HANFORD TO WIPP - WHAT A TRIP!
THE ROAD FROM HANFORD IS NOW OPEN

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ABSTRACT

The road leading from Hanford's Waste Receiving and Processing (WRAP) Facility to the Waste Isolation Pilot Plant (WIPP) in New Mexico developed a few bumps and detours over the past year, but it has now been successfully traversed. There were challenges obtaining Carlsbad Area Office and New Mexico Environment Department certification of the Hanford characterization program. After months of work, when initial certification appeared imminent, the issuance of the WIPP Hazardous Waste Permit changed the Waste Analysis Plan (WAP) requirements for characterizing waste for acceptance at WIPP. After a ceremony dedicating the "Washington" room at WIPP, the inaugural shipment from WRAP to WIPP was scheduled for June 2000. This first shipment was planned based on shipping a number of containers that had been characterized before the issuance of the WIPP Mixed Waste Permit. However, the New Mexico Department of Ecology initially declined to accept the characterization data generated before the permit was issued, necessitating revision to the planned shipment. Because of the difficulties inherent in scheduling the TRUPACT-II transport and coordination with all of the states through which the shipment would pass, it was decided to proceed with the first shipment in early July with only the drums that had been characterized after Hanford compliance with the new WIPP WAP requirements had been certified.

Following the initial shipment, previously certified containers were recertified using a process approved through negotiation with the New Mexico Environment Department, and additional full shipments have been successfully completed. This paper will present an overview of the challenges overcome and lessons learned in obtaining certification, coordination with the involved states, and eventual successful implementation of a routine shipping program.

INTRODUCTION

From the time that transuranic (TRU) waste was first designated and stored retrievably in 1970 it was recognized that eventually the waste would be retrieved from storage and disposed in a facility designed for permanent isolation. In the late 1970s, the United States Department of Energy (DOE) decided to develop the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico for disposal of TRU waste. At Hanford, located in Washington State, a facility was conceived that would provide for remote inspection, characterization and packaging of TRU waste containers to prepare them for shipment to the WIPP disposal site. This facility evolved into today's Waste Receiving and Processing (WRAP) Facility that entered full TRU waste processing in September 1998, previously described at Waste Management symposia (French 1999, French 2000). Not long before WRAP began TRU waste processing, the Hanford TRU Project was established, with a charter to implement a waste certification program that would comply with all WIPP permit, waste acceptance, and transportation requirements.

Hanford established its WIPP certification project in April 1998, and received the initial Carlsbad Area Office (CAO) audit of the certification program in July 1999, 5 months before the New Mexico Environment Department (NMED) issued the Final WIPP Hazardous Waste Permit. During preparation for this audit, Hanford personnel worked closely with the CAO personnel to keep abreast of the latest developments and seriously looked at lessons learned from other facilities as they were audited. The WRAP Facility provided a centralized facility for waste characterization activities that greatly facilitated the waste certification process, and provided a strong basis for WIPP acceptance and certification of Hanford's program. A simple waste stream was selected to be the initial candidate for certification. CAO stated that the initial Hanford site audit was the best to date and identified no major programmatic issues. However, prior to final certification of the Hanford program, the WIPP Hazardous Waste Permit was issued. As a result, another WIPP certification audit was scheduled for January 2000 to incorporate provisions related to implementation of the WIPP Hazardous Waste Permit. Final certification from the CAO was achieved on May 31, 2000, with approval from NMED received on June 23, 2000. In anticipation of the receipt of TRU waste from Hanford, the "Washington Room" at WIPP was formally dedicated on June 2, 2000. Congressional representatives, stakeholders and DOE officials from DOE's Richland Operations Office (RL) and CAO participated in the ceremonial opening (see Figure 1). (CAO has recently been elevated to field office status, and is now known as Carlsbad Field Office (CBFO), but CAO will be used throughout this paper, as that was their name when most of the events being described herein took place.)

The initial shipment from Hanford to WIPP consisting of waste that was characterized, certified and packaged at WRAP left Hanford on July 12, and arrived at WIPP on July 14, 2000. Figure 2 shows the initial TRUPACT-II shipment departing from WRAP. By picking a simple waste stream, taking advantage of lessons learned at the other sites, and communicating effectively with the CAO, Hanford was able to achieve CAO certification in record time.

On September 22, 2000, the third shipment from Hanford arrived at WIPP, along with shipments of TRU waste from the Idaho National Engineering and Environmental Laboratory and the Rocky Flats Environmental Technology Site, as Secretary of Energy Bill Richardson announced the elevation of the CAO to field office status during a ceremony commemorating the concurrent arrival at WIPP of TRU waste for disposal from several of the major DOE TRU waste sites (Nuclear News).

The successes of the Hanford TRU characterization project did not come without concerted effort and perseverance at overcoming obstacles. These challenges did provide, however, the opportunity to learn and preserve lessons that may be of benefit for future TRU certification activities. The challenges overcome included artificially compressed schedules, limited budget and resources, constantly changing requirements, rejection of pre-permit characterization data, and the complexities of coordinating with the seven states along the transportation corridor from Hanford to WIPP.

CERTIFICATION PROGRAM DEVELOPMENT

Hanford was required to establish the TRU Waste Program and achieve certification on a total programmatic budget including production and characterization activities of approximately $2.5M/year. This budget included development of all program elements as well as processing required for certification of waste for disposal at WIPP. Hanford went from initiation of the TRU waste Project (April 1998) to having its first certification audit in 15 months (July 1999). Only six Corrective Action Requirements (CARs) were identified, with no programmatic issues requiring changes. To successfully accomplish this mission, Hanford focused on several key strategies: Hire/contract with WIPP knowledgeable individuals, implement lessons learned at other sites, select an easily certifiable waste stream, and isolate the WIPP certification program from the rest of the Hanford site programs.

To give the program a running start, Hanford hired or contracted with individuals having specific expertise in implementation of the programmatic elements required for certification for disposal of TRU waste at WIPP. Specific examples include:

- A contractor experienced at implementing TRU programs at other sites was hired to provide assistance in development of compliant acceptable knowledge documentation, development of technical and programmatic procedures and documents, and support implementation of the TRU Project training program.
- Specialized resources were contracted to support initial preparation of procedures to implement required QA elements and development of a compliant software QA program.
- A former QA manager with extensive experience conducting WIPP certification audits was hired as the Site Quality Assurance Officer for the Hanford TRU Project.
- Hanford performed an initial internal audit by contracting former WIPP auditors to scrub out issues and provide a benchmark of compliance prior to the CAO audit. This audit was performed with similar intensity in focused areas as expected during an actual certification audit. This pre-audit was performed early enough to implement lessons learned (e.g., audit conduct) and correct deficiencies identified.

The Hanford TRU Program also focused on characterizing a waste stream that would provide the maximum benefit, utilizing limited resources, without sacrificing long-term program goals. Hanford focused on the non-mixed debris waste stream generated at the Plutonium Finishing Plant (PFP) currently in storage at the Central Waste Complex, a waste stream that provided more than a thousand drums for characterization. This was an important strategic move for several reasons:

- A majority of Hanford's legacy waste is debris, so the PFP waste would provide valuable lessons learned for future characterization activities.
- WIPP was not permitted to accept mixed waste upon initiation of the Hanford program.
- The waste was in storage and readily available for processing.
- The waste stream was the largest available, which allowed for a more efficient development of AK (which is developed on a waste stream basis).

- The waste stream has limited radionuclide content; therefore, it was anticipated that there would be fewer problems meeting transportation requirements (e.g., decay heat, fissile gram limits, etc.).
- Because the generating facility is still operational, there are resources available for issue resolution and development of the AK documentation.

AN "ISOLATED" PROGRAM

Hanford made a concerted effort to isolate the TRU Project from site wide systems and procedures. This optimized the potential scope of the CAO certification audit by providing a discrete and limited set of procedures and documents that define the TRU Project and implement the elements required for compliance with the WIPP certification program. As the Hanford site programs do not implement a full NQA-1 system, this action isolated the site-wide systems and procedures from audit and the WIPP QA requirements, facilitating a successful audit. This approach also provided much greater flexibility in managing TRU Project procedures and requirements documents and allowed rapid responses to changing program elements (e.g., permit modifications).

The required program elements for the Hanford TRU Project are consolidated and managed by the TRU Project Office. All functions and personnel performing work toward characterization, certification, and transportation of TRU waste for WIPP fall under the elements of the consolidated program, regardless of work location or organization. For example, although the WRAP, Waste Sampling and Characterization, and T Plant Facilities all generate quality records during characterization activities for TRU waste, each facility manages these records in accordance with the TRU Project records program (defined by a single procedure). The same can be said of other requirements of the TRU Program (e.g., procedures, training, procurement, Measurement & Test Equipment, Software QA, etc.). By isolating the Hanford site systems from the rigors of the WIPP audit, the TRU Program was able to focus the scope of the WIPP audit on those elements directly controlled by the TRU Program.

SPEED BUMPS ON THE ROAD TO WIPP

In October 1999, Hanford was scheduled for a final audit to close the CARs resulting from the July 1999 Audit, with the initial shipment scheduled for November 19, 1999. In November 1999, however, the WIPP RCRA Part B Permit was issued, and all characterization activities completed prior to the WIPP Permit were invalidated.

Following issuance of the WIPP Hazardous Waste Permit, Hanford was selected as one of two sites to rapidly "re-tool" its TRU Program to implement the Permit requirements. Daily conference calls were conducted between the CAO, Hanford, and other TRU waste sites to facilitate issue identification and problem resolution. Additional resources were also provided by the CAO to help revise program documents and procedures to comply with the permit requirements. In January 2000, less than three months after the permit was issued, the CAO/EPA/NMED completed a certification audit. Only five CARs were identified; again, with no programmatic issues.

Significant budget and resources were expended to characterize a number of TRU waste containers prior to the WIPP Permit becoming effective. However, upon issuance of the WIPP Permit, the nondestructive examination (NDE), visual examination (VE), and Headspace Gas Analysis data generated prior to the effective date of the Permit was "lost." Through cooperative efforts between DOE-RL, CAO, the NMED, and Fluor Hanford, a process was approved that allowed recovery of the pre-permit data with minimal rework required. The NDE and VE data generated prior to the WIPP Permit was subsequently certified by applying the new program processes to the existing data, resulting in significant cost and schedule savings. Much of this previously processed waste has since been shipped to WIPP. Unfortunately, because of significant technical issues, the initial headspace gas analysis data could not be certified, requiring reanalysis prior to shipment.

AUDIT MANAGEMENT

During each of the certification audits, Hanford established an audit "war room" tasked with identifying, consolidating, tracking and responding to issues identified by the auditors. All Hanford personnel audited were required to complete a written audit evaluation form identifying the topics discussed and issues identified following contact with an auditor. This form was provided to the war room for tracking. All of the issues identified were categorized, assigned to a responsible party for resolution and tracked to completion. All issues were captured, whether identified by the auditor or not, allowing a thorough and orderly response to concerns and issues during and after the audit. The coordinated and timely responses provided by this mechanism during the audit allowed resolution and closure of many issues prior to the end of the audit, avoiding further corrective action planning and follow-up visits.

DOWN THE STRETCH

As the first shipping date approached, considerable effort was expended to facilitate communications paths for notifications, emergency response preparation, and routing issues among the states of Washington, Oregon, Idaho, Utah, Wyoming, Colorado and New Mexico through which the TRU waste shipments pass en route from Hanford to WIPP. Weekly conference calls were held with the interested parties to ensure that all of the affected states were kept informed and up-to-date. At Hanford, representatives from the DOE/ RL, Washington State Patrol, and local emergency response agencies briefed county commissioners, city councils, and emergency response agencies on the shipments. Additionally, a panel of subject matter experts participated in a panel discussion and a community briefing that was subsequently telecast on a local cable channel. The teamwork displayed throughout the planning process by the local, state and federal organizations ensured that all concerns were alleviated, allowing the first and subsequent shipments to occur without incident or protest.

Close cooperation between the Hanford TRU waste Project contractor and DOE (both RL and CAO) resulted in the ability to quickly and efficiently respond to necessary course changes and refinements during the compressed Hanford schedule. Frequent meetings and status reports on progress were effective in keeping both contractor and DOE management informed and up-to-date on emerging issues so that appropriate corrective measures could be implemented in a timely manner. Even though this was a laborious and often frustrating process, the teamwork

displayed by the involved organizations helped smooth the way, resulting in the development of a quality TRU waste certification program at the Hanford Site.

REFERENCES

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2. French 2000 - Mark S. French, Richland Operations Office, U.S. Department of Energy and Paul J. Macbeth, Dames & Moore, Inc., "The Advantages of Fixed Facilities in the Characterization of TRU Waste" presented at Waste Management 2000 Symposium, February 29, 2000.
3. Nuclear News – "Waste Management Briefs," Nuclear News, Nov. 2000, Page 82.

Fig. 1. Representative Doc Hastings (R-WA) and Keith Klein, Manager of DOE/RL at dedication of the Washington Room at WIPP.

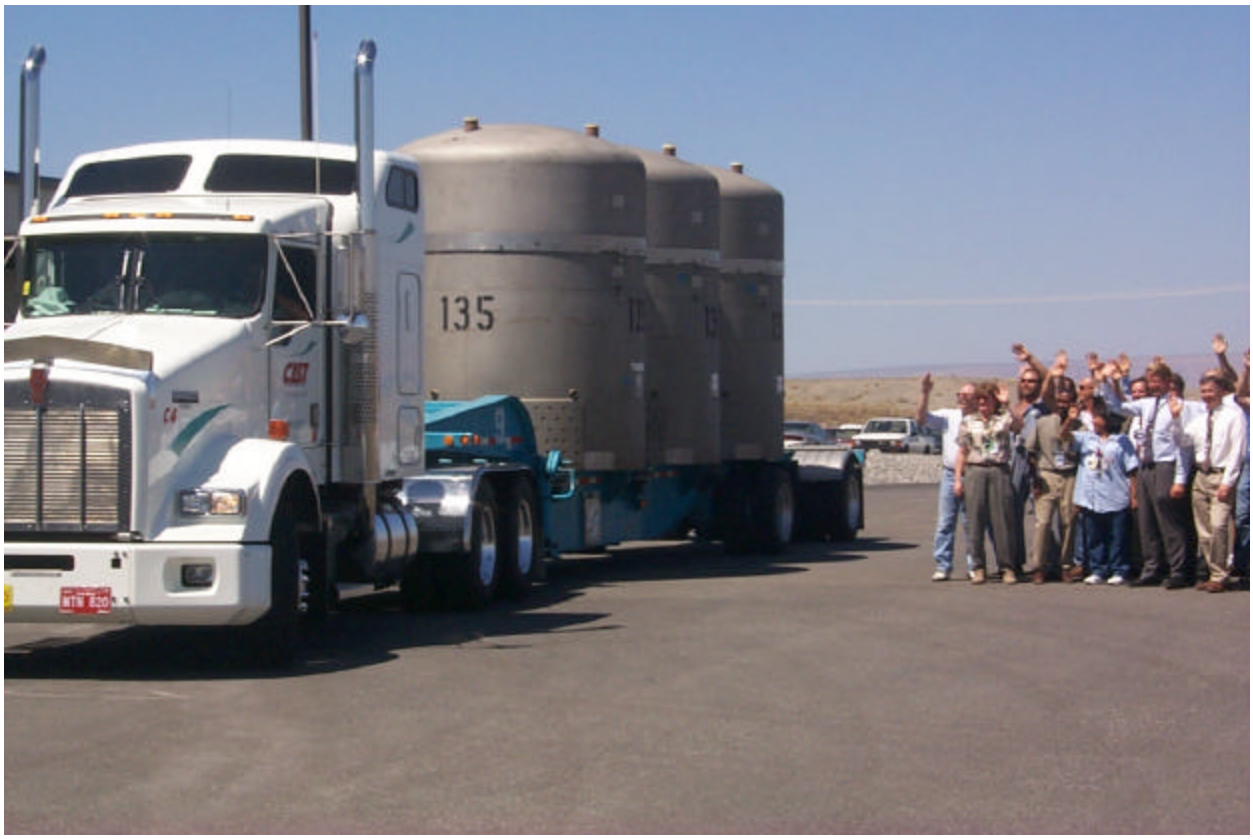

Fig. 2. The first shipment of TRU wastes from Hanford leaving the WRAP facility in TRUPACT-II shipping containers on July 12, 2000.