PROJECT MANGEMENT PLAN EXAMPLES

Prepare Project Support Plans and Documentation – Waste Management Examples

Example 59

6.03.12 Environmental and Waste Management

Deactivation activities will be performed in compliance with the requirements of WSRC 3Q, Environmental Compliance Manual. The deactivation of the 400-D excess facilities will not adversely affect the environment. An Environmental Evaluation Checklist (EEC) has been initiated to ensure that the general deactivation work scope receives the proper environmental review and approval. Certain deactivation activities, such as the discontinuation of building stack monitoring, requires additional (EPD and SCDHEC in this case) environmental approvals. Regulatory required records for the 420-D refrigeration system and the 772-D chiller will be transferred to FDD.

The amount of waste generated by the facility is expected to increase during the deactivation period while the process and support systems are placed in a final shutdown mode and deactivated. Remaining 400-D radiological waste will be shipped from 400-D to an approved storage location in K or L area or to the E Area Vaults while other facility wastes will be characterized and sent to the appropriate solid waste disposal facility. Also, SFSD will transfer waste characterization information, such as waste characterization forms, to FDD. The 420-D MPF room and the 420-2D load/unload room will be rolled back to satisfy FY99 SFSD waste minimization AOP commitments.

Example 60

6 Waste Management

Waste types that will result from the decommissioning of the 771/774 Closure Project are radioactive, mixed, hazardous, toxic and solid waste. In general, once this DOP is approved and Decommissioning work commences, waste generated as a result of all activities associated with a D&D workset will be remediation waste and will be managed as CERCLA waste in accordance with relevant RFETS waste operations procedures. Some waste, specifically:

- liquid waste drained from process systems and idle equipment;
- waste chemicals; and
- pre-existing containerized process;

will continue to be RCRA process waste and will be managed as such. State and Federal regulations and DOE Orders have been incorporated into the RFETS waste operations procedures. Table 6.1, Summary of Waste Management for the 771/774 Closure Project, identifies the estimated volumes, types of waste anticipated, and the final dispositioning for the waste form.

6.1 Transuranic Waste

Transuranic waste (TRU) is defined as waste that is contaminated with alpha-emitting transuranic radionuclides having half-lives greater that 20 years and concentrations greater than or equal to 100 nCi/gram at the time of assay. Transuranic waste as defined will result from the decommissioning of Building 77if774. Duct and glovebox work activities will result in the production of TRU waste. TRU and TRU Mixed Waste will be generated, characterized and packaged in accordance with the RFETS TRU Waste Management Plan (CA) and the RFETS WIPP Waste Characterization Quality Assurance (QA) Project Plan.

6.2 Low Level Waste

DOE Order 5820.2A defines Low Level waste as "Waste that contains radioactivity and is not classified as high-level waste, transuranic waste or spent nuclear fuel or 11(e)2 by-product material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low level waste, provided the concentration of transuranic is less than 100 nCi/g." Based on economical and technical constraints items will be decontaminated to free release conditions. Items that have been decontaminated to a free release condition (Reference Radioactive Material Transfer and Unrestricted Release of Property and Waste, I- P73-HSP-1810) will be transferred for use at a different location within RFETS, for use at a different DOE facility, or sent to the Property Utilization and Disposal (PU&D) organization for appropriate handling. Only materials that meet recycle/reuse criteria identified in the Property Management Manual will be sent to PU&D. As appropriate, low level and low level mixed waste will be generated, characterized, and packaged in accordance with the RFETS Low Level WMP.

6.3 Mixed Waste

Mixed waste means waste that contains both hazardous waste and source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954 (42 USC 6903(41)). Mixed waste is characterized as either low level. or TRU based upon the amount of radioactivity at the time of assay. The type of mixed waste that may be generated includes, but is not limited to, radioactively contaminated lead, glovebox gloves, used pump oil and leaded glovebox windows. Mixed waste generated from decommissioning activities may be stored and treated (see Section 7.3) in temporary units prior to shipment to an approved disposal site. If the project chooses to manage mixed waste as process waste instead of remediation waste, the process waste will be managed in accordance with the generator requirements or the RCRA permit requirements. Management of remediation waste within a CERCLA unit will be conducted in accordance with the substantive requirements of the project ARARS.

6.4 Hazardous Waste

Hazardous waste is defined as waste that is listed or exhibits the characteristics of corrosivity, ignitability, reactivity, toxicity or that is listed in 6 CCR 1007-3, Section 261, or 40 CFR 261, Subpart D. The 771/774 Closure Project anticipates some amount of hazardous waste in addition to the mixed waste mentioned in Section 6.3.

6.5 Industrial Waste

Industrial waste is characterized as that waste which meets RCRA Subtitle D requirements. Industrial waste will be generated as a result of the 771/774 Closure Project. This waste will be managed in accordance with applicable rules and regulations.

6.6 Toxic Substances Control Act Waste and Mixed Waste

The Toxic Substances Control Act (TSCA) addresses all chemical substances manufactured or processed in or for the United States. A chemical substance is defined in broad terms as any organic or inorganic substance of a particular identity including those substances identified in 15 CFR, Paragraph 2602(2)(A)(I-vi.) and which may present unreasonable risk of injury to health and the environment. Of particular significance to the 771/774 Closure Project are PCBs as regulated under 40 CFR Part 761. Further segregation may occur as in-process characterization is performed in support of the waste determination.

In addition, other suspect PCB containing materials include oils, paints, adhesives and roofing tars. Characterization of suspect materials will be performed in suspect areas prior to decommissioning of that area. Materials characterized as TSCA regulated will be managed in accordance with 40 CFR Part 761 if determined to contain $\geq$ 50 ppm PCBs.

6.7 Waste Minimization

Waste minimization, as committed to in the FY97 Waste Minimization Program Plan, will be integrated into the planning and management of the 771/774 Closure Project decommissioning wastes. Project Management and Decommissioning workers will incorporate waste minimization practices into work procedures. Unnecessary generation of radioactive and mixed waste will be controlled by utilizing work techniques that prevent the unnecessary contamination of areas and equipment, preventing unnecessary packaging, tools and equipment from entering radiologically contaminated areas and reusing contaminated tools and equipment when practical. Waste minimization will be accomplished using a waste life cycle cost approach and an economic disposition plan has been developed to use as guidance. If the cost to demonstrate that the item is not contaminated exceeds the cost for waste disposal, the item will be disposed of as waste in accordance with the Property Management Manual, 1 -MAN-009-PMM.

The evaluation may include disassembly, decontamination and survey costs. Elimination and reduction of waste generated as a result of decommissioning is a high priority. Standard decontamination operations and processes will be evaluated for waste minimization potential and suitable minimization techniques will be implemented. Most of the bulk building structural material is expected to be free released and will be removed from the Site for recycle or disposal as appropriate. Table 6-1 identifies the amount and types of waste which are expected to be generated.

6.8 Waste Management Strategy

The overall strategy for managing waste resulting from the decommissioning of the 7711774 Closure Project is to evaluate the generation and waste management on a workset-by-workset basis. In general waste materials will be sorted at the time of removal and prepared for further decontamination, survey, recycle, processing and packaging in another area of the771/774 Closure Project, away from the point of generation. The existing RFETS Waste Management Program and procedures will be used to ensure the waste has been generated, packaged and surveyed to meet the final disposal Waste Acceptance Criteria (WAC). Materials identified for transfer to PU&D include, but are not limited to, office equipment such as desks, chairs, tables, carts, bookshelves, equipment and instruments which are located in non- contaminated areas or have been located in contaminated areas but confirmed as non-contaminated through radiological survey. Utilizing waste minimization, (Section 6.6), the maximum amount of materials (economically feasible) will be released and sent to PU&D for disposition. The waste generation estimates anticipated as a result of the 771/774 Closure Project are summarized in Table 6-1. The types and volumes of waste have been estimated based on the following assumptions:

- WIPP facility will be on-line and approved to accept TRU/TRU-Mixed waste,
- The RFETS on-site Waste Operations facility will accept and assay all waste prior to shipment to off- site waste disposal facilities,
- Contents of the 771 office area, 771 trailer complex, 129 maintenance shop, Building 770 and the carpenter shop are non-contaminated. The contents will be free-released to PU&D (Note: free release requires surveys to confirm the absence of contamination, see sections 4.7.1 and 4.7.2),
- Non contaminated rubble and debris will be disposed of at an approved landfill or used as fill onsite, or put in the new landfill, in accordance with solid waste regulations,
- One hundred percent of the Building 771 and 774 internal structures (floors, walls, ceilings) are contaminated,

- No attempt will be made to decontaminate the Building 771 and 774 internal structures or contents to a free-release category,
- Decontamination methods will be utilized as necessary to reduce the Building 771 and 774 structures to a low level waste category,
- Building 771 and 774 structures will be disposed of as low level waste, and
- All non-contaminated lead will be shipped to PU&D for recycling.

The quantity of crates and drums were estimated using the following information. On average, 7.8 cubic feet of material can be contained in a 55-gallon drum while 112 cubic feet can be contained in a standard waste crate. These containers were used in Table 6-1 for illustration and comparison; as much as possible, waste materials will be placed into standard waste crates or other large bulk containers to gain efficiencies of scale. The number of standard waste containers (crates) was calculated by dividing the volume by 112 cubic feet and rounding up to the nearest whole number. The number of 55 gallon drums was calculated by dividing the volume of waste designated for containment in drums by 7.8 cubic feet then rounding up to the nearest whole number.

During the detailed planning of the individual D&D worksets, the waste will be characterized and waste streams will be identified such that the waste can be properly packaged to meet the acceptance criteria for the ultimate disposal site. Waste generator instructions, tailored for the available disposal sites, will be developed. Waste certification approval is required to verify proper compliance; a trained, qualified individual will be utilized in the building for this purpose.

6.9 Waste Characterization

The characterization process discussed in Section 4.0 was used to estimate the type and volume of waste to be generated by the project. The Building 771 Waste Stream and Residue Identification and Characterization (WSRIC) book is used to describe each of the processes which are performed in Building 771. The WSRIC descriptions identify the different types of chemicals used and wastes which are generated in completing the various processes. The WSRIC is being used to assist in characterization of the residual materials left in Building 771 (Reference Section 4.0).

In general, waste generated from decommissioning includes contaminated and uncontaminated equipment, tools, electrical conduit systems, piping systems, gloveboxes and facility structural materials. Decontamination will be performed to remove radiological contamination and hazardous constituents as appropriate. Newly discovered containerized hazardous materials and excess chemicals will be managed as process waste. Containerized or packaged mixed waste will be stored on-Site, in accordance with the Hazardous Waste Requirements Manual until the material can be shipped for final disposal. Initial Waste Volume Estimates are identified in Table 6-1.

The 771/774 Closure Project contains many pieces of equipment which will be released to PU&D for redistribution, disbursement or recycle as scrap material.

6.10 RCRA Units

A complete listing of RCRA units located in Buildings 771/774 is located in Appendix 6 of this DOP.

6.11 Idle Equipment

Presently, hazardous materials contained in idle equipment are processed by building operations personnel in compliance with the Management Plan for Material Contained In Idle Equipment, 94-MP/IE- 0017. Hazardous materials contained in idle equipment in the 771/774 Closure Project have been identified for dispositioning during deactivation. Remaining idle equipment will be managed in accordance with the Idle Equipment Consent Order (97-08-21-01 "Compliance Plan for Management of Material Contained in Idle Equipment").

6.12 Off-Site Release of Wastes and Applicability

CERCLA wastes that are managed on-site must comply with the substantive requirements of the proposed ARARs for the project. RCRA is an ARAR for the Building 771 decommissioning project and making a Land Disposal Restricted (LDR) determination is a-substantive requirement. Currently, there are no plans to dispose of the RCRA-hazardous remediation wastes on-site. Therefore, in accordance with the requirements in 6 CCR 1007-3 Section 268.7, the LDR determination applies to the waste at the point of generation. Building 771 will meet the substantive requirements of RCRA Fart 268. Mixed hazardous remediation waste generated by this project will meet Federal Facilities Compliance Act requirements per RFCA paragraph 12. All waste leaving the site must be shipped to an approved treatment or disposal facility.

In addition, the facility accepting CERCLA wastes must meet the requirements of the CERCLA "Off-Site Rule" (40 CFR 300.440). The primary purpose of the Off-Site Rule is to clarify and codify the CERCLA requirement to prevent wastes generated from remediation activities conducted under CERCLA from contributing to present or future environmental problems at off-site waste management facilities. Only facilities that meet EPA's acceptability criteria can be used for off-site management of CERCLA waste. The Off-Site Rule applies to both hazardous and non-hazardous wastes generated from remedial and removal actions funded or authorized, at least in part, by CERCLA.

Release of non-contaminated material, debris and equipment from a site contaminated with hazardous materials is accomplished by:

- demonstrating the materials or wastes do not exhibit any of the characteristics of hazardous waste and are not listed hazardous waste, as identified in Subpart C of 6 CCR 1007-3 SS261,
- or are excluded under the provision in 40 CFR 268,Subpart D, and
- the off-site waste management facility meets requirements of the CERCLA Off-Site Rule.

Process knowledge and operating history related to the facilities can also be used to segregate hazardous contaminant areas from unaffected areas. Further sampling and analysis of wastes may be required during the project to determine if the wastes are regulated as LDR, or if the wastes can be exempted under the "hazardous debris rule." Applicable wastes may be managed as non-hazardous debris provided they have satisfied the requirements of 6 CCR 1007-3, Part 268. LDR requirements are integrated into RFETS waste and characterization -procedures to ensure compliance with designated TSD facilities and on-Site WAC.

The release of hazardous and/or mixed hazardous waste from the Site to an off-site waste management facility is accomplished by:

- all applicable LDR standards are met,
- meeting all DOT requirements,
- ensuring that the off-site waste management facility meets the requirements of the CERCLA Off-Site Rule,
- using approved waste management vendors, and
- meeting the receiving facility's waste acceptance criteria.

Under the 'hazardous debris rule" provision, and in accordance with the debris treatment standards defined in 6 CCR 1007-3 §268.45, treated hazardous debris is exempted from the definition of hazardous waste, provided that the debris is treated to the performance or design and operation standards by an extraction or destruction technology and the treated debris does not exhibit the characteristic of a hazardous waste. The exempted debris can be disposed in an industrial landfill (6 CCR 1007-3, Section 268, Subpart D) rather than a RCRA permitted landfill (6 CCR 1007-3, Section 268, Subtitle C). Note that these exemptions apply to disposal of certain LL radioactive mixed wastes if they meet the receiving Sites WAC for hazardous debris.

TRU and TRU Mixed Waste must meet

- WIPP WAC requirements.

6.13 Chemical Compliance Order On Consent

The Compliance Order on Consent for Waste Chemicals, 97-8-21-02, was issued to DOE on August 21, 1997 by CDPHE to establish compliance objectives and resolve RCRA violations concerning management of waste chemicals. The "Order on Consent" requires DOE and K-H to manage waste chemicals, unless excluded, in accordance with the Waste Chemical Plan, hereafter call the Plan. (See Section 6.0). The Plan provides for the management, storage and disposal of waste chemicals located at RFETS. Activities associated with the Waste Chemical Management Plan require completion by December 31, 1999.

Waste chemicals located within the 7711774 Closure Project will be managed in accordance with the "Order on Consent." As each facility comes into compliance in accordance with the "Order on Consent,' waste chemicals will be managed in regulatory compliance with RCRA.

6.14 Individual Hazardous Substance Sites (IHSS)

The Building 7711774 Closure Project has numerous IHSSs located adjacent to it. The IHSSs are part of Operable Units 8 and 9. The designation of these IHSSs is based mostly on documented leaks in process tanks and piping associated with the liquid waste processing operations in Buildings 771 and 774. There are isolated incidents, with the exception of the IHSS 150.1. This IHSS designates the paved area along the north side of the building due to multiple historic spill events. This area is the most widely used access for the building, hence the numerous spill/leak events.

Table 6-1 Waste Quantities

	Bldg. 771	Bldg. 774 and B.O.C.	Decontamination	Demolition	Totals
LL					
Boxes	1,381	177	0	8,520	10,078
Drums			2,816		2,816
Cubic Feet	116,004	14,868	20,698	715,680	867,250
LLMW					
Drums	287				287
Cubic Feet	2,109				2,109
Pounds	251,125				251,125
TRU/TRM					
TRUPACT-II SWB	891				891
Cubic Feet	60,321				60,321

CLEAN BLDG RUBBLE					
Cubic Feet	380,900	107,400			488,300

B.O.C.: Balance of Cluster

6.15 Completion Report

Upon completion of the Project a completion report will be prepared. This report will include a listing of the wastes removed from the building, characterization data and waste dispositioning information (e.g., size reduction, decontamination, or treatment) which contributed to the final forms and volumes of the wastes resulting from the Project.