USDOE WASTE ELIMINATION TEAM

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ABSTRACT

The Transuranic and Mixed Waste Focus Area (TMFA) has formed the Waste Elimination Team to develop integrated solutions for unique mixed waste treatment and disposal. Deploying innovative technologies for small-volume mixed waste streams has been difficult in the past. DOE sites did not want to invest the resources required for onsite deployment to treat the small quantity in their respective inventory. Commercial treatment facilities could not justify similar expenditures because they could not define a large enough market. The TMFA formed the Waste Elimination Team to combine waste streams from the DOE complex into treatment campaigns, defining the market for commercial vendors. The Team places national basic ordering agreements using a format developed by the Integrated Contractors Procurement Team. Any DOE site can then use those agreements to treat and dispose their wastes. Activities are underway to eliminate inventories of gas cylinders, uranium and thorium chips, lead-acid batteries, classified waste, waste requiring thermal treatment, and mercury contaminated waste. The Team also disseminates information on existing resources for waste treatment and disposal such as sealed source recycling and disposal. Through these efforts, otherwise orphan wastes are being treated and disposed.

INTRODUCTION

The US Department of Energy (DOE) and its predecessors have supported a broad range of activities in the development of nuclear energy and in national defense programs. As awareness of the potential problems associated with radioactivity, heavy metals, and other hazardous chemicals increased questionable past disposal practices have been identified. Efforts are underway to correct these problems as well as to ensure that future treatment and disposal methods do not create additional long-range problems. Stored and recovered waste is being prepared for safe disposal. However, some small volume and possibly more exotic waste streams have proven to be difficult to cost effectively treat and dispose. Many of these waste streams contain both radioactive and Resource Conservation and Recovery Act (RCRA) hazardous constituents. An estimated ten percent of the DOE waste inventory falls into problematic categories (1). To address these problematic wastes the DOE Transuranic and Mixed Waste Focus Area (TMFA) has formed the Waste Elimination Team. This Team is addressing these unique wastes to ensure that all of them will eventually have a safe and economical disposal path.

BACKGROUND

The TMFA DOE and private industry have spent a long time and considerable resources in developing treatment systems to prepare waste for disposal. Many of these systems have never been deployed, raising questions about the efficacy of the treatment technology development program. In most cases these systems were effective and innovative, but the obstacles for deployment exceeded the possible return for their use, so they languished on the shelf. The obstacles varied from DOE sites to commercial treatment facilities, but the fundamental problem is cost. Deploying a treatment technology at a DOE facility requires a significant effort and considerable resources. For RCRA waste the site must negotiate with the state for a permit, prepare detailed procedures and plans, perform extensive safety and readiness reviews, and provide oversight during operations. At the completion of the treatment campaign, the system must be decommissioned and disposed. The cost of all these activities makes deployment of a new system for a small waste stream cost prohibitive.

At the same time, commercial treatment facilities are not willing to deploy a treatment system unless they can justify the deployment financially. They too must go through permitting and installation activities before they can begin to treat waste. They also must see enough market to make the exercise profitable to justify the investment. Small widely spread waste streams have no market pull unless the waste can be combined into a treatment campaign. One commercial treatment vendor considered deploying a DOE treatment technology, but only on the condition that the technology be accompanied by a guaranteed contract to treat 5000 cubic yards of DOE waste. The TMFA surveyed the DOE complex and was unable to find sufficient available waste of that type to meet the contract the requirements. The vendor did not deploy the technology and no other facility, DOE or commercial, has decided to deploy it on a large scale.

Most DOE sites have waste to be treated for which technologies have been demonstrated, including some systems in which DOE has invested heavily. Mercury treatment and other stabilization technologies have been proven capable of treating DOE mixed waste, but are not yet effectively deployed. For most of the waste streams that have no path to disposal, deployment of a treatment system at a permitted commercial facility is the preferred scenario. To be fully effective, the vendor's services must be available through a contract accessible to all DOE sites. A contract of this type avoids the requirement of each site going through a competitive bidding process to access the treatment system. The WET seeks to make the demonstrated technologies available to the DOE complex through these national contracts or basic ordering agreements.

Integrated Contractor Procurement Team (ICPT)

DOE recognized the benefits of national contracts before the WET was formed. In order to take advantage of the volume of transactions awarded by the DOE complex and to reduce duplication and administration costs, DOE organized an ICPT in 1995 on a test basis. In 1997 the Procurement Executive officially chartered it.

The ICPT was established to:
(1) Aggressively pursue consortium buying opportunities that represent procurement-leveraged savings for DOE Complex-Wide Prime Contractors;

(2) Provide long term strategies via an established Executive Steering Council and individually chartered Product Teams; and

(3) Provide a vehicle for communication of consolidation initiatives, marketing methodology and procurement related issues of the Prime Contractor community.

The ICPT was originally established to purchase commercial products and services from pencils to copy machines. This has been expanded to include any DOE complex-wide needed product and service including any that may be outside the strict definition of commercial.

The ICPT consists of an executive steering council and product teams. The Executive Steering Council consists of members from many of the sites across the DOE complex and DOE Headquarters. The member sites include: INEEL, Pantex, ANL, SRS, BWXT-Y-12, ETTP-BJC, LANL, RL, and DOE-HQ. As needs are identified and brought to the executive steering council by various sites, the council evaluates them and determines if the needs qualify as an ICPT procurement. If a need qualifies as an ICPT, a product team is then formed from member sites that have this need to implement an ICPT procurement. Typically the site that brought the need to the council will be the sponsoring site for the procurement and the procurement will go through that site's procurement organization.

The agreement that is awarded from the procurement is a Basic Ordering Agreement (BOA). The BOA is a written instrument of understanding that contains (1) terms and conditions applying to future subcontracts (2) a description of services to be provided and (3) methods for pricing. A BOA is not a contract and is unfunded. Any BOA awarded by the sponsoring site is not a mandatory source for the DOE complex; however, it is an available tool for any DOE Contractor in the DOE Complex.

Once the BOA is issued, any DOE Contractor may issue a subcontract referencing the BOA. The subcontract, when issued, is the funded contractual instrument specific to that site and contractor and will contain the terms and conditions of the BOA by reference. Each DOE Site has the option to impose their own site specific Environmental, Safety, and Health and other requirements in the individual subcontracts that will be issued referencing the BOA. However, if any requirement were changed in the BOA, the pricing would be subject to change.

For more information on the ICPT visit their web site at
http://www.hanford.gov/pmm/icpt/charter.html

OPERATION OF WASTE ELIMINATION TEAM

The TMFA formed the WET to address the problems of dealing with Unique waste. Those invited to participate include waste management personnel from most of the DOE sites, subject matter experts to act as principal investigators for upcoming projects, and regulatory and technical personnel from the TMFA. In the team meetings members review problems associated with the treatment and disposal of mixed waste streams, many of which have no path for disposal. Others have treatment options that are so prohibitively expensive that the sites work with their regulators to delay treatment until someone develops a more reasonable option. In some cases emerging technologies could fill the technology gap, but the sites are hesitant to attempt to deploy the process because of the expense previously discussed.

When current problems have been identified, the group works to develop solutions to common problems. The resulting list of solutions becomes the basis for treatment campaigns or efforts for the near future. The TMFA selects subject matter experts to serve as principal investigators for the projects and, depending on funding, initiates projects to develop a solution to the problem. In some cases, when funding is limited, the subject matter experts are hired to perform a preliminary investigation of the problem quantifying the problem and putting together a list of potential solutions. The SME may identify a simple solution that does not require much additional effort. Otherwise the SME's report helps in the allocation of funding for the outyears.

When the TMFA initiates a project, the PI first contacts team representatives for all of the sites and defines the inventory of waste requiring treatment. In addition he gathers site treatment milestone information to determine the time constraints for the project. With these data in hand, the PI then reviews the commercial options for treatment regardless of cost. For wastes for which no treatment technology is available the PI researches emerging technologies to determine their projected availability. If a technology has been proven, but has no commercial outlet, the PI determines the steps necessary to get the system into the field. If development is necessary, the TMFA modifies outyear planning to include that work.

When potential treatment options have been summarized, the PI performs a cost comparison of the more promising paths. The PI working with the TMFA then selects the path that seems best for the complex. The next step for the PI is establishing the contract that allows the sites access to the treatment capability. If an existing contract cannot be modified to access the commercial capability, the PI uses the competitive bidding process to establish an ICPT BOA. During this process, the PI encourages potential bidders to participate by bringing into play the combined inventory information that he previously gathered. WET members with that type of waste are encouraged to participate in the vendor selection process and any qualification or liability assessments at the vendor facility. This paves the way for each site's use of the BOA when it has been established. Roadblocks are eliminated during the contracting phase instead of requiring subsequent costly contract modifications. The PI works with participating sites to ensure that the treatment campaign goes forward smoothly. The PI will also facilitate activities

where sites can combine their wastes to reduce cost. Finally he ensures the vendor is successful through coordinating shipments and training the sites in how to use the contract.

For some waste streams, the volume of waste involved is still too low to entice the commercial sector to treat the waste without extremely high costs. For these wastes, the TMFA then investigates whether the waste can be treated at the DOE site or whether several sites can ship to one DOE site for a combined treatment campaign. The PI coordinates the treatment efforts, following the associated waste streams until they have been eliminated.

CURRENT WET ACTIVITIES

The WET has several treatment campaigns and projects presently underway. These activities range from the establishment of ICPT BOAs to the development of treatment campaigns under existing contracts such as the Broad Spectrum contracts established by Oak Ridge. Sites with common needs are being brought together in some cases to work out paths for treatment and disposal. In other cases principal investigators are leading the effort to establish the pathway including placing or revising contracts where required.

Gas Cylinder Treatment and Disposal

At most DOE sites there are radioactively contaminated compressed gas cylinders. Many of these cylinders have been sitting around the sites for years and are in various states of deterioration. These cylinders pose a potential danger due to the inherent nature of compressed gas cylinders and in many cases the gasses they contain. Most of the population came from commercial suppliers of compressed gasses. While on site these cylinders became externally radioactively contaminated. These gas cylinders include the entire range or types of gasses such as inerts and atmospheric (air, O2, N2, Ar, etc.), flammables (propane, butane, acetylene, etc.), reactives (ClF3, HF, Cl2, etc.) and freons. Additionally some sites have manufactured their own cylinders for specialty applications that must also be dispositioned. An option to treat cylinders with uranium hexafluoride was also required in the BOA. Because these cylinders are radioactively contaminated the commercial cylinders cannot be returned to the supplier for recycle or reuse and the homemade cylinders cannot be sent to a cylinder treatment and disposal facility. Lastly, the contents of many cylinders cannot be identified and are labeled unknown. These cylinders pose a major problem just in their storage requirements. They also cannot be shipped or processed until the contents have been sampled and analyzed to determine the contained gas. Treatment facilities for processing these radioactive cylinders did not exist either on-site or off-site with the exception of a facility at East Tennessee Technology Park at Oak Ridge for processing only that site's cylinders.

To address the national gas cylinder problem the TMFA and the WET initiated a project to establish commercial treatment capability easily accessible for all DOE sites. The first objective of the project was to quantify the depth and breadth of the problem within the DOE complex. The results were then to be used to identify a need and create a capability or market in the private sector. If the WET could demonstrate sufficient need, vendors

would build and license a facility to process these cylinders. Initially the WET planned to have UT-Battelle as the M&O contractor for ORNL issue a contact for this work that any DOE site could use to have their cylinders processed. However early in the project the WET realized that UT-Battelle or any other DOE prime contractor would not be willing to take the risk for other sites to use their contract to perform the work. Other avenues were investigated and the project came up with the ICPT model using a BOA as the contracting mechanism. Typically the ICPT is for the purchase of commodities or commercial products and services. This was a first of a kind to use the ICPT for the purchase of non-standard services.

The procurement process was initiated with a Commerce Business Daily (CBD) announcement issued on March 14, 2001 describing the project. Twenty-one expressions of interest were received. The Request for proposal (RFP) was issued on May 8, 2001. To better clarify portions of the RFP, this solicitation was stopped and then reissued with revised terms and conditions on July 11, 2001. Two proposals were received, evaluated and the successful vendor; Integrated Environmental Services (IES) of Atlanta, Georgia, awarded a BOA on November 15, 2001. Because this was a first-of-a-kind procurement, the project got extra scrutiny with review and approval at each step along the way from both DOE and UT-Battelle.

Any DOE Contractor may now issue a subcontract referencing the BOA. The subcontract, when issued, is the funded contractual instrument specific to that site and contractor and will contain the terms and conditions of the BOA by reference. As an initial step, the WET will pay for IES to visit each interested site to perform the initial inventory work. The cylinders to be treated will be surveyed to determine if the contents are known, the contents can be sampled, and the cylinder can be shipped as is or if it requires an overpack. From these data, the site can determine the cost for treatment and disposal.

Oak Ridge and Fernald are moving quickly to get cylinders treated under the BOA. Other sites will soon follow.

Treatment and Disposal of Uranium and Thorium Chips

Two of the Unique wastes in the U.S. Department of Energy (DOE) Complex are uranium and thorium chips. Significant quantities of these materials exist throughout the DOE complex, produced mostly as machining and tooling residues. The TMFA and WET surveyed the DOE complex to determine the location and quantity of uranium and thorium chips requiring treatment. The inventory revealed:

- chips mixed with lead in plastic bags and pyrophoric chips in oil with PCBs
- DU chips mixed with metal alloys in various drums
- Thorium chips and turnings in 5 to 85 gal drums
- Previously disposed barrels containing oil soaked chips
- DU chips and turnings in oil/diesel fuel and DU chips in diesel oil
- Metal, foil, and shavings, some of which some are dry and some are in oil

- DU chips submerged in mineral oil in various sized drums,
- DU sludge under water, and
- Turnings (DU, Zr alloy), metal scrap (DU and natural U), chips and oxidized chips in various drums.

The total inventory identified in the survey includes 1865 drums, 151 bottles, 1 plastic bag, 25 pipe sections, 4 B-12 boxes, 7 glass containers, 19 metal containers, 9 4-liter cans, and 120 food pack cans.

In some cases, (e.g., at the Oak Ridge Y12 plant), reactive metal chips are recovered, stabilized, and disposed as they are generated. However, some depleted material chips are not suitable for processing through a chip burner requiring a different treatment path. In other cases, (e.g., at Fernald), the uranium chips in oxide form were drummed and covered with oil, which in some cases contained polychlorinated biphenyls (PCBs). For the uranium and thorium chips that are not recycled or stabilized as part of the manufacturing process that generates them, DOE needs a path for treatment and disposal. When the WET looked at the problem, the optimum approach seemed to be establishing a contract with a vendor who would take the chips from the DOE sites, treat them, and then ship the stabilized waste to a disposal site.

Analysis of the existing vendors in the country indicated the viability of commercially treating uranium and thorium chips. A statement of work (SOW) and a request for proposal (RFP) were prepared and sent to vendors. Five companies responded to the RFP. The evaluation criteria applied to the RFP responses were defined in the text of the RFP and included: (1) technical approach to the treatment process, (2) environmental, safety, and health, quality assurance, and waste management, (3) past performance, and (4) schedule. The ICPT Technical Panel selected qualified vendors based on these criteria. The awardee was chosen from the qualified vendors based on the best overall value as determined by the ICPT Technical Panel. In evaluating proposals, the panel was concerned with finding the most advantageous balance between expected performance and overall evaluated price. Based on the panel's recommendation, UT-Battelle initiated a BOA with the awardee.

One of the requirements of the BOA is that the awardee will be required to perform a First Article Test by treating a limited quantity of uranium or thorium chips (3 to 5 drums, a minimum of 1,000 pounds of chips). The First Article Test must be satisfactorily completed, reported, and approved by the ICPT Technical Panel before the awardee begins full-scale processing of the DOE inventory. The First Article Test will demonstrate the Seller's capability of treating, transporting, and disposing the treated uranium and thorium chips, satisfying the disposal site Waste Acceptance Criteria (WAC) before any subcontracts can be issued for the full-scale processing of the DOE waste. If the First Article Test is not successful, the BOA will be cancelled. Before the First Article Test is initialized, a liability assessment of the selected vendor will be conducted by the participating DOE sites (with uranium and thorium chips inventories) to analyze potential liability issues. The TMFA and the PI for the project will monitor the treatment and disposal of these special materials for two years. The PI will be funded to

assist the sites in accessing the treatment and to put together cost-saving treatment campaigns where possible.

The process treatment presented by the awardee is illustrated in Fig. 1. The first step of the process train is an inspection of the contents of each container. To prevent ignition of the waste metal during treatment, the metal is first immersed in mineral oil until all of the void spaces are filled. Excess oil is drained off and reused. The material is then staged for treatment. The treatment process uses a deactivation method that was demonstrated on depleted uranium turnings, thorium raffinates, and metallic magnesium at Fernald. The method stabilizes the waste in a proprietary grout formulation, which includes mineral oil, gypsum plaster, water and Portland cement. The resulting waste form is a soft monolith, having a consistency similar to putty. The monolith is observed during setting and initial curing to ensure that the desired consistency is achieved. More grout or additional mixing can be used to correct any problems with the consistency of the final waste form. If free mineral oil is observed in any container, additional gypsum plaster may be used as an oil absorbent

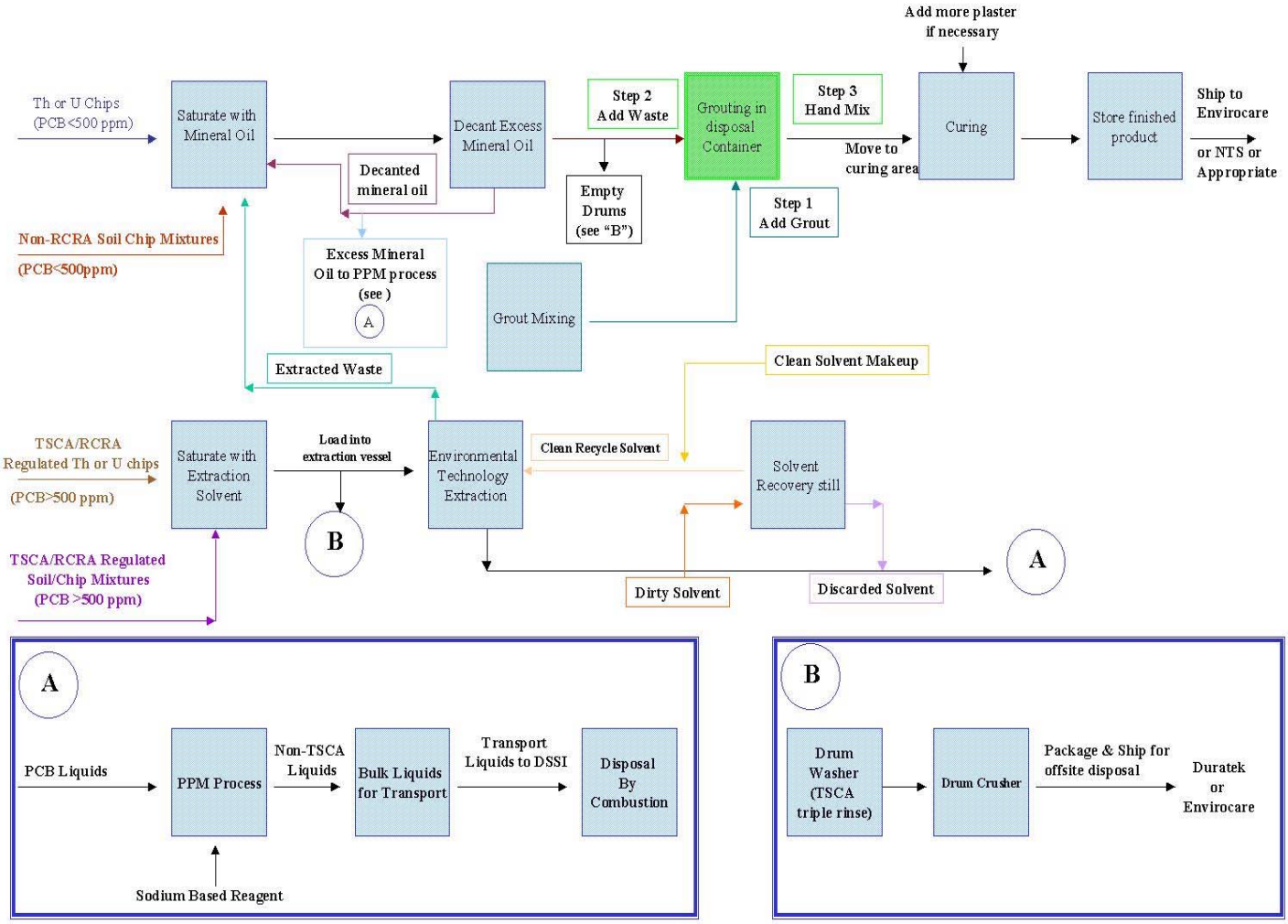
Add more plaster if necessary
Th or U Chips (PCB<500 ppm)
Saturate with Mineral Oil
Decant Excess Mineral Oil
Step 2 Add Waste
Grouting in disposal Container
Step 3 Hand Mix
Curing
Store finished product
Ship to Envirocare or NTS or Appropriate
Move to curing area
Decanted mineral oil
Empty Drums (see "B")
Step 1 Add Grout
Non-RCRA Soil Chip Mixtures (PCB<500ppm)
Excess Mineral Oil to PPM process (see A)
Grout Mixing
Extracted Waste
Clean Solvent Makeup
TSCA/RCRA Regulated Th or U chips (PCB>500 ppm)
Saturate with Extraction Solvent
Load into extraction vessel
Environmental Technology Extraction
Clean Recycle Solvent
Solvent Recovery still
B
TSCA/RCRA Regulated Soil/Chip Mixtures (PCB >500 ppm)
Dirty Solvent
Discarded Solvent
A
A
PCB Liquids
PPM Process
Non-TSCA Liquids
Bulk Liquids for Transport
Transport Liquids to DSSI
Disposal By Combustion
Sodium Based Reagent
B
Drum Washer (TSCA triple rinse)
Drum Crusher
Package & Ship for offsite disposal
Duratek or Envirocare

Fig. 1.

Reactives Treatment and Disposal

Many sites have wastes that would fall into the general category of reactives. A PI will contact the sites to get inventory information coupled with as much contaminant information as possible. The PI will also gather treatment plan milestone data to help in prioritizing treatment efforts. The goal for the FY-2002 work is to find a category of reactive wastes that could be treated by presently available systems and conduct a treatment campaign to eliminate that category of waste. Additional efforts will be conducted in subsequent years. Where necessary, the TMFA will support development work if no treatment process is available.

Elemental Mercury and Mercury-Contaminated MLLW Treatment and Disposal

Most of the sites within the Department of Energy (DOE) complex have mixed elemental mercury waste, mercury contaminated mixed low-level waste (MLLW), or both, which require treatment prior to disposal. Much of this legacy wastes is tied to enforceable Site Treatment Plan (or tri-party agreement) milestones for treatment and disposal. Options have only recently becoming available in the private sector for the treatment of this waste to meet these milestones.

In 1998, Bechtel Jacobs at the ORNL completed an effort to provide a contract mechanism with the private sector for the treatment of DOE mixed low-level waste throughout the complex. Contracts were awarded to Materials & Energy Corporation (M&EC) and Waste Control Specialists (WCS) for the treatment of mixed waste solids and in 2000 a contract was awarded to Allied Technical Group (ATG) for the treatment of mixed liquid waste (including elemental mercury). These Broad Spectrum contracts have subsequently been modified to conform to the ICPT format, giving sites easier access to the treatment facilities involved.

In 2001, M&EC partnered with PermaFix to get the treatment processes online. PermaFix contracted with ADA Technologies, Inc. of Colorado to use their sulfur-based amalgamation process for elemental mercury and the >260 Hg contaminated waste treatment. PermaFix expects to have their amalgamation process operational the beginning of 2002. They are using a stabilization process for the < 260 ppm mercury contaminated mixed waste. This treatment process is currently operational.

PermaFix has applied for a variance with the Environmental Protection Agency (EPA) to treat >260 ppm mercury mixed waste solids using stabilization instead of the treatment standard of retorting established by the EPA. The EPA is considering this variance as a national variance. Current estimates suggest this variance could be in place in the spring or summer of 2002.

ATG was awarded the liquids treatments contract under the DOE Broad Spectrum Contracts. They then contracted with Nuclear Fuel Services (NFS) to use the DeMerc© process for mercury amalgamation. ATG then modified their RCRA permit to include the amalgamation process. After receiving their permit in 2001 they focused their resources on constructing and performing the shakedown of the GASVIT vitrification process.

ATG has not completed construction and testing of the NFS amalgamation process. They were working to purchase the equipment and begin treating elemental mercury mixed waste in 2002 when they shut down operations for financial reasons. As this paper is being written, the fate of ATG and its mercury treatment contract remains to be determined.

Envirocare had been the only option for mixed waste treatment and disposal in the private sector for many years. They elected not to bid on the Broad Spectrum contract and therefore have not been included in most discussions for mercury treatment. In recent months, Envirocare has contracted with NFS to use the DeMerc© process to treat elemental mercury mixed waste. The primary considerations for using Envirocare for mercury waste treatment will continue to be the cost for small quantities and the contract mechanisms available.

Until the Broad Spectrum contract through Bechtel Jacobs each DOE site had to prepare their own contract or use one of a few other government contracts. The cost for waste treatment was relatively high due to minimum quantity surcharges. The award of the Broad-Spectrum contracts has made treating mercury mixed low-level waste easier and in some cases cheaper in the private sector. However, DOE site waste management personnel have different levels of expertise in working with the Broad-Spectrum contracts and in preparing the necessary documentation for shipping waste off-site for treatment. The WET will be working with the various DOE sites to expedite the treatment and disposal of the DOE complex's mercury mixed waste in 2002.

In addition to elemental mercury amalgamation and soil and sludge stabilization the TMFA and the WET are deploying a process to remove mercury from organic liquids. The normal treatment for most of these liquids is incineration, but mercury contamination removes that option. Pacific Northwest National Laboratory developed Self Assembled Monolayers on Mesoporous Support (SAMMS) material that is a highly effective sorbent for mercury (2,3). The process being deployed mixes SAMMS material into the organic liquid, continues mixing for 24 hours, and then filters the SAMMS material back out, taking the mercury with it. The TMFA attempted to deploy the process commercially, but was not successful because of cost issues with the vendor. The present WET plan is to work with each site individually to devise a deployment plan. The first deployment was completed in November 2001. The PI on the project is working with several other sites to finalize their deployment plans.

Lead Acid Batteries

The WET is supporting an activity to demonstrate a treatment and disposal path for lead acid batteries and to assist sites on an as needed basis in using the path. Fernald is funded by the TMFA to spearhead the project. TMFA regulatory personnel prepared the way for the project by working with the EPA to better define the treatment requirements for the batteries. Those negotiations resulted in macroencapsulation being approved as a treatment path for the batteries. State buy-in was also required for the state in which the disposal site resides. That roadblock has also been removed. Fernald will act as a test

case to pull together a lead-acid-battery treatment campaign. The first step of the project will be to perform a cost comparison to determine which of the contracts and BOAs available to DOE sites is the most cost effective. Ease of accessing the contract will also be factored in.

Following the treatment campaign, the WET will disseminate information on the treatment path and how to access the contract.

Classified Waste

In FY-2002 the WET is working to establish a path for the sanitization, sorting, treatment, and disposal of classified material. The sorting step will remove TRU and other highly contaminated waste from the main stream of the waste allowing the remainder to be treated and disposed as low-level waste. The highly contaminated side stream will be decontaminated if possible or packaged for shipment to WIPP. Where appropriate, metallic portions of the waste stream will be removed and recycled into shield block. Tests this year will de-risk the treatment path to prepare the way for a subsequent full-scale treatment campaign.

Tritiated Waste

Cost-effective treatment for tritiated waste appears to be a complex-wide problem that requires some attention. The TMFA will coordinate with the WET to determine the full scope of the problem, investigate the available treatment technologies and, develop a plan for addressing the problem. As resources become available, the identified problems will be addressed. The scope planned for FY-2002 includes working through the WET to establish the present inventory and contacting industry to determine what solutions are presently available.

Thermal Treatment

The TMFA has worked closely with DOE's Office of Integration and Disposition to quantify the DOE wastes that require thermal treatment. In FY-2002 a WET project will work toward finding paths for treatment and disposal for all of these wastes. Recent changes in the commercial thermal treatment field have made this task more important. Present commercial capabilities and contracts will be carefully analyzed as part of this project.

Liquid Stabilization

DOE's Decontamination and Decommission Focus Area (DDFA) demonstrated the use of NoChar Inc. chemicals for stabilizing organic liquids. Through those and other tests NoChar products have proven to be effective for several DOE waste streams. Using Accelerated Site Technology Deployment funds, a team is assisting sites in deployment of these stabilization agents. Several sites have already treated waste, while others are testing the agents for a variety of applications. Sites with liquid wastes requiring stabilization should contact the WET if they are interested in participating in this activity.

Oversize Box Repackaging

Another WET project is the repackaging of oversize boxes to meet WIPP WAC. Boxes at Lawrence Livermore National Laboratory and the Nevada Test Site are too big for the TRU-Pac II, so they have no path for disposal. The two sites are working with Los Alamos to put together a path to disposal. When proven, this pathway may be available to other sites with similar problems. Because of funding reductions, the actual work has not been started.

CONCLUSION

The WET has found effective ways to deploy technologies for Unique waste streams that otherwise would have no path for treatment and disposal. Through effective communication, cooperation between sites, ICPT contracts, combined treatment campaigns, and experienced PIs, the WET has been able to solve problems enabling treatment and disposal of otherwise orphan wastes. Additional efforts will be undertaken as the WET identifies treatment-capability gaps. Those gaps include scenarios where commercially available treatment processes are priced exorbitantly.

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