

**REPORT TO WESTERN GOVERNORS
ON THE STATUS OF THE
WIPP TRANSPORTATION SAFETY PROGRAM**



**DEVELOPED COOPERATIVELY THROUGH
THE WESTERN GOVERNORS' ASSOCIATION
WIPP TRANSPORTATION TECHNICAL ADVISORY GROUP**

**Consisting of the States of
Arizona, California, Colorado, Idaho, Nebraska, Nevada,
New Mexico, Oregon, Texas, Utah, Washington, and Wyoming**

June 2004

I. EXECUTIVE SUMMARY

For the past five years, the Waste Isolation Pilot Plant (WIPP) located near Carlsbad, New Mexico has received truck shipments of radioactive transuranic (TRU) waste¹ from seven U.S. Department of Energy (DOE) facilities.² Over 90 percent of the existing inventory of TRU waste is located in Western states. To date, more than 2,500 or about 13 percent of the expected total number of shipments have arrived safely at WIPP and been permanently disposed 2,150 feet below the surface. (See Figure 1.) During this time, only one minor collision occurred.³ Fortunately, that accident, which involved a drunk driver crashing his vehicle into the rear of a loaded truck near the WIPP facility, did not result in any injuries or release of radioactive material into the environment.

At this juncture, the WIPP transportation safety program with its enviable safety record must be considered an overwhelming success. There is one underlying reason for this. From the beginning and continuing today, an extraordinary level of care and attention has been brought to every detail of each shipment to help ensure Western Governors' primary objective of a "safe and uneventful" shipping campaign is met. It is clear, however, this attention to detail to all elements of the campaign would never have been possible if Western states along the shipping corridor had not advocated cooperation with each other and the DOE in the development of a transportation safety program. Multi-state collaboration and problem solving began more than 15 years ago when corridor states banded together under the auspices of the Western Governors' Association (WGA). This led to the formation of a regional group, called the WGA WIPP Transportation Technical Advisory Group (Technical Advisory Group)⁴, whose primary function

¹ Radioactive transuranic (TRU) waste consists primarily of discarded items, such as gloves, glassware, tools, and rags contaminated with plutonium during weapons production. This waste is contaminated with man-made radioactive materials with atomic numbers greater than uranium, such as plutonium, americium, and curium. TRU waste is officially defined as waste contaminated with alpha-emitting radionuclides, having atomic numbers greater than 92 and with half-lives greater than 20 years and in concentrations greater than 100 nanocuries per gram of waste. TRU waste is further described in Section II.

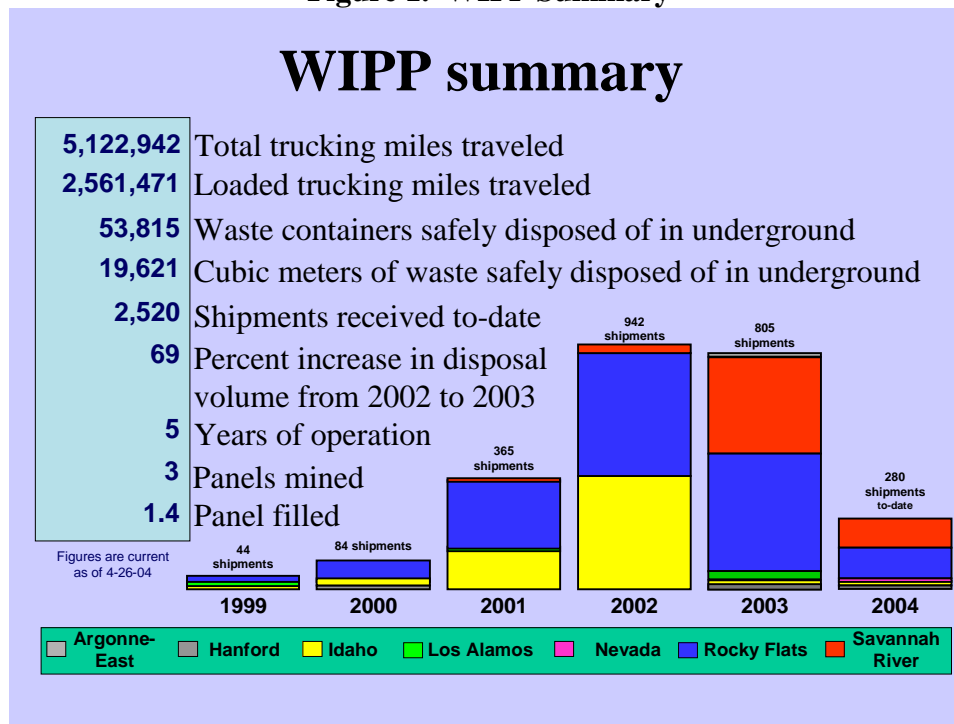
² Those federal sites include: Argonne National Laboratory-East in Illinois, Hanford Site in Washington, Idaho National Engineering and Environmental Laboratory in Idaho (INEEL), Los Alamos National Laboratory (LANL) in New Mexico, Nevada Test Site in Nevada, Rocky Flats Environmental Technology Site (RFETS) in Colorado, and Savannah River Site in Georgia. Shipments from Lawrence Livermore National Laboratory in California are expected to begin during 2004. Inter-site shipments of TRU waste also have been made, including shipments to the Hanford Site from the Energy Technology Engineering Center in California and Batelle Columbus in Ohio and to the INEEL from LANL and RFETS.

³ Another accident occurred in 2002, when a loaded truck veered off the highway, after the driver passed out. The truck finally stopped in an adjacent field. The driver was not seriously injured and no contamination was released. In May 2004, a loaded truck struck a deer. Although the accident caused minimal damage to the truck's front bumper, it did not result in the release of any contamination. Finally, on two occasions, drivers deviated from the designated route.

⁴ The Technical Advisory Group has expanded from seven to twelve states and currently consists of: Arizona, California, Colorado, Idaho, Nebraska, Nevada, New Mexico, Oregon, Texas, Utah, Washington, and Wyoming.

was to work together toward resolving concerns among themselves and disputes with the DOE during the development and implementation of the transportation safety program. The partnership that was subsequently forged led to the development and implementation of stringent standards, principles, and procedures which have guided and continue to guide every aspect of the transportation safety program, including: inspections, qualifications of drivers, selection of routes, advance notice of shipments, and training provided emergency responders. In addition, this partnership has had other benefits, such as fostering public acceptance to the WIPP transportation effort.

Figure 1. WIPP Summary



Data Source: DOE – Carlsbad Field Office

Unresolved Issues

Despite the effectiveness and success of the transportation safety program during the first five years of WIPP's operational life, open and unresolved issues with the DOE remain. Unless satisfactory and timely solutions are found, future shipments could be affected. These issues include:

- \$ obtaining a permanent commitment from the DOE that sufficient funds to maintain the WGA WIPP Transportation Safety Program will be provided to Western states through WGA for the duration of the shipping campaign;
- \$ completing negotiations with the DOE over security protocols that will help ensure shipments are better protected from terrorist attack;
- \$ successfully negotiating a route for the second set of shipments from the Nevada Test Site to WIPP;
- \$ now that the DOE appears to have determined that a comprehensive WIPP rail safety

- program is not cost effective, appropriately redirecting planning efforts from the development and implementation of a system-wide rail transportation safety program to one that will apply to rail shipments made on a case-by-case basis; and
- \$ ensuring that the shipments do not become “routine” in nature – that attention to detail and compliance with each element of the transportation safety program continues throughout the shipping campaign.

Emerging Issues

In addition to these ongoing concerns, three new issues have emerged that necessitate additional work. They include:

- \$ assessing the effect on the WIPP transportation safety program and identifying issues, if any, of the TRUPACT III shipping container, which, if certified by the Nuclear Regulatory Commission (NRC), as designed, will exceed highway weight limitations;
- \$ ensuring adjustments are identified and implemented so that states are prepared for remote handled TRU waste shipments⁵; and
- \$ strengthening protocols for responding to deviations from the designated route.

The Technical Advisory Group remains optimistic the issues described above can be resolved to the satisfaction of all concerned because the cooperative relationship developed over 15 years of working closely with the DOE has proved to be effective in solving problems.

Lessons Learned

The experience gained in the WIPP transportation safety program is invaluable and has applicability to other radioactive waste shipping campaigns. The DOE has incorporated the protocols developed under this program into transportation plans for other radioactive material campaigns, such as the one in the mid-1990s involving the transport of cesium capsules from commercial irradiation facilities to the Hanford Site. At a minimum, then, this program should serve as a starting point for the design of other shipping campaigns. The lessons learned to date include:

- \$ Collaboration early in the process with all affected states and the DOE is key to solving problems and the collaboration must be substantive and continuous if it is to lead to the development of a successful program.
- \$ As the shipments become more “routine” in nature, officials must be wary of allowing standards to slip.
- \$ Up to three-years lead-time may be needed by affected states to get ready for new routes.
- \$ The dissemination of accurate, timely, and appropriate information throughout the campaign is a critical component of a successful campaign.
- \$ The DOE must “sanction” each agreement made with Western states by incorporating each element into the DOE’s transportation plan and contracts with carriers.

⁵ About four percent of the TRU waste is classified as remote handled (RH). The other 96 percent of the waste is considered contact handled (CH). RH waste contains penetrating forms of radiation, which necessitate additional protective shielding to further protect workers, drivers, and the public. RH and CH waste are more fully described in Section II.

II. BRIEF HISTORY OF WIPP

Since the beginning of the atomic age, federal research and other facilities around the country have accumulated radioactive materials generated from defense activities, but it wasn't until 1974 that federal and local officials were able to agree on a site in southeastern New Mexico for the safe and permanent disposal of some of the waste. Scientists had concluded that the site near Carlsbad with its deep, underground salt deposits looked promising for demonstrating that radioactive material could be permanently disposed without leaks, spills, or other accidents. The rationale behind selecting a site with salt deposits was the view that the salt would naturally collapse around the waste, thereby encasing it, which would prevent the radioactive material from escaping.

For the next 25 years after southeastern New Mexico was selected as the official location for the repository, the federal government spent approximately \$2 billion testing the capabilities of the Carlsbad site, now known as the Waste Isolation Pilot Plant (WIPP), as well as building a facility and a mine located 2,150 feet below the surface. The mine is designed to handle more than six million cubic feet of waste. This is the equivalent of 850,000 55-gallon drums of waste or enough to fill 65 rooms, each the size of a football field. In all, approximately 20,000 shipments of waste will be sent to WIPP for permanent disposal.

The TRU waste buried at WIPP represents decades worth of discarded items, such as gloves, glassware, tools, and rags, as well as sludges and resins that either had been contaminated with plutonium during weapons production and research or generated through cleanup. In addition to this so-called legacy waste, the mine is scheduled to hold yet-to-be generated waste.

TRU waste consists primarily of long-lived alpha-emitting radionuclides, including plutonium. About 96 percent of the total volume of the TRU waste planned for disposal is classified as contact handled (CH). The other four percent is considered remote handled (RH) TRU waste. TRU mixed waste is highly dangerous if inhaled, swallowed or absorbed into the skin. CH containerized waste can be handled safely without heavy lead shielding. RH waste, on the other hand, contains penetrating forms of radiation and must be encased in lead and steel shielding to protect workers, drivers, and the public.

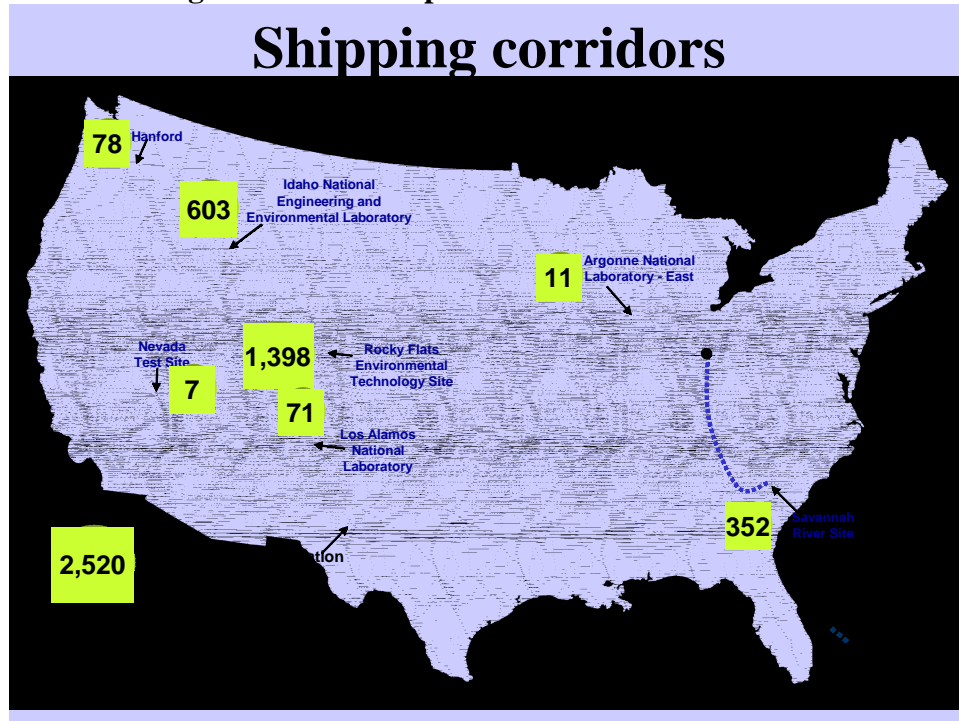
On March 26, 1999⁶ and only after the DOE had received all necessary certifications and permits,⁷ WIPP formally began accepting TRU waste from DOE facilities around the country.

⁶ The first shipment was scheduled to depart from Los Alamos National Laboratory on March 25, 1999, but was delayed for 24 hours due to dense fog in the Santa Fe area. In spite of intense pressure to make the "first" shipment to WIPP, the DOE followed the safety procedures and delayed the shipment until weather conditions improved.

⁷ In 1992, the Congress enacted the WIPP Land Withdrawal Act (P.L.102-579, as amended by P.L.104-201). The Act required the DOE to obtain the Environmental Protection Agency's certification of compliance with all disposal standards before any waste could be transported to WIPP. In addition, the DOE was required to comply with the regulatory authority of the New Mexico Environment Department relating to mixed hazardous and radioactive waste.

During WIPP's 30-year operational life, shipments are scheduled to traverse 30 states and the lands of 11 tribal nations. In the first five years of operation, over 2,500 shipments have arrived safely at WIPP. As Figure 2 reflects, more than half of the shipments have been made from the Rocky Flats Environmental Technology Site near Denver.

Figure 2. Total Shipments and Routes Followed



Data Source: DOE – Carlsbad Field Office

III. MILESTONES AND ACCOMPLISHMENTS OF TRANSPORTATION SAFETY PROGRAM

It was obvious from the beginning to officials from Western states that the public living and working along the proposed routes would not support transport of TRU waste until the public believed appropriate precautions were being developed that would safeguard the shipments. In the late 1980s, states formed a regional group, now known as the WGA WIPP Transportation Technical Advisory Group (Technical Advisory Group), to tackle planning and other transportation related issues. Working together and with the DOE, the Technical Advisory Group developed a comprehensive transportation safety program containing stringent shipping procedures that both Western states and the DOE agreed to follow during the entire campaign. The program is embodied in the WIPP Transportation Safety Program Implementation Guide⁸

⁸ Regional groups have developed their transportation policies and procedures for radioactive materials from the Program Implementation Guide.

(Program Implementation Guide). Even in the earliest drafts, the Program Implementation Guide was designed to serve as a living document subject to periodic review in order to help ensure insights and experience gained during the campaign could be captured and incorporated into the program. Since WIPP's opening, two revisions of the Program Implementation Guide have been made and all changes have been implemented.⁹

The path to developing and implementing a comprehensive transportation safety program for TRU waste shipments that so far has resulted in the safe disposal of nearly 20,000 cubic feet of TRU waste contained many obstacles that, at times, proved difficult to overcome. Many required lengthy negotiations and some are now undergoing further negotiation as new issues have emerged. Despite this, the safety program that has emerged is a model program that works. Its effectiveness is reflected in the following major milestones and accomplishments.

A. 1989 REPORT TO CONGRESS

Beginning in the 1980s, states potentially affected by the DOE's decision to transport TRU waste to WIPP began preparing for the shipments, and in 1988, united to work on common problems. In that year, the WGA received funding from the U.S. Department of Transportation to prepare a report to the Congress on the "opinions, concerns, and priorities for actions" of the seven Western states expected to experience the greatest impact from the initial shipments. These states had formed a task force under the umbrella of the WGA to make recommendations that would enhance the safety of and public confidence in the shipments. The task force, whose efforts culminated in the June 1989 Report to Congress, emphasized that a collaborative, regional approach to planning would be a key step toward developing and implementing a credible accident prevention and safety program for transporting TRU waste. States recognized certain elements of any program developed would vary from state to state. Nonetheless, they were committed to finding ways to make as uniform as possible certain components of a safety program, such as inspection standards, parking requirements, procedures for avoiding bad weather, and other safety controls. States believed uniformity could be accomplished if these elements were built from existing state truck inspection programs, lines of communication, and emergency preparedness training, plans and equipment. In the Report, Western states expressed their willingness to work together and with the DOE to resolve identified problems. Finally, states recognized that their commitment to shoulder responsibility for the shipping campaign would depend on consistent and assured financial support.

B. COOPERATIVE AGREEMENT WITH THE DOE

After the report was issued, the Secretary of Energy agreed that funding Western corridor states would be a necessary component to the development and implementation of a transportation safety program and began to provide funds to Western states through a cooperative agreement

⁹ In April 2004, the Technical Advisory Group began the process of drafting a third revision to the Program Implementation Guide.

entered into with the WGA in late 1989. The vast majority of the funds the WGA has received have been passed through to the states under Service Agreements to carry out identified tasks such as planning, training, and other elements contained in the Program Implementation Guide. The original cooperative agreement (including funding to support the agreement) has been superseded with one that will expire July 1, 2005.

C. 1991 REPORT TO WESTERN GOVERNORS AND SECRETARY OF ENERGY

In preparation for the DOE's then planned test-phase to evaluate the transport safety program, the Technical Advisory Group for WIPP Transport issued a report in 1991 to Western Governors on the status of each of the concerns and recommendations that had been raised in the 1989 Report to Congress. The most important change that had taken place in the two years following the Report was an improved working partnership that had developed between the DOE and Western states that emphasized collaborative problem solving in several areas, including accident prevention, emergency preparedness, and public involvement and information. Ultimately, during this period, collaboration between Western states and the DOE led to agreement on the development of standards, procedures, and protocols on such issues as safety audits of the carrier, independent state inspections, safe parking during bad weather conditions, and radiation detection and protective equipment.

Yet, despite the tremendous effort to reach consensus on all issues, the report identified a major concern of Western states that remained unresolved: obtaining the DOE's explicit commitment to fund the transport safety program of corridor states for the full operational life of WIPP. Permanent funding remains a concern today.

D. WGA POLICY RESOLUTIONS

Since the 1980s, Western Governors have adopted several resolutions relating to the transportation of TRU waste. These resolutions have served to provide policy direction to state officials during negotiations with the DOE on the elements of the transportation safety program as it was being developed and as each element is being implemented today. In September 2003, Western Governors reaffirmed their commitment to the transportation safety program by unanimously adopting Policy Resolution 03-08 (entitled "U.S. Department of Energy Waste Isolation Pilot Plant (WIPP) and Transportation of TRU Waste"). This policy resolution is consistent with previous resolutions in which "the safe and uneventful transport of TRU waste" was recognized as the primary objective of the program. In addition, Governors urged the Secretary of Energy to continue following the procedures and other elements contained in the Program Implementation Guide and to fulfill all commitments made in the 2003 Memorandum of Agreement between Western Governors and the Secretary.

E. WGA WIPP TRANSPORTATION SAFETY PROGRAM IMPLEMENTATION GUIDE

Members of the Technical Advisory Group and the DOE continued to work together after the 1991 Report to Western Governors to reach agreement on outstanding elements of a comprehensive safety program. In addition to building on existing state efforts in such areas as training for emergency responders, the Technical Advisory Group and DOE worked together to develop standards unique to WIPP, such as qualifications for drivers. Ultimately, these combined efforts led to the completion of the Program Implementation Guide. The Program Implementation Guide is the heart of the safety program as it establishes protocols, principles and standards that have guided and will continue to guide all aspects of WIPP's shipping campaign for the next 25 years. The Program Implementation Guide is divided into thirteen sections and calls for:

1. Highly qualified drivers as well as assurances the carriers comply with regulatory and other requirements;
2. State inspections of vehicles at enhanced levels that were developed by the Commercial Vehicle Safety Alliance (CVSA) in cooperation with states and the DOE;
3. Careful monitoring of road and weather conditions so that shipments may avoid adverse conditions that pose a threat to a shipment;
4. Designation of safe parking areas;
5. Advance notice of shipments and en route monitoring through a satellite-based tracking system;
6. Establishment and maintenance of effective emergency medical response capability along the routes;
7. Use of emergency management assistance compacts and mutual aid agreements to ensure a swift response regardless of jurisdiction;
8. Development of effective emergency response plans and procedures for responding to an incident;
9. Acquisition and maintenance of adequate emergency response equipment;
10. Adequate and appropriate training of affected emergency response and medical personnel and the provision of exercises to ensure a coordinated response;
11. Clear communication to the media and public about the risks associated with the campaign and a plan to coordinate and proactively provide information to the news media in the event of a transportation accident or incident;
12. Identification and selection of the safest and most acceptable routes to ship the waste; and

13. Periodic measurement of the effectiveness of the program.

Each element of the Program Implementation Guide has been fully implemented and, in addition, is annually reviewed and revised as necessary to reflect best practices and ongoing needs. As a further quality control measure, the states conduct a comprehensive review of the effectiveness of the entire safety program every other year. The most recent review, which was completed in 2003, concluded the program is working as designed. The effectiveness of the program and, therefore, of the Program Implementation Guide is also reflected in the exemplary safety record of WIPP shipments. Only one minor collision has occurred since WIPP opened.¹⁰

One example of how this remarkable safety record has been achieved is the requirement that enhanced inspection standards be followed for TRU waste shipments. The enhanced inspection procedures as well as inspector training courses had been originally developed by the CVSA for spent fuel shipments, but both states and the DOE voluntarily agreed to apply them to TRU waste shipments. Loaded trucks bound for WIPP are inspected at the point-of-origin using the enhanced standards (known as Level VI) and must be “defect free” before being dispatched to WIPP. In addition, Colorado and New Mexico inspect all WIPP trucks transiting their states using the enhanced inspection criteria. States also conduct periodic en route inspections.

Figure 3. WIPP Shipments: Comparison with Federal Motor Carrier Safety Administration (FMCSA) Data

FMCSA Roadside Inspection Data for the Year 2001*			CVSA Level VI Inspection Data for WIPP Shipments (March 24, 1999 – September 30, 2002)		
Inspection Activity	Number	Percent	Inspection Activity	Number	Percent
Number of Inspections	2,758,008		Number of Inspections	2,970	
With no Violations	749,960	27.2%	With no Violations	2,719	91.5%
With Violations	2,008,048	72.8%	With Violations	251	8.5%

* Data source: FMCSA Motor Carrier Management Information System September 28, 2002 data snapshot (taken from CVSA /DOE Cooperative Agreement Interim Report - Update on WIPP Shipments (April 2004))

Recently, CVSA completed a study of the inspections of shipments made between March 24, 1999 and September 30, 2002. This study shows that while the enhanced inspections have not eliminated all violations (the objective of the inspection component of the transportation safety program), vehicles subject to the Level VI inspection criteria are considered significantly safer than motor carriers not subject to rigorous inspections. (See Figure 3.)

¹⁰ Footnote 3 further describes the accidents and incidents that have occurred since 1999.

Another example of how the safety record has been achieved is the preparedness training that was developed under the Program Implementation Guide. Public concerns associated with transporting radioactive materials often revolve around the consequences of potential accidents. To allay these concerns, Western states and the DOE agreed to work cooperatively to develop a comprehensive training program for radiological emergencies that would be available to all emergency response and medical personnel to ensure they would have the knowledge and skills necessary to protect themselves and the public from hazards associated with TRU waste shipments. This training also would meet requirements imposed under federal law, including regulations of the Occupational Safety and Health Administration. Ultimately, a model program tailored to WIPP shipments was developed. The courses taught under this program are offered several times each year and in various locations to make it easier for emergency response and medical personnel to participate. The provisions of the Program Implementation Guide do not mandate that the specific training developed under the model program be conducted. However, all Western states now take advantage of at least some of the program's components or have developed their own programs, or both.¹¹

In addition to training responders, the Program Implementation Guide encourages the use of tabletop and full scale exercises as a good tool for enhancing learning, testing systems put in place to respond to incidents, increasing awareness, and evaluating training. For most of the past decade, Western states have held two major exercises each year, which have often led to improvements in planning for TRU waste emergencies.

Enhanced inspections and training tailored to WIPP shipments are just two examples of the comprehensive nature of the transportation safety program and the seriousness with which the Technical Advisory Group and DOE took the objective of the Governors in designing a program that would ensure a "safe and uneventful" shipping campaign. The program's effectiveness is clearly evident, as the stringent protocols, principles, and standards developed under the Program Implementation Guide so far have led to the safe delivery of all TRU waste sent to WIPP.

F. MEMORANDA OF AGREEMENT BETWEEN WESTERN GOVERNORS AND THE SECRETARY OF ENERGY

While DOE officials responsible for negotiating the Program Implementation Guide agreed that all its provisions should be implemented and followed throughout the shipping campaign, senior departmental officials never made a commitment that would be binding on the DOE and its staff until 1995, when the Secretary of Energy executed the first Memorandum of Agreement with

¹¹ Training for radiological emergencies has evolved over the years. Currently, the DOE, under the auspices of the Transportation Emergency Preparedness Program, which is responsible for overseeing all training related to DOE shipments, is encouraging states to adopt a comprehensive program called State Training and Education Program (STEP)/Modular Emergency Radiological Response Transportation Training (MERRTT) to meet training requirements. The MERRTT training curriculum has been customized by Idaho (called Idaho MERRTT) in an effort to provide Idaho specific instrument and response training for all radiological accidents or incidents, or both.

Western Governors. A similar commitment to work cooperatively to implement the Program Implementation Guide was again made in February 2003 when the updated version of the Agreement was executed. Under both Agreements, Western Governors and the Secretary reaffirmed “the objective of the U.S. Department of Energy and the Western Governors to be the safe and uneventful transportation of transuranic waste from generator and temporary storage facilities to more suitable treatment, storage and permanent disposal facilities, including the WIPP facility in New Mexico.” The Agreement recognizes the regional planning process as the most appropriate mechanism for the “safe and uneventful transportation” of TRU waste and reemphasizes the commitment of Western Governors and the Secretary to supporting this approach for conflict resolution and achieving their objective.

Between execution of the first and second Agreements, the horrific events of September 11, 2001 occurred which fundamentally altered the public’s perception of threats to shipments of radioactive materials. The Program Implementation Guide addresses security issues, and a Security Section is being developed to ensure TRU waste shipments are less vulnerable to terrorist attack. The 2003 Agreement reemphasizes the importance of security as both the Governors and Secretary committed to working cooperatively, first, to identify and implement appropriate security procedures, and second, to coordinate security related information exchange, planning, preparedness and response activities.

IV. UNRESOLVED AND NEW AND EMERGING ISSUES

Since WIPP’s opening, Western states and the DOE have continued to engage in collaborative problem solving. This approach has worked to resolve countless operational issues. For example, the DOE found that driver minimum requirements were keeping contract carriers from hiring some very qualified drivers. The DOE approached the states and requested a change that would not weaken the qualifications but would allow the carriers to have slightly more flexibility in hiring. After careful consideration, the states agreed and the change was made. The states fully expect that a similar approach involving collaboration, cooperation and consensus building will be instrumental in obtaining satisfactory solutions to the ongoing and newly identified issues described below.

A. UNRESOLVED ISSUES

1. Obtaining adequate funding throughout the campaign. As early as 1989, Western states agreed to shoulder part of the burden created when the federal government decided to traverse their states to dispose of DOE generated waste at WIPP. From the beginning, Western states have struggled to obtain express assurances from the DOE that adequate funding to properly implement all aspects of the transportation safety program would be available during the entire 30 years of WIPP’s operational life. While it is true funding has been provided to states to prepare for shipments and otherwise take all the steps necessary to implement the Program Implementation Guide, it is never certain from one year to the next if the amount actually approved will be adequate. This makes it difficult for state officials to plan and prepare for the

subsequent year's shipments. There is also the concern funding for WIPP shipments will not have the same priority in the future as it does today. This concern has recently taken on more urgency as other federal preparedness funding has shifted toward biological and chemical terrorism preparedness in response to the September 11 attacks. Radiological preparedness issues have been sidelined. It is with great persistence that the Western States not only promote an all hazards planning approach but also undertake radiological preparedness training. Western states need assurances from the DOE that funding for the transport of TRU waste will have the same high level of priority throughout the remainder of WIPP's operational life.

2. Completing negotiations with DOE over security protocols. The events of September 11 underscored the possible vulnerability of WIPP shipments to terrorist attack. In the 2003 Memorandum of Agreement, Western Governors and the Secretary of Energy committed to finding ways to reduce the risk. To fulfill this commitment, the Technical Advisory Group established a Security Working Group to work with the DOE on a separate security section to the Program Implementation Guide. The section has been drafted and sent to DOE headquarters for further review. DOE officials have advised the draft requires revisions before it will be approved. It is hoped negotiations will be completed in the near future.

3. Negotiating a route for the second set of shipments from the Nevada Test Site to WIPP. In October 2003, affected Western states and the DOE agreed to the use of State Route 127, located in California, for the first TRU waste shipments from the Nevada Test Site to WIPP. In addition, the DOE committed to finishing the first set of shipments using that route in December 2004. Shipments have begun and as agreed, are scheduled to be completed by the end of the year. However, to complete the removal of TRU waste from the Nevada Test Site, another set of shipments must be scheduled and made. Affected states and the DOE have not reached consensus on the route to be followed for these shipments. Fortunately, it is not necessary to immediately negotiate a route acceptable to all because the DOE does not anticipate the remaining waste will be ready for transport for another two or three years. The DOE has agreed to begin negotiations in the near future to ensure adequate preparations for any new route or routes can be made before shipments begin.

4. Ensuring an appropriate transportation safety program is implemented for rail shipments. In April 2004, the DOE made a preliminary decision not to go forward with a comprehensive program to transport certain TRU waste to WIPP by rail. Instead, the DOE has concluded that it would be more cost effective to transport the waste by truck. Use of rail would continue to be an option, but only on a case-by-case basis. This decision would represent a significant departure from the DOE's previously stated policy that approximately 2,000 TRU waste shipments would be made by rail.

At the DOE's request, the Technical Advisory Group spent more than two years developing a draft program implementation guide for rail as well as a set of expectations states believe should be met if a rail transportation safety program is to be successful in promoting safe and uneventful transportation of TRU waste. Rather than start from scratch, Western states opted to adapt the truck Program Implementation Guide. This is primarily because states believe the stringent safety protocols and other measures required for truck shipments are the reason the truck

shipping campaign has been so effective. This view is also consistent with the policy resolution Western Governors adopted in 2003 that rail shipments follow “standards, procedures, and protocols comparable to those used for shipments of TRU waste by truck”. The rail guide, which was developed with very limited input from the DOE, has undergone several revisions and the latest draft has been made available to the DOE for its review. If the DOE’s preliminary decision to forego rail shipments becomes final, Western states are concerned the DOE will not give the same care and attention to developing a program for rail shipments made on a case-by-case basis that would have been given to a comprehensive rail transport program. Western states and the DOE need to work together, using collaborative problem solving, to ensure appropriate planning for rail shipments is conducted so that the policy objective of the Western Governors will be met.

5. Maintaining high standards as the campaign becomes more “routine”. In articulating “safe and uneventful” shipments of TRU waste as the primary objective for shipments of TRU waste, Western Governors deliberately set the bar high for the development of the transportation safety program. They believed this was necessary not only to ensure the safety of the shipments, but also to overcome public resistance. As the program was being built, Western states pushed for and ultimately succeeded in obtaining the DOE’s approval to design a transportation safety program containing stringent standards in such areas as driver qualifications, inspections, and satellite tracking of the shipments. These were touted to the public as proof the shipments would be safe. And, as the record to date clearly shows, the standards put in place have succeeded in producing a safe campaign. However, there is a fear that as the shipments become more “routine” standards will slip which, in turn could make the shipments more prone to accidents or other incidents. Public confidence in the program also could slip. There have already been a few occasions where procedures have not been completely followed. For example, required weather checks have not always been as thorough as they should be and drivers sometimes fail to send required notifications when they are making a routine stop. Western states and the DOE must both remain diligent in holding public officials and their contractors accountable for operating the program as it was designed.

B. NEW AND EMERGING ISSUES

1. Assessing how the TRUPACT III container, if approved by the NRC, will impact the WIPP transportation safety program and making any needed adjustments. The DOE has submitted an application to the NRC to approve a new shipping container called TRUPACT III. When fully loaded with TRU waste, the container, as designed, will weigh approximately 66,000 pounds. The tractor and trailer hauling the TRU waste together weigh about 23,000 pounds. This means that when a truck is fully loaded, its total weight will exceed standard highway weight limits of 80,000 pounds, which may require a special overweight permit to be obtained before the shipment is to be dispatched. In addition, bridges located on the designated routes for WIPP shipments in certain states may not be able to accommodate extra heavy loads. Alternate routes could be needed. To ensure there is no disruption of shipments, assuming the NRC approves the TRUPACT III as an acceptable container for TRU waste, Western states and the DOE need to work together to assess the impact the TRUPACT III container will have on the transportation

safety program. If the assessment reveals that existing provisions of the Program Implementation Guide need to be amended, the Technical Advisory Group and DOE should collaborate on making the appropriate changes to the DOE WIPP Transportation Plan and the Program Implementation Guide.

2. Ensuring adjustments are made to the transportation safety program for remote handled (RH) TRU waste. In March 2004, the U.S. Environmental Protection Agency issued its final decision approving the DOE's RH TRU waste characterization plan. This decision does not mean that the DOE may immediately begin shipments of RH TRU waste to WIPP as other approvals from both the Environmental Protection Agency and New Mexico Environment Department are needed. However, the decision suggests that RH shipments could begin as early as 2006. As such, Western states and the DOE should undertake a joint review of all aspects of the transportation safety program so they may take the steps necessary to ensure states are prepared when shipments actually commence. This may include making adjustments to training offered to inspectors and emergency medical and other responders.

3. Ensuring protocols relating to deviations to the designated route are followed. In early April 2004, a loaded truck deviated from the designated WIPP route, but the deviation was not reported until the driver had traveled approximately 52 miles. The preliminary investigation conducted after this incident revealed relevant protocols contained in the Program Implementation Guide were not followed and existing protocols may need to be strengthened. At its April 2004 meeting, the Technical Advisory Group agreed to review the relevant sections and make appropriate revisions. After the DOE has approved the final draft, Western states will take all steps necessary to immediately implement agreed upon changes. In the interim, Western states and the DOE have agreed to reemphasize the necessity of following all existing protocols and to hold those accountable who do not. Western states hope changes made to the route deviation protocols are implemented by the end of 2004.

V. LESSONS LEARNED

After almost fifteen years of working together, the Technical Advisory Group believes the WGA WIPP Transportation Safety Program can offer five practices or approaches that should be of value to other radioactive material shipping campaigns. When they were adopted, these practices seemed innovative and at times, problematic or even unnecessary, but now with five years of safe deliveries to WIPP, they are considered indispensable to a successful campaign.

- **Collaborative problem solving is fundamental.** The single most important characteristic of the transportation safety program is collaborative problem solving among Western states and with the DOE. Western states recognized more than ten years before WIPP actually opened they needed to work together if they were ever to reach consensus on common concerns. As a first step, Western states formed a regional group – the Technical Advisory Group – to work on common problems. This cooperation and collaboration eventually led to agreements on thorny issues, which in turn meant less dissension when agreed upon solutions

were presented to the DOE for its consideration. To the DOE's credit, agency officials also recognized that a divisive relationship was counterproductive and by 1990, were more receptive to working collaboratively with state officials as a way to reach consensus on common issues. Ultimately, collaboration became embedded in all aspects of the design of the shipping campaign and fundamental to the development of the components of the transportation safety program that are being followed today. Most important, collaboration did not end either with the completion of the Program Implementation Guide or the opening of WIPP, and it is not likely to in the future. This is because Western states believe collaboration that is continuous and substantive will lead to consensus, and is the key to ensuring the public will be protected from harm throughout the remaining 25 years of the campaign.

- **Standards must be kept high as the campaign becomes more “routine”.** Another critical component of the transportation safety program is the need to maintain high standards throughout the shipping campaign. As discussed above in the section on unresolved issues, Western Governors set the bar high for the development of the WIPP transportation safety program to ensure the safety of all TRU waste shipments and to foster public acceptance of these shipments. Ultimately, a program containing stringent standards was designed and implemented. In the five years since WIPP opened, Western states have learned the value of maintaining high standards, but operating the program as designed requires sustained vigilance on the part of both Western States and the DOE.
- **Up to three-years lead-time may be needed to prepare for new routes.** Gaining public acceptance to shipments of TRU waste along an identified route is difficult, time consuming and only possible when the public believes all steps necessary to ensure the highest standards for incident prevention and emergency preparedness have been taken. Doing this requires the completion of dozens of tasks, such as making assessments of equipment and training needs, providing consistent and respectful outreach to members of the public and elected officials, and training emergency response and medical personnel, inspectors and dispatchers on how to handle an accident, including any release of radioactive material. And, no step can be taken without careful planning. WIPP's history demonstrates that up to three years may be needed to prepare a new route for shipments. If the appropriate amount of time is not taken, a state runs the risk of invoking public resistance to the proposed shipping campaign that could be difficult to overcome or worse, runs the unacceptable risk of the state being unprepared for an accident once the campaign starts.
- **Dissemination of accurate, timely, and appropriate information is critical.** One of the important lessons of the transportation safety program is the continuing need for up-to-date and reliable information on all shipments so that both state and federal officials have the resources in place to prepare for the departure of loaded trucks and to respond to any incidents or accidents that may occur en route. Maintaining public trust and confidence in the campaign depends on the appropriate resources being available during each shipment. This means states need accurate information not only on the location of a loaded truck, but when shipments are scheduled to depart. Early in the development of the transportation safety

program, Western states and the DOE recognized the importance of a tracking and communication system for shipments of TRU waste. Considerable time and funds were expended developing a system, known as TRANSCOM, to provide nearly real-time data to state and federal officials on the whereabouts of each shipment. While the system was initially unreliable, all now agree TRANSCOM is working well. However, ensuring that TRANSCOM continues to succeed in properly monitoring shipments depends first, on providing training to personnel using the system so that they have the knowledge necessary to recognize when a problem has occurred and how to respond, and second on maintaining and upgrading the system on a regular basis. Constant oversight and diligence on the part of Western states and the DOE are also required.

Accurate and timely advance notice information on the departure of a shipment is as important as the need for reliable information on the whereabouts of a shipment en route to WIPP. Departure information is developed from input received from the DOE's generator sites, which is subject to many variables such as the availability of shipping casks and can change on a daily basis. As a result, departure schedules must often be altered. This causes confusion and runs the risk of a state not having the proper resources available for inspections, responding to incidents, or both. Due diligence on the part of the DOE is required to help ensure departure schedules are as accurate as possible when they are made available to the states and changes are rare.

- **DOE must “sanction” all agreements made with Western states.** Early in the shipping campaign, Western states discovered that DOE carriers or DOE personnel working at the generator sites were not following certain specific protocols and procedures contained in the Program Implementation Guide. The reason is that the protocols and procedures had not been incorporated into the transportation plan being used by DOE personnel or into the contracts entered into with carriers. To remedy this problem, the DOE agreed to revise its transportation plan and contracts with carriers to accurately reflect all agreements made with Western states. Periodic reviews of the transportation plan and contracts are needed to ensure the DOE continues to “sanction” agreements made with Western states.

VI. CONCLUSION

Thirteen years have elapsed since the Technical Advisory Group last provided a written report to Western Governors on the status of planning for TRU waste shipments; although, every state's representative has maintained contact with their Governor's Office during the development of their state's program as well as the larger regional program. During that time, WIPP opened and more than 2,500 shipments of TRU waste safely arrived for permanent disposal at the facility. This record of success is a direct result of the comprehensive transportation safety program that Western states and the DOE jointly designed and implemented. Yet, development of this program would never have been possible if both sides had not concluded early on that collaboration with each other was critical to reaching consensus and resolving disputes. The positive relationship that exists today is a strong one that should help in finding acceptable

solutions to both ongoing and newly identified issues as well as any future issues that may emerge during the remaining 25 years of the campaign.

The WIPP Transportation Safety Program embodied in the Program Implementation Guide is now considered a model program that has gained public confidence and acceptance for the transport of TRU waste to WIPP. Western states don't anticipate any erosion in the public's support as long as the stringent standards and other elements contained in the Program Implementation Guide are followed. The enviable safety record to date suggests that the standards have been adhered to and with diligence on the part of both states and the DOE, should continue to be followed in the future. For Western states, this will not be a problem, as they firmly believe the entire transportation safety program is worthy of defending.