGENCY PREPAREDNESS	35
4 SUMMARY	37
NOTABLE VARIATIONS ACROSS STATES	37
KEY LESSONS LEARNED AND BEST PRACTICES	37
FUTURE IMPROVEMENT NEEDS.....	38
5 RECOMMENDATIONS AND NEXT STEPS	41
PEER REVIEW TEAM RECOMMENDATIONS MADE AT VISIT CLOSEOUT ..	41
RECOMMENDATIONS BASED ON DATA ANALYSIS	42
APPENDICES	
1 PEER REVIEW COMMITTEE	
2 VISIT DATES AND PEER REVIEW TEAMS BY STATE	
3 STATE ORGANIZATIONS COVERED AND FIELD OBSERVATIONS	
4 CVSA LEVEL VI PEER REVIEW SITE VISIT GUIDANCE	
5 CVSA LEVEL VI PEER REVIEW MASTER INTERVIEW GUIDE	
6 MATERIALS COLLECTED BY STATE	
7 RELATION OF REPORT SECTION TOPICS TO QUESTIONS IN PEER REVIEW INTERVIEW GUIDE	

EXECUTIVE SUMMARY

INTRODUCTION—PURPOSE AND SCOPE

The purpose of this peer review of the Level VI program is to identify and share best practices and to make recommendations to prepare the Level VI inspection program for shipments of spent nuclear fuel to Yucca Mountain.

Peer review teams visited the following seven states between March 2005 and August 2006:

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

The objective is not to provide a portrayal of select state programs but rather to look at a sample of state programs to identify issues of interest for the Level VI inspection program in general.

The scope includes all the key components of the Level VI inspection program 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 perception and program outreach; and,
- Sharing lessons learned and best practices.

In addition, information was collected on the following topics considered to be important to the Level VI program but beyond its scope:

- Transportation issues and restrictions (including escorting and safe parking)
- Emergency preparedness

In each of these topic areas, the peer review team was looking for:

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

The broad scope limited the extent to which each area could be explored in depth but the peer review team attempted to strike the best balance between full coverage and sufficient detail to be most useful to the audience for this report.

SUMMARY OF FINDINGS

Notable variations across states include:

- The extent to which states are in full compliance with the recommended Level VI inspection requirements;
- The extent to which states, even if they have adopted these requirements in practice, have state statutes mandating each of these requirements;
- The number of inspectors and the number of inspections conducted by each inspector—one state has a single inspector who does 90 per cent of all inspections but most states have more inspectors and try to spread the work among them;
- One state is trying to get inspectors DOE “Q” clearances and unescorted access to the sites;
- The types of inspections conducted (varying from routinely inspecting at least some types of shipments (such as WIPP), to no routine inspections, to only reserving the right to inspect on a case-by-case basis, to only point-of-origin or only en-route inspections);
- While some states are trying to move all inspections off site, some are moving from only off-site to on-site inspections, and some are trying to realize the best of both on-site and off-site inspection by having inspections conducted just outside the site perimeter;
- The extent to which states have categorized violations and specified associated penalties—most states have not and reported that violation identification and actions taken in response to violations were based on inspector discretion or the discretion of some other person associated with the state Level VI inspection program;
- Different radiological instrumentation across state programs;
- Amount of emphasis placed on public outreach;
- Differences in route restrictions;
- Differences in escort practices—some routinely escort either in addition to or as a substitute for inspections, others occasionally escort but do not have policies that specify when escorting is advisable, and others do not usually escort at all; and,
- The amount of safe parking available.

Key lessons learned and best practices across states include:

- Random inspections might be a potentially good idea for carriers who do many shipments—the frequency of random inspections could be performance-based;
- A majority of respondents think fines for violations should be higher;
- Better tracking of violations—one state modified ASPEN by adding a field for the WIPP codes to categorize and record violations;
- Several states reported a need to implement a means of tracking inspector training and the number of inspections conducted by each inspector;
- Need for better record keeping in general; one state is in the process of revamping their data collection protocols to enhance record keeping and data tracking;

- In one state where point-of-origin inspections are conducted off site, some interviewees suggested on site inspections would be preferable and noted their state may move in this direction;
- Some states are incorporating new technologies including:
 - Adding cameras to key shipment routes;
 - A million dollar van equipped with radiation monitoring, thermal imagery technology, and license plate recognition technology;
 - Satellite/GPS wireless technology;
 - A new Zonar system to be used as an electronic inspection procedure with a hand held electronic inspection verification type procedure; and,
 - Electric sonar discs
- A best practice is to equip every Level VI inspector with a personal dosimeter, have a TLD program to record lifetime exposure, and to consistently share these readings with the appropriate Level VI inspection program stakeholders—this is currently not the case in some states;
- Some states have developed good PR and outreach programs—for example in one state they fund a media trip to Carlsbad yearly for updates on the program and processes;
- One state developed an excellent Emergency Response Manual and a County Response Plan; and,
- Some states have developed superior hands-on and field training to supplement existing formal training programs.

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:

- Some state programs have not established key responsibilities for some program areas, such as making sure one person is in charge of proactively keeping the schedule updated and contacting drivers en route to ensure timely schedule updates, or keeping abreast of and disseminating program changes;
- In some states, state program administrators could do a better job of communicating and sharing information to all relevant program personnel—some inspectors said they did not get communications regarding changes that are relevant to the program unless they obtained it themselves from the CVSA website and not all inspectors are getting the “RAD Inspection News” newsletter. The web site did not seem to be viewed as an acceptable convenient information resource by some of these field personnel but this area was not explored in depth in the interviews—it may be an area to explore in the future as a CVSA website that could be supplemented with information from individual states could be a convenient and ready source of obtaining information;
- In several states, quality control reviews of inspections, paperwork, and information tracking could be improved—QC would promote consistency in both filling out inspection forms and submitting these forms to Battelle; and,

- In relevant states, communications should be established with rail safety personnel involved in the rail shipments for the safe transportation of spent nuclear fuel and high-level radioactive waste to Yucca Mountain.

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

- Improvements to regulations and standards
 - Federal regulations (CFR 49) should be updated to international standards (interviewees noted that the U.S. is behind the international community).
 - CFRs relevant to the Level VI program should be improved and brought up-to-date (they are hard to read and understand and are usually five years behind)--also provide quick reference charts for Title 49 regulations.
 - It would be good to have consistent regulations, regardless of whether shipment is commercial or DOE.
- Greater standardization across state programs
 - CVSA should determine if and where there might be benefits to greater standardization of program requirements and practices and promote this standardization as needed.
 - CVSA should do more to ensure a greater uniform inspection methodology (beyond the inspection forms that are considered to be clear and straightforward), such as adopting a standardized categorization of violations (such as used for WIPP shipments) and suggested guidelines regarding responses to these violations (such as the amount of the fine)—the CVSA inspection form and ASPEN would need to be modified accordingly.
 - It might be useful for CVSA to develop an out-of-service criteria checklist to promote consistent and effective decision making in all states.
 - It might be useful for CVSA to promote greater standardization in training (especially refresher training), notification requirements, equipment standards and recommendations, and develop guidelines as to when to escort if a state chooses to do so.
 - CVSA could participate in determining the most effective escort practices and assess the trade offs of inspections versus escorting.
- Greater guidance or assistance
 - In addition to ensuring excellent, standardized training nationwide, it was suggested by some that CVSA could work to get more training developed (for details see findings section above Inspector Training and Manpower).
 - Some said there was a need for more CVSA involvement and sponsorship of exercises (focusing only on WIPP exercises is not enough)—need more full-scale exercises.
 - Some states desired greater CVSA involvement and help with public outreach (in general, the safety record is good and public fear and misinformation could be more effectively addressed). The CVSA peer review team notes that there is a lot of this information on the CVSA web site. Perhaps there should be further investigation regarding whether state

- programs are unaware of and not using this information or whether the information that is available is not adequate for their needs.
- DOE needs to help improve schedule reporting, updating, and, informing states of changes to the schedule.
 - Software systems and methodology used to track shipping schedules, inspections, and violations need to be improved to increase ease of use and accuracy and to better ensure updates are entered as needed.
- Improved communications and networks
- CVSA should develop a formal program to manage and disseminate program information, lessons learned and best practices.
 - There could be an on-line CVSA newsletter that goes beyond “RAD News.” This on-line resource could include Frequently Asked Questions. It could grow into an on-line community of practice.
- Greater funding assistance in some areas
- A few suggested DOE should provide funding for indoor inspection facilities that could double as safe parking.
 - DOE funding for states that are not on WIPP routes and for more training along non-WIPP routes
 - CVSA and DHS need to partner better in terms of relevant funding priorities and strategies.
 - CVSA should provide better information regarding federal resources that are available and help to break down barriers between funding sources and agencies.

RECOMMENDATIONS

Recommendations were made by the peer review teams at the close of the state visits and additional recommendations were developed after analyzing the data.

Peer review team recommendations made at visit closeout include:

- Inspection Strategy
- In one state, officers meet radioactive shipments when they enter the state and escort them to the destinations where they conduct a Level VI inspection. The peer review team does not see a benefit of a Level VI inspection at the final destination of these shipments. If the shipments have had a Level VI inspection at their point of origin and have been issued a Level VI decal, the agency could conduct random Level I, II, III, and VI inspections in a safe area when they enter the state.
 - Level VI inspections need to be conducted for all HRCQ shipments that are entering the U. S. to be in compliance with FMCSA regulation.
- Program Management
- The person that is the point of contact and has responsibility for the Level VI inspection program must be well trained in the Level I, HAZMAT, and Level VI inspections programs in order to be able to manage this important program and provide oversight for quality control of the inspection program and data.

- There should be a clear line of responsibility between the person that has supervisory responsibility for the Level VI program and the officers in the Level VI program.
- Your agency should establish/review/enhance procedures for quality control and tracking of the Level VI inspections. Consider appointing a central reviewer to check the inspection forms for completeness and accuracy and to ensure they are sent to the Battelle Seattle Research Center.
- The agency should ensure adequate record keeping for Level VI certified officers that records the inspections conducted by each and refresher training taken to maintain inspector certification.
- The agency should establish a more formal lessons learned program for Level VI and share the information with CVSA.
- Your agency should present more to management on your accomplishments of the Level VI inspection program and other transportation activities for these shipments.
- Your agency should establish a committee forum with all the state agencies that are involved in the safe transportation of nuclear fuel and high-level radioactive waste to start communicating on areas such as safe parking areas for these shipments within the state, rail safety for these shipments, and any other items that pertain to these shipments.
- Your agency should initiate communications with rail safety and enforcement personnel to start working on railroad issues for the safe transportation of nuclear fuel and high-level radioactive shipments to Yucca Mountain.
- Your agency should be working on establishing safe havens for the HRCQ shipments, WIPP shipments and the planned shipments that will be going to Yucca Mountain. Consider working with the military installations and industry to develop agreements on safe parking areas should the need arise.
- The agencies should explore funding possibilities through WIPP in Carlsbad, NM for training hospital personnel and first responders for radiation accidents on the transportation routes.
- The agency should be involved in the TRANSCOM tracking system operated by the U.S. DOE. Your agency should have personnel trained so they can track the DOE shipments.
- Inspector Training and Support
 - Officers must conduct a full Level VI inspection on Highway Route Controlled Quantities (HRCQ) and Transuranic Waste radioactive material shipments to be able to count them toward maintaining their Level VI certification.
 - Department of Transportation personnel involved in the enforcement of the Level VI inspection violations need to have the same Level VI basic and refresher training as the state patrol.
 - Have your state Level VI trainers attend the CVSA Level VI “Train the Trainer” Refresher Course every two years.

- Enhance the training for officers at the scales for the radiation monitors.
- Establish/review/enhance training for officers having to wear protective clothing.
- Establish/review/enhance the individual inspector dosimeter program for lifetime radiation exposure.
- Public Outreach
 - Your agency should share its Level VI program with the public as part of the agency's commercial vehicle safety public outreach program. This inspection program on the DOE shipments has resulted in one of the safest modes of transportation in the country. CVSA has a Level VI outreach program in place and can help provide printed materials and presentations ideas.

Recommendations based on the data analysis include:

- Improve communications. Many program personnel perceive an overall need for better communication across all levels—between federal and national level agencies involved in or related to the CVSA Level VI program and the states, between state headquarters and field personnel, and across states. Developing a better on-line community of practices sponsored by DOE could address this general need and resolve many of the more specific issues mention by the interviewees. For example, an on-line community of practice could:
 - Take the place of a more traditional newsletter;
 - Include FAQs;
 - Allow users to ask for assistance from others or generate discussions
 - Provide timely program updates, discussion and news boards that are readily and simultaneously accessible to all users (i.e., state Level VI administrators, inspectors, trainers, and other users);
 - Host identified and ad hoc user forums—examples could include a forum to develop violation codes and recommendations regarding appropriate penalties, a forum to discuss needed training enhancements, a forum to discuss and prioritize program enhancements and areas in need of greater standardization, etc.;
 - Share lessons learned and best practices across states;
 - Become a place to share the best public outreach and education materials;
 - Host new standardized on-line training modules and provide tracking of training completed by users;
 - Share information of violations by shippers that could be used by states as the basis for performance-based inspections; and,
 - Provide guidance on equipment standards and recommendations.
- Use the lists of lessons learned, best practices, future improvement needs, and the general recommendations of this report as a basis for defining priority areas. The following steps are recommended (perhaps using the on-line community of practice venue):
 - Disseminate the findings and summary of this report to key CVSA Level VI inspection program stakeholders.
 - Request feedback, input, and further elaboration.

- Refine the findings and use them as the basis for a more focused workshop to identify priorities and recommendations acceptable to the states.
- Assess the need for greater guidance and the potential benefits of greater standardization in various program areas.
 - Determine the extent to which persons involved in the program perceive a potential need for greater guidance and/or greater standardization in key areas.
 - Convene experts to evaluate key aspects of the program, such as:
 - The relative effectiveness of different inspection strategies (routine, case-by-case, random with or without a performance-based random inspection rate; on site versus off site, etc.); or,
 - Best practices with respect to escorting, the costs and benefits of escorting, and the trade-offs of inspecting versus escorting.
 - Based on these expert assessments, develop greater guidance for states to inform their program decisions, promote greater effectiveness and efficiency across state programs, and greater standardization where beneficial.

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 a peer review of 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 peer review was limited to seven states. These seven state visits were conducted from March 2005 through August 2006.

PURPOSE AND OBJECTIVES OF REPORT

The peer review was prompted by the desire to identify and share best practices and to make recommendations to prepare the Level VI inspection program for shipments of spent nuclear fuel to Yucca Mountain. 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 preliminary recommendations and suggested next steps.

In addition to helping CVSA determine how to better assist states in implementing this program and prepare for new challenges, such as shipments of spent nuclear fuel to Yucca Mountain, this information can be used by states to:

- Determine where they stand in relation to other state programs (what common or diverse issues they confront, similarities and differences in their approaches and strategies, and their relative strengths and weaknesses);
- Decide whether and how they might improve their programs and help them justify requests for additional funding; and,
- Identify where inter-state information sharing and collaborations could be beneficial.

APPROACH AND SCOPE

CVSA Peer Review Committee members represent various organizations including the CVSA RAM Subcommittee, the Council of State Governments Northeast and Midwest Offices, Southern States Energy Board, Western Governors' Association, DOE, and WIPP carriers. Appendix 1 lists the CVSA Peer Review Committee members and their organizational affiliations.

The CSVA Peer Review Committee obtained agreement from the following seven states to participate in the review:

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

A peer review team visited each of these states. The seven state visits were conducted from March 2005 through August 2006. 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 data collection effort covered all key areas of the Level VI inspection program. This broad scope limited the extent to which each area could be explored in depth. The peer review team attempted to strike the best balance between full coverage and sufficient detail to be most useful to the audience for this report.

The data collection process involved:

- Introductory discussions with key management and other individuals;
- Structured interviews of representative personnel covering key Level VI inspection program positions;
- Field observations;
- Exit discussions; and,
- Documents and other materials provided to the peer review team by the states.

The selection of persons attending these introductory and exit discussions was left up to state Level VI inspection program management. The peer review team suggested the types of personnel it desired to interview but the particular interviewees were arranged by the state. The organization affiliations of the interviewees for each state are given in Appendix 3. The peer review team typically broke up into pairs to conduct these interviews. Visit guidance was sent in advance to the host state to prepare for the peer review. The visit guidance and the peer review data collection instrument (Peer Review Master Interview Guide) are found in Appendix 4 and Appendix 5, respectively. The peer review team also collected documents and other relevant materials during the visit and the materials collected from each state are identified in Appendix 6.

TOPICS COVERED

The intent of the peer review team was to cover all the key components of the Level VI inspection program. These consist of the following:

- 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 perception and program outreach; and,
- Sharing lessons learned and best practices.

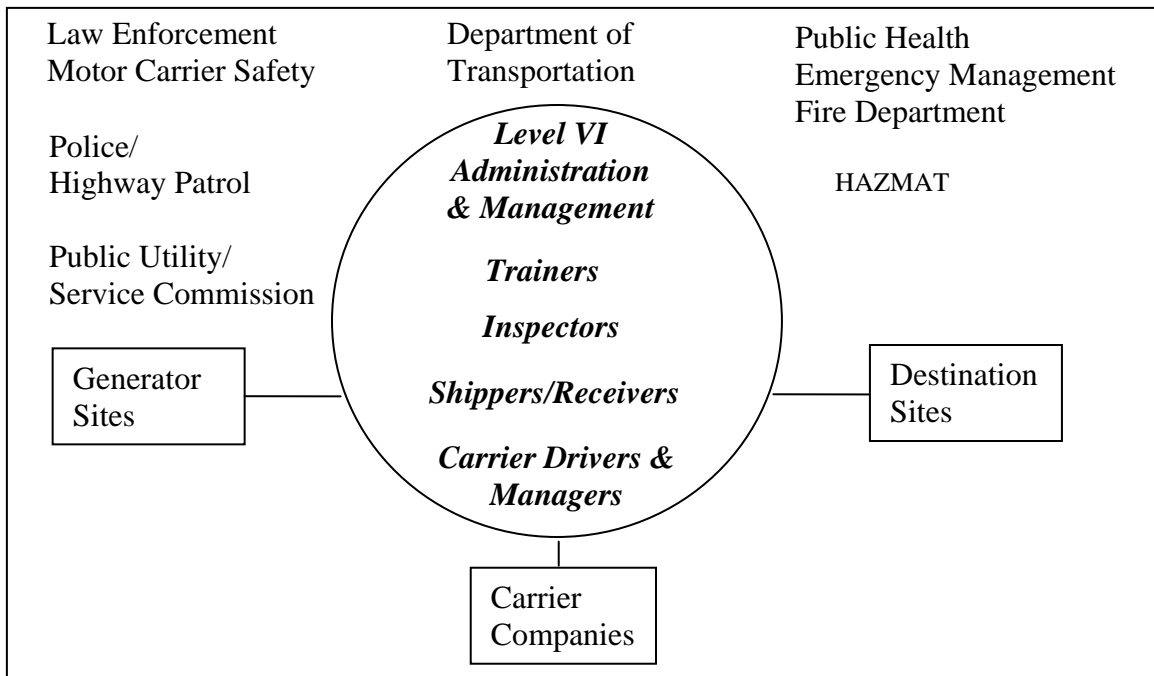
In addition, factors important to the Level VI program but somewhat beyond its scope were also investigated. These factors included:

- Transportation issues and restrictions (including escorting and safe parking); and,
- Emergency preparedness.

In each of these topic areas, the peer review team was looking for variations across states, strengths and weaknesses, and areas where improvements might be needed.

INTERVIEWEE SELECTION

Responsibility for the state Level VI inspection program typically belongs to transportation-related state agencies but the program involves multiple entities. In particular, the state law enforcement agencies responsible for motor carrier safety enforcement (such as the State Police, Highway Patrol, or Public Utility/Service Commission) conduct the Level VI inspections. Inspectors and trainers are from these agencies. Also Public Health, Emergency Management, or Fire Department HAZMAT experts can also be involved in inspections in addition to being involved in emergency response and preparedness. Finally, generator sites, destination sites, and carrier companies all have program responsibilities. The graphic below attempts to depict the key entities comprising the Level VI inspection program at a state.



The peer review committee identified positions across these entities comprising the Level VI inspection program to interview. Administrators and managers of the Level VI program, Level VI trainers and inspectors, shippers and receivers, and carrier managers and drivers were selected as the key interview targets. These components of the Level VI inspection program are italicized in the inner circle of this graphic. The peer review committee concluded that responses from this combined set of interview targets would provide an adequate basis for examining the topics of interest. Others were interviewed on an as needed or as available basis. The state point of contact or manager for the Level VI inspection program selected the particular interviewees in each of these program areas.

ANALYSIS

Information collected during the course of these state visits was compiled into a database that organized the information by state, topic area, question, and finally by interviewee. In this way, analysts could scan for key points and differences for each topic area and for each particular question across states, as well as scanning for key points and differences across interviewees in the same state. The correspondence of each topic area to the questions in the peer review data collection instrument (Appendix 5) is shown in Appendix 7.

Because the information collection method consisted primarily of qualitative, opened-ended interview questions, the data collected do not lend themselves to quantitative analyses. Even reporting the number of persons who had similar comments is not very meaningful. It can not be taken to mean that only this number of persons out of the total number interviewed hold that opinion. However, one person versus many reporting a

particular view might convey some information as to the importance or strength of the issue. Numbers are reported only in terms of how many states do or do not do something and only if the data collected are adequate enough to make such a quantitative statement; there is no attempt to report numbers of interviewees making particular types of comments as this level of quantification could, in many cases, be misleading. Primarily the structured data were qualitatively assessed by analysts who looked for:

- Key issues, lessons learned, best practices, improvement needs;
- Differences and variations across states; and,
- Differences and variations across interviewees within the same state.

The objective was not to provide a portrayal of select state programs but rather to look at a sample of state programs to identify issues of interest for the Level VI inspection program in general. The purpose of noting variations across states is to convey general differences in implementing various aspects of the Level VI inspection program, not to compare and contrast particular state programs. The purpose of looking at variations in question responses across interviewees within the same state is to determine whether a reasonably consensual view exists regarding the topic areas.

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 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 culls out 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. Recommendations were offered by the peer review teams 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:

- Variations across states; and,
- Lessons learned, best practices, and improvement needs by topic area.

STATE PROGRAM POLICIES AND STATUTES

VARIATIONS ACROSS STATE PROGRAMS

The Level VI program has requirements for inspector training and certification, inspection procedures, and out-of-service criteria, but other aspects of the program are left up to the states. Consequently, variation exists across states in terms of how they have implemented the Level VI program.

In general, respondents think the Level VI program is reasonable and most states are working to achieve full compliance but a few reported they were not yet fully compliant. There is also variation across states in terms of the extent to which the requirements adopted by the states are actually mandated in state statutes or clearly specified in written policies. For example, a state may have no statute or policy specifying that inspections need to be conducted, even though they, in practice, conduct inspections. In one state, the decision to conduct an inspection was the responsibility of one person and a few said these decisions seemed more or less random.

There is also variation across states in terms of violations cited and the penalties associated with the violations. The section on violations, enforcement, and penalties below addresses these variations in greater detail.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Although most interviewees consider the Level VI program to be necessary and reasonable, many had some suggestions for improvement. Some of these suggested improvements are within the scope of the Level VI program to act on, but others, while they may be relevant to program, fall outside its scope. This does not mean that states cannot adopt additional requirements as part of their programs.

The key comment made by respondents across many of the states was that the program might be both more effective and efficient if there was greater guidance, possibly but not necessarily in the form of recommended requirements, in some key program areas. For example, several interviewees suggested clearer guidance as to what types of inspections should be conducted, where inspections should be conducted, when shipments might be escorted, the categorization of violations and associated penalties, etc., in order to increase program effectiveness and allow states to more readily rely on inspections conducted by another state. Some interviewees think a recommended codification of violations and associated penalties might be beneficial in helping to ensure sufficiently

tough penalties across all states. Some suggested existing and additional recommended requirements need to promote consistency with IAEA requirements because currently, differences are causing problems with shipments coming from outside the country. Greater details about the benefits of standardization in various aspects of the program are provided in the sections below that address particular topical areas.

A fair number of interviewees brought up the issue of a lack of consistency across states and with international standards, indicating it is an area warranting further examination. However, many interviewees did not raise this as an issue and it is not known how many of these interviewees are content with the status quo of leaving states substantial latitude in how to implement their program. It is quite possible that the dominant sentiment in some or all states is that decisions should be left to the state and the Level VI program should not be make any additional recommendations. This is an area that needs greater exploration.

Other suggested improvements that could potentially facilitate the Level VI program but fall outside the scope of the CVSA Level VI inspection program and outside the purview of states include:

- Expanding the WIPP program to cover other shipments in order to achieve greater standardization and consistency;
- Improving and updating the federal regulations (CFR 49)
 - to be consistent with IAEA requirements and international standards (these respondents noted that the U.S. is far behind the international community)
 - to make them easier to read and understand.

One interviewee noted that national standards should be improved in other relevant areas like trailer design to make CVSA Level VI inspections easier and suggested CVSA should interface with trailer designers (or ANSI) to help bring this about.

ORGANIZATIONAL IMPLEMENTATION AND RELATIONSHIPS

State Level VI inspection programs vary in terms of how roles and responsibilities are delegated across state agencies. While often headquartered in the State Police Department, this is not always the case. The Level VI inspection program can be headquartered elsewhere but the inspections must be conducted by a Level VI certified officer affiliated with the state law enforcement agency responsible for motor carrier safety enforcement. No matter where the program is headquartered in the state, implementation of the program requires coordination across multiple state agencies, particularly law enforcement, public health agencies, emergency management, and the department of transportation. In addition, the program must coordinate with other state agencies to a lesser extent, such as the state ecology agency. The Level VI program also must coordinate with federal agencies, such as the U.S. DOE, U.S. NRC, U.S. EPA (particularly with regard to waste codes) and several interviewees thought there should be greater coordination with U.S. DHS. Finally, a state Level VI program must develop

relationships with generator and designation sites in the jurisdictions, shipping companies that conduct shipments through their state, and with the public.

In all seven states, Level VI inspection program relationships have improved over time as state officials become more aware of the importance and need for this program. Program relationships within the states were reported to be good to excellent in all seven states. In some states issues were mentioned regarding the relationship between state headquarters and field personnel, primarily the need for better communication. In all seven states relationships with federal agencies were also reported to be good but, in responding to subsequent questions, some interviewees noted a need to improve and strengthen certain areas. These are discussed in the relevant sections of this report.

Interviewees in all states reported having good to excellent relationships with the generator and destination sites in their jurisdiction. Also, site access issues for on-site inspections have improved over time (see the section titled Types, Locations, and Number of Inspections).

Finally, states reported having a reasonably good relationship with the public and with special interest groups, such as Greenpeace or the Aryan Nation, but respondents in several states thought public outreach could be improved. Native American tribes have not been an issue in any of the states visited; moreover New Mexico respondents noted that the tribal governments have adopted laws parallel to those of the state.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

The primary issues mentioned regarding program implementation and relationships were the need for improved communication and areas where relations could be strengthened.

Several respondents said there could be better communication of any changes of relevance to the program (e.g., shipment schedule changes) from DOE to state headquarters to field personnel. Also, a few respondents noted that CVSA and DOE need to coordinate better with the DHS and the NRC. In particular several interviewees expressed a desire for greater coordination among U.S. and international agencies aimed at promoting more uniformity across international, NRC, and DOE requirements, which, in turn, could promote greater Level VI uniformity across states. An interviewee in one state said that programs needed to ensure clear guidelines and procedures for reporting shipments down stream to other districts.

There were no interview questions about inter-state relationships, but some respondents said that they would like to see better working relationships and coordination across states. Some noted that greater standardization across state programs or, at least, greater communication regarding other states' programs could promote better coordination across states, such as being better able to rely on inspections conducted by trusted states. Having more standardized requirements across states, such as notification requirements, would also promote better coordination between state Level VI inspection programs and

carriers. They also suggested a need for sharing lessons learned and best practices across states.

Although interviewees across all seven states noted areas where program implementation could be improved, they did not explicitly suggest that there was a need for better quality control and quality assurance. However, the peer review teams noted that in three states quality control and quality assurance could be more fully established to ensure program adequacy. Another key lesson learned and best practice might be to ensure that key program responsibilities are explicitly assigned to particular individuals and to monitor and assess their performance. For example, making sure a person is in charge of proactively keeping the inspection schedule updated and contacting drivers en route to ensure timely schedule updates, or assigning a person to keep abreast of and disseminate any changes of relevance to the to the program.

INSPECTOR TRAINING AND MANPOWER

VARIATIONS ACROSS STATE PROGRAMS

The CVSA requirements for an inspector to obtain and maintain Level VI certification are:

- Be Level I certified and HAZMAT certified prior to taking the Level VI basic course;
- Attend and pass the Level VI basic course with a score of 90 per cent or above; and,
- Conduct eight or more Level VI inspections in a calendar year or have Level VI refresher training every 24 months.

Respondents across all seven states reported the quality of the basic Level VI training has improved and is now quite good. One respondent thought this initial training might be too difficult for some of the trainees. In addition to required initial training, the majority of the seven states reported having an in-service training program, and some also have in-field mentor training (pairing up a junior inspector with a senior inspector) until the inspector is considered proficient.

The frequency of Level VI refresher training varies across states from bi-annual, to annual, to semi-annual. Some states do not require refresher training as frequently for inspectors who conduct 8 or more inspections each year. Some states require HAZMAT training on a regular basis (bi-annual, annual, or semi-annual) but require Level VI refresher training only as needed.

The way training is delivered also varies. Some states do training in state while some send trainees to courses conducted in different states. Some states that conduct training in state have a centralized training location within their state while others train at several different locations. Also, some have only classroom training while others are moving to on-line training.

Some states have no additional training beyond Level VI and HAZMAT training while others have additional CVSA-sponsored training, additional health agency radiological training as well as FEMA, DOE, and Coast Guard training.

Some states have a problem with getting the right number of inspectors trained and maintaining their certifications. Variations in the number of shipments taking place within states, differences in state restrictions as to shipment times and routes, and different strategies for deployment and scheduling of inspectors all affect the number of inspectors needed and the number of inspections each inspector conducts in a month or year. While a few states have too few inspectors, others have more inspectors than they can keep certified in terms of meeting the minimum of eight Level VI inspections each year. Some states have two week rotations with two inspectors available each day. One state has one inspector who does 90% of all inspections. Most states rely on more inspectors and schedule the workload more evenly. The number of inspectors across states varies substantially, ranging from around five to almost 100 inspectors.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Although training is considered good, many interviewees desire more kinds of training and more intense training on different types of packages or activities. Also, several suggested CVSA should help ensure excellent and standardized training nationwide and help get more training developed. Several mentioned that refresher training in particular could be more standardized.

Initial training is good and more than adequate to conduct the job. However, one interviewee felt that the initial training is over the heads of some trainees. Respondents in some states said there was a need for more hands-on training, such as radiological meter training. One respondent said that training programs need to ensure that casks are available to trainees to evaluate during initial and refresher training. Another mentioned that there should be more pictures on inspection techniques. Several respondents mentioned a need for more train-the-trainer courses.

Additional training needs mentioned include:

- More HAZMAT training;
- More RAM training;
- More hands-on training in various areas;
- NNSA (OST) training;
- Training and sheets comparing WIPP versus HRCQ shipments;
- Updated training on packages;
- Training on conducting other than TRUPACT II inspections;
- Training to prepare for Yucca Mountain shipments and the different types of Type B casks that will be used;
- Update training on some of the other type B packages that will be seen with OCRWM shipments;
- Updates on changes to the Level VI OOS chart;
- More radioactive training at COHMED and other training forums;

- More training for port-of-entry, fire, ambulance, EMS and other types of personnel;
- Training pertaining to unmarked shipments;
- More safeguards training;
- More training on instruments and care of equipment;
- More in-depth mutual aid training; and,
- One respondent said there was a need for a certified program for the Fire Marshall's office on Level VI.

Some interviewees also suggested more on-line training in order to minimize training travel costs, noting the new on-line tie-down guidelines as a good example. One interviewee suggested on-line training for the ASPEN software program used to record inspection data also may be a good idea.

In addition to training, some interviewees noted that the requirement to conduct a minimum of eight Level VI inspections a year was not enough. Also, in some states, less than full inspections were being counted toward this minimum—which is not consistent with Level VI inspector certification requirements.

TYPES, LOCATIONS, AND NUMBER OF INSPECTIONS

VARIATIONS ACROSS STATE PROGRAMS

States have significant discretion regarding the types of inspections required. There may be point-of-origin (pre-trip) inspections required for shipments originating in state as well as port-of-entry inspections for shipments originating out of state. In addition, there can be en-route inspections, as well as point-of-destination (post-trip) inspections if the shipment is terminating within the state. Some states require all of these types of inspections, while others may only do point-of-origin and port-of-entry, and still others may only conduct en-route inspections. One state used to require post trip point-of-destination inspections but has since eliminated this practice. One state requires all HRCQ shipments to be escorted and, thus, does not see a need to routinely conduct inspections, not even at point-of-origin. The state merely reserves the right to inspect on a case by case basis. The trade-off between escorting and inspecting is not necessarily obvious and, perhaps, is something that could be assessed and evaluated by CVSA.

There are several factors that affect the number of inspections conducted in each state. The number of inspections will vary depending on the number of shipments as well as the types of inspections (point-of-origin, port-of-entry, en-route, or point-of-destination) required, and whether the inspections are conducted routinely, randomly or on a case-by-case basis. None of the states visited currently conduct inspections on a random basis.

Another notable variation is whether the state conducts on-site, point-of-origin inspections. Many states are moving inspections to an external inspection location to eliminate time consuming access issues. The off-site inspection strategy can also reduce travel and wait time for inspectors. However, several interviewees in states that had only

off-site inspections believed that it was preferable to conduct pre-trip on site inspections. The reason for this was not captured in these interviews. Another alternative is for states to help reduce access issues by conducting the inspection just outside the site access perimeter. This is being done at many sites.

There is substantial variation across states regarding access to sites to conduct inspections. Pre-access requirements tend to vary in accordance with the security and safety sensitivity of the site. Access requirements that typically apply to all visitors to sensitive areas of the site typically include:

- DOE background checks;
- Pre-access training;
- Badging; and,
- Escorts.

In addition to access requirements for the inspectors, one state reported having an issue with a site being unwilling to permit unmarked state vehicles to enter the site.

On-site inspection access requirements vary mainly in terms of the amount of pre-access training required by the site. Some sites only require a short safety video every six weeks while other sites require inspectors to take eight hours of pre-access training as well as annual refresher training. They also may require a short pre-access site awareness and safety video. Some sites have the same training requirements for each visit while others have requirements that must be met on a periodic basis, such as initial training and periodic refreshers. Interviewees across all states reported that pre-access training requirements have increased over the years.

Pre-access training also varies in terms of whether it must be done on location or can be done on line. There are access requirements associated with obtaining site training if training is conducted on site but these are less rigorous than the access requirements for conducting inspections. Many sites have introduced on-line training that does not need to be taken on site, reducing the site training burden on inspectors.

One state is trying to obtain DOE “Q” clearances for inspectors so they can have unescorted access to sites. They have not started this yet and most states are not moving in this direction. It may be more difficult to obtain and maintain “Q” clearances for inspectors than to comply with site access requirements.

Another notable variation is whether the state and/or the sites have indoor inspection facilities. Some interviewees suggested indoor inspection facilities can be beneficial, particularly in bad weather conditions.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Some interviewees suggested there was a need for DOE funding to build indoor inspection facilities. These indoor facilities could double as safe parking areas.

Some interviewees in states that currently conduct only off-site inspections think pre-trip, on-site inspections are preferable and are thinking about moving in this direction. However, conducting the pre-trip inspection just outside the site perimeter, if possible, can be useful in reducing site access requirements. If inspections cannot be conducted outside the perimeter of the controlled access area, encouraging sites to arrange for on-line site access training can reduce some of the access and travel burden placed on inspectors.

Although none of the states visited were conducting random inspections, a few interviewees suggested that random inspections might be a good idea for carriers who do many shipments, noting that the frequency of these random inspections could be performance-based.

PERMITS, NOTIFICATION, AND SCHEDULING

VARIATIONS ACROSS STATE PROGRAMS

States vary from having no special permit requirements for shipments through their jurisdiction, to having annual permits and associated fees, to having per cask permits and fees. Annual fees vary in some states by types of shipments (HAZMAT or nuclear). Annual fees range from \$200 to \$1000 per year across states. Per cask fees are as high as \$1,000-\$2,000 per cask. A few states that currently do not impose per cask fees reported that they were considering imposing them. One state has permit requirements on their books but has not enforced them.

Notification requirements vary by state. Some states have no additional requirements beyond the federal regulations for shipment notification. Some state's notification requirements vary by type of shipment. In addition, some states change their notification requirements depending on the threat level. Often there is no jurisdictional requirement regarding notification; rather the notification procedures are developed through working with the sites and as issues are identified (typically during training).

Advance notification time frames vary from one week to three months across states. Additionally, in some states, the initial notification can have a window of up to 48 hours. The state requesting only one week notification reported that although most sites have complied, there have been occurrences of as little as 24 to 48 hour notice. Initial advance notification of shipment must be updated, and update requirements likewise vary from state to state, from weekly updates to only requesting an update a few days prior to the scheduled shipment. Most states require a final update anywhere from 24 to two hours prior to scheduled shipment and/or estimated time of port entry. These final en-route update notifications tend to work better in states that have someone in charge of actively keeping in contact with the drivers—it does not work as well if it is merely assumed that the drivers will call in.

Notification practices can also vary in terms of whether they are legal requirements in some states or merely agreements made with carriers.

Schedule practices do not vary much across states as the schedule is maintained by DOE. Several interviewees reported that if the site or carrier shipping schedule is published and available to them, they tend to use these schedules as they are typically more accurate than the schedule maintained by DOE.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Many interviewees see a need for DOE to help improve scheduling, reporting and updating. Also a few interviewees suggested that there needs to be more flexibility in scheduling but this comment was not elaborated further in the interviews.

Making notification requirements common across states would make it easier for carriers and drivers to comply.

CONDUCT OF INSPECTIONS – INSPECTION PROCEDURES & DURATION

VARIATIONS ACROSS STATE PROGRAMS

There is a slight variation with respect to the number of inspectors typically deployed to conduct an inspection. States typically deploy either one or two inspectors to conduct an inspection. In one state where the inspection team was defined by the district, a few of the districts used a three-person team. This three-person team consisted of one Level VI certified inspector from the State Patrol and two persons from the Emergency Management Agency. A two-person team usually consists of a certified Level VI and a certified HAZMAT inspector or it may consist of an experienced inspector and a junior inspector who is being mentored. Interviewees in states that typically used one inspector did not seem to see any problem with this if the inspector had all the necessary training but this practice may not adequately maintain the pipeline of experienced inspectors necessary to meet the needs of the program in most states.

There is also notable variation in the amount of time it takes to conduct a Level VI inspection. Interviewees typical reported inspection time as having a range but this range varies across states from 0.75 - 1.0 hour, to 1.25 - 1.5 hours, to 1.5 - 2.5 hours. Factors affecting the length of an inspection include: weather, number and severity of violations, discrepancies found due to contamination of the cask, paperwork not completed, additional paperwork due to presence of a co-driver, and foreign origin. Interviewees suggested that the first two factors are most frequently encountered. In general, as shippers and drivers gain experience the inspection time decreases but this can depend on the quality and cooperation of the driver. Interestingly enough, inspector experience was not mentioned as a factor contributing to variation in the amount of time it takes to conduct an inspection.

It was not apparent from interviewees' responses why inspection times differed by state. Given that all of the interviewees reported that the inspection protocol was sufficiently clear and straightforward and the inspection process fairly standardized, it would seem that little across state variation would exist. In addition, most states have inspectors enter the inspection information into standardized forms using ASPEN; though some use SAFETYNET. Some noted that there had been problems with entering data in the past but did not see any real problems now. Having one versus two person teams did not seem to be associated with inspection time. Some states have indoor inspection facilities which could be a factor but indoor facilities are primarily a benefit when the weather is bad. To understand this variation in the length of inspections would require more in-depth examination involving observations of actual inspections.

The inspection protocol and the instructions regarding what information to enter on the inspection forms was thought to be clear but some interviewees said some inspectors tend to adopt their own rules, which is a problem for tracking and managing this information (see the section on Tracking and Managing Information below).

In addition to the time to actually conduct an inspection, the amount of staff time expended can vary across states and for different types of inspections. Staff time also involves wait time and travel time, which can be affected by:

- Shipment delays;
- The accuracy of the inspection schedule in terms of up-to-date arrival times for point-of-entry and departure times for point-of-origin shipments;
- Drivers not having paperwork ready;
- Distance inspectors must travel to site of inspection;
- Time involved to gain access to inspection site (see section above on Types, Locations, and Number of Inspections); and,
- Weather issues.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

In spite of good and clear inspection forms, which one would assume would go a long way toward standardizing the inspection process, some interviewees said that they would like CVSA to ensure a more uniform inspection methodology. Some of the things mentioned include: noting and reporting violations; and, better guidance regarding "out-of-service" violations. Not all inspectors fill out inspection forms according to the instructions and not all states submit these forms to the Battelle Seattle Research Center. Consistency in both filling out and submitting these forms could be improved.

VIOLATIONS, ENFORCEMENT, AND PENALTIES

VARIATIONS ACROSS STATE PROGRAMS

Although the inspection process is fairly standardized, the categorization of violations and actions taken in response to violations is not standardized across states. Some states

have categorized violations and specified associated penalties --others have not. Respondents in some states reported that violation identification and actions taken in response to violations were based on inspector discretion or the discretion of another person associated with the Level VI inspection program. One state explained that the inspector reports the violation to the trooper, who makes the call as to whether to place the vehicle "out-of-service." Yet another state said the inspector's supervisor makes the decision. The out-of-service criteria developed by CVSA should help to promote some consistency across states. A few states said their inspectors do not write citations for WIPP point-of-origin inspections.

Fines for civil violations tended to be low in most states, varying across states from a set \$50 for each safety and HAZMAT violation to having a monetary range such as \$25-\$750 or \$100-\$500. One state had penalties up to \$1000 and was the only state to note that it could impose criminal penalties as well, including jail time. Another state with only civil penalties said fines could be \$1,000-\$10,000/day per violation.

There was also quite a bit of variation in terms of which agency or governmental body levied the penalties. For example, respondents in a few states said the inspector writes out the fine during the inspection while in other states fines are levied after the fact by other agencies (e.g., district court, commerce department). Several states reported that the state DOT issues all penalties, not only general traffic penalties but penalties for HAZMAT violations as well. Fines tend to go to the general state fund or the highway department. In some states money from fines is allocated differently depending on whether the violation was a civil or a traffic violation. In one state, interviewees reported that there had been no fines issued but all money resulting from fines would go to the County Library Fund, not to the state fund.

Respondents were not well informed and provided contradictory information both regarding the amount of the fines and how these fines were levied in their state. Many respondents think there ought to be greater consistency across states and many respondents in states where fines were low believe fines should be increased.

Most states reported their statistics on the number or types of violations each year and number and amount of penalties were not highly accurate because the inspection forms and the ASPEN software program do not have adequate codes for sorting and recording violations, let alone penalties, and because the software has had problems and has been frequently down in the past. Often the only thing recorded is whether the vehicle was placed "out-of-service." One state modified ASPEN to include the WIPP code for categorizing and recording violations.

Violations in all states tend to be infractions having to do with the vehicle, such as head or trailer lights, exhaust leaks, dirty placards, not having extra placards, fender and trailer problems, problems with TRUPACT, and problems with tie-downs. In addition, several interviewees cited marking and labeling violations. Occasional driver violations, such as driving while off duty, were also noted. A few interviewees mentioned occasional

contaminated load issues. In spite of poor tracking, respondents in most states believe violations have been decreasing.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Some interviewees suggested a standardized categorization of violations (such as used for WIPP shipments) and a standardization of responses taken (such as fines) would be beneficial. The CVSA Level VI inspection form and ASPEN would need to be modified accordingly. Other interviewees concur about needing adequate codes to record and track violations but are less troubled by the lack of standardization regarding how states should respond to violations. A majority of respondents, however, suggested fines should be generally higher, even if not necessarily consistent across states. One respondent suggested that CVSA develop a Level VI out-of-service guidelines checklist to assist inspectors.

INSPECTION EQUIPMENT

This topic area includes:

- Inspection survey equipment; and,
- Personal protection equipment.

VARIATIONS ACROSS STATE PROGRAMS

With respect to survey equipment most states use the Ludlum 14C, Ludlum 2241-2, Ludlum Model 3, or Ludlum 2221 meters. One state uses a Ludlum Model 19 as a backup.

Other equipment used includes:

- CDV-718A;
- Dosimeters (such as Rad 60R or Rad 50R);
- Victoreen 450B;
- Eberline E-600;
- Bicron RSO 50;
- Alarming rate meters;
- Gamma spectrum analyzers; and,
- Neutron detectors.

Inspectors have been getting more equipment over the years. Some states provide inspectors with various types of dosimeters, including personal dosimeters. Some states provide full mask respirators while others provide half mask respirators. In all states, inspectors are provided a kit—this kit always contains gloves to use when doing swipes; some states include booties and coveralls; some also have hard hats and safety glasses/goggles; some include various types of suits (e.g., Tyvek, NBC, Type B, anti-contamination, etc.). Several states use TLDs or film badges and one uses finger badges when handling sources. One state is experimenting with CYRAD cards. The states that provide very few of these items report they intend to start providing more.

The equipment is most often issued to individuals but can also be issued to teams. One state issues the equipment to ports of entry rather than to individuals or teams.

Respondents were typically not knowledgeable as to the inventory of equipment. Most respondents felt the equipment was adequately maintained and calibrated according to manufacturer's recommendations. A few respondents in one state said maintenance was good but could be better; in another state, respondents said the state calibration lab was falling behind; and in one state, a few respondents reported the equipment was not well maintained. Some states have a lab that does maintenance and calibration and others send the instruments to the vendor for this service. States that send the equipment back to the vendor for maintenance and calibration, however, do not necessarily avoid the problem of falling behind as a few are not as diligent as they should be in tracking and sending equipment back.

Training on personal protection equipment (PPE) varies from once a month to just meeting NFPA, EPA, and OSHA standards. Some states have local drills as well as basic training, such as radiological training including MERRTT and, in some cases, EMI as well.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

A few respondents said there was a need for more information on equipment guidelines and standards. Several thought there was a need for more personal protection equipment as well as PPE training. Also some noted there was a need for training inspectors and other users on how to maintain this equipment as evidenced by the state of some of the equipment being sent to the calibration lab.

The CVSA peer review team recommends providing Level VI inspectors with personal dosimeters and having a TLD program to check for lifetime radiation exposure.

TRACKING AND MANAGING INFORMATION

This topic area includes:

- Tracking shipments, inspections, and violations;
- Tracking training and number of inspections conducted by each inspector; and,
- Tracking program changes and managing/sharing updates.

VARIATIONS ACROSS STATE PROGRAMS

Tracking Shipments, Inspections, and Violations

DOE provides shipment schedules to the states. In addition, they can access shipper and carrier shipping schedules if available. Some interviewees said the DOE shipment schedule needs to be improved. They suggested greater effort should be made to keep the schedule updated and accurate and to inform states of changes. Also, the methodology

used for scheduling of shipments should be improved to increase ease of use and accuracy and to better ensure updates are entered as needed.

Most states use TRANSCOM to track shipments in real time and have persons trained to use this satellite tracking system. Shipments that are tracked by states vary from all WIPP and HRCQ shipments, to only escorted shipments, to none. In addition to tracking shipment schedules in a database, the progress of some shipments are tracked in real time using cell phones and physical contact, sometimes to merely verify expected arrival times and sometimes to more closely monitor en-route status.

Inspections are tracked using various methods. Level VI inspection forms are sent to Battelle Seattle Research Center. ASPEN, SAFETYNET, MCSAP, and logs were also mentioned as means to track inspections. Practices vary from no tracking of inspections to having a specific state program or agency responsible for tracking inspections.

A major issue is tracking violations. The inspection form and ASPEN do not have adequate codes for sorting and tracking violations. One state modified ASPEN by adding a field to categorize and record detected violations based on WIPP codes. Several states use SAFETYNET to track violations.

Tracking Training and Number of Inspections Conducted by Each Inspector

Most states said they do not have a system for tracking training. One state said they also do not track the number of inspections conducted by each inspector. They tend to make every inspector do refresher training annually, even though this may not be necessary.

Tracking Program Changes and Managing/Sharing Updates

States vary in how timely and effectively they get updates (e.g., FMCSR and CFR updates) disseminated to relevant personnel. For example, some states get biweekly updates while others update their documents (hard copy or electronic) on a quarterly, biannual, or annual basis.

Some interviewees said that CVSA needs to do a better job in providing easy reference sheets that note changes to the program; for example, when a new inspection manual comes out, it should include a quick reference listing of the changes.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, GAPS AND/OR FUTURE NEEDS

The systems used to track shipping schedules, inspections, and violations need to be improved. Interviewees also suggested in addition to improvements to software, more help should be provided with scheduling and informing states of changes to the schedule. The methodology used for scheduling of shipments should be improved to increase ease of use and accuracy and to better ensure updates are entered as needed.

Many states do not have a means of tracking inspector training or the number of inspections conducted by each inspector; which they noted as a gap but it is not clear if they consider it to be a priority.

PUBLIC PERCEPTION AND PROGRAM OUTREACH

VARIATIONS ACROSS STATE PROGRAMS

Some Level VI inspection programs experienced a slow start, but now most state governments recognize the need for the program and are more supportive. Although basic awareness and support has increased, top-level state executives may not have much more real knowledge of the facts and realities of this area than the general public. Public awareness and support varies from state to state but can also vary within a state. For example, some cities have declared themselves a nuclear-free city while other areas in the same state are quite accepting of RAM shipments. Interviewees within several states held fairly diverse opinions regarding the public's perception. This divergence was manifested even on specific issues, such as whether there was a lot of public opposition and complaints versus very little public involvement.

While outreach and education has increased support on the part of state officials, it is more difficult to do outreach and see results from outreach efforts directed at the general public. Some states do very little public outreach and do not see a need for it, with the exception of educational efforts directed at students beginning in grade school to promote understanding about radiation and to address overly fearful impressions. Other states do quite a bit. In addition to training and awareness at public schools, some have university safety seminars, and conduct briefings by the Port-of-Entry, State Patrol and Department of Health at the city, county and state levels. One state plans to increase outreach efforts to cover all RAM transportation campaigns. Another state's program goes so far as to provide an annual calendar to every house within a ten-mile radius of a power plant that includes preparedness instructions on what to do in case of an emergency.

Respondents in several states thought the media often provided misinformation and played up the danger of RAM transportation. Many thought there was not enough good information coming out of the Nuclear Regulatory Commission and DOE to prevent or counter media misinformation and help the state programs inform the public of the impressive safety record of RAM transportation nationwide. They felt that without this kind of assistance, the ability of their program's outreach efforts to change the misperception was limited.

No state identified any groups as needing particular outreach efforts due to resistance to the program.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

While some interviewees in six of the states thought there was a need for greater public outreach, opinions were somewhat split on this issue. Interviewees in one state were

fairly consistent in their belief that there was not a need for greater public outreach. Several interviewees thought there should be greater public outreach conducted or facilitated by CVSA. The safety record is good and this should be better conveyed to the public. Also public fear and misinformation could be more effectively addressed.

The CVSA peer review team notes there is a lot of information concerning the Level VI program and the safe record of RAM transportation on the CVSA website. Perhaps there should be further investigation regarding whether state programs are unaware of and not using this information or whether the information that is available is not adequate to their needs.

In one state, a couple of interviewees said they felt there is a need for a more definite and reliable schedule of shipments so as not to get the public stirred up unnecessarily. This statement was not further explored in the interview.

SHARING LESSONS LEARNED AND BEST PRACTICES

VARIATIONS ACROSS STATE PROGRAMS

When asked about how lessons learned and best practices were identified and disseminated, interviewees in all states said they had no formal processes or program. However, most interviewees think it is needed, both at the state level and at the national level, so that states can share this information with one another. At this point in time, most states identify and share lessons learned in informal communication among inspectors and between inspectors and management as well as during training. Lessons learned are also brought up in discussions with DOE and with other relevant state departments. One state has a meeting after each inspection for relevant personnel to share information and any lessons learned. Only one state has lessons learned reports that are entered into a database. There have also been a few venues or mechanisms for peer exchanges across states --such as this effort. But several interviewed thought a formal, nationally-directed process to capture and disseminate lessons learned and best practices would be beneficial. Suggestions included having a CVSA newsletter or an on-line community of practice website that has information beyond "RAD Inspection News."

When asked about what lessons had been learned or best practices identified, most interviewees mentioned lessons learned regarding violations on the part of carriers and truck drivers. Only a few lessons learned or best practices involved inspectors or the inspection process—One interviewee mentioned that they had a problem getting inspectors to wear gloves when conducting inspections; another mentioned a lesson learned had been to convert from millirem to millisieverts; and a few mentioned improvements made to data recording and tracking such as modifying ASPEN by adding codes for violations. Specific lessons learned and best practices are presented in Section 4.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Many respondents think a formal, nationally-directed program to manage and disseminate program information, lessons learned and best practices would be beneficial and is considered a priority. Suggestions included having a CVSA newsletter or an on-line community of practice website that has information beyond “RAD Inspection News.”

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.

VARIATIONS ACROSS STATE PROGRAMS

Route Restrictions

There are federal regulations and guidelines for selecting and designating routes for HRCQ radioactive material shipments and state agreements with DOE for routing WIPP shipments. Four of the seven states visited impose additional route restrictions, resulting in variation across states from allowing shipments on all interstate highways to some subset of these interstate highways. One state had designated routes for WIPP shipments only. One state has separate route restrictions for HRCQ radioactive material and WIPP shipments. One state uses their pre-existing HAZMAT routing requirements for all shipments. One state does not restrict routes but requires carriers to get pre-approval for primary, as well as backup, routes for shipments. Interviewees in some states reported that they had concerns with designating routes more specifically than interstate highways because it would be potentially easier for shipments to become a target.

Three of the seven states in the sample have restrictions based on time (e.g., holidays, special events, rush hour, and curfew), population density, or some combination. Some states only encourage shipments to by-pass major metropolitan areas. A few states try to have shipments scheduled at night but most do not mandate this. Some states have stricter restrictions for overweight shipments.

Weather Restrictions

A few interviewees noted that it is not the state's call to stop or delay a shipment if weather conditions are bad; they only have the option of closing routes or parts of routes in extreme weather conditions. However, the decision to stop or delay a shipment can be

made by DOE. In general, shipments tend to be rare in winter months or periods of bad weather. Weather conditions are checked in advance and adjustments to the schedule are made accordingly. DOE tracks scheduled shipments and checks weather issues, works with shippers to reschedule and notifies states of schedule updates. If bad weather is encountered, the truck can use safe parking areas, which may be an indoor facility, to wait the weather out. If the truck driver is granted permission to continue in questionable weather, states often will escort the shipment through the state.

Escorting Requirements

The requirement to escort is an individual state requirement or practice. One of the states visited does not usually escort shipments while another typically does not, but reserves the right to escort and does so occasionally. This latter state does not specify conditions for escorting in advance, making the decision on a case-by-case basis. Another state typically does not escort but will do so if the threat level is raised or if the weather is bad. One state requires escorts for high-visibility shipments. Two states routinely escort all HRCQ radioactive material shipments, but in one of these states it is not a written requirement to do so. All states in the sample use armed escorts, often accompanied by unarmed radiological escorts. All states in the sample use state employees as escorts.

Safe Parking Requirements

States also vary in terms of making safe parking accessible and how safe the “safe parking” really is. Several states just use rest stops and weigh stations; If these are not limited to particular rest stops and weigh stations, they are not likely to be “safe.” Some states have designated and made “safe as needed” some subset of these rest stops and weigh stations. Some states, instead of securing parking areas, merely guard the trucks when parked in these locations. Others have designated actual “safe havens” such as National Guard armories, or DOE or DOD sites. States also vary in terms of whether there is designated safe parking on every RAM shipment route and how many exist per route. The logistics of shipments through the state and the available options along the major shipping routes are the prime factors in determining the number and location of safe parking sites but, in some states, issues pertaining to the probability of impassable roads due to bad weather are also factored into where to locate these safe parking sites. Some states have very few but do not see the need for additional safe parking locations. Others see a need to increase safe parking locations.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

A few interviewees suggested that there should be greater standardization in some of these areas—most importantly when shipments need to be escorted. Some interviewees stated the need for the section of 49 CFR covering safe havens to be expanded to include Class 7 and establish criteria to facilitate the implementation of the regulation.

EMERGENCY PREPAREDNESS

This topic area includes:

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

VARIATIONS ACROSS STATE PROGRAMS

Most states visited had conducted local drills involving RAM but had not conducted actual state-wide exercises. Four states have conducted state-wide table top exercises and one state reported having conducted a multi-state table top exercise. Full-scale, radiological exercises are typically conducted at nuclear power plants but have not yet been conducted along RAM routes in most states. The frequency of exercises involving RAM, including local drills and table top exercises, varies from once to every year. Many respondents thought there should be more exercises even though they believe their emergency response is currently fairly capable. One state had an accident recently and reported that the response had been very good.

Most states have first responders trained in RAM emergency response on RAM routes but a few states said they only had trained secondary responders, not first responders. These trained secondary responders are often tied to nuclear plants. Most states are trying to train more first responders. Some have HAZMAT responders on these routes trained in RAM; others train fire departments and voluntary fire fighters; others train state patrol officers.

All states have or are in the process of ensuring that personnel on RAM routes are trained in the National Incident Management System (NIMS) and Incident Command System (ICS) including Radiological Emergency Operations. Not having designated routes can make this a larger effort but there may be other trade offs associated with designating routes. In several states, this training has been limited to urbanized areas along these routes.

Regarding whether the state had Radiological Response Teams on RAM routes, responses within states were, in many cases, fairly inconsistent—Some said no while others said yes or some said that there was only one statewide team while others said there was a team in each district. Similarly, responses within many of the states were inconsistent in terms of whether hospital personnel on RAM routes had taken an EMS Hazardous Material Course. This inconsistency is not necessarily a problem; it may be an artifact of asking the question to individuals that may have limited need for this information. All states have hospital personnel trained and incorporated into RAM Emergency Management and Preparedness but some do not have all RAM routes covered in this respect. Often only hospitals in major population areas and high RAM movement areas are covered.

In some states the Level VI inspection program agency provides this training while in other states this training is the responsibility of the EM agency. Some states have sent

persons to training and exercises outside the state, such as WIPPTREX, and others have participated in WIPPTREX in state.

IDENTIFIED LESSONS LEARNED, BEST PRACTICES, AND IMPROVEMENT NEEDS

Several interviewees suggested a need for more involvement and sponsorship of exercises, noting that focusing only on WIPP exercises was not enough.

4 SUMMARY

NOTABLE VARIATIONS ACROSS STATES

The most notable differences across states include:

- The extent to which states are in full compliance with the recommended Level VI inspection requirements;
- The extent to which states, even if they have adopted these requirements in practice, have state statutes mandating each of these requirements;
- The number of inspectors and the number of inspections conducted by each inspector—one state has a single inspector who does 90 per cent of all inspections but most states have more inspectors and try to spread the work among them;
- One state is trying to get inspectors DOE “Q” clearances and unescorted access to the sites;
- The types of inspections conducted (varying from routinely inspecting at least some types of shipments such as WIPP, to no routine inspections, to only reserving the right to inspect on a case-by-case basis, to only point-of-origin or only en-route inspections);
- While some states are trying to move all inspections off site, some are moving from only off-site to on-site inspections, and some are trying to realize the best of both on-site and off-site inspection by having inspections conducted just outside the site perimeter;
- The extent to which states have categorized violations and specified associated penalties—most states have not and reported that violation identification and actions taken in response to violations were based on inspector discretion or the discretion of some other person associated with the state Level VI inspection program;
- Different radiological instrumentation across state programs;
- Amount of emphasis placed on public outreach;
- Differences in route restrictions;
- Differences in escort practices—some routinely escort either in addition to or, as a substitute for inspections; Others occasionally escort but do not have policies that specify when escorting is advisable, and others do not usually escort at all; and,
- The amount of safe parking available.

Some of these variations are based on different needs and issues confronting the states but many are not. In several of these areas a number of interviewees thought greater standardization would be beneficial—Comments regarding greater standardizations are captured in the section on future improvement needs below.

KEY LESSONS LEARNED AND BEST PRACTICES

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

- Random inspections might be a potentially good idea for carriers who do many shipments—the frequency of random inspections could be performance-based;

- A majority of respondents think fines for violations should be higher;
- Better tracking of violations—One state modified ASPEN by adding a field for the WIPP codes to categorize and record violations;
- Several states reported a need to implement a means of tracking inspector training and the number of inspections conducted by each inspector;
- Need for better record keeping in general; One state is in the process of revamping their data collection protocols to enhance record keeping and data tracking;
- In one state where point-of-origin inspections are conducted off site, some interviewees suggested on site inspections would be preferable and noted their state may move in this direction;
- Some states are incorporating new technologies, including:
 - Adding cameras to key shipment routes;
 - A million-dollar van equipped with radiation monitoring, thermal imagery technology, and license plate recognition technology;
 - Satellite/GPS wireless technology;
 - A new Zonar system to be used as an electronic inspection procedure with a hand held electronic inspection verification type procedure; and,
 - Electric sonar discs.
- A best practice is to equip every Level VI inspector with a personal dosimeter, have a TLD program to record lifetime exposure, and to consistently share these readings with the appropriate Level VI inspection program stakeholders—this is currently not the case in some states;
- Some states have developed good PR and outreach programs—for example in one state they fund a yearly media trip to Carlsbad for updates on the WIPP program and processes;
- One state developed an excellent Emergency Response Manual and a County Response Plan; and,
- Some states have developed superior hands-on and field training to supplement existing formal training programs.

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

- Some state programs have not established key responsibilities for some program areas, such as making sure one person is in charge of proactively keeping the schedule updated and contacting drivers en route to ensure timely schedule updates, or keeping abreast of and disseminating program changes;
- In some states, state program administrators could do a better job of communicating and sharing information to all relevant program personnel—some

- inspectors said they did not get communications regarding changes that are relevant to the program unless they obtained it themselves from the CVSA website and not all inspectors are getting the “RAD Inspection News” newsletter. The website did not seem to be viewed as an acceptable convenient information resource by some of these field personnel but this area was not explored in depth in the interviews—it may be an area to explore in the future as a CVSA website that could be supplemented with information from individual states could be a convenient and ready source of obtaining information;
- In several states, quality control reviews of inspections, paperwork, and information tracking could be improved—QC would promote consistency in both filling out inspection forms and submitting these forms to Battelle; and,
 - In relevant states, communications should be established with rail safety personnel involved in the rail shipments for the safe transportation of spent nuclear fuel and high-level radioactive waste to Yucca Mountain.

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:

- Improvements to regulations and standards
 - Federal regulations (CFR 49) should be updated to international standards (interviewees noted that the U.S. is behind the international community).
 - CFRs relevant to the Level VI program should be improved and brought up-to-date (they are hard to read and understand and are usually five years behind). They also should provide quick reference charts for Title 49 regulations.
 - It would be good to have consistent regulations, regardless of whether the shipment is a commercial or DOE shipment.
- Greater standardization across state programs
 - CVSA should determine if and where there might be benefits to greater standardization of program requirements and practices and promote this standardization as needed.
 - CVSA should do more to ensure a more uniform inspection methodology (beyond the inspection forms that are considered to be clear and straightforward), such as adopting a standardized categorization of violations (such as used for WIPP shipments) and suggested guidelines regarding responses to these violations (such as the amount of the fine)—the CVSA inspection form and ASPEN would need to be modified accordingly.
 - It might be useful for CVSA to develop an out-of-service checklist to promote consistent and effective decision making in all states.
 - It might be useful for CVSA to promote greater standardization in training (especially refresher training), notification requirements, equipment standards and recommendations, and to develop guidelines as to when to escort if a state chooses to do so.

- CVSA could participate in determining the most effective escort practices and assess the trade offs of inspections versus escorting.
- Greater guidance or assistance
 - In addition to ensuring excellent, standardized training nationwide, it was suggested by some that CVSA could work to get more training developed (for details see findings section above on Inspector Training and Manpower).
 - Some said there was a need for more CVSA involvement and sponsorship of exercises (focusing only on WIPP exercises is not enough)—need more full-scale exercises.
 - Some states desired greater CVSA involvement and help with public outreach (in general, the safety record is good and public fear and misinformation could be more effectively addressed). The CVSA peer review team notes that there is a lot of this information on the CVSA website. Perhaps there should be further investigation regarding whether state programs are unaware of and not using this information or whether the information that is available is not adequate to their needs.
 - DOE needs to help improve schedule reporting, updating, and informing states of changes to the schedule.
 - Software systems and methodology used to track shipping schedules, inspections, and violations need to be improved to increase ease of use and accuracy and to better ensure updates are entered as needed.
- Improved communications and networks
 - CVSA should develop a formal program to manage and disseminate program information, lessons learned and best practices.
 - There could be an on-line CVSA newsletter that goes beyond “RAD Inspection News.” This on-line resource could include Frequently Asked Questions. It could grow into an on-line community of practice (this is discussed further in the next section on Next Steps and General Recommendations).
- Greater funding assistance in some areas
 - A few suggested DOE should provide funding for indoor inspection facilities that could double as safe parking.
 - DOE funding for states that are not on WIPP routes and for more training along non-WIPP routes.
 - CVSA and DHS need to partner better in terms of relevant funding priorities and strategies.
 - CVSA should provide better information regarding federal resources that are available and help to break down barriers between funding sources and agencies.

5 RECOMMENDATIONS AND NEXT STEPS

Recommendations were made by the peer review teams at the close of the state visits. Additional recommendations were developed after analyzing the data.

PEER REVIEW TEAM RECOMMENDATIONS MADE AT VISIT CLOSEOUT

At the conclusion of the state visits the peer review teams provided recommendations specific to many of the agencies visited. These recommendations were consolidated and grouped according to the following topical areas:

INSPECTION STRATEGY

- In one state, officers meet radioactive shipments when they enter the state and escort them to the destinations where they conduct a Level VI inspection. The peer review team does not see a benefit of a Level VI inspection at the final destination of these shipments. If the shipments have had a Level VI inspection at their point of origin and have been issued a Level VI decal, the agency could conduct random Level I, II, III, and VI inspections in a safe area when they enter the state.
- Level VI inspections need to be conducted for all HRCQ radioactive material shipments that are entering the U.S. to be in compliance with FMCSA regulation.

PROGRAM MANAGEMENT

- The person that is the point of contact and has responsibility for the Level VI inspection program must be well trained in the Level I, HAZMAT, and Level VI inspections programs in order to be able to manage this important program and provide oversight for quality control of the inspection program and data.
- There should be a clear line of responsibility between the person that has supervisory responsibility for the Level VI program and the officers in the Level VI program.
- Your agency should establish/review/enhance your procedures for quality control and tracking of the Level VI inspections. Consider appointing a central reviewer to check the inspection forms for completeness and accuracy and to ensure they are sent to the Battelle Seattle Research Center.
- The agency should ensure adequate record keeping for Level VI certified officers that records the inspections conducted by each and refresher training taken to maintain inspector certification.
- The agency should establish a more formal lessons learned program for Level VI and share the information with CVSA.
- Your agency should present more to management your accomplishments on the Level VI inspection program and other transportation activities for these shipments.
- Your agency should establish a committee forum with all the state agencies that are involved in the safe transportation of nuclear fuel and high-level radioactive

waste to start communicating on areas such as safe parking areas for these shipments within the state, rail safety for these shipments, and any other items that pertain to these shipments.

- Your agency should initiate communications with rail safety and enforcement personnel to start working on railroad issues for the safe transportation of nuclear fuel and high-level radioactive shipments to Yucca Mountain.
- Your agency should be working on establishing safe havens for the HRCQ shipments, WIPP shipments and the planned shipments that will be going to Yucca Mountain. Consider working with the military installations and industry to develop agreements on safe parking areas should the need arise.
- The agencies should explore funding possibilities through WIPP in Carlsbad, NM, for training hospital personnel and first responders for radiation accidents on the transportation routes.
- The agency should be involved in the TRANSCOM tracking system operated by the U.S. DOE. Your agency should have personnel trained so they can track the DOE shipments.

INSPECTOR TRAINING AND SUPPORT

- Officers must conduct a full Level VI inspection on Highway Route Controlled Quantities (HRCQ) and Transuranic Waste radioactive material shipments to be able to count them toward maintaining their Level VI certification.
- The department of transportation personnel that are involved in the enforcement of the Level VI inspection violations need to have the same Level VI basic and refresher training as the state patrol.
- Have your state Level VI trainers attend the CVSA Level VI “Train the Trainer” Refresher Course every two years.
- Enhance the training for officers at the scales for the radiation monitors.
- Establish/review/enhance training for officers having to wear protective clothing.
- Establish/review/enhance the individual inspector dosimeter program for lifetime radiation exposure.

PUBLIC OUTREACH

- Your agency should share its Level VI program with the public as part of the agency’s commercial vehicle safety public outreach program. This inspection program on the DOE shipments has resulted in one of the safest modes of transportation in the country. CVSA has a Level VI outreach program in place and can help provide printed materials and presentations ideas.

RECOMMENDATIONS BASED ON DATA ANALYSIS

The findings regarding lessons learned, best practices, and future improvement needs should be further vetted with CVSA Level VI inspection program stakeholders. The intent of this effort to take a broad sweep had the consequence of limiting the extent of in-depth examinations of particular areas or issues. In addition, it is not known from this survey how widely held the identified issues and suggestions really are and to what extent it is a priority. Many of the answers and recommendations are based on personal

opinions and perceptions of the individuals interviewed. The persons interviewed had vastly different job responsibilities and their knowledge of the overall Level VI program in their states may be narrowly focused or limited in scope. It is suggested that this summary of lessons learned, best practices, and future improvement needs serve as the basis for more in-depth discussions and examinations before specific recommendations are made.

A few general recommendations can, however, be offered.

- Communication emerged as a key improvement priority. Many program personnel perceive an overall need for better communication across all levels—between federal and national level agencies involved in or related to the CVSA Level VI program and the states, between state headquarters and field personnel, and across states. Developing a better on-line community of practices sponsored by DOE could address this general need and resolve many of the more specific issues mentioned by the interviewees. For example, an on-line community of practice could do the following:
 - Take the place of a more traditional newsletter;
 - Include FAQs;
 - Allow users to ask for assistance from others or generate discussions;
 - Provide timely program updates, discussion and news boards that are readily and simultaneously accessible to all users (i.e., state Level VI administrators, inspectors, trainers, and other users);
 - Host identified and ad hoc user forums—Examples could include a forum to develop violation codes and recommendations regarding appropriate penalties, a forum to discuss needed training enhancements, a forum to discuss and prioritize program enhancements and areas in need of greater standardization, etc.;
 - Share lessons learned and best practices across states;
 - Become a place to share the best public outreach and education materials;
 - Host new standardized on-line training modules and provide tracking of training completed by users;
 - Share information of violations by shippers that could be used by states as the basis for performance-based inspections; and,
 - Provide guidance on equipment standards and recommendations.

- Use the lists of lessons learned, best practices, future improvement needs, and the general recommendations of this report as a basis for defining priority areas. The following steps are recommended (perhaps using the on-line community of practice venue):
 - Disseminate the findings and summary of this report to key CVSA Level VI inspection program stakeholders;
 - Request feedback, input, and further elaboration; and,
 - Refine the findings and use them as the basis for a more focused workshop to identify priorities and recommendations acceptable to the states.

- It may be useful to assess the need for greater guidance and the potential benefits of greater standardization in various program areas.
 - Determine the extent to which persons involved in the program perceive a potential need for greater guidance and/or greater standardization in key areas.
 - Convene experts to evaluate key aspects of the program, such as:
 - The relative effectiveness of different inspection strategies (routine, case-by-case, random with or without a performance-based random inspection rate; on site versus off site, etc.); or,
 - Best practices with respect to escorting, the costs and benefits of escorting, and the trade-offs of inspecting versus escorting.
 - Based on these expert assessments, develop greater guidance for states to inform their program decisions, promote greater effectiveness and efficiency across state programs, and greater standardization where beneficial.

APPENDIX 1: PEER REVIEW COMMITTEE

Peer Review Committee	
Member	Affiliations
Pete Bolton	U.S. Department of Energy support contractor
Reggie Bunner	West Virginia PSC, Level VI instructor
Nathan Christiansen	NWC Associates, CVSA Level VI Program Contractor
James Eavenson	Idaho State Police, Western Governors' Association
Julian Fowler	South Carolina State Transport Police, CVSA RAM Subcommittee
Gaylon Fuller	CAST Transportation
Tom Fuller	New York State Police
Mike Hall	Colorado Port of Entry, CVSA RAM Subcommittee
Kelley Horn	Illinois Emergency Management Agency, Mid West Council of State Governments
Dan Johnson	Washington State Patrol, CVSA RAM Subcommittee
William Mackie	Western Governors' Association
Narendra Mathur	U.S. Department of Energy
Scott Nathlich	Colorado State Patrol, CVSA RAM Subcommittee
Bill Reese	Idaho State Police, CVSA RAM Subcommittee, Western Governors' Association
Robert Rohr	Ohio PUC, Level VI instructor
Kenneth Rose	Tennessee Highway Patrol, Southern States Energy Board
Carlisle Smith	Ohio PUC, CVSA RAM Subcommittee Chairman
Rion Stann	Pennsylvania State Police, North East Council of State Governments
Larry Stern	Commercial Vehicle Safety Alliance

APPENDIX 2: VISIT DATES AND PEER REVIEW TEAMS BY STATE

State	Visit Dates	Peer Review Team Members
South Carolina	March 29-31, 2005	Mike Hall Dan Johnson Kenneth Rose Rion Stann Larry Stern
Colorado	May 3-5, 2005	Pete Bolton Gaylon Fuller Kelley Horn Kenneth Rose Carlisle Smith Larry Stern
Tennessee	August 2-4, 2005	Julian Fowler Mike Hall William Mackie Narendra Mathur Rion Stann Larry Stern
Washington	December 6-8, 2005	Reggie Bunner William Mackie Bill Reese Robert Rohr Carlisle Smith Larry Stern
Illinois	June 20-22, 2006	Pete Bolton William Mackie Kenneth Rose Carlisle Smith Larry Stern
New Mexico	August 8-10, 2006	Pete Bolton Kelley Horn Kenneth Rose Rion Stann Larry Stern
Michigan	August 22-24, 2006	Nathan Christiansen James Eavenson Tom Fuller Mike Hall Scott Nathlich Larry Stern

APPENDIX 3: STATE ORGANIZATIONS COVERED AND FIELD OBSERVATIONS

State	Organization Covered/Field Visits
South Carolina	Department of Health & Environmental Control (DHEC)
	Department of Public Safety
	Office of the Adjutant General, Emergency Management Division (EMD)
	South Carolina Highway Patrol
	South Carolina Law Enforcement Division (SLED)
	South Carolina State Transport Police
	Tri State Motor Transit
	Westinghouse
	Savannah River Station
Colorado	CAST Transportation
	Colorado State Patrol
	Department of Public Health and Environment
	Department of Revenue
	Tri State Motor Transit
	Rocky Flats (Point of Origin)
	Ft. Collins Port of Entry
Tennessee	A. J. Metler Hauling and Rigging / Specialty Transport
	Oak Ridge National Laboratory / HFIR facility
	Tennessee Emergency Management Agency (TEMA)
	Tennessee Highway Patrol (THP)
	Department of Safety Training Center
	Division of Radiological Health
	Knoxville Scales
Washington	Benton County Emergency Services
	Benton County Fire District #1
	Duratek
	Hanford Communities
	Kennewick Fire Department
	Richland Fire Department
	WA State Emergency Management Department
	Washington State Department of Health, Olympia
	Washington State Patrol
Illinois	Illinois Department of Transportation
	Illinois Emergency Management Agency (IEMA), Division of Nuclear Safety (DNS)
	IEMA State Emergency Operations Center Tour
	Illinois State Police
New Mexico	New Mexico Department of Public Health
	New Mexico Department of Public Safety (DPS), Motor Transportation Division (MTD)

State	Organization Covered/Field Visits
	New Mexico Department of Public Safety (DPS), Office of Emergency Management (OEM)
	New Mexico State Fire Marshal's Office
	WIPP Working Group
	NM National Guard, Regional Training Institute
Michigan	Michigan Department of Environmental Quality
	Motor Carrier Division
	Michigan Center for Truck Safety
	Michigan State Police
	University of Michigan
	State Emergency Operations Center
	Emergency Management and Homeland Security Training Center

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 WE WILL NEED FROM YOU 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, 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, 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, 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	N ¹	Y/N ² P/F/G/E ³	Open-Ended Responses/ Elaboration/ Comments

	Transportation Routes, Safe Parking, Inclement Weather and Delays			
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: MATERIALS COLLECTED BY STATE

South Carolina MATERIALS COLLECTED

- **Various materials from South Carolina Department of Public Safety**
 - **CVSA Peer Review Level VI Program, SC Department of Public Safety, Emergency Traffic Management Unit, 1993**
 - **State Transport Police Safety Inspection Manual, 2005**
 - **First Responder's Radiological Guide, 2003**
 - **The World of Radiation, DHEC diskette**
 - **Level VI Inspection Procedure**
 - **Level VI Inspector Tracking Sheet**
 - **Enhanced Level VI Instructor Bios**
 - **Ludlum/dosimeter Maintenance and Accountability Procedures**
 - **Ludlum Inventory**
 - **Calibration Check Sheet**
 - **Level VI Inspections Breakout, 2000-2004**
 - **HRCQ and RQ Shipment 7-day Advanced Shipment Notification Process and Duties**

Colorado MATERIALS COLLECTED

- **Various materials from Colorado State Patrol (CSP)**
 - **CSP Level 6 Inspector Tracking Sheet**
 - **CSP Driver/Vehicle Examination Report example**
 - **CSP Point of Origin WIPP Inspections and Violations 2000-2005**
 - **CSP Monitoring and Detection Equipment Inventory**
 - **CSP, Department of Public Safety Rules and Regulations Concerning the Permitting, Routing & Transportation of Hazardous and Nuclear Materials in the State of Colorado**
 - **Colorado Hazardous and Nuclear Materials Route Restrictions Map, 2004**
- **Various materials from Ft. Collins Port of Entry**
 - **Port of Entry Level 6 Inspector Tracking Sheet**
 - **Port of Entry WIPP Inspections and Violations 2001-2005**
 - **Port of Entry Equipment Inventory**

Tennessee MATERIALS COLLECTED

- **Various materials from the Tennessee Highway Patrol**
 - **US Department of Transportation Safety Materials**
- **Various materials from the Tennessee Department of Safety**
 - **Department of Safety Commercial Vehicle Enforcement, Tennessee Emergency Management Agency, Radiological Instrument Maintenance and Calibration Facility diskette, August 3, 2005**
 - **Radiological Instrument Maintenance and Calibration Facility Standard Operating Procedure and Safety Protocols, Tennessee Emergency Management Agency, FY05**
 - **Tennessee Radiological Protection Management Plan , September 2005**
 - **General Order Commercial Motor Vehicle Inspections, November 2004**
 - **Spent Fuel/Transuranic/High Level Radioactive Waste Inspection Form**

Washington MATERIALS COLLECTED

- **Various legal documents**
 - **Chapter 46.48 RCW: Transportation of Hazardous Materials**
 - **RCW 46.32: Inspection of Vehicles**
- **Various materials from Washington State Patrol**
 - **Map of Freeway Camera Locations for WIPP**
 - **WIPP Field Exercise 2004**
 - **WIPP Exercise Report 2005**
 - **WIPP Inspections for 2005**
 - **Washington State WIPP Shipping Campaign, 2000-2005**
 - **Level 6 Inspection Tracking Sheet, 2003-2005**
 - **Radiological Equipment Tracking Sheet**
 - **Radiological Meter Use and Inspection Procedures, 2005**
 - **Radiological Emergency Response Plan, 2005**
 - **MDS Nordion HRCQ Shipments through Washington State**
 - **MDS Nordion HRCQ Shipment Agency E-mail Notifications Diagram**
 - **CVSA Level 6 Certification Document**
 - **Commercial Vehicle Division Strategic Plan, 2005-7**

Illinois MATERIALS COLLECTED

- **Various materials from Illinois Emergency Management Agency (IEMA)/Division of Nuclear Safety (DNS)**
 - **Overview presentation**
 - **Illinois Spent Nuclear Fuel and High-Level Waste Inspection and Escort Program booklet**
 - **RAM Inspectors and Training Courses**
 - **Emergency Response Equipment**
 - **IEMA/Illinois State Police (ISP) Joint Inspections and Escorts, 2000-Current**
 - **DNS Spent Fuel Inspection Report, HRCQ Inspection Form, HRCQ Inspection Report, Radioactive Materials Vehicle Inspection Data Sheet**
 - **Legal Bases**
 - **Administrative Code Title 92: Chapter I, Subchapter c, Part 108, Section 108.10 Hazardous Materials Civil Money Penalty Policy**
 - **625 ILCS 5, Illinois Vehicle Code, Chapter 18 B**
 - **430 ILCS 30, Illinois Hazardous Materials Transportation Act**
 - **Administrative Code Title 32: Chapter II, Subchapter b, Part 341, Section 341.10 Radioactive Materials Transportation Scope**
 - **Administrative Code Title 32: Chapter II, Subchapter b, Part 341, Section 341.25 Radioactive Materials Transportation Definitions**
 - **Administrative Code Title 32: Chapter II, Subchapter b, Part 341, Section 341.40 Radioactive Materials Transportation Records**
 - **420 ILCS 5, Illinois Nuclear Safety Preparedness Act**
 - **420 ILCS 15, Spent Nuclear Fuel Act**
 - **Memo regarding In Transit RAM Inspections of Low Level Waste from Fernald**
- **Various materials from Illinois State Police (ISP) Commercial Vehicle Section**
 - **Overview presentation**
 - **ISP Directive OPS-057, Handling and Reporting Hazardous Materials Incidents**
 - **ISP Directive ENF-036, Commercial Vehicle Enforcement**

New Mexico MATERIALS COLLECTED

- **Various materials from Department of Public Safety, State Transportation Division**
 - **List of Level VI Command Staff and Responsibilities; Directory of Staff**
 - **Overview of Key Player Responsibilities**
 - **Breakdown of Level VI Inspections, Violations and Out of Service Violations**
 - **List of Level VI Inspectors**
 - **Level VI Inspection Procedures Document**
 - **WIPP and HRCQ Shipments Procedures**
 - **Level VI Inspection Scheduling Procedures**
 - **Examination Report example**
 - **Overview presentation of WIPP Transportation Program Task Force**
 - **Overview presentation regarding Role of New Mexico Department of Public Safety**
 - **Overview presentation regarding Role of Office of Health Emergency Management**
 - **Overview presentation regarding Role of New Mexico Homeland Security Environmental Department**
 - **Overview presentation regarding Role of Motor Transportation Division**
 - **Overview presentation of Motor Carriers**
 - **Overview of Department of Public Safety and Motor Transportation Division Policy and Procedures on WIPP Shipments and Inspections**
 - **State Fire Marshal's Office –WIPP Coordinator**
 - **Raton Fire & Emergency Services Procedures**
 - **Carbon Monoxide Response, revised 12/00**
 - **Weapons of Mass Destruction, Chemical, Biological, Radiological Response Operations, revised 04/05**
 - **WMD Response, 09/03**
 - **Biological and Suspicious Package Response, 10/01**
 - **Hazardous Materials Response, 01/04**
 - **Key Equipment List**
 - **Key Equipment Maintenance and Accountability Procedures**

Michigan MATERIALS COLLECTED

- **Various materials from Michigan Department of State Police**
 - **Michigan Department of State Police, Motor Carrier Division, Level VI Inspection Program History**
 - **Legal Bases—Michigan State Police Act 59 of 1935; Motor Carrier Safety Act of 1963, Act 181 of 1963; Official Order, Michigan State Police on Hazardous Materials Traffic Crashes, Accidents, and Incidents, Sept. 18, 2003**
 - **Inspector Training Documents and Tracking Sheet**
 - **Certificates of Calibration and other documents pertaining to Critical Equipment**
 - **Inspection History Sheet**
 - **Inspection Reports**
 - **Level VI Inspection Forms for HRCQ**
 - **2006 MDS Nordion Shipments Through Michigan**
 - **Various Truck Safety Materials**
 - **Michigan Center for Truck Safety diskettes**
 - **Truck Driver's Guidebook, Michigan Center for Truck Safety, 9th edition**

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