

**U.S. DEPARTMENT OF ENERGY-CARLSBAD AREA OFFICE
MOBILE SYSTEMS VENDOR PROGRAM**

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ABSTRACT

The U.S. Department of Energy's Carlsbad Area Office (CAO) is contracting for and deploying mobile characterization systems to cost effectively expedite preparation of transuranic (TRU) waste for disposal at the Waste Isolation Pilot Plant (WIPP). The mobile systems vendor program has been designed to accelerate the required TRU waste characterization activities at the TRU-waste sites. Two mobile vendor teams were selected through a competitive solicitation process, were deployed, and are mobilized at the Nevada Test Site (NTS), where they are undergoing audits by the CAO in order to receive their CAO mobile systems approval certificate. Stage 1 of the procurement is this approval process, which is being conducted through cooperative agreements with each vendor team. In Stage 2, the approved mobile vendors will receive orders to provide mobile TRU waste characterization and certification services via task orders issued and funded by the TRU-waste sites through the prime contracts issued by the CAO.

INTRODUCTION

Approximately 104,000 cubic meters of retrievably stored contact-handled (CH) TRU waste are in storage at numerous sites around the country (1). Before shipping TRU wastes for disposal at WIPP, sites must certify that the waste meets WIPP Waste Acceptance Criteria (WAC) (2). Sites with significant quantities of TRU waste plan to use existing fixed facilities or to open new facilities to characterize waste (determine chemical, radiological, and physical attributes). Constructing new fixed waste management facilities is a long-term planning issue because long budget lead times and other constraints are part of the approval process. Wastes that do not meet the WIPP WAC can be subject to additional processing, including repackaging, before disposal at the WIPP. Small-quantity sites face similar problems, since they generally lack the fixed-facility capability to characterize, treat, certify, and load TRU waste for off-site transfer (3).

An alternative to fixed facilities is the use of mobile systems mounted in one or more trailers, or mounted on skids and transported to a site. Proven mobile systems technology has been used to advantage at some DOE sites for several years and is readily available. Mobile systems technology can resolve TRU waste characterization and certification requirements at DOE sites (large and small) without enormous fixed-facility cost outlays. The CAO can help ensure that this technology is made available to DOE sites needing such services; the use of this proven technology is in concert with the national TRU waste management system and site clean-up acceleration goals established in 1996 by the DOE's Office of Environmental Management. Mobile systems can be deployed to sites as required, facilitating compliance with the Federal Facility Compliance Act consent orders, unilateral orders, and regulatory agreements.

Over the past two years the CAO, in close consultation with the TRU-waste sites and commercial vendors, has developed the Mobile Systems Vendor (MSV) Program, a detailed strategy for

contracting with mobile systems vendors and deploying them to TRU-waste sites. These vendors provide a full range of waste characterization, certification, and loading services for sites preparing TRU waste for disposal at WIPP.(3)

BACKGROUND

Several years ago the CAO evaluated the options for disposing of TRU waste located at small-quantity sites (SQS) across the U.S. Many of these sites are owned by private sector companies or universities that had provided services under contract to the DOE, while the rest are small, DOE-owned sites. Two options appeared to be reasonable: ship SQS waste to one of the large DOE TRU-waste sites, or characterize and package the waste at the SQS for shipment directly to the WIPP. In 1996, the CAO issued the *Mobile Waste Characterization Systems Analysis Report* (4), which found that "... mobile waste characterization systems have immediate application in regard to assisting the large quantity sites in filling the pipeline to the WIPP." This report encouraged developing mobile waste characterization capability for both the SQS and the large DOE TRU-waste sites. The *Mobile Systems Capability Plan* was issued in September 1996 to initiate contracting for and deployment of mobile system services to prepare TRU waste for disposal at the WIPP.

The CAO entered into Cooperative Agreements with two mobile systems vendor teams, Mobile Characterization Services (MCS) and TRUtech, which were selected through the competitive solicitation process. The CAO's vision is that through these agreements and participation in the CAO Mobile Systems Approval Program, the two mobile teams will have completed all applicable quality assurance (QA)-related reporting requirements; will have their planning documents reviewed and approved; and will have their processes examined, tested, and approved by CAO QA personnel. When the CAO has determined that the teams' characterization, packaging, certification, and transportation preparation program meet applicable requirements (i.e., successfully completing this program), the teams will receive CAO Mobile Systems Approval Certificates so that Task Orders can be issued to either augment DOE facilities at large TRU-waste sites or partially/totally provide waste management services at small quantity TRU-waste sites, to ensure that CH-TRU waste is characterized, certified, and loaded into the TRUPACT-II containers for transport to and disposal at the WIPP.

The purpose of the vendor approval activities is to tailor mobile vendor operations to the specific and stringent requirements of the WIPP program, specifically the WAC, the TRU Waste Characterization Quality Assurance Program Plan (QAPP), and the TRUPACT-II Certificate of Compliance. Site certification has proved to be a costly and time-consuming process for the TRU-waste sites. Deploying pre-approved mobile systems vendors to TRU-waste sites that have no or limited facilities or capabilities to perform those operations results in a lower, one-time vendor approval cost to CAO. This approval cost is more than offset by the cost savings realized by the sites as a result of not needing detailed plans and procedures for the entire certification process. Instead, a minimal certification process (site interface plan/procedure) will be used at these sites to ensure compatibility of site plans and procedures with those of the mobile vendors.

THE NEED FOR MOBILE SYSTEMS VENDOR PROGRAM

The National TRU Waste Management Plan (NTWMP) (1) documented the need for mobile systems capability:

"...the use of mobile waste characterization/certification units promises to expedite TRU waste processing operations and has been factored into the Management Plan

configuration accordingly. Evidence suggests that mobile characterization units will be less expensive than comparable fixed facilities, will require less time to field, and can be used at many sites over their operating lives...."

Both large and small sites need mobile capabilities for waste characterization, treatment, repackaging, and loading for transport. Many of these capabilities are available in the commercial marketplace and will provide schedule and cost advantages for achieving WIPP acceptance.

The NTWMP is a logistical plan that integrates and optimizes waste work-off and shipping schedules across all TRU-waste sites and assumes the deployment of mobile systems to achieve those schedules. Most of the TRU-waste sites plan to use mobile capability in some form or another to meet the schedules presented in the NTWMP.

The NTWMP includes mobile characterization and loading units in its configuration in order to meet the schedules and waste processing rate demand. A number of mobile characterization units (for example, real-time radiography, nondestructive assay, headspace gas sampling and analysis, and drum venting) are available to process stored and newly generated TRU waste packaged in 55-gallon drums and standard waste boxes.

PROCUREMENT STRATEGY

In January 1997, in support of the CAO, the procurement office of DOE's Albuquerque Operations Office issued a draft Request for Proposal (RFP) for mobile transuranic waste characterization services. The procurement is being conducted in two stages.

Stage 1 - CAO Approval Process

In April 1997 a Federal Assistance Solicitation for Cooperative Agreement was issued; in August 1997 two mobile systems vendor teams---MCS and TRUtech were selected to participate in the Mobile Systems Vendor Approval Program. The operations of the mobile systems at DOE sites must meet the same quality assurance and technical requirements for characterization and certification of TRU waste as the fixed facilities.

To receive a CAO Mobile Systems Approval Certificate, each mobile system vendor team must develop and submit all necessary documentation, plans, and procedures and successfully participate in the three Performance Demonstration Programs (PDPs) as required for the individual mobile units: Nondestructive Assay, RCRA Constituent Analysis of Solidified Wastes, and Analysis of Simulated Headspace Gases. They must also demonstrate their process capability during CAO audits and assessments. Vendor plans, reviews, reports, and other deliverables include:

- Waste Certification Plan (WCP)
- Certification QA Plan
- Quality Assurance Project Plan (QAPjP)
- Sampling Plan
- TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) Radiological Safety and Hazards Analysis Plan
- Packaging QA Program Plan
- Quality Assurance Program Document Matrix and QA Grading Procedure Standard Operating Procedures

CAO will review and approve MSV documents in accordance with the *Generator Site Certification Guide* (5). When CAO has approved the vendor's WCP, QAPjP, and TRAMPAC, the DOE Project Officer, assisted by CAO's Certification Manager and QA Manager, will assemble a team of qualified auditors and technical specialists who will travel to meet them at a DOE designated site (e.g., the Nevada Test Site) for the final approval audit. The CAO audit team will examine the vendor's procedures and programmatic documents pertaining to TRU waste management and observe the vendor perform characterization, certification, and transportation preparation activities on TRU waste.

Since the MSV Program is a dynamic program, each mobile vendor will be modifying, upgrading, and bringing on new equipment and new processes throughout the life of their contracts. As they bring the new or modified equipment/processes on line, CAO will perform an audit/surveillance to make sure that the new or modified equipment/processes are acceptable and meet all the CAO requirements. Successful participation in the PDP will be required if the new equipment falls into one of those PDP categories.

The CAO will award Certificates of Approval to the mobile systems teams as soon as they successfully complete their audits. In March 1998, these two teams were deployed to the Nevada Test Site (NTS), which consented to be the pilot TRU-waste site for the program to test the mobile systems concept and to initiate the process of receiving their CAO approval to perform TRU waste characterization, certification, and loading activities at the TRU-waste sites. Both teams have undergone their first audits by the CAO; the follow-up audits, to review corrective action implementation, were held in November and December 1998 at the NTS. CAO approval for both teams is expected in early 1999.

Stage 2 - MSVs Provide Mobile TRU Waste Characterization/Certification Services

In Stage 2, the CAO-approved vendors will provide mobile TRU waste characterization/certification services via Task Orders, written on contracts that will be issued and administered by the CAO. These Task Orders will be prepared by the requesting TRU-waste site in coordination with the CAO, approved, and issued. The requesting TRU-waste site will provide funding for the mobile services.

Characterization/certification services that are contracted to be provided by the MSVs include, but are not limited to:

- Nondestructive examination (NDE) Nondestructive assay (NDA)
- Repackaging
- Headspace gas sampling and analysis
- Visual examination
- Resource Conservation and Recovery Act (RCRA) sampling and analysis
- Waste certification support
- WIPP Waste Information System data entry Data generation, review, and validation
- Waste tracking and inventory control
- WIPP Waste Stream Profile Form preparation
- Waste manifest preparation
- Container marking and bar coding, weighing, and venting
- Health and safety support (monitoring, decontamination, and reporting)
- TRUPACT-II loading

The services provided by the MSVs will be viewed by the CAO as if the site were using permanent facilities to perform these functions at the data generation level, and the MSVs will be audited at least annually to keep their approval status current (5).

CAO will conduct technical exchanges with site planning personnel to plan for using mobile vendor services for TRU waste characterization/certification activities. Technical exchange will provide a forum for developing the detailed information needed to prepare a Task Order for mobile services. Early input from sites is critical for timely development of the Task Order and for the timely deployment of the vendor to the site. For example, the NTS, because of a consent agreement with the state of Nevada, was required to submit a copy of its site certification audit report and a shipping schedule by September 1, 1998. This commitment was met with support from CAO and the mobile systems vendors.

The procurement process described above provides a viable mechanism for ensuring that the sites can meet the WIPP WAC without additional and extensive waste site visits and audits by CAO before beginning shipments to WIPP.

PROCESS FOR USING MOBILE SYSTEMS VENDORS

The following describes the process that TRU-waste sites will follow to use a mobile systems vendor team:

- The CAO and/or its contractor representative will hold technical exchanges with TRU-waste sites to discuss and determine each site's needs for using the mobile vendors. Each site desiring the services of the mobile vendors will be put on a tentative schedule.
- Once the decision is made for a TRU-waste site to use a mobile vendor team, TRU-waste site personnel will prepare a Task Order in coordination with the CAO Manager of the MSV Program. These Task Orders must be very specific and shall delineate exactly which services the TRU-waste site requires from the mobile vendor team. After a Task Order is prepared and funding obligated for these services, a copy shall be sent to the CAO Contracting Officer to have as a record for the contract.
- After a Task Order has been prepared and approved, the mobile vendor team will be selected.
- The selection of the MSV team will be accomplished by designated TRU-waste site personnel and the CAO Manager for the MSV Program. A mobile vendor team will be selected according to schedule availability, mobile capabilities, services required, site requirements, cost, and other site-specific criteria.
- The TRU-waste site will be put on the schedule and the selected mobile vendor team will be deployed to that site in accordance with that schedule.
- After a TRU-waste site has selected a mobile vendor team, the selected team will prepare a task plan that describes how the team will accomplish the requirements in the Task Order.
- During the performance of work for a Task Order, the selected mobile team will be evaluated by both the TRU-waste site and the CAO to ensure that milestones are being met and the schedule is being maintained.

- The CAO will provide to the TRU-waste site a written evaluation regarding the performance of the mobile vendor team.
- The TRU-waste site will pay the mobile vendor team for services rendered in accordance with the Task Order.
- An overall performance evaluation of each mobile vendor team will be prepared for the CAO after work on a Task Order is completed at each TRU-waste site. This evaluation will be kept with contractual papers.

This process is shown graphically in Figure 1.

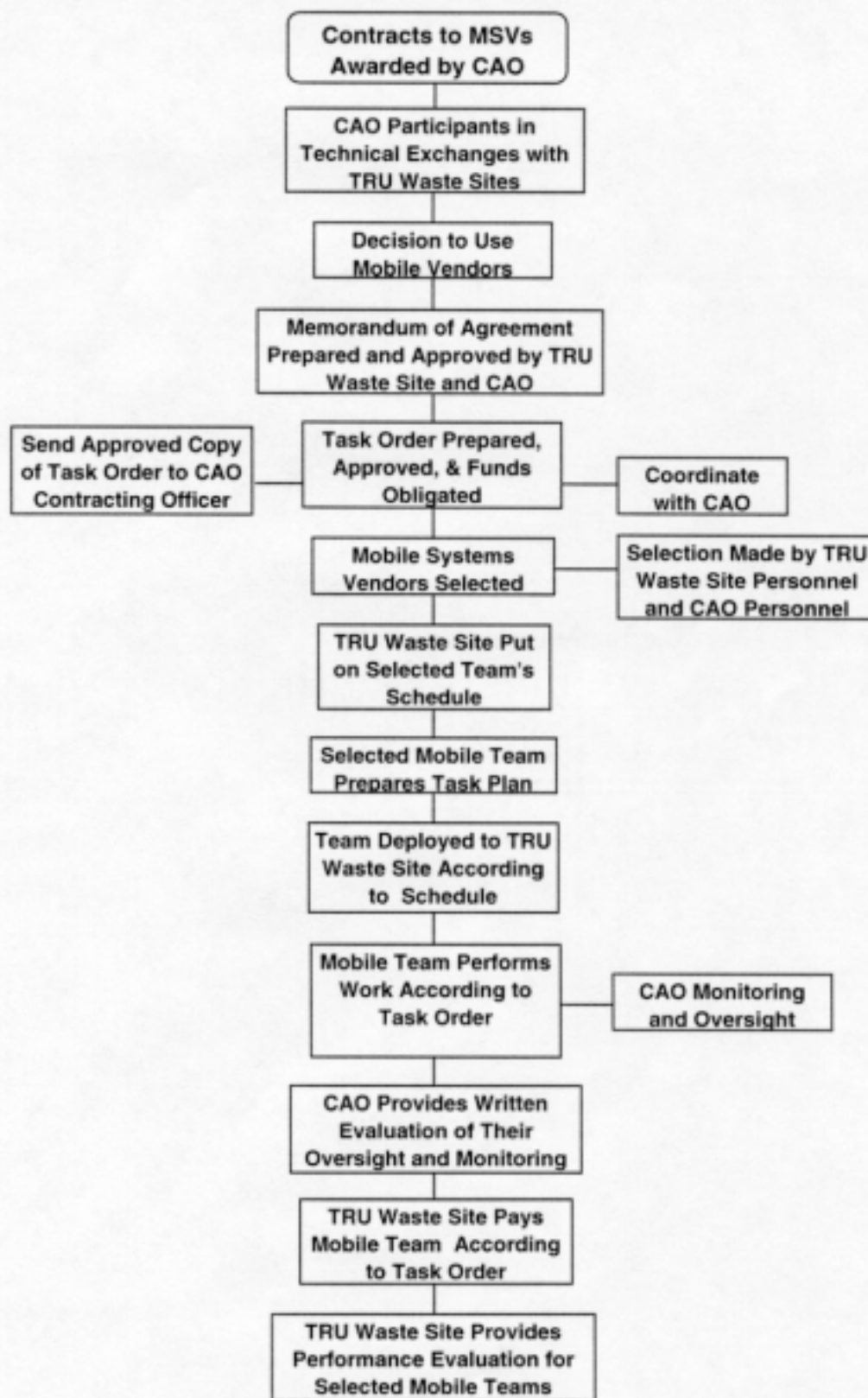


Figure 1: Process for Using Mobile Systems Vendors Program

Vendor Performance

The CAO, in collaboration with the sites, must remain informed about all aspects of vendor operations and progress. This includes knowledge of product quality; throughput to schedule; serious delays, which could adversely affect NTWMP schedules; and actual costs accrued compared with budget planning and funding profiles. As this work is to be performed on a fixed cost basis by MSVs, minimal management controls are anticipated.

Performance evaluations will be performed on the mobile systems vendor teams monthly during the task performance and after each Task Order is complete in order to maintain quality assurance and high performance standards for the TRU-waste sites and the CAO.

SUMMARY

The CAO will integrate the use of private mobile vendor services at the TRU-waste sites to fully/partially characterize TRU waste or to supplement existing and planned facilities to maximize the volume of WIPP-certified TRU waste available for disposal at WIPP. The CAO will coordinate with and guide the requesting sites, as well as provide technical expertise and information.

Some of the obvious benefits (3) of using mobile systems include:

- Operating funds can be used to procure mobile vendor services instead of using capital equipment funding, which requires a long lead time.
- Because funding is more readily available and mobile systems services can be acquired faster than fixed facilities can be built, mobile systems vendors offer the fastest way for TRU-waste sites to start preparing TRU waste for shipment to WIPP.
- Mobile systems can be deployed quickly, allowing sites to process TRU waste while waiting for fixed facilities to be funded, constructed, and operationally ready. Mobile systems can also augment fixed facilities.
- Mobile systems can be configured in many ways to meet changing needs at a TRU-waste site.
- Privatization offers a way to avoid capital acquisition and gain greater cost-effectiveness.

These benefits provide a strong incentive for TRU-waste sites to use MSVs.

ACKNOWLEDGMENT

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