APPENDIX F

PROJECT HISTORY

Waste History/Description

From 1970 through the early 1980's the Idaho National Engineering and Environmental Laboratory (INEEL) accepted over 65,000 cubic meters of transuranic (TRU) and alpha-contaminated waste from other U.S. Department of Energy (DOE) sites. These wastes were placed in above ground storage at the Radioactive Waste Management Complex (RWMC) on the INEEL. The wastes are primarily laboratory and processing wastes of various solid materials, including paper, cloth, plastics, rubber, glass, graphite, bricks, concrete, metals, nitrate salts, and absorbed liquids. Over 95 percent of the waste was generated at DOE's Rocky Flats Plant in Colorado and transported to the INEEL by rail in bins, boxes, and drums. All 65,000 cubic meters was considered to be TRU waste when it was first stored at the INEEL. The amount of this waste stored at the INEEL is over half of the retrievably stored TRU waste in the DOE Complex, all of which was to be eventually permanently disposed of at Waste Isolation Pilot Plant (WIPP). A detailed description of these wastes follows this section (Table F-1-9).

The waste was placed on an asphalt pad at the RWMC in its original shipping containers and covered with plywood, sheets of plastic, and soil. This storage location is an earthen covered berm. Eighty percent (or 52,000 cubic meters) of the waste is located in the earthen covered berm while 20 percent was placed in an Air Support Building and since moved to near-by permitted storage buildings.

The waste has been in the berm since the early 1970's. At the time of initial storage, the design life for the containers was 20 years. Some degradation and deterioration of drums and boxes is expected, with associated soil contamination. If the wastes are not removed from the berm, the soil and possibly the surrounding area could become contaminated.

Over 95 percent of the waste has hazardous constituents and is therefore considered to be mixed waste. Mixed waste is regulated under the *Resource Conservation and Recovery Act* (RCRA). The waste also contains materials such as polychlorinated biphenyls (PCB's) which is regulated under the *Toxic Substance and Control Act* (TSCA).

In 1984, DOE Order 5820.2 finalized the definition of TRU. The new definition excluded alpha emitting waste less than 100 nCi/g at the time of assay. The INEEL estimated that between 25,000 and 27,000 cubic meters of the stored waste would not meet the revised definition of TRU, would have to be managed as low-level mixed waste (LLMW), and could not be disposed of at WIPP. Since all of the waste was initially considered to be TRU, the alpha wastes were co-mingled in the same containers when placed in the earthen covered berm. To separate the wastes, each container would have to be opened and the material sorted and assayed to segregate the alpha from the TRU waste.

In planning a path forward for this waste in the early 1990's, DOE had two environment, safety, and health and regulatory considerations. The first was the potential for further breaching of containers in the berm and subsequent migration of contaminants into the surrounding soil and groundwater. The second was that the interim storage of the waste in the earthen covered berm and temporary buildings did not meet RCRA requirements. The waste in interim storage in the temporary buildings was the subject of an U.S. Environmental Protection Agency (EPA) Notice of Noncompliance in 1990. The RCRA Hazardous and Solid Waste amendments require that all hazardous waste be treated to EPA standards before being placed "in or on the land" [1] for disposal. In addition, the only permissible reason to store untreated waste is to accumulate sufficient quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal.[2] This is referred to as the Land Disposal Restriction (LDR) storage prohibition. The INEEL's interim storage of mixed waste did not meet these requirements.

Project Evolution

This section describes the planning and evaluation of options available to DOE in dealing with the stored waste. The initial plans for dealing with these wastes were developed by the INEEL Management and Operating (M&O) Contractor in the early 1990's. The plans components included the following:

- Retrieve the wastes from the earthen covered berm, and identify and segregate the alpha waste from the TRU waste;
- Build and operate a two-phase treatment facility. This facility was referred to as the Idaho Waste Processing Facility (IWPF). Phase 1 would treat the alpha mixed waste to allow disposal under RCRA LDR requirements, and Phase 2 would repackage the TRU waste into appropriate containers for shipment to WIPP, and thermally treat approximately 25 percent of the waste to meet WIPP waste acceptance criteria (WAC);
- Build a new waste characterization facility to characterize 10 percent of the TRU waste destined for WIPP to assure the WIPP WAC was met;
- Build 11 additional RCRA storage modules for the retrieved and/or treated waste. Seven RCRA storage modules were near completion at the time.

Initial cost estimates for the IWPF exceeded $620M. DOE and the M&O contractor were concerned about the high cost estimate and began exploring options. In 1992 the M&O performed a Systems Design Study to examine the potential for private sector treatment of alpha mixed waste and in 1993, Dames and Moore was commissioned to prepare studies to examine the subject. These studies (which are part of the administrative record for this EIS, as are the other studies referenced in this Appendix) concluded that at least $200M in savings could be achieved and the schedule could be shortened by seven years if the treatment were privatized. At the same time, private industry approached DOE and claimed that commercial LDR treatment of the alpha waste would be more cost effective than if performed by the DOE M&O contractor. Even with the two studies in hand, DOE–Idaho Operations Office (DOE-ID) recognized that current knowledge and funding were insufficient to directly pursue private services for the required treatment.

In December 1993, DOE-ID issued a Scope of Work for a "Feasibility Study of Treatment Services for Alpha-Contaminated Low-Level Mixed Waste." The Scope of Work announced DOE's intent to procure feasibility studies of private sector solutions for the treatment of alpha

[1] 40 CFR 268
[2] 40 CFR 268.50; RCRA Section 3004(j)

LLMW. The Scope of Work encouraged innovative approaches for providing all aspects of treatment services and was the first in a series of steps anticipated to lead to an eventual procurement for production level treatment services.

DOE's expressed intention in the feasibility study Scope of Work was to obtain industry's "best thinking" for a private sector approach to cost effective waste treatment. The Scope of Work indicated that teaming arrangements for preparation of the studies were preferred; that partners should have experience in design, construction, and operation of actual waste treatment facilities; and would need to demonstrate the ability to finance such a project.

Assumptions/direction provided in the Scope of Work indicated that the private sector should assume:

- They would own and operate the facility, would be responsible for all licensing and permitting, and would operate within applicable Federal and State rules and regulations. DOE orders were not invoked; rather, the private sector was asked to identify whether they would rather be DOE regulated, or U.S. Nuclear Regulatory Commission (NRC) licensed.

- They would assume risk and liability.

- They could consider using existing facilities on the INEEL or off-site, within Idaho, or in another part of the U.S. (the key was cost effectiveness).

- They needed to provide information on options considered, why options were rejected, and the rationale for their recommended approach.

- They could treat non-INEEL waste (including commercial waste) but residuals would have to be returned to the generator for disposal.

Study deliverables included a Business Plan, with financial approaches, recommendations on the type of contract and contract terms and conditions, cost estimates, pricing to DOE, a schedule for treatment services; Technology Plan; Licensing and Regulatory Plan; Transportation and Waste Transfer Plan; and a Public Acceptance Plan.

Three private sector teams ultimately provided feasibility studies for DOE-ID consideration. The private sector teams (in alphabetical order) were: Lockheed Environmental Systems and Technologies Company (LESAT) (now Lockheed Martin Advanced Environmental Systems); Rust Federal Services, Incorporated; and the Scientific Ecology Group (SEG).

The LESAT team included Mountain States Energy, Incorporated. The Rust Federal Services study team included Science Applications International Corporation (SAIC), Martin Marietta Aerospace and Naval Systems, and Consoer, Townsend and Associates. The SEG study team included British Nuclear Fuels Limited (BNFL), Raytheon Corporation, and Morrison-Knudsen Corporation.

The focus of the feasibility studies was alpha LLMW stored at the Transuranic Storage Area (TSA) at the RWMC. Optionally it was suggested that treatment of TRU waste stored at the TSA, similar environmental restoration buried wastes at the SDA, and similar wastes from other

DOE sites might be considered as expanded waste treatment markets depending upon technologies/services available at the prospective treatment facility.

The Scope of Work for the feasibility studies, and attendant reference reports (EGG-RWMC-11189 and 11190 March 1994), (part of the Administrative for this Environmental Impact Statement [EIS]) provided a detailed description of the stored wastes (both alpha LLMW and TRU) at the RWMC TSA. The Scope of Work also described the envisioned treated product waste acceptance criteria in functional performance terms, but did not require a specific type of product. As a minimum the treated product waste materials had to satisfy the requirements for RCRA and TSCA long term storage and disposal, and provide suitable performance properties for passing a DOE radiological disposal site performance assessment. Additional detailed specifications on desired waste form performance properties were supplied in the Scope of Work as a guide, but were not required. The selection of treatment technologies, and resulting products (final waste forms) was left up to those preparing the feasibility studies.

The feasibility studies all centered on primary treatment using forms of thermal processing. Each of the three identified primary treatment technologies appeared to be viable to the DOE evaluation team. The identified plasma technologies were less widely used and potentially require more development prior to full-scale deployment for mixed waste. Recovery of reduced metals (the Rust and SEG study team alternate, molten metal) as a separate stream was viewed as economically advantageous because of cost avoidance associated with storage, certification and transportation to WIPP.

DOE's feasibility study evaluation team recognized the public's concern about, and acceptance of, thermal technologies involving incinerators. The team recognized the importance of monitoring developments in non-thermal treatments as alternatives. The definition of non-thermal treatment is somewhat subjective. This is because some argue that a technology is not thermal or at the very least is not incineration, despite operation at elevated temperatures and off-gas streams consisting of products of combustion. There are a variety of non-thermal treatments in various stages of development, including molten metal, steam reforming, Delphi catalyzed wet oxidation, hydrothermal oxidation (a.k.a. supercritical water oxidation), molten salt, etc. In general these technologies require feed material to be liquid or ground to a fine particle size. They also may require follow-on processes to stabilize residues for disposal. Due to these limitations, these technologies were considered by the DOE review team to be applicable to a narrower range of DOE wastes than the thermal technologies identified in the feasibility studies. The SEG study team did identify alternate technologies advertised as “non-thermal” (molten metal and steam reforming). The disadvantages of pursuing non-thermal options are that less volume reduction would be realized and a greater fraction of the waste would not be treated.

All of the feasibility study suppliers planned to thermally treat from 60 to 90 percent of the waste.

Project Definition Process

As a part of its process in evaluating the feasibility studies to determine a path forward, DOE used interdisciplinary and systems approaches. A team of systems engineers, technical, regulatory, and business subject matter experts was assembled to conduct the evaluation process. The team's goal was: “Dispose of INEEL mixed waste in a safe and permanent manner.” Three objectives to support the goal were defined:

1. Demonstrate progress to the State of Idaho on treatment and disposal of alpha LLMW;

2. Minimize cost with respect to risk sensitivities; and

3. Accomplish the goal in a safe, ethical and legal manner.

The objectives were used in the strategic and tactical phases to evaluate candidate alternatives and subsequent options. The steps that were followed are described below. [1]

Step 1: Strategic Phase – Formulate Feasible Alternatives

The team developed two sets of alternatives, non-treatment and treatment. Candidate alternatives are briefly described in Table F-1-1. Note that for this stage, the team took a much broader view of potential actions. Due to actual and anticipated DOE budget cuts, the team wanted to evaluate "no action" types of alternatives to see if there would be cost savings, without increased risk to the environment.

Table F-1-1. Summary of Non-Treatment and Treatment Alternatives.

		Alternative	Description
A.	**Non-Treatment Alternatives:**		
	A.1	No Action	Leave waste in the earthen covered berm
	A.2	Barrier Enhancement	Construct a protective cap over the bermed waste to prevent infiltration and subsequent waste migration
	A.3	Retrieval Enclosure Building	Enclose the earthen covered berm in a protective building for indefinite storage
	A.4	Retrieval Enclosure Building and Barrier Enhancement	A combination of alternatives A.2 and A.3 above
	A.5	Retrieval and Indefinite RCRA Compliant Storage	Retrieve all drums and boxes of alpha LLMW and mixed TRU waste, repackage as necessary, and store in Type II storage buildings for 55 years
B.	**Treatment Alternatives:**		
		Alternative	Description
	B.1	IWPF Concept	Retrieve all waste, sort, treat alpha LLMW to Land Disposal Restrictions, land dispose of alpha LLMW, treat TRU to WIPP WAC, ship TRU to WIPP
	B.2	Private Sector Concept	Retrieve all waste, treat alpha LLMW and TRU together to LDRs, and ship resulting TRU waste to WIPP

To identify feasible alternatives, candidate treatment and non-treatment alternatives were evaluated against the objectives. Non-treatment alternatives A.1, A.2, A.3, and A.4 were rejected by the team due to the lack of demonstrable progress to the State and on legal and ethical grounds. From an ethics perspective, the team agreed that continued storage of earthen covered bermed waste could result in further deterioration in the waste containers which would increase the

[1] This material was taken from the DOE-ID Evaluation of Feasibility Studies for Private Sector Treatment of Alpha and TRU Mixed Waste (DOE/ID-10512, May 1995).

potential for contaminant migration into the Snake River Plain Aquifer and potential adverse consequences for future generations. Costs associated with the barrier enhancement alternatives (A.2) were not estimated, but construction costs would probably range from $10 million - $20 million with additional costs for continuous monitoring. Costs for construction of the Retrieval/Enclosure Building (Alternative A.3) over the earthen covered bermed waste, personnel costs, and monitoring for 55 years was estimated to be $1.1 billion.

Alternative A.5 (Retrieval of all mixed waste and Indefinite RCRA Compliant Storage) was also rejected. Although Alternative A.5 would remove the waste from the earthen covered berm and would thereby demonstrate progress to the State, the risk of migration and exposure was not significantly reduced, i.e., potential for migration and exposure via natural disasters over the 55 year time frame. Furthermore, the estimated cost to DOE for this alternative was $1.4 billion over 55 years (RWMC storage costs, personnel, monitoring, etc.).

Next, the two candidate treatment alternatives were evaluated. The first alternative was the baseline INEEL M&O planned IWPF. This concept involves M&O retrieval of all earthen covered bermed waste over a period of 5 years, segregating the waste (alpha and TRU) based on radiological assay, treating alpha LLMW to LDRs, treating TRU to WIPP WAC, and shipping all TRU to WIPP. The first alternative of treating alpha and TRU separately was comprised of two variations: 1) M&O retrieval and M&O treatment of alpha LLMW to LDRs; or 2) M&O retrieval and private sector treatment to LDRs. The second alternative was a concept recommended in all three private sector feasibility studies, i.e., treat all waste together to LDRs (treatment renders all waste to TRU) and ship TRU to WIPP. This alternative was also comprised of two variations: 1) M&O retrieval and private sector treatment or 2) private sector retrieval and treatment. Again, these steps are similar with or without private sector involvement.

Step 2 – Evaluate Feasible Alternatives with Respect to Objectives

The following discussion highlights and qualifies the comparison of alternatives relative to each objective. Table F-1-2 summarizes treatment alternatives with respect to the stated objectives. Life-cycle costs (retrieval, storage, assay, characterization, treatment, and transportation to WIPP) are used.

Objective 1: Demonstrate Progress to State

All four alternatives above demonstrate DOE commitment to retrieving, treating, and disposing of mixed waste. The primary discriminators are: 1) time required to complete retrieval, treatment, and disposal, and 2) the final location for disposition of LDRs treated alpha LLMW.

> **M&O IWPF Concept** – For the baseline alternative, where all work was to be performed by the M&O, it was estimated that all TRU waste would be shipped to WIPP by 2021 (assuming IWPF began treatment by 2010). If there was any remaining alpha low level (waste that does not include a hazardous waste constituent), it could be land disposed (shallow burial) at INEEL or another location to be determined. For the private sector treatment alternative, shipment of TRU waste to WIPP was to be completed by 2016. Similarly, remaining alpha low level waste was to be land disposed. It was estimated that use of private sector treatment services would reduce the baseline IWPF schedule by four to seven years.

Table F-1-2. Treatment Alternatives with Respect to Objectives.

Treatment Alternative	Demonstrate Progress to State	Minimize Cost w/ Respect to Risk[a]	Safe, Legal, and Ethical Conduct
M&O IWPF Concept (M&O retrieval & treat alpha & TRU separately)	TRU to WIPP by 2021[b] Alpha disposal site to be determined	$1.6 billion	
Private Sector (treat alpha only) Concept (M&O retrieval & treat alpha & TRU separately)	TRU to WIPP by 2016	$1.2 billion	
Private Sector Treat-all Concept (treat alpha & TRU together to LDRs) w/ M&O Retrieval	Alpha & TRU waste to WIPP by 2016 Most waste out of Idaho	$1.2 billion	- Reduced handling and exposure for workers - Increased criticality concerns
Private Sector Treat-all Concept (treat alpha & TRU together to LDRs) w/ Private Sector Retrieval	Alpha & TRU waste to WIPP by 2013 Most waste out of Idaho	$827 million	- Reduced handling and exposure for workers - Increased criticality concerns

a. Total DOE/INEEL life-cycle costs.

b. Based on operations beginning in 2010; this did not support the 1994 WIPP closing date of 2018.

Private Sector Concept – Treating alpha and TRU waste streams together would create significant process efficiencies in sorting, assaying, and characterization. However, many of these efficiencies would be lost due to the M&O's planned retrieval rate that is lower than the private sector's projected treatment capacity; this translates into increased time and costs for the private sector and DOE. Under this scenario, waste shipments to WIPP would be completed by 2016. This alternative removes nearly all TRU contaminated waste from the State of Idaho since all treated alpha becomes TRU waste and is transported to WIPP. Private sector treatment of alpha and TRU waste streams together, combined with private sector retrieval, would allow the private sector to shorten the retrieval period, thereby increasing system efficiency. For this alternative, it is estimated that most mixed TRU and alpha waste would be removed from Idaho and transported to WIPP by 2013. It was estimated that a private sector "turn-key" operation would reduce the baseline IWPF schedule by seven to eight years.

Objective 2: Minimize Cost with Respect to Risk Sensitivities

There was a wide range of costs between treatment alternatives. Total DOE/INEL life-cycle costs are presented in Table 4-1. Looking strictly at costs, the difference between the M&O IWPF concept of treating waste streams separately and the private sector concept of treating alpha and TRU together, was approximately $800 million ($1.6 billion and $827 million, respectively). However, in addition to bottom line costs, treating all waste together generates other risk reduction benefits for DOE.

1. The amount of assay and characterization required and associated cost is greatly reduced when all waste is treated to LDRs. In order to segregate alpha and TRU waste, assay

capabilities must be precise, particularly for waste readings approaching the classification limits. This degree of assay precision is time and work intensive. In contrast, treating alpha and TRU waste together requires only a safety assay to maintain criticality control. Similarly, the amount of characterization required for treated alpha and TRU differs markedly in that much less characterization is required for a homogenous treated product.

2. The utility of a consistent and stable final waste form improves system efficiency and safety in transportation, handling, and storage.

3. Volume reduction from treating all waste is significant, lowers transportation costs, simplifies transportation safety-related issues, and may reduce WIPP operational costs (not calculated)

4. All waste is treated, volume reduced, and becomes TRU, eliminating the need for separate land disposal of alpha low level waste.

The team concluded that treating alpha and TRU wastes together should result in significant cost savings, as well as lessen some of the fundamental risks and uncertainties facing DOE in dealing with mixed waste.

Objective 3: Accomplish the Goal in a Safe, Ethical, and Legal Manner

The primary discriminators in the comparison of the two base alternatives (treating alpha and TRU separately or together) involved worker safety and criticality control issues. The team believed that treating all waste streams together with private sector assay and waste characterization would greatly decrease worker exposure to radiation and the hazardous components of the mixed waste. On the other hand, the team felt treating all wastes together would increase criticality concerns. However, the team's radiation experts believed these concerns could be adequately addressed through treatment process controls. Regulatory experts indicated that obtaining a RCRA Part B permit would be similar under either alternative, although it was recognized that the "Treat-all" concept would entail significantly more thermal treatment which is a sensitive public issue. Some of the benefits of treating TRU and alpha LLMW together are significantly fewer shipments to WIPP, a more stable and known waste form, and enhanced public safety. In summary, treating all wastes to LDRs should decrease risks to workers and the public assuming adequate worker protection standards and criticality controls are maintained.

Strategic Decision: Evaluation of the two alternatives, treating waste streams separately versus treating waste streams together, revealed clear advantages (cost, safety, and final disposition) to DOE-ID in treating alpha and TRU mixed wastes with the same treatment process.

Tactical Phase

Once the decision was made to recommend treating alpha and TRU wastes together, the next level of decision making focused on tactical issues, i.e., how the decision should be implemented. This phase of the decision making process involved formulating feasible options and evaluating these options with respect to the objectives. Options evaluated were primarily derived from the private sector feasibility studies.

Step 1 – Formulate Options

A. Private Sector Treatment

1. Sole Source
2. Off-site Location for Treatment Facility
3. M&O Retrieval
4. Private Sector Turn-key (i.e. all work performed by private sector.

B. M&O Treat-all to LDRs

Two potential options, sole source treatment services and siting the private sector treatment facility off the INEL, were determined to be infeasible.

Sole Source – This option was rejected due to the requirements of the *Competition in Contracting Act* and implementing regulations. The team determined that procurement of waste treatment services does not meet the criteria for a sole source contract, i.e., national emergency, national security, or unique capability. Furthermore, the consensus opinion was that competition would reduce the total cost of the project.

Off-site Treatment Facility Location – This option was rejected due to an evaluation of the advantages and disadvantages of an off-site location. One of the feasibility studies suggested an off-site location for the treatment facility while two of the studies did not consider locations outside the INEEL boundaries.

The one contractor that advocated an off-site location stated that "the conceptual design is totally adaptable to either a privately leased site within the INEEL complex or an off-site location," and listed numerous advantages and disadvantages of siting the treatment facility at the INEEL. Advantages cited include: close proximity to waste, existing site infrastructure, functional facilities (fire department and site security), similar waste management activities and absence of community and state fees. Disadvantages cited include: precedent in siting a private fixed price facility on Federal land, perceived delays with licensing and permitting, uncertainty of *National Environmental Policy Act* (NEPA) requirements, and the burden of DOE orders and oversight.

These concerns were discussed at length by the team members and their opinion was that the disadvantages were more perceived than real. For example, there is a precedent of siting a private facility on Federal land (U.S. Ecology Facility at Hanford). The team felt that all these issues could be adequately addressed but was unsure of the extent that DOE would have to be involved in licensing and permitting an off-site waste treatment facility. Some level of responsibility was assumed because the facility would presumably not be built but for DOE's waste. NEPA requirements are addressed in the *Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement* (DOE INEL EIS [DOE 1995]) and DOE would assume the burden of any supplemental NEPA requirements. Finally, the team determined that a set of "necessary and sufficient" requirements from DOE orders, i.e., Environment Safety & Health (ES&H) requirements, should be identified. In summary, private sector concerns regarding problems associated with siting a facility at the INEEL were not well substantiated and insignificant relative to the advantages (cost and safety) of siting the treatment facility near the RWMC.

The SEG study team off-site feasibility study option was based on the premise that the scope of treatment services was restricted to alpha waste only. Although not verified, the evaluation team assumed that had the contractor been requested to treat all alpha and TRU waste types, the logistics of transporting large quantities of TRU waste in addition to alpha waste would have eliminated the option of siting the facility off the INEEL.

Once the team decided to recommend all mixed waste be treated to LDRs, an off-site location was determined to be infeasible for the following reasons:

1. Transport and Handling of TRU Wastes – approximately 60 percent of the waste is stored in boxes; these boxes would need to be repackaged prior to transport off-site because there is no approved TRU box transport system. This would require a characterization facility and a repackaging facility with an estimated life-cycle cost of $800 million. Furthermore, transportation of treated TRU waste would have required Transuranic Pact Transporter (TRUPACT) containers. An independent estimate procured by DOE estimated that constructing a private road from the RWMC to a private off-site treatment facility with restricted access would cost $10 million.

2. Site infrastructure and emergency services could be utilized at an on-site location. Impacts to existing site operations was projected to be minimal.

3. Discussions with NRC regarding licensing indicated that their lack of experience in licensing this type of facility would delay the project.

Eliminating the Sole Source and Off-site options resulted in the formulation of three remaining options: (1) Private Sector Turn-key, (2) M&O Retrieval and Private Sector Treatment, and (3) M&O Treat-all to LDRs. The next stage of the decision making process involved evaluating these remaining options against the objectives.

Step 2 – Evaluate Remaining Options with Respect to Objectives

The following discussion highlights and compares the remaining options relative to each objective. Table F-1-3 summarizes treatment options with respect to the stated objectives. (Note: For the M&O IWPF Option, the facility was assumed to be operational by 2010 with a 20-year operating life. All cost estimates were based on a 2010 starting date).

Objective 1: Demonstrate Progress to State

M&O IWPF Treat-all to LDRs – This option scored the lowest with respect to this objective. Waste treatment and disposal at WIPP would not be completed until 2030.

M&O Retrieval and Private Sector Treatment – This option scored high relative to this objective since treatment was projected to begin in 1998-2001, with all waste shipped to WIPP by 2016, 14 years sooner than the M&O option.

Private Sector Turn-key – This option scored highest relative to this objective since treatment could begin in 1998-2001, with all waste shipped to WIPP by 2013. An accelerated retrieval schedule matched to the capacity of the treatment facility would result in a three year savings over M&O Retrieval with Private Sector Treatment option, and a 17 year savings over the full M&O option.

Table F-1-3. Evaluation of Feasible Options with Respect to the Objectives.

Treatment Alternative	Demonstrate Progress to State	Minimize Cost w/ Respect to Risk[a]	Safe, Legal, and Ethical Conduct[b]
M&O IWPF (retrieve and treat-all waste together to LDRs)	TRU to WIPP by 2030	$2.0 billion	See footnote[b]
M&O Retrieval & Private Sector Treatment	TRU to WIPP by 2016	$1.2 billion	Reduced DOE flexibility with private sector involvement
Private Sector Turn-key	All waste to WIPP by 2013. Most waste out of Idaho.	$827 million	Reduced DOE flexibility with private sector involvement

a. Total DOE/INEEL costs.
b. The consensus opinion of the team was that there is no differences in safety, ultimate DOE liability, and real level of DOE control between options.

Objective 2: Minimize Cost with Respect to Risk

M&O IWPF treat-all to LDRs – This option, estimated at approximately $2 billion, is significantly higher than the two competing options. It is more than twice the estimated cost of the Private Sector Turn-key option. The $2B estimate was provided by the LITCO cost-estimating group (this cost estimate is part of the administrative record for this EIS). DOE-ID believes it is probably high. It is reasonable to assume that the M&O IWPF alternative to treat all waste to LDRs standards should be slightly less than the $1.6B estimate for the baseline case. Under this option all financial risks would be borne by DOE; DOE would provide funding for all capitalization, contract modifications, claims, etc. Budget vulnerabilities increase as a function of time, and this option extends over the longest time period. On the other hand, the relationship between DOE and the M&O may be less adversarial due to traditional performance incentives. Costs of extended WIPP operations are not included in the overall cost estimate.

M&O Retrieval and Private Sector Treatment – It is estimated that this option would cost DOE substantially less than the M&O option but approximately $400 million more than the Private Sector Turn-key option. Financial risk is shared by DOE and the private sector, with the private sector providing capitalization for facilities associated with treatment. The private sector would also provide insurance/surety. Associated WIPP costs may be reduced due to the earlier completion date. Budget uncertainties are somewhat reduced due to the project's lower cost and shorter duration. A major disadvantage of this option is the potential for DOE to incur significant delay and/or disruption claims from the private sector contractor. This would be due to changes in conditions if the M&O fails to provide the private sector contractor retrieved waste in the contractually specified condition and at the specified rate. Also, DOE would be responsible for interim storage of the treated waste.

Private Sector Turn-key – This is the lowest cost option. It avoids the potential problems associated with an interface point between contractors thereby eliminating DOE's responsibility for interim storage. Retrieval can be performed just-in-time to minimize handling and storage. Similarly to the M&O Retrieval and Private Sector Treatment option, financial risk is shared by DOE and the private sector, with the private sector providing capitalization for facilities associated with treatment. The private sector would also provide insurance/surety. Associated WIPP costs may be reduced due to the earlier completion date. Budget uncertainties are further reduced due to even lower cost and shorter duration that under the other two options.

Objective 3: Accomplish the Goal in a Safe, Ethical, and Legal Manner

This objective was the most difficult to quantify. The team discussed safety, ethical, and legal issues at great detail. Ethical DOE conduct involves accomplishing the mission at the lowest cost to the taxpayers, while maintaining safety standards and complying with applicable law. Thus, given the large disparity in cost and schedule between the private sector options and the M&O option, the team was forced to address the following questions:

1. What is DOE gaining from private sector involvement?

versus

2. What is DOE giving up with private sector involvement?

What is DOE gaining? Assuming the private sector can perform the work at the estimated cost within in the estimated time frames, DOE gains tremendous cost savings. In addition, most waste is removed from Idaho up to 17 years sooner than with the M&O option.

What is DOE giving up? DOE traditionally strives to operate in a near risk-free environment, as a result, DOE has an impressive record of safety. Conversely, a near risk-free culture comes at a high price. Privatization and the call for "DOE to function more like a business" essentially entails accepting slightly more risk in anticipation of large cost savings. It was the consensus opinion of the team that DOE would not compromise safety or environmental quality by utilizing private sector services for treatment of mixed waste. Furthermore, use of private sector treatment services would not increase nor limit the risk to DOE of catastrophic liability any more than with the M&O-operated, DOE-owned IWPF. On the other hand, the team recognized the loss of DOE flexibility (not control) in utilizing the private sector under a fixed price contractual arrangement. In the event of budget perturbations or "change conditions," DOE has much less latitude and ability to redirect a fixed-price contractor (without incurring substantial costs) versus the M&O under a cost-plus arrangement. In addition, project budget uncertainty may be reduced since it may be more difficult to remove funding from a fixed-price private sector contract than an M&O. In summary, the consensus opinion of the team was that, given the tremendous potential cost savings, DOE should afford to surrender some flexibility within an acceptable level of environmental, health and safety risk.

Tactical Decision: After careful evaluation of the three options (M&O IWPF Treat-all, M&O Retrieval and Private Sector Treatment, and Private Sector Turn-key), the team recommended that DOE pursue procurement of treatment, assay and characterization services for alpha and TRU mixed waste from the private sector. The contract may include a priced option for private sector retrieval and storage.

<u>DOE Make or Buy Decision</u>

The evaluation team's recommendations were presented to Jill Lytle, DOE Environmental Management (EM) Deputy Assistant Secretary for Waste Management, and Thomas Grumbly, Assistant DOE Secretary for EM. The evaluation team recommended that plans for the M&O constructed and operated IWPF concept be terminated in favor of privatizing the treatment of TRU and alpha LLMW to LDRs because of cost effectiveness. In May 1995, Assistant Secretary Grumbly gave oral direction to proceed with a procurement action for privatization.

Link to NEPA Activities

As the feasibility studies were being completed in 1994, information from them was being provided for analysis in the DOE INEL EIS, then in preparation. The information summarized from the DOE INEL EIS with regard to private sector treatment of alpha and TRU mixed waste is described in the Table F-1-4.

Table F-1-4. Summary of private sector treatment of alpha LLMW and TRU mixed waste.

Area	Description
Private Sector Alpha LLMW Treatment	Alpha-contaminated, possibly TRU, and small amounts of low-level waste and LLMW and environmental restoration wastes. Treat alpha to LDRs, treatment of TRU sufficient to allow disposal at WIPP. Facility throughput 2,000 cubic meters of alpha and 4,000 cubic meters of TRU. Sort, segregate containers, vent, open, and dump contents for further sorting and processing; physical and chemical processing; thermal treatments (oxidation/combustion and stabilization). Analyses include transportation to off-site commercial facility for treatment: 1,022 offsite truck trips per year. Chapter 5 of the EIS, Alt. B, 10 year plan, and D, Maximum Treatment, Storage and Disposal.
RWMC Modifications to Support Private Sector Treatment of Alpha LLMW	Needed to support transport of alpha LLMW and TRU to a privately owned and operated treatment facility. Additional waste retrieval, venting, and examination facilities would be required to be operational by 10/2000 to support the transport of waste offsite for treatment, and receiving it back onsite after treatment -new examination and assay facilities to supplement the Stored Waste Examination Pilot Plan -transportation facilities to stage drums and boxes for transport to the private facility and receive returning drums of treated waste; capacity is 680 drum equivalents per day.
Shipping/Transfer Station	Built to deal with number of off-site shipments required to send waste elsewhere for treatment.

The Record of Decision (ROD) from the DOE INEL EIS (3.2.2.2 TRU Waste) states that the INEEL would construct treatment facilities necessary to comply with the *Federal Facility Compliance Act* (FFCAct). Treatment of TRU waste at a minimum will be for the purpose of meeting waste acceptance criteria for disposal at WIPP and will occur on a schedule to be negotiated with the State of Idaho. The decision also indicates that projects for retrieving, characterizing, and treating TRU waste will prepare the waste for transportation and disposal in a repository or on site. The ROD indicates that decisions regarding the projects shown above (Private Sector alpha LLMW Treatment, and RWMC Modifications to Support Private Sector Treatment of Alpha Contaminated LLMW, as well as IWPF), will be made in the future pending further project definition, funding priorities, or appropriate review under NEPA.

Current Regulatory Situation

Under RCRA, the FFCAct of 1992 required DOE to prepare a plan for developing treatment capacities and technologies for each facility at which DOE generates or stores mixed wastes. The Idaho Department of Health and Welfare (IDHW), Division of Environmental Quality, upon consultation with EPA, issued an order to DOE requiring compliance with the approved plan. This plan, referred to as the Site Treatment Plan (STP) and Consent Order fulfill the requirements contained in the FFCAct, applicable RCRA sections, and the Idaho *Hazardous Waste Management Act*. Storage of waste, covered under the STP and consent order, at the INEEL, pending development of treatment capacities and technologies and completion of LDR requirements pursuant to the STP, are considered to be in compliance.

The STP, originally signed in October 1995, indicates that alpha LLMW is managed along with mixed TRU waste (sections 4.2 and 5.4 of the plan). The plan indicates that DOE has decided to fully pursue private sector treatment of the transuranic-contaminated stored waste at the INEEL. The STP states that private sector treatment of the TRU contaminated stored wastes is planned, along with limited amounts of LLMW from the INEEL and offsite which may be treated at the same facility. It indicates that for a majority of the TRU contaminated waste at the INEEL, DOE-ID plans to achieve compliance with the requirements of the FFCAct by implementing full treatment and then disposing of the treated waste at WIPP (page 5-16). Specific milestones/planning dates in the STP for mixed alpha and TRU wastes are as follows: place contract (complete); initiate construction fourth quarter of FY-99; commence system testing fourth quarter FY-02; commence operations, second quarter of FY-03; and, submit schedule for backlog, fourth quarter of FY-03.

In addition to the STP, DOE is under a Federal court-ordered 1995 DOE and Navy Settlement Agreement with the State of Idaho to ship all TRU waste from the INEEL. The target date for all waste to leave the State is December 31, 2015, and no later than December 31, 2018. After January 1, 2003, a running average of no fewer than 2,000 cubic meters per year of this waste must be shipped out of the State of Idaho. If DOE fails to meet specified deadlines or requirements, the State will suspend all DOE spent fuel shipments to the INEEL. The agreement states that DOE may treat non-INEEL waste. The waste must be treated within six months of receipt at the facility. Any TRU waste received from another site for treatment at the INEEL must be shipped out of Idaho for storage or disposal within six months following treatment.

Advanced Mixed Waste Treatment Project (AMWTP) Procurement

A draft Request for Proposal for the treatment of TRU and alpha LLMW was issued for industry comment in July 1995. A final RFP was issued in January 1996. DOE requested that retrieval and other support activities to treatment be priced separately, since a decision to buy treatment with all services had not yet been made. Additionally, DOE did not mandate the facility location, but was open to on-site or off-site facilities.

The overall vision expressed in the Request for Proposal (RFP) was for the project to treat waste for final disposal by a process that provided the greatest value to the Government. This was envisioned to be accomplished through a private sector treatment facility that had the capability to treat INEEL waste streams with the flexibility to treat other INEEL and DOE regional and national waste streams. The services were to: (1) treat waste to meet the most current WIPP WAC, RCRA

LDRs, and TSCA standards; (2) reduce waste volume and life-cycle cost to DOE, and (3) be performed in a safe and environmentally compliant manner.

Bids were received from four teams; three teams were in the competitive range. The teams were Foster Wheeler and the SEG, Lockheed Martin Advanced Environmental Systems, and BNFL who teamed with Morrison Knudsen, SAIC, Duratek, and BEL. All proposed on-site facilities and DOE regulation.

BNFL was selected in December 1996.

AMWTP Contract

The contract includes treatment and supporting services of retrieval, sorting, characterization, storage, and certifying, packaging, and loading the final waste product for disposal for 65,000 cubic meters of waste.

The contract contains performance specifications that include: a schedule that conforms to the Settlement Agreement; the final waste form must meet RCRA LDRs treatment standards and the WIPP WAC Rev. 5; the waste must contain greater than 100 nCi/g TRU, or the contractor receives a payment penalty; and the contractor must also achieve 65 percent volume reduction or receive a payment penalty.

A specific final waste form (such as glass or concrete), or specific technology to be used to treat the waste, was not included in the performance specifications of the contract.

The contract has three phases and two options. Phase I is permitting, submission of data for DOE's NEPA analysis, and an ES&H Authorization Process. Phase II is construction and operational testing; Phase III is operations, RCRA closure and Decontamination and Decommission (D&D). There is a go/no go between Phase I and Phase II. Before the contractor can proceed to Phase II, Phase I must be completed and DOE must complete its NEPA review. If the decision under NEPA is unfavorable to moving forward with Phases II and III of the project, then the contact will be terminated for the convenience of the government. The contact has an option to treat an additional 120,000 cubic meters of waste in 20,000 cubic meters increments. The contract specifies that only DOE waste can be treated at the facility.

For Phase I of the project, BNFL will be paid a total of $16.3M. Payments are made only for specific deliverables accepted by DOE. For Phase II, the construction and operational testing phase, no payments will be made. This is entirely financed by BNFL. Once treatment begins in 2003, BNFL will be paid per cubic meter of waste treated and accepted by DOE. BNFL will amortize the cost of the facility over the first 25,000 cubic meters of waste treated. For treatment of the 65,000 cubic meters of waste plus RCRA closure of the facility, BNFL will be paid $859.8M. The price of the contract for all three phases and all services for the treatment of 65,000 cubic meters is $876M.

AMWTP Cost Savings/Cost Avoidance over M&O Plans

In looking at potential cost savings based on the feasibility studies, DOE estimated an average of $820M could be saved by privatizing treatment and all supporting services. After the contract was awarded, cost savings estimates were recalculated using the contract price plus DOE and M&O contractor supporting services.

For the recalculation, dollars were adjusted from FY-1994 to FY-1996 using DOE guidance from the Office of Management and Budget, construction dollars spent in 1995 and 1996 were treated as sunk costs, remaining costs and facility start-ups from the M&O baseline plan were delayed two years, and transportation costs were reduced to eliminate the operating cost of the TRU transporters for comparability with the awarded contract, which excluded transportation. Information is summarized in the Table F-1-5.

Table F-1-5. Summary of adjusted transportation costs to 1996 dollars.

1994 M&O Alternative	1994 Estimate ($FY-94)	Escalated to 1996 ($FY-96)	M&O Adusted 1996 ($FY-96)
Baseline Plan[a]	$1,647	$1,763	$1,679
Treat All to LDRs	$2,000	$2,141	$2,067
Treat All to WIPP WAC [b]	$1,595	$1,707	$1,611
	BNFL Contract plus DOE/M&O Support Costs	M&O Baseline Plan Adjusted 1996 ($FY-96)	Savings/Cost Avoidance
Total Costs ($'96)	$1,009	$1,679	$670
Total Escalated Cost @ 2.7 percent in EM 2006 Plan	$1,173	$2,524	$1,351

a. Baseline plan was treat TRU to WIPP WAC and treat alpha to RCRA LDRs.
b. This alternative would require a change to the *Land Withdrawal Act* to accept alpha mixed waste.

When the contract price of $827M is added to the DOE and M&O supporting costs, the cost is $1.009B. As reflected in the table, this saves or avoids costs of $670M in 1996 constant dollars over the M&O baseline plan described in the feasibility study evaluation.

Treatment Drivers

During the feasibility study stage, treatment needs for the waste were discussed extensively. Treatment of the alpha mixed waste to meet RCRA LDRs was never debated. The level of TRU waste treatment was examined from a technical and cost perspective. The feasibility studies bore out that treating both waste streams together resulted in substantial cost savings over dealing with them separately. In addition, volume reduction lowered INEEL storage costs. The feasibility studies indicated that volume reduction would also lead to further savings in transportation of the waste to WIPP. However, further examination after contract award has shown that due to weight loading limits of the TRUPACT II container, these cost savings would be minimal. They were eliminated from the cost savings calculations; the cost savings of $670M does not include transportation costs.

Since the feasibility studies and the award of the contract, the issue of treatment vs. no treatment is still a topic of interest to some stakeholders. For that reason, the following information is provided in this section.

Treatment as defined in RCRA 40 CFR Part 260, Subpart B, 260.10, "means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduce in volume." Using this definition, the INEEL has viewed that repackaging boxed waste so that it can legally be transported, and sizing, and compaction of waste for volume reduction meets the definition of treatment.

Some stakeholders do not understand that while waste being disposed of at WIPP is exempted from RCRA LDRs, there are still strict characterization, transportation, and disposal requirements, which are part of the WIPP WAC.

- WIPP and its regulatory agencies require that waste be characterized sufficient to meet its waste acceptance criteria;
- The only approved transport system approved for moving TRU waste to WIPP is the TRUPACT II's. The TRUPACT II has restrictions on types of containers that can be placed in it, the weight of individual containers and total load weight, hydrogen generation within containers, and liquids volume within the containers.
- Not all categories of hazardous and toxic wastes can be disposed of at WIPP, and;
- WIPP's ability to handle various containers types and sizes for disposal is limited.

Table F-1-6 illustrates some of these points.

Table F-1-6. Summary of WIPP WAC characterization, transportation, and disposal requirements.

WIPP Requirements	INEEL Wastes	INEEL Action to Meet WIPP WAC
Only standard waste boxes or Type A 55 gallon drums can be shipped in the TRUPACT II and disposed of at WIPP	38,000 cubic meters (60 percent) of the INEEL stored waste is in nonstandard waste boxes; 24,000 cubic meters, or 6,600 boxes, of this waste is TRU waste	Repackage all of the boxes into drums and/or standard waste boxes
Waste with radionuclides below 100nCi/g cannot be disposed at WIPP	25,000 cubic meters of waste is expected to be below 100 nCi/g	Treat waste through thermal and mechanical processes to maximize that $\geq$ 100 nCi/g and can be disposed of at WIPP
WIPP will not accept wastes with PCB's above 50 ppm	1,560 cubic meters of waste has been identified as potentially having PCB's above the limit; 12,662 cubic meters is suspect for PCB's	Thermal treatment of PCB's is Best Demonstrated Available Technology for this TSCA regulated waste
No liquids over 1 percent volume	8,450 cubic meters of waste with excess liquids	Excess liquids will be absorbed or incinerated
No ignitable wastes	3,900 cubic meters exhibit the ignitable characteristic	Ignitable waste will be incinerated

Considering all of the above categories, a total of 90 percent of the INEEL stored waste requires repackaging or other treatment to meet all regulatory requirements for transportation and disposal.

In response to comments received from the public at RCRA pre-application meetings and NEPA EIS scoping meetings, BNFL made changes to their treatment process flow sheets to minimize the amount of thermal treatment to be performed. They originally proposed thermal treatment for more than 50 percent of the waste. This change appears to have gained the approval of a number of members of the public as reasonable and environmentally more acceptable.

The purpose of this WAC document is to define the requirements for accepting waste for treatment at the AMWTP facility. These requirements are based on the presently proposed and evaluated design capability of the treatment process described in the Technical Proposal. Wastes which do not meet the criteria stated herein may be accepted for treatment, but only following a detailed case-by-case evaluation of the specific waste characteristics, and special authorization from the AMWTP General Manager.

Table F-1-7 presents a summary of the AMWTP WAC for INEEL wastes required to be treated in the AMWTP.

Table F-1-8 presents a summary of the AMWTP WAC for non-INEEL wastes which could be received for treatment in the AMWTP.

Please note that the AMWTP WAC proposed in this section are for receipt of wastes for treatment, and not for outgoing, treated wastes. Treated wastes will meet the WAC for the respective disposal site. Also note that the AMWTP WAC presented in this section is subject to change as more is learned about the specific physical, chemical, and radiological characteristics of the INEEL stored wastes, and the needs of other potential INEEL and non-INEEL customers.

Table F-1-7. Summary of AMWTP WAC for INEEL Wastes.

Criteria	Requirement
General	• Waste must be characterized for identity and quantity of radionuclides, organic and inorganic constituents, and metals • Waste must not contain classified materials
Container and Physical Properties	
Size	• Waste must be packaged in a; 1. 55 gallon drum, or 2. Over pack drum no larger than 83 gallons, or 3. Standard Waste Box, or 4. Overpacked Standard Waste Box, or 5. 4'x4'x7' box • Other sized boxes may be considered on a case-by-case basis, and are limited only by the physical dimensions of the receipt, opening and content removal capacity of the AMWTP
Containment	• Waste must be confined in at lease two levels of containment • All containers must be vented (filtered vent) • Containers must not contain shielded radioactive material (case-by-case evaluation)
Marking/Labeling	• Containers must be uniquely numbered or coded for tracking purposes
Package Weight	• Drum gross weight must not exceed 1,000 lb • Box gross weight must not exceed 8,000 lb
Free Liquids	• Quantity and composition of free liquids must be identified in the characterization information
Particulates	No restrictions
Chemical Properties	
Metals	• Separable or contained beryllium metals, mercury and lead must be identified in the characterization information • Beryllium-contaminated waste from foundries, extraction plants, ceramic plants and propellant plants are prohibited • Mercury-contaminated waste must not exceed 1,000 ppm
Corrosives	• Waste must not contain corrosive materials (<2 or >12.5 pH)
Explosives, Pyrophorics, Reactives, and Compressed Gases	• Waste must not contain explosive or pyrophoric material, except for pyrophoric forms of radionuclides • Waste must contain DOT Class 1 explosives • Waste must not contain reactive metals or forbidden materials per 49 CFR 173.21. • Waste must not contain compressed gases. Pressurized containers must be vented and drained
Mixed/TSCA Waste	• Mixed waste is acceptable except as restricted in other parts of this WAC (see general topic above) • Liquid PCB waste must not exceed 50 ppm
Other	• Pathological or etiologic agents must be identified in characterization information

Table F-1-7. Summary of AMWTP WAC for INEEL Wastes (continued).

Criteria	Requirements
Nuclear Properties	
Fissile Mass	• Drums must not contain more that 200 grams of Pu-239 fissile-gram equivalent (FGE) • Boxes must not contain more than 325 grams (FGE) • Waste containers with more than 15 grams of non-TRU fissile material (e.g. U-235) must be reviewed and approved on a case-by-case basis
Pu-239 Equivalent Activity (PE-Ci)	• Waste containers must not contain more than 1,000 PE-Ci
Non-Fissile Radionuclides	• Waste containers must not contain more than 1 Ci of non-TRU betagamma emitting radionuclides
Dose Rate	• Contact dose rate (beta + gamma + neutron) at any point on the surface of a container must not exceed 200 mRem/hr • Dose rate (gamma + neutron) at two meters from the surface of a container must not exceed 10 mRem/hr • Neutron contributions (at contact) greater than 20 mRem/hr must be documented in the characterization information
Surface Contamination	• Removable contamination shat not exceed 200 dpm/100cm^2 beta gamma activity, or 20 dpm/100 cm^2 of alpha activity
Thermal Power	• Containers with thermal power greater than 0.1 watt/ft^2 must be identified and quantified in the characterization information

Table F-1-8. Summary of WAC for wastes received from non-INEEL sites

Criteria	Requirement
General	• Generators must receive approval from the BNFL Team prior to shipping waste to the AMWTP Facility • Waste must be characterized for identity and quantity of radionuclides, organic and inorganic constituents, and metals • Waste must not contain classified materials Each waste container must be accompanied by a data package
Container and Physical Properties	
Size	• Waste must be packaged in one of the following DOT-approved containers; 1. 55 gallon drum, or 2. Overpack drum no larger than 83 gallons, or 3. Standard Waste Box, or 4. Overpacked Standard Waste Box, or 5. 4'x4'x7' box 6. Other sized boxes may be considered on a case-by-case basis, and are limited only by the physical dimensions of the receipt, opening and content removal capacity of the AMWTP
Containment	• Waste must be confined in at lease two levels of containment • All containers must be vented (filtered vent) • Containers must not contain shielded radioactive material (case-by-case evaluation)
Marking/Labeling	• Containers must be uniquely numbered or coded for tracking purposes • Waste packages must have DOT labels, RCRA labels, container number, gross weight, and other appropriate DOE markings and labels.
Package Weight	• Drum gross weight must not exceed 1,000 lb • Box gross weight must not exceed 8,000 lb
Free Liquids	• Quantity and composition of free liquids must be identified in the characterization information
Particulates	No restrictions
Chemical Properties	
Metals	• Separable or contained beryllium metals, mercury and lead must be identified in the characterization information • Beryllium-contaminated waste from foundries, extraction plants, ceramic plants and propellant plants are prohibited • Mercury-contaminated waste must not exceed 1,000 ppm
Elemental Content Limits	• Chlorine is limited 3 wt% • Sulfur is limited to 1 wt% • Fluorine is limited to 15 wt% • Phosphorus is limited to 5 wt% • Barium is limited to 5 wt% • Chromium is limited to 2 wt% • Chromium is limited to 2 wt% • Nickel is limited to 12 wt% • Silver is limited to 10 wt% • Cadmium is limited to 5 wt% • Thallium is limited to 1 wt%

Table F-1-8. Summary of WAC for wastes received from non-INEEL sites (continued).

Criteria	Requirements
Elemental Content Limits (continued	• Arsenic is limited to 2 wt% • Antimony is limited to 2 wt% • Selenium is limited to 2 wt% • Other elements are limited to 30 wt% except Si, Al, B, alkalis, alkaline earths, C, H, N, and O when calculated as the corresponding oxide
Corrosives	• Waste must not contain corrosive materials (<2 or >12.5 pH)
Explosives, Pyrophorics, Reactives, and Compressed Gases	• Waste must not contain explosive or pyrophoric material, except for pyrophoric forms of radionuclides • Waste must not contain DOT Class 1 explosives • Waste must not contain reactive metals or forbidden materials per 49 CFR 173.21. • Waste must not contain compressed gases. Pressurized containers must be vented and drained
Mixed/TSCA Waste	• Mixed wastes which have as their Best Demonstrated Available Technology: AMLGM, CMBST, DEACT (for ignitable waste only), IMERC, and STABL will be accepted for treatment • Mixed waste with a technology-based treatment standard other than those listed above will be accepted on a case-by-case basis only • Liquid PCB waste must not exceed 50 ppm
Other	• Pathological or etiologic agents must be identified in characterization information • Waste must not contain incompatible material
Nuclear Properties	
Fissile Mass	• Drums must not contain more than 200 grams of Pu-239 fissile-gram equivalent (FGE) • Boxes must not contain more than 325 grams (FGE) • Waste containers with more than 15 grams of non-TRU fissile material (e.g. U-235) must be reviewed and approved on a case-by-case basis
Pu-239 Equivalent Activity (PE-Ci)	• Waste containers must not contain more than 1,000 PE-Ci
Non-Fissile Radionuclides	• Waste containers must not contain more than 1 Ci of non-TRU beta-gamma emitting radionuclides
Dose Rate	• Contact dose rate (beta + gamma + neutron) at any point on the surface of a container must not exceed 200 mRem/hr • Dose rate (gamma + neutron) at one meters from the surface of a container must not exceed 10 mRem/hr • Neutron contributions (at contact) greater than 20 mRem/hr must be documented in the characterization information
Surface Contamination	• Removable contamination shall not exceed 200 dpm/100 cm^2 beta-gamma activity, or 20 dpm/100 cm^2 of alpha activity
Thermal Power	• Containers with thermal power greater than 0.1 watt/ft^3 must be identified and quantified in the characterization information
Data	
Data Package	• Shipments of mixed waste must have an accompanying Hazardous Waste Manifest • The data package must contain the following information: 1. Package (container) identification number

	Package assembly identification number (if applicable)

Table F-1-8. Summary of WAC for wastes received from non-INEEL sites (continued).

Criteria	Requirements
	2. Date of waste package certification 3. Waste generation site (certification site) 4. Date of packaging (closure date) 5. Maximum surface dose rate in mRem/hr and specific neutron dose rate if greater than 20 mRem/hr 6. Weight Container type
Data Package (continued)	7. Physical description of waste form, content codes(s), weight percent of organic material, and estimated weight or mass of organic material 8. Assay information, including PE-Ci, alpha Curies, and Pu-239 fissile gram equivalent content 9. Fissile mass plus two times the error 10. Radionuclide information including radionuclide symbol and quantity and: a. Characterization data should include all radionuclides that contribute >1% (by Curies) of the total activity of the waste matrix and any of the following radionuclides even if they contribute <1% of the total activity: H-3, C-14, Co-60, Ni-59, Ni-63, Se-79, Sr-90 Nb-94 Tc-99, I-129, Pu-241, Cm-242, Cs-137 and alpha-emitting nuclides with half-lives >5 years b. Reporting of the radionuclides must include any parent-daughter radionuclide pairs that meet the above criteria (e.g., Ba-137 must be reported with Cs-137, Y-90 must be reported with Sr-90) c. Data must be reported in either grams or Curies 13. Mixed wastes must have LDR materials characterized 14. Organics and inorganics must be characterized in terms of type and concentrations 15. Measured or calculated thermal power (if greater than 0.1 watt/cubic foot); report this data in terms of decay heat plus error limits 16. Shipment number 17. Data of shipment 18. Vehicle type 19. Headspace VOC in ppm 20. Aspiration time determined and recorded in data package (or hydrogen gas concentration 21. Name of certifying official who certified the waste

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
ANL-E	100	General Plant Waste	D001,F003	0	2			24	301			1134.0	HD
ANL-E	101	Cut Up Gloveboxes	D008					6	66			251.1	MD
ANL-E	102	Absorbed Liquids	Unknown	26	79			0	13			67.2	IHS
ANL-E	104	Alpha Hot Cell Waste	None	1	399			0	6	0	2	111.1	HD
ANL-E	105	Empty Bottles and Absorbent	Unknown	3	4							1.5	SCW
ANL-E	106	Special Source Material	Unknown	0	1							0.2	TBD
ANL-E	107	Alpha Hot Cell Waste	None	0	217							45.1	RH
ANL-E	110	Research Generated Waste (RGW) Compactible and Combustible Solid	D004,D006,D008,F003	0	2			0	1			3.9	PRPR
ANL-E	111	WIPP Precertified RGW Noncompactible	D004-D009	0	6							1.2	TBD
ANL-E	120	D&D Waste	D004,D006,D008,F003	0	2							0.4	MD
ANL-E	121	WIPP Precertified D&D Waste Noncompactible	D004-D009					0	8			27.9	TBD
B&W	515	Plastic, Paper, Cloth, etc.	None	15	0							3.1	TBD
B&W	516	Steel, Al, Electrical Devices	None	2	0							0.4	TBD
B&W	517	Heavy Metals, Steel, Al, Brass	None	2	0							0.4	TBD
Battelle	201	Noncombustible Solids	D008	0	42			11	27			141.3	ID
Battelle	202	Combustible Solids, Paper, Cloth	Unknown	0	3			0	5			18.1	OD
Battelle	203	Paper, Cloth, Metals, Glass	PCBs	0	26			2	4			26.3	HD
Battelle	204	Solidified Solutions	Unknown	2	5							1.5	IHS
Battelle	UNK	Unknown	Unknown	38	0			6	0			28.8	TBD
Bendix	111	Solidified Wet Sludge	Unknown	1	0							0.2	TBD
Bettis	010	Combustibles (rags, gloves, poly)	F002	27	913							195.5	OD
Bettis	012	Miscellaneous Sources	None	1	0							0.2	RH
Bettis	015	Neutron Sources	None	3	0							0.6	RH
Bettis	020	Noncompressible, Noncombustible	D002,F002	3	791							165.2	HD&MD
Bettis	030	Solidified Grinding Sludge, etc.	F002	0	45					0	2	16.3	RH
Bettis	040	Solid Binary Scrap Powder, etc.	None (lead for shielding only)	0	107	4	0					34.9	MD
Bettis	050	Solidified Solutions	None	1	0							0.2	OHS
Bettis	081	Metal-Metal Samples Fissile	None	16	0							3.3	RH
IN-ICPP	021	Radioactive Mixed Lead Waste	D008			5	0					15.9	TBD
IN-NRF	021	Radioactive Mixed Lead Waste	D008			1	0					3.2	TBD
IN-TAN	021	Radioactive Mixed Lead Waste	D008			42	1					136.4	TBD
IN-TRA	021	Radioactive Mixed Lead Waste	D008			8	0					25.4	TBD
IN-RWMC	021	Radioactive Mixed Lead Waste	D008			2	0					6.3	TBD
IN-ANLW	150	Laboratory Waste	D002,D008	99	13					0	19	89.6	HD
IN-ICPP	150	Laboratory Waste	D002,D008	1	6							1.5	HD

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
IN-TRA	150	Laboratory Waste	D002,D008	11	0							2.3	HD
IN-ICPP	151	Solidified Fuel Sludge	D008	0	2							0.4	RH
IN-ANLW	152	Pu Neutron Sources	None	2	0					0	1	3.9	RH
IN-ICPP	152	Pu Neutron Sources	None					0	1			3.5	RH
IN-NRF	152	Pu Neutron Sources	None	0	4							0.8	RH
IN-TAN	152	Pu Neutron Sources	None	0	2							0.4	RH
IN-ANLW	153	Combustible Lab Waste	None	1	0					0	7	24.6	RH
IN-NRF	153	Combustible Lab Waste	None	1	28							6.0	RH
IN-ANLW	154	Sample Fuel	None	3	0							0.6	RH
IN-TRA	154	Sample Fuel	None	5	2							1.5	RH
IN-ANLW	155	TRU Scrap	None	3	0							0.6	HD
IN-NRF	155	TRU Scrap	None	2	0							0.4	HD
IN-RWMC	155	TRU Scrap	None	0	4	1	3					13.5	HD
IN-TRA	155	TRU Scrap	None	3	5	0	1					4.8	HD
IN-ICPP	156	Chem Cell Rip-Out	Unknown			0	9					28.5	MD
IN-ARA	157	Miscellaneous Sources	Unknown	0	1							0.2	RH
IN-ICPP	157	Miscellaneous Sources	Unknown	1	0							0.2	RH
IN-RWMC	157	Miscellaneous Sources	Unknown			0	7					22.2	RH
IN-TAN	157	Miscellaneous Sources	Unknown	1	0							0.2	RH
IN-TRA	157	Miscellaneous Sources	Unknown	1	1							0.4	RH
IN-ANLW	160	HFEF Analytical Chem. & Metallographic Combustibles	Unknown							0	1	3.5	RH
IN-ANLW	161	ALC Glassware, Paper, Poly, and Miscellaneous Hardware	Unknown	3	2							1.0	RH
IN-ANLW	162	FMF EFL Zr-U-Pu Fuel Casting Alloy Residues	Unknown	50	0							10.4	HD
IN-ANLW	163	ACL Cold-Line Absorbed Liquid, Misc. Hardware, Polyethylene	Unknown	6	0							1.2	HD
IN-ANLW	164[e]	WETP Process Waste	D005-D009,D011,D022,D028, D029,F001-F005	143	0							29.7	TBD
IN-ANLW	UNK	Unknown	Unknown	2	0							0.4	TBD
IN-RWMC	UNK	Unknown	Unknown			3	0					9.5	TBD
Monsanto	530	Compacted Waste	None	0	5							1.0	TBD
Monsanto	535	Compacted Waste/Lead for Shielding	None	3	13							3.3	TBD
Monsanto	540	Noncompacted Waste	None					4	0			14.0	TBD
Monsanto	545	WEP Shielded Waste	None	0	5							1.0	TBD
Monsanto	550	Solidified Oil	None	0	1							0.2	TBD
Mound	801	Rags, Paper, Wood, etc.	None	4	31							7.3	OD

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
Mound	802	Dry-Box Gloves and O-Rings	D008	32	89							25.2	PRPR
Mound	803	Metal, Equip., Pipes, Valves, etc.	D009	51	129							37.4	MD
Mound	804	Plastic, Tygon, Mani-Boots, etc.	D009	64	156							45.8	OD
Mound	805	Asbestos Filters	D001,D002,D009	7	31							7.9	ID
Mound	810	Glass, Flasks, Sample Vials, etc.	D009	4	9							2.7	IHS
Mound	811	Evaporator and Dissolver Sludge	D001,D009	0	4							0.8	OHS
Mound	813	Glass Filters and Fiberglas	D001,D002,D009	0	3							0.6	ID
Mound	814	Graphite Waste with Cont'd Hg	D009	0	2							0.4	G
Mound	815	Miscellaneous Waste	Unknown	2	0							0.4	TBD
Mound	824	Equipment Boxes, Noncombustible	D005-D011			39	342					1208.5	MD
Mound	825	Equipment Drums, Noncombustible	Unknown	146	79	0	11					81.7	MD&HD
Mound	826	Equipment Boxes, Combustible	D009	5	0	8	20					89.9	OD
Mound	827	Equipment Drums, Combustible	D008,D009	5	4							1.9	OD
Mound	834	High Level Acid	D001,D002	42	859							187.4	IHS
Mound	835	High Level Caustic	D002	462	1213							348.4	IHS
Mound	836	High Level Sludge/Cement	D006-D011,F001,F002,F003	994	3184							869.0	IHS
Mound	838	<10 nCi/g Noncombustible	Unknown	0	1							0.2	OD
Mound	842	Contaminated Soil	D002,D006-D011			3	36					123.7	S
Mound	847	LSA <100 nCi/g Combustible	Unknown	217	524							154.1	OD
Mound	848	LSA <100 nCi/g Noncombustible	Unknown	9	125							27.9	HD
Mound	UNK	Unknown	Unknown			1	0					3.2	TBD
RFP	000	Retrieved RFP TRU at RWMC	Unknown	0	18961			0	72			4195.0	TBD
RFP	000	Not Recorded-Unknowns from Rocky Flats Plant	Unknown	1	11							2.5	TBD
RFP	001	First Stage Sludge	D002,D004-D011,F001-F003,F005-F007,F009	5785	6201	16	7			0	1	2569.5	IHS
RFP	002	Second Stage Sludge	D002,D004-D011,F001-F003,F005-F007,F009	245	7466	3	0					1613.4	IHS
RFP	003	Organic Setups, Oil Solids	D005,D011,D022,D029,D036, F001-F003,F005,PCBs	2628	4580	0	12					1537.3	OHS
RFP	004	Special Setups (Cement)	D006,D008,F001-F003,F005	430	1112	0	1					323.9	IHS
RFP	005	Evaporated Salts	D001	0	52	0	1					14.0	IHS
RFP	007	Bldg. 374 Dry Sludge	D002,D006-D011,F001-F003,F005-F007,F009	5254	2	20	0					1156.7	IHS
RFP	090	Dirt	F001-F004	0	135							28.1	S
RFP	095	Sludge	Unknown	0	23							4.8	IHS
RFP	241	Americium Process Residue	D001,D002,D008,F002,F003	1	118							24.8	HD
RFP	290	Sludge, Filter	D002,D006,D008,F001-F003	0	1							0.2	SCW

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
RFP	292	Cemented Sludge	D002,D004-D011,F001-F003, F005	354	225	4	0					133.1	OHS
RFP	300	Graphite Molds	None	1249	919							450.9	G
RFP	301	Graphite Cores	None	5	31							7.5	G
RFP	302	Benelex and Plexiglas	D005,D008,F001	11	12	0	23					77.7	OD
RFP	303	Scarfed Graphite Chunks	None	91	0							18.9	G
RFP	310	Graphite Scarfings	None	1	16							3.5	G
RFP	311	Graphite Heels	Unknown	0	6	0	1					4.4	G
RFP	312	Graphite, Coarse	F001,F002,F005	8	0							1.7	G
RFP	320	Heavy Non-SS Metal	D008,F001,F002,F005	285	289	0	2					125.7	MD
RFP	321	Lead	D008	4	0							0.8	TBD
RFP	328	Filters, Fulflo Incinerator	D002,D005,D007,D008,D011, F001-F003,F005	8	0							1.7	HD
RFP	330	Paper and Rags-Dry	D006-D008,D011,D022,F001-F003,F005-F007,F009	423	4701	402	2470					10175.8	PRPR
RFP	335	Filters, Absolute 8 x 8	D001,D005,D007,D008,D011, F001-F003,F005-F007,F009	28	98	0	5					42.1	ID
RFP	336	Paper and Rags-Moist	D001,D002,D006-D008, D022,F001-F003,F005-F007, F009	685	6786	333	254					3415.9	PRPR
RFP	337	Plastic, Teflon, Wash, polyvinyl chloride	D006-D008,D011,D022,F001-F003,F005-F007,F009	500	1802	6	10					529.6	PRPR
RFP	338	Insulation and CWS Filter Media	D001,D005,D007,D008,D011, F001, F002	28	224	1	77					299.8	ID
RFP	339	Leaded Rubber Gloves and Aprons	D001,D008,D022,F001,F002, F005	435	591	0	4					226.1	PRPR
RFP	360	Insulation	D005,D007,D008,D011,F001, F002	1	238	0	1					52.9	ID
RFP	361	Insulation Heel	None	0	1							0.2	SCW
RFP	368	Magnesium Oxide Crucibles	None	1	0							0.2	TBD
RFP	370	Crucible, LECO	None	3	32							7.3	IHS
RFP	371	Brick, Fire	D004-D011,F001-F003,F005	134	907	1	23					292.7	CBD
RFP	372	Grit	None	13	5							3.7	IHS
RFP	374	Blacktop, Concrete, Dirt, & Sand	D004-D011,D018,F001-F007, F009	459	915	5	43					438.0	HD
RFP	375	Oil-Dri Residues from Incinerator	D004-D011,D022,F001-F003, F005	5	14							4.0	OHS

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
RFP	376	Cement, Insulation, and Filter Media	D005,D007,D008,D011,F001-F003,F005-F007,F009	1904	888	2	5					602.9	ID
RFP	377	Firebrick, Coarse	D004-D011,F001-F003,F005	30	0							6.2	TBD
RFP	391	Crucible and Sand	None	4	18							4.6	IHS
RFP	392	Sand, Slag, and Crucibles	None	1	6							1.5	IHS
RFP	393	Sand, Slag, and Crucible Heels	D007	28	17							9.4	IHS
RFP	409	Molten Salts, 30% Unpulverized	D028,F001,F002	30	0							6.2	SCW
RFP	410	Molten Salts, 30% Pulverized	None	0	22							4.6	SCW
RFP	411	Electrorefining Salt	None	19	2							4.4	SCW
RFP	412	Gibson Salts	None	1	0							0.2	SCW
RFP	414	Direct Oxide Reduction Salt	F001,F002	5	0							1.0	SCW
RFP	416	Zinc Magnesium Alloy Metal	None	1	0							0.2	MD
RFP	420	Ash, Incinerator (Virgin)	D004-D011,F001-F003,F005	1	9							2.1	IHS
RFP	421	Heels, Ash (>2% G/G)	D004-D011,F001,F002,F005	1	100							21.0	IHS
RFP	422	Soot	D004-D011,D029,F001-F003,F005	10	15							5.2	IHS
RFP	425	Fluid Bed Ash	D007,F003,F005	8	0							1.7	IHS
RFP	430	Resin, Ion Column Unleached	D001	0	29							6.0	OHS
RFP	431	Resin, Leached	None	0	6							1.2	OHS
RFP	432	Resin, Leached and Cemented	D007,D008,D029,F001,F002,F005	87	195							58.7	SCW
RFP	440	Glass	D001,D002,D005,D008,D009,F001, F002,F005	485	956	24	15					423.4	IHS
RFP	441	Raschig Rings, Unleached	D002,D008,F001-F003	8	1566	1	0					330.6	IHS
RFP	442	Raschig Rings, Leached	D008,F001,F002	745	506	22	27					415.6	IHS
RFP	460	Washables, Rubber, Plastics	F001,F002	0	6							1.2	PRPR
RFP	463	Gloves, Drybox	D008,F001,F002	0	53							11.0	PRPR
RFP	464	Benelex and Plexiglas	D005,D008,F001	2	45							9.8	OD
RFP	480	Metal, Scrap (Non-SS)	D001,D004-D011,D028,F001-F003, F005-F007,F009	917	1640	586	3515					13540.2	MD
RFP	481	Metal, Leached (Non-SS)	D006-D008,D011,F001-F003,F005-F007,F009	121	770	1	132					607.2	MD
RFP	488	Glovebox Parts with Lead	D008			3	0					9.5	TBD
RFP	490	Filters, CWS	D001,D005,D007,D008,D011,F001-F003,F006,F007,F009	50	54	171	1014					3780.5	ID
RFP	491	Plenum Prefilters	F001,F002			3	0					9.5	TBD
RFP	700	Organic and Sludge Immobilization System (OASIS) Waste	D022,F001-F003	60	0							12.5	OHS

Table F-1–9. Existing Wastes Stored at the TSA[a,b,c].

Gen.	IDC[d]	Stream Name	EPA Haz. Waste Numbers	No. of Drums		No. of Boxes		No. of Bins		No. of Other		Tot. Vol.	Waste
				WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	WSF	TSA RE	(cubic meters)	Cat.[d]
RFP	800	Solidified Sludge, Bldg. 774	D002,D004-D011,F001-F003, F005-F007,F009	1570	0	1	0					329.7	TBD
RFP	801	Solidified Organics	D022,F001-F003	795	0							165.4	TBD
RFP	802	Solidified Lab Waste	D001,D011,F001-F003,F005	78	0							16.2	TBD
RFP	803	Solidified DCP Sludge	D002,D006-D008,D010,F001-F003,F005-F007,F009	161	0							33.5	TBD
RFP	806	Solidified Process Solids	D004-D011,F001-F003,F005	41	0							8.5	TBD
RFP	807	Cemented Incinerator Sludge & Solidified Bypass Sludge	D004-D011,F001-F003,F005, (also D002,F006,F007,F009)	1245	0	2	0					265.3	TBD
RFP	817	Cemented Sand, Slag, & Crucible Heels	D007,D008,F001-F003	22	0	1	0					7.7	TBD
RFP	818	Cemented Ash	D004-D011,F001-F003,F005	7	0							1.5	TBD
RFP	820	Cemented Soot	D004-D011,F001-F003,F005	27	0							5.6	TBD
RFP	822	Cemented Resin	None	26	0							5.4	TBD
RFP	823	Cemented Miscellaneous Sludge	D004-D011,F001-F003,F005	13	0	1	0					5.9	TBD
RFP	831	Dry Combustibles TRU Mixed	F001,F002			71	0					225.2	TBD
RFP	832	Wet Combustibles TRU Mixed	F001,F002			96	0					304.5	TBD
RFP	833	Plastics TRU Mixed	F001,F002			10	0					31.7	TBD
RFP	900	LSA Paper, Plastic, etc.	D004-D011,D029,F001-F003,F005	27	323	0	6					91.8	PRPR
RFP	950	LSA Metal, Glass, etc.	D004-D011,F001,F002,F005	4	106	12	321					1079.2	HD
RFP	960	Concrete, Asphalt, etc.	D004-D011,F001,F002,F005	55	648	0	171					688.6	HD
RFP	970	Wood	D008,F001-F003,F005	5	17	8	54					201.2	OD
RFP	976	Bldg. 776 Process Sludge	D006-D009,D022,F001-F003	0	7	0	20					64.9	IHS
RFP	978	Laundry Sludge	D006-D009,F001-F003			0	11					34.9	IHS
RFP	980	Equipment (suspected to be IDC 290)	D008,F001,F002	0	1							0.2	SCW
RFP	990	Dirt	F001-F004	0	470							97.8	S
RFP	995	Sludge	None	0	296	0	8					86.9	IHS
RFP	UNK	Unknown	Unknown	31	0	69	0					225.3	TBD
UNK	UNK	Unknown	Unknown	17	0	33	0					108.2	TBD
			TOTALS:	30243	74426	2025	8663	53	504	0	33	57731	

[a] The number and type of containers listed in this table are based on a November 1997 query of the Transuranic Waste Management Information System (TWMIS) database. Volumes are calculated using the following conversion factors: (a) 0.208 cubic meters /drum, (b) 3.172 cubic meters/box, (c) 3.488 cubic meters/bin, and (d) 3.488 cubic meters/other container.

[b] EPA Hazardous Waste Numbers are assigned based on the engineering design file RWMC-803, current revision, *Chemical Constituents in Transuranic Storage Area (TSA) Waste*. Waste streams listed with "none" in the "EPA Haz. Waste Number" column are radioactive-only waste.

[c] Waste streams designated with remote handled, special case waste, and to-be-determined waste categories will be evaluated on a case-by-case basis, as information becomes available, to determine if a more appropriate waste category is warranted. Special case wastes in this table have been included in the Part A permit application under special case waste treatment, although they may not be treated in the special case waste glovebox.

[d] IDC=item description code; HD=heterogeneous debris; IHS=inorganic homogeneous solids; SCW=special case waste; TBD=to be determined; RH=remote-handled; PRPR=paper/rags/plastic/rubber; MD=metal debris; ID=inorganic debris; OD=organic debris; G=graphite; S=soils; OHS=organic homogeneous solids; CBD=Ceramic/Brick debris.

[e] Waste stream IN-ANLW 164 is a newly-generated waste stream that is currently stored at the WSF.