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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT - DRAFT SITE TREATMENT PLAN - BACKGROUND VOLUME - PLAN VOLUME

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

DRAFT SITE TREATMENT PLAN

BACKGROUND VOLUME

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

DRAFT SITE TREATMENT PLAN

EXECUTIVE SUMMARY

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

DRAFT SITE TREATMENT PLAN

EXECUTIVE SUMMARY

Site Treatment Plans are required for facilities at which the Department of Energy generates or stores mixed waste, defined by the Federal Facilities Compliance Act as waste containing both a hazardous waste subject to Resource Conservation and Recovery Act, and a source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). On April 6, 1993, DOE published a Federal Register notice (58 FR 17875) describing its proposed process for developing the Site Treatment Plans in three phases, including a Conceptual, a Draft, and a Final Site Treatment Plan. The purpose of this Draft Site Treatment Plan is to solicit comments from the public and regulators on the current preferred options for treating the mixed wastes at the Fernald Environmental Management Project (FEMP) or for developing technologies where technologies do not exist or need modification. The Draft Site Treatment Plan reflects the site-specific preferred options, developed with the State's input and based on existing available information. The options reflect the "bottom-up" (each DOE mixed waste facility developed its own plan) approach and have not been evaluated for impacts on other DOE sites and impacts to the overall DOE program. Therefore, changes in the preferred option and associated schedules are possible between the Draft Site Treatment Plan and the Final Site Treatment Plan as evaluation from the DOE-wide perspective progresses and as a result of State-to-State discussion prior to the submission and approval of the Final Site Treatment Plan and negotiation of an administrative or judicial Order as specified by the Federal Facilities Compliance Act.

The FEMP's Draft Site Treatment Plan focuses on treatment of containerized mixed low level waste currently in storage. The FEMP mixed wastes in storage resulted from the facility's original mission to process uranium ore concentrates into high purity uranium-metal products. A wide variety of chemical and metallurgical process steps supported manufacturing of uranium-metal products for use at other DOE sites. On July 10, 1989, after more than 36 years of manufacturing uranium-metal products for U.S. Defense Programs, production operations were suspended to focus site resources on environmental remediation and waste management. The remediation process is being conducted in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Additional requirements for mixed waste management which will impact the FEMP's Draft Site Treatment Plan are established in the Amended Consent Agreement, signed by USEPA and DOE, and the Consent Decree and its Stipulated Amendment entered into by the State of Ohio and DOE.

The FEMP has a preferred option for each containerized, characterized mixed low level waste stream identified in inventory. All of these FEMP mixed low level waste streams can be treated using an existing technology. The background volume identifies seven preferred options for the treatment of the FEMP mixed low level waste streams. The options include: use of existing on-site equipment and facilities, emphasis on vendor provided mobile treatment, use of an existing DOE facility (for incineration of liquid waste streams only) and use of a commercial facility. Characterization of wastes in inventory are scheduled to be completed by November 1995. Wastes characterized as mixed low level waste will be subject to the management process established in the Draft and Final Site Treatment Plans. Management options for remediation wastes to be generated will be incorporated into the Plan after they have been finalized through the CERCLA program and are not reflected in the Draft Site Treatment Plan.

Assumptions and professional judgements related to the type of treatment technology, location of the treatment facility, contracting mechanism, project approval process, cost, etc. were used to develop the estimated schedules. Any variation of the assumptions will impact the estimated schedule. Completion of treatment for the FEMP characterized low level mixed wastes streams currently in inventory is scheduled during fiscal year 1998, contingent on the above mentioned criteria and acceptance of this plan by the Ohio Environmental Protection Agency. Additionally, the options evaluated in the DSTP may involve activities that are not currently funded in the approved site or project baselines and may not be incorporated into the projected funding profiles. Selection of the final treatment will require consideration of available site or project funding which is subject to Congressional appropriations.

Emerging or new technologies or new facilities/capacity that provide opportunities to manage waste more safely, effectively and at lower cost will be evaluated in the future. Working closely with stakeholders during the implementation of the Plan, DOE will continue to evaluate and develop technologies that offer potential advantages in the areas of public acceptance, risk abatement, performance and life cycle cost. Should better technologies be identified, DOE may request a modification of the treatment plan in accordance with provisions of the Site Treatment Plan and/or the Order.

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ACRONYMS AND ABBREVIATIONS

ADGAS	Absorbing or Reacting Media
AEA	Atomic Energy Act
ALARA	As Low As Reasonably Achievable
AMLGM	Amalgamation
AOC	Area of Contamination
ARAR	Applicable or Relevant and Appropriate Requirement
AWWT	Advanced Wastewater Treatment System
BACT	Best Available Control Technology
BCLDP	Battelle Columbus Laboratories Draft Plan
BDAT	Best Demonstrated Available Technology
BIODG	Biodegradation
BLDG.	Building
CAMU	Corrective Action Management Unit
CARBN	Carbon Adsorption
CBD	Commerce Business Daily
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CHOXD	Chemical or Electrolytic Oxidation
CHRED	Chemical Reduction
CPID	Closure Plan Information and Data
CRU	CERCLA/RCRA Unit
CSF	Central Storage Facility
CSTP	Conceptual Site Treatment Plan
CY	Calendar Year
D&D	Decontamination and Decommissioning
DEACT	Deactivation
DOD	Department of Defense
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy - Headquarters
DOE-FN	U.S. Department of Energy - Fernald
DOT	Department of Transportation
DP	DOE Defense Programs
DQO	Data Quality Objective
DRE	Destruction and Removal Efficiency
DSTP	Draft Site Treatment Plan
EH&S	Environmental Health and Safety
EIS	Environmental Impact Statement
EM	Environmental Management
EMAB	Environmental Management Advisory Board
ER	Environmental Restoration
ERMC	Environmental Restoration Management Contract
EPA	Environmental Protection Agency
ES&H	Environmental Safety and Health
FCTF	Fernald Citizens Task Force
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FFCAct	Federal Facility Compliance Act
FRESH	Fernald Residents for Environmental Safety and Health
FS	Feasibility Study

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ACRONYMS AND ABBREVIATIONS (Continued)

FS/PP	Feasibility Study/Proposed Plan
FS/PP-EA	Feasibility Study/Proposed Plan - Environmental Assessment
FS/PP-EIS	Feasibility Study/Proposed Plan - Environmental Impact Statement
FY	Fiscal Year
HAZ	Hazardous
HF	Hydrofluoric Acid
HLW	High-Level Waste
HW/MW	Hazardous Waste/Mixed Waste
HWMU	Hazardous Waste Management Unit
ID	Idaho
IDW	Investigation - Derived Waste
INCIN	Incineration
INEL	Idaho National Engineering Laboratory
IP	Implementation Plan
IROD	Interim Record of Decision
kg	Kilogram
l	Liter
LAER	Lowest Achievable Emission Rate
LBS.	Pounds
LDR	Land Disposal Restriction
LLEXT	Liquid-liquid Extraction
LLMW	Low-Level Radioactive Mixed Waste
LLRW	Low-Level Radioactive Waste
LLW	Low-Level Radioactive Waste
m^3	Cubic meter
MACRO	Macroencapsulation
MAWS	Minimum Additive Waste Stabilization
MC&A	Materials Control and Accountability
MEF	Material Evaluation Form
mm	Millimeter
MMES	Martin Marietta Energy Systems, Inc
MW	Mixed Waste
MWIR	Mixed Waste Inventory Report
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NEUTR	Neutralization
NFA	Needs Further Action
NGA	National Governors' Association
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NTS	Nevada Test Site
OEPA	Ohio Environmental Protection Agency
OR	Oak Ridge
OU	Operable Unit
PCB	Polychlorinated Biphenyl
PEIC	Public Environmental Information Center
PEIS	Programmatic Environmental Impact Statement
PK	Process Knowledge
PO	Preferred Option
POC	Point of Contact

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ACRONYMS AND ABBREVIATIONS (Continued)

POHC	Principal Organic Hazardous Constituent
PORTS	Portsmouth
PP	Proposed Plan
PPE	Personal Protective Equipment
PPOA	Pollution Prevention Opportunity Assessments
PRECP	Chemical Precipitation
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QC	Quality Control
QTY	Quantity
RACM	Regulated Asbestos Containing Materials
RAD	Radiation
RCGAS	Recovery or Reuse of Compressed Gases
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remediation Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RL	Richland
RLEAD	Thermal Recovery of Lead
RMERC	Retorting or Roasting of Mercury Contaminated Materials
RMETL	Recovery of Metals or Inorganics
RMI	Reactive Metals Inc.,
ROD	Record of Decision
RORGS	Recovery of Organics
RSO	Remedial Support Operations
RTHRM	Thermal Recovery of Metals or Inorganics
RTR	Real-Time Radiography
SA	Sampling and Analysis
SARA	Superfund Amendments and Reauthorization Act of 1986
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SR	Savannah River
S/ST	Stabilization/Solidification Techniques
SSAB	Site Specific Advisory Board
SSTRP	Steam Stripping
STABL	Stabilization
STP	Site Treatment Plan
SWIFT	Sitewide Information, Forecasting, and Tracking System
TBP	Tributyl Phosphate
TCLP	Toxicity Characteristic Leaching Procedure
T&D	Treatment and Disposal
Th	Thorium
TN	Tennessee
TOC	Total Organic Carbon
TRU	Transuranic
TSC	Treatment Standard Concentration
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage, and Disposal
TSDF	Treatment, Storage, and Disposal Facility
U	Uranium
UNH	Uranyl Nitrate Hexahydrate
URAN.	Uranium

ACRONYMS AND ABBREVIATIONS (Continued)

USEPA	U.S. Environmental Protection Agency
UV	Ultraviolet Light
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WCS	Waste Characterization Services
WETOX	Wet Air Oxidation
WIPP	Waste Isolation Pilot Plant
WMP	Waste Minimization Program
WM/PP	Waste Minimization/Pollution Prevention
WPM	Waste Management Program Division
WWT	Wastewater Treatment
WWTS	Wastewater Treatment System
YR	Year

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
DRAFT SITE TREATMENT PLAN
BACKGROUND VOLUME

1.0 INTRODUCTION

1.1 Purpose and Scope

The Department of Energy (DOE) is required by section 3021(b) of the Resource Conservation and Recovery Act (RCRA), as amended by the Federal Facility Compliance Act (the Act or FFCAct), to prepare site treatment plans (STPs or plans) describing the development of treatment capacities and technologies for treating mixed waste: defined by the Act as waste containing both a hazardous waste subject to RCRA, and source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). The Final Site Treatment Plan will be submitted to the Ohio Environmental Protection Agency (OEPA) for approval, approval with modification, or disapproval. The Fernald Environmental Management Project (FEMP) Draft Site Treatment Plan (DSTP or Draft Plan) is the intermediate version of the STP and is being provided to the State of Ohio, the U.S. Environmental Protection Agency (USEPA), and others for review.

STPs are required for facilities at which DOE generates or stores mixed waste, defined by the FFCAct as waste containing both a hazardous waste subject to the Resource Conservation and Recovery Act, and a source, special nuclear or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. 2011 *et seq.*). On April 6, 1993, DOE published a Federal Register notice (58 FR 17875) describing its proposed process for developing the STP in three phases, including a Conceptual STP, a Draft STP, and a Final Proposed STP. The purpose of this Draft Plan is to identify the currently preferred options for treating the mixed waste at the FEMP or for developing treatment technologies where technologies do not exist or need modification. The Draft Plan reflects the site-specific preferred options. The options reflect the "bottoms-up" approach and have not been completely evaluated for impacts on other DOE sites and impacts to the overall DOE program. Therefore, changes in the preferred option and associated schedules are possible between the Draft Plan, the Final Proposed Plan, and final approval and issuance of the Order as evaluation of DOE-wide impacts and State-to-State discussions progress.

To the extent possible, the Draft Plan identifies specific treatment facilities for treating the mixed waste and proposes schedules as set forth in the FFCAct. When not possible, schedules for alternative activities such as waste characterization and technology assessment are provided as appropriate. All schedule information presented is preliminary

and is subject to change. For new facilities, the schedule is heavily dependent upon decisions made during the design phase and is contingent on funding availability. Assumptions and professional judgments related to the type of treatment technology, location of the treatment facility, contracting mechanism, project approval process, cost, etc. were used to develop the estimated schedule. Any variation from these assumptions will impact the estimated schedule. In addition, cost data used in developing options and schedules and provided in the Draft Plan are planning estimates only and do not reflect a commitment of budgetary resources.

Emerging or new technologies not yet considered may be identified in the future that provide opportunities to manage waste more safely, effectively, and at lower cost than the current technologies identified in the Draft Plan. Working closely with regulators and other interested parties during the implementation of the Draft Plan, DOE will continue to evaluate and develop technologies that offer potential advantages in the areas of public acceptance, risk abatement, and performance and life cycle cost. Should more promising technologies be identified, DOE may request a modification of its treatment plan in accordance with provisions of the final Site Treatment Plan and/or the Order.

The Draft Plan reflects the results of discussion among Ohio and other states, USEPA, and others based on the FEMP's Conceptual Site Treatment Plan (CSTP) submitted to the OEPA in October 1993. The CSTP presented all treatment needs known at the time, capabilities, and preliminary options for treating the mixed waste. The Conceptual Plan is available at the FEMP's public reading room located at the Public Environmental Information Center (PEIC), 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030.

This *Background Volume* is one of two volumes that constitute the DSTP. It provides a detailed discussion of the preferred option or options, identifies the waste streams the option addresses, and gives explanatory information for the *Plan Volume*. The *Plan Volume* identifies the capacity to be developed and associated schedules as required by the Act.

1.2 Site History and Mission

The Fernald Environmental Management Project (FEMP) is located in southwestern Ohio, approximately seventeen miles northwest of downtown Cincinnati, near the communities of Miamitown and Ross. Of the total 1,050 acres site, 850 acres are in Crosby Township of Hamilton County, Ohio and 200 acres are in Morgan and Ross

Townships of Butler County, Ohio. The site is owned by the U. S. Department of Energy (DOE), and is currently operated by Fernald Environmental Restoration Management Corporation (FERMCO). Over 2,000 people are currently employed by DOE and FERMCO at the FEMP.

The FEMP facility was originally built to process uranium ore concentrates into high purity uranium-metal products. A wide variety of chemical and metallurgical process steps supported manufacturing of uranium-metal products for use at other DOE sites. Because of a sharp reduction in demand for uranium-metal products by user sites beginning in late 1988, the FEMP facility steadily reduced its production. On July 10, 1989, after more than 36 years of manufacturing uranium-metal products for U.S. defense programs, production operations were suspended to refocus site resources on environmental restoration and waste management. Management and financial responsibility for the FEMP site was transferred from the DOE Defense Programs (DP) to the Office of Environmental Restoration and Waste Management (EM) in October 1990 as the focus of the facility shifted from production to environmental restoration.

The current mission of the FEMP is environmental restoration. The goal of environmental restoration is to protect human health by limiting potential exposures to radioactive and hazardous materials. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedial Investigation/Feasibility Study (RI/FS) process, along with the Waste Management Program, are the two main FEMP activities geared towards site cleanup.

The Waste Management Program is a key element in preventing the release of pollutants into the environment. The program seeks to characterize, store, treat (as necessary) and dispose of radioactive, hazardous, mixed, infectious, and sanitary waste from the site in a safe and environmentally sound manner while complying with all applicable federal, state and local regulations.

The management of hazardous and mixed waste on-site is regulated by the State of Ohio. A Consent Decree signed by the State of Ohio and the DOE in December 1988, established milestones to bring the FEMP into full compliance with RCRA and other regulatory requirements. In January 1993, amendments establishing additional requirements regarding the management of hazardous waste and mixed were made to the Consent Decree. The FEMP has submitted a Resource Conservation and Recovery Act (RCRA) Part B permit application to the state seeking a RCRA permit for on-site storage.

The RI/FS process is regulated by CERCLA legislation and is conducted according to USEPA guidance and regulations. In July, 1990, the USEPA and the DOE entered into a Consent Agreement. Under this agreement, the FEMP was divided into five operable units. Remediation schedules were developed for each operable unit to allow the remedial action process to proceed to completion for the most well-defined or problematic areas at the FEMP while data collection and analysis continued for other areas. In September 1991, the DOE and USEPA jointly signed the Amended Consent Agreement establishing revised milestones for the completion of the required studies and identifying a series of new, near term actions for implementation by DOE.

1.3 Framework For Developing DOE's Site Treatment Plans

RCRA Land Disposal Restriction (LDR) requirements require the treatment of hazardous waste (including the hazardous component of mixed waste) to certain standards before the waste can be land disposed. The LDR requirements prohibit storage of hazardous wastes that do not meet LDR standards, except for the purposes of accumulating sufficient quantities to facilitate proper recovery, treatment, or disposal of the waste. DOE is currently storing mixed waste inconsistent with the LDR provisions because the treatment capacity for such wastes, either at DOE sites or in the commercial sector, is not adequate or is unavailable at this time.

The Federal Facility Compliance Act, signed on October 6, 1992, waives sovereign immunity for fines and penalties for RCRA violations at federal facilities. However, the Act postpones the waiver for three years for LDR storage prohibition violations for DOE's mixed wastes and requires DOE to prepare plans for developing the required treatment capacity for its mixed waste at each site at which it stores or generates mixed waste. Each plan must be approved by the State or USEPA, after consultation with other affected states and consideration to public comment, and an order issued by the regulatory agency requiring compliance with the plan. The Act further provides that DOE will not be subject to fines and penalties for LDR storage prohibition violations for mixed waste as long as it is compliance with an approved plan and order.

The Act requires the plans to contain schedules for developing capacity for mixed waste for which identified treatment technologies exist, and, for mixed waste without an identified existing treatment technology. The Act also requires that the plan provide certain information where radionuclide separation is proposed. The Act states that the plans may provide for centralized, regional or on-site treatment of mixed waste, or any combination thereof, and requires the States to consider the need for regional treatment facilities in reviewing the plans.

The "Schedule for Submitting Plans for Treatment of Mixed Waste Generated or Stored at Each Site" was published April 6, 1993, in the Federal Register (58 FR 17875). In the Notice, DOE committed to providing the site treatment plans in three phases: a "conceptual plan" completed in October 1993, a "draft plan" no later than August 1994, and a "final proposed plan" no later than February 1995. This process provides opportunity for early involvement by the States and other stakeholders to discuss technical and equity issues associated with the plans.

The FEMP *Conceptual STP*, submitted in October 1993, focused on identifying treatment needs, capabilities, and options for treating the FEMP's mixed waste. This FEMP **Draft STP** focuses on identifying preferred options for treating the sites's mixed wastes, wherever possible, as well as proposed schedules for developing and constructing capacity. The options presented represent the sites current best judgement of the available information and the States' preferences, and should be viewed as a starting point for discussion leading to the development of the FEMP *Final Proposed Plan* or STP, which will be submitted to OEPA for review and approval, approval with modification, or as required by the Act. Each version of the Plan will reflect the states, as well as site-specific input from the individual regulatory agency and other interested parties on the previous submittal. It is DOE's intent that this iterative process, with ample opportunity for input and discussion, will facilitate approval of the *Site Treatment Plan* and issuance of the compliance order required by the Act. DOE's goal is to have all plans and orders in place by October 1995.

1.4 Draft Site Treatment Plan Organization

The FEMP's DSTP follows the same format as the Draft Plans of the other DOE sites to facilitate cross-site comparisons. The Draft Plan is organized in two separate, but integrated volumes. The *Background Volume* provides more detailed discussion of the options: it contains information on the waste streams and treatability groups, treatment option or options which addresses, and describes uncertainties associated with that option, budget status of the option, and any regulator and stakeholder input. The *Plan Volume* is a short, focused document containing the preferred options and schedules for implementing the options and is intended to contain all the information required by the Act. The *Plan Volume* also contains a mechanism to implement the STP (or Plan) and establish milestones that will be enforced by the Order. It references, but does not duplicate, details on the option as contained in the *Background Volume*.

Both Volumes contain relevant introductory material. The *Background Volume* contains general information on the DSTP and the site in Section 1.0 and provides top-level assumptions and a description of the framework used to determine the preferred option in Section 2.0.

Sections 1.0 and 2.0 of the *Plan Volume* also propose certain introductory material relevant to the purpose of the Volume.

Sections 1.0 and 2.0 of the *Plan Volume* propose certain administrative provisions appropriate for the implementation of the Plan when finalized. These include provisions such as the approach to setting milestones, updates to the Plan, and additions or removals of waste streams covered by the Plan and funding considerations. These sections are intended to initiate discussion; it is expected that the specific language will be developed in conjunction with the regulatory agency and may eventually be expanded to address other administrative provisions or be incorporated into a separate order for the implementation of the plan.

Sections 3.0 through 5.0 discuss the preferred option or options for low-level mixed waste, mixed transuranic waste, and mixed high-level waste. At the FEMP, only low-level mixed waste is present. Each volume discusses the waste streams and options in parallel sections. The *Background Volume* discusses the waste streams, technology needs, uncertainties and other details on the preferred options (PO's). In the *Plan Volume*, these sections include proposed schedules, to the extent feasible, as required under the Act.

The *Background Volume* includes three additional sections that are not included in the *Plan Volume*. These sections are not required by the Act and are not compliance-related. *Section 6.0* discusses mixed wastes expected to be generated in the next five years, to assist in anticipating treatment needs. As the wastes are generated the waste stream, treatment approaches and developed schedules will be incorporated into the *Plan Volume*. Section 7.0 discusses storage capacity needs and how compliant storage will be provided for the FEMP's mixed wastes, pending treatment.

Section 8.0 describes a process being followed by DOE for evaluating options for disposal of mixed waste treatment residues. Although the Act does not require disposal to be covered in the Plans, DOE is including disposal information to be responsive to the states' request that disposal be addressed and to support equity discussions. Section 8.0 expands discussion as the FEMP consideration as a disposal site.

Appendix A of the Draft Plan discusses the options selection process and describes the results of applying the "Draft Site Treatment Plan Development Framework". For each option, this appendix describes how options from the CSTP were evaluated and why the preferred option or options was selected. Appendix A also contains cost information developed to support the options analysis.

Appendix B provides information on the Ohio Work Group. The five Ohio DOE Mixed Waste Facilities have met throughout the development of the DSTP to compare like Treatability Groups/Waste streams and to identify treatment technologies and options.

Appendix C provides detailed information on the FEMP waste streams by Treatability Groupings. Additionally, a full description and diagram of each treatment train identified for each FEMP waste stream is provided.

Appendix D provides examples of information provided to the public during development of the DSTP.

Appendix E provides definitions for terminology used in the DSTP.

1.5 Related Documents

Other DOE efforts are closely linked to the DSTP and STP development. These include the Mixed Waste Inventory Report, activities conducted pursuant to the National Environmental Policy Act (NEPA); and compliance and cleanup agreements containing commitments relevant to mixed waste. Copies of documents and reports referenced below are available at the Public Environmental Information Center (PEIC), 10845 Hamilton-Cleves Highway, Harrison, Ohio 45030.

Mixed Waste Inventory Report

The Mixed Waste Inventory Report (MWIR), required by the Act, provides an inventory of mixed waste currently stored or generated, or expected to be generated over the next five years at each DOE site and an inventory of treatment capacities and technologies. Published by DOE in April of 1993, the Interim Mixed Waste Inventory Report (IMWIR) provided information on a waste stream by waste stream basis for each DOE site that generates or stores mixed waste. DOE made updated waste stream and technology data available to the States and USEPA in May 1994 and is currently preparing an Updated Mixed Waste Inventory Summary. The Report represents the record of DOE's mixed waste

inventory at the beginning of 1994. Since data is constantly being refined, waste stream information in the FEMP's Draft Plan may differ somewhat from the most recent Inventory Report. Any changes in waste stream information are explained in the *Background Volume*.

NEPA Activities

The Programmatic Environmental Impact Statement for Environmental Restoration and Waste Management

DOE is preparing a Programmatic Environmental Impact Statement (PEIS) to support complex-wide integration of environmental management activities. The PEIS is intended to present to the public, states, USEPA, and DOE an understanding of impacts to human health and the environment together with the costs associated with a wide range of alternative strategies for managing the DOE's environmental program. The PEIS is examining all waste types and activities, including mixed waste treatment also being addressed by the STP process.

Development of the Environmental Management (EM) PEIS is being coordinated with the preparation of the Plans under the Federal Facility Compliance Act (FFCAct). Information being generated to support the PEIS (e.g., hypothetical configurations, preliminary risk analyses, and cost studies) is shared with states to support Plan discussions. The Draft PEIS will not identify a preferred alternative (i.e., configuration) for mixed waste facilities since this will be evolving in consultation with the states and USEPA through the STP process. However, the PEIS analyses of potential environmental risks and costs associated with a range of possible waste management configurations will provide valuable insight as the public, states, and DOE discuss using existing facilities and constructing new mixed waste facilities to treat mixed waste.

The PEIS is being prepared in conjunction with the DSTP and STPs to meet the requirements of the National Environmental Policy Act (NEPA) and the FFCAct. The draft PEIS is scheduled to be published in the fourth quarter of 1994. The final PEIS will be issued after the public comment period, at or near the time of submission of the final STPs to the states or OEPA for approval. To remain flexible and accommodate potential changes after submittal of the final STPs to the states and OEPA, the Record of Decision for the PEIS will be issued after approval of the Plans by the appropriate regulatory agency.

CERCLA/NEPA Integration

The FEMP is planning to follow the DOE revised policy dated June 13, 1994 for sites undergoing CERCLA investigations to eliminate the administrative requirement of preparing NEPA documentation.

The revised policy, "Secretarial Policy Statement of National Environmental Policy" identifies any project supporting the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as one that would rely on the CERCLA process for review and incorporate NEPA values when applicable. For those actions outside the scope of CERCLA, NEPA documentation will continue to be implemented.

Consistent with DOE Order 5400.4, it is the DOE's policy to integrate NEPA values into the CERCLA process wherever practical. Integration is intended to (1) avoid duplicate effort and larger commitment of resources that would be needed to implement both NEPA and CERCLA separately, (2) avoid conflicts in analysis and the selection of remedial alternative, and (3) minimize the risk of delaying remedial actions on procedural grounds. The primary instrument for DOE's NEPA/CERCLA integration is the RI/FS process, supplemented as needed to address NEPA values. The final product is to be a single integrated set of documents; an RI report and a FS/PP document that satisfies the requirements of CERCLA and addresses NEPA values.

The Notice of Intent (NOI) for the NEPA/CERCLA integration approach was published in the Federal Register and concluded that (1) a FS/PP-EIS was the appropriate level of NEPA documentation for the lead operable unit (i.e., Operable Unit 4) and (2) NEPA/CERCLA integration is also to be provided in the remaining four operable unit FS/PP reports. Additional information on the FEMP Operable Units is available in Section 6.0 of the *Background Volume*. The FS/PP for Operable Unit 1 and Operable Unit 2 contain a discussion of common issues and potential cumulative impacts, referencing the Operable Unit 4 FS/PP-EIS as a lead document. All subsequent operable unit reports also reference the material presented in the Operable Unit 4 FS/PP-EIS. This evaluation will update available information, as appropriate, and contain adequate operable unit-specific data to support the complete NEPA impact analyses to be contained in each operable unit FS.

Compliance Agreement

Additional requirements for mixed waste management which will impact the FEMP's STP are contained in the Amended Consent Agreement, signed by USEPA and DOE, and the Consent Decree and its Stipulated Amendments entered into by the State of Ohio and DOE. Schedules and requirements for completing characterization, mixed waste management, and conducting remediation activities established in these agreements must be integrated with information developed for the DSTP and STP.

The RI/FS process at the FEMP is regulated by CERCLA legislation and is conducted according to USEPA guidance and regulations and the provisions of the Amended Consent Agreement. In June 1990,

USEPA and the DOE entered into a Consent Agreement establishing milestone schedules for the completion of necessary studies to support the CERCLA cleanup process. The agreement also established schedules for implementing near term cleanup actions while final cleanup solutions were being evaluated and selected. In September 1991, the DOE and USEPA entered into an Amended Consent Agreement establishing revised milestones for the completion of the required studies and identifying a series of new, near-term actions for implementation by DOE. Deadlines for some CERCLA activities were modified in April 1993 by a dispute resolution agreement between DOE and USEPA. Releases and potential releases of hazardous waste and hazardous constituents associated with each operable unit that are covered under the Amended Consent Agreement will be investigated and remediated through CERCLA with RCRA considered as an Applicable or Relevant and Appropriate Requirement (ARAR).

Other Documents

A number of documents have been identified as being relevant to the development of the FEMP DSTP and STP. These documents include the DOE Roadmap documents, the Five Year Plan and Site-Specific Plans, the FEMP Mixed Waste Inventory Report, the FEMP Treatability Study Work Plans, and other relevant RCRA documents. These documents must be coordinated with information that is developed for the DSTP and STP.

2.0 METHODOLOGY

2.1 Assumptions

All DOE sites used the following assumptions to provide for a degree of consistency in the preparation of the Draft STPs. The assumptions were developed as part of the "Draft Site Treatment Plan Development Framework" and reflect review and comment from the states and USEPA.

1. High-level waste (HLW) will continue to be managed according to current plans at each site (i.e., Hanford, West Valley, Savannah River, INEL). Primarily due to potential safety concerns, HLW will not be transported off-site except as a treated, stable waste that is ready for disposal. The DSTPs will not change management strategies for HLW. The FEMP does not have HLW.

2. Regarding defense related TRU Waste, the DSTPs will reflect DOE's current strategy that the Waste Isolation Pilot Plant (WIPP) will open and receive a No Migration Variance. The DSTPs should identify characterization, processing, and treatment of TRU waste to meet the WIPP Waste Acceptance Criteria. Consistent with this policy, treatment of mixed

TRU waste to meet Land Disposal Restriction (LDR) standards should not be included in the DSTPs at this time. The FEMP does not have TRU waste.

However, the STPs will recognize that DOE's policy regarding WIPP is under review and may change in the future. As such, the STPs will provide for the flexibility to modify activities and milestones regarding TRU waste to reflect potential future changes in DOE policy.

Under current DOE policy, non-defense related TRU waste will not be disposed at WIPP. As such, the DSTPs should reflect LDR treatment of non-defense mixed TRU waste.

3. DOE recognizes some states' preference for treatment of all wastes on-site. Where appropriate, existing on-site capacity will be utilized before new facilities are constructed. When on-site treatment or use of commercial or mobile facilities is not practical, the use of existing off-site capacity, as well as the construction of new facilities, will be considered.

4. Sites in the same state will investigate the practicality of consolidated treatment facilities. DOE sites in Ohio did meet on a regular basis to discuss mixed waste treatment needs. The Ohio Work Group information can be found in Appendix B.

5. Mixed waste resulting from Environmental Restoration (ER) and Decontamination and Decommissioning (D&D) activities will be factored into planning activities and equity discussions, particularly where utilization of facilities identified in the DSTPs are being considered for managing ER and D&D waste.

6. The DSTP will address all wastes in the updated Mixed Waste Inventory Report (MWIR). Changes/corrections to the MWIR waste stream and treatment facility information will be explained in the DSTP.

7. On a volume basis, the large majority of DOE's mixed waste will be treated on-site. Because of transportation concerns and costs, this generally includes process wastewater, and some explosives and remote-handled wastes. In addition, other large volume waste streams will generally be treated on-site. At a minimum, Richland (RL), Oak Ridge (OR), Idaho (ID), and Savannah River (SR) will have on-site facilities to treat the majority of their wastes.

8. The Programmatic Environmental Impact Statement (PEIS) is being performed in parallel with the development of the STPs. The DSTP process will provide information to the PEIS. The PEIS fulfills the National Environmental Policy Act (NEPA) requirements for development and submittal of the STPs. In general, no additional NEPA documentation will be needed to support development and submittal of the STPs. However, each site will prepare the necessary specific NEPA documentation before proceeding with a given project or facility identified in the STP.

9. In support of DOE's cradle-to-grave waste management philosophy, disposal site location and criteria will be factored into state equity discussions, waste treatment facility designs, and the characteristics of the final waste forms.

2.2 Preferred Option Selection Process

DOE prepared several guidance documents to assist the sites in working through treatment identification and selection of preferred options. The overall process is contained in the *Draft Site Treatment Plan Development Framework* (DSTP Framework). The DSTP Framework establishes common terminology, objectives and values, planning assumptions, and recommended methodology for narrowing the alternatives presented in the Conceptual STP. The *Treatment Selection Guides* provides information on selecting among treatment options by comparing the options on fundamental criteria such as regulatory compliance, environmental health and safety, treatment effectiveness, implementability, stakeholder concerns, life-cycle costs, and technology development. The *Draft Site Treatment Plan Cost information Guidance* provides a level of consistency in the cost information by providing common cost assumptions. Drafts of these and other technical assistance documents were provided to states and their comments incorporated into the final revision. *Protocol For Identifying a Potential Off-Site Mixed Waste Treatment Option in the Draft Site Treatment Plan* describes a coordination process to be used for identification of an off-site treatment option. These documents are available in the public reading room at the Public Environmental Information Center (PEIC), 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030.

The methodology used in the identification of the FEMP DSTP treatment technology options was as follows:

1. The process began by identifying the on-site, existing and planned treatment technologies/facilities which might be available to treat mixed waste. Initially these options were listed without regard to regulatory/permit concerns as well as the modifications which might be necessary to actually treat mixed waste.

2. The CSTP was consulted and the viable potential options which had been listed there were added to the list to be further evaluated.

3. The FEMP mixed waste treatment activities either in progress or planned were added to the list. These activities include RCRA Closure of Hazardous Waste Management Units and CERCLA removal actions.

4. An Ohio Work Group was formed and representatives selected from the five Ohio DOE sites (Fernald, Portsmouth, Mound, Battelle Columbus, and RMI Titanium). This group added further alternatives through discussions concerning various common waste streams as well as from the "Technology Catalog" developed by the Technology Support Team from DOE-HQ.

This initial list of potential treatment technologies was first screened using members of the Ohio Work Group, the FEMP engineers, and members of the Technology Support Team. This process allowed for the further refinement of the treatment technologies list to eliminate options which were not viable due to inability of the technology to comply with regulatory requirements or technology which was not protective of human health and the environment. The initial list was screened accordingly to establish a list of viable treatment technologies for further evaluation.

The Ohio Work Group reviewed technologies and options for treatment of mixed waste by treatability group. At the same time the FEMP Waste Management Division was evaluating technologies and options for treatment by waste stream (and in some cases container by container as the physical form of the waste may differ inside a single container). After considerable evaluation and review the FEMP decided to group waste streams with like treatment technology needs. This allowed for the evaluation of technologies and facilities required to treat to established regulatory standards. The result is a project based (additional information on project based approach is in section 2.4.1) approach to choosing preferred options.

The list of viable treatment technologies was then evaluated using the "Treatment Selection Guides" prepared by the DOE FFCAct Task Force, March 1, 1994, Revision 0. Cost estimates have been developed to the extent possible with the limited information which is available concerning a given treatment technology at this stage. The cost estimates are conservative estimates and are intended to be order-of-magnitude estimates for the purpose of comparison between alternatives. The cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low-Level Waste", INEL, March 1994. If the cost guidance did not contain comparable treatment technologies or units, the most similar technology or unit cost estimate was used.

2.3 Coordination with Regulatory Agencies and Other Stakeholders

2.3.1 Regulator - FEMP Interactions

Since the submittal of the CSTP in October 1993 the FEMP in conjunction with the four other Ohio DOE Mixed Waste Facilities met with OEPA on four occasions; November 1993, February 1994, April 1994 and June 1994, to discuss the development of the DSTP. Additionally, the FEMP had monthly phone conversations with the OEPA. Issues discussed and presentations included:

- Update by Ohio Sites of "Ohio Options"
- Progress Reports from each site on DSTP development
- Discussion of the site treatment plan outline
- Relationship of compliance orders/issues to the outline
- Incorporation of Preferred Options into DSTP
- Disposal issues related to: residue volumes, interim handling
- Evaluation Process or Selecting Preferred Options
- Contractual Issues associated with receiving off-site waste.
- DSTP Format and Content:
  - Addressing "Storage of Residuals While Awaiting Disposal"
  - Need to Identify Process for Addressing Disposal in STPs
- Discussion of the FEMP's "Waste Management Strategy"

2.3.2 DOE Public Participation/Stakeholder Involvement

The Department of Energy (DOE) at Fernald has a public participation program that commits to providing the public opportunities to participate in decision making at the Fernald Environmental Management Project (FEMP). Although DOE retains decision-making responsibility, its policy is rooted in the conviction that an effective public involvement program will:

- Enable the public to participate in policy decisions
- Help DOE make better decisions that incorporate legal, technical, economic, environmental, and social factors
- Provide a means for DOE to build consensus among the various interested stakeholders involved in addressing major issues and problems
- Assist DOE in building credibility with the public by demonstrating openness, responsiveness and accountability
- Encompass activities necessary to comply with applicable laws, regulations, negotiated agreements and DOE policy

Public participation activities are mandated by several acts (laws) at the FEMP. However, DOE has committed to going beyond the required in its public participation program. DOE uses several forums, such as various written materials, large and small meetings, governmental briefings, public comment periods, workshops, and the Fernald Citizens Task Force to foster a two-way dialogue.

The public involvement activities at Fernald are designed to allow all interested stakeholders to share the role of decision-making at Fernald. These activities, which are reviewed regularly for effectiveness, assume that the individuals cannot participate effectively without adequate and understandable technical and general information.

A variety of techniques will be used as appropriate to communicate with local residents about new issues. They include:

- Community Meetings. At least three community meetings will be held each year to ensure that interested area residents have a routine public forum for expressing their views and getting answers to their questions.

- Response to Community Questions. DOE has and will respond to all questions. Written responses, including those made at Fernald Residents for Environmental Safety and Health (FRESH) meetings, will be put into the reading room.

- Telephone and Personal Contacts. DOE has and will continue to maintain frequent telephone and personal communication with local community leaders, residential and commercial plant neighbors, and other organizations.

- Fact sheets, newsletters, briefing papers, progress reports. These DOE publications are designed to provide timely information on new findings and site developments related to ongoing cleanup activities.

- Presentations and Briefings to Community Groups and Elected Officials. DOE will continue to provide briefings about Fernald activities to governmental officials, FRESH and any other interested groups.

- Community Roundtables. These are small, informal meetings that are dedicated to a specialized topic.

- Workshops. These are working sessions that focus on issue resolution, such as discussing cleanup alternatives.

- Reading Room. Contains information related to Fernald and other DOE sites, including cleanup technologies and historical information.

- Notices of Availability and Public Comment Periods. These are required by CERCLA.

- Responsiveness Summaries. DOE has and will summarize what comments were made during public comment periods and indicate how it intends to incorporate, address, or respond to those comments.

- The *Fernald Project Cleanup Report*. The CERCLA-mandated newsletter that provides information about the remedial investigation and feasibility study and removal actions.

- Media Relations. This activity provides a contact for media inquiries.

- Speakers Bureau. Volunteers in the speakers bureau are available to discuss their expertise to community, business, civic and professional organizations.

- Plant tours and open houses.

- Videotapes. Where possible, videotapes will be used to show cleanup activities.

Specific examples of public participation activities and associated documentation at the FEMP for the FFCAct are located in Appendix D.

2.4 Characterization of Mixed Wastes

The Material Evaluation Form (MEF) is the primary tool used by the site for documenting waste characterizations. The MEF is completed by the process operator/project supervisor, who is responsible for the waste generation. The completed form is evaluated by the FEMP personnel, along with any other identified information/ documentation, to determine the adequacy of process knowledge. Additional sources of information/documentation that may be used to support process knowledge determinations include:

- Historical knowledge and/or data on similar FEMP processes;

- Conversations with personnel familiar with the process or location;

- Text books which describe the processes;

- Material Safety Data Sheets; and

- Vendor specification information.

The use of process knowledge for waste characterization must be well justified with supporting documentation for both negative and positive determinations with respect to the waste's regulatory status. Process knowledge is most appropriate for waste characterization when one or more of the following conditions exist, as identified by draft guidance issued by DOE and USEPA for the Characterization of Mixed Waste:

- Collection of representative samples from a waste stream is difficult due to its physical nature. This applies to solid materials such as metals, glass, or wood materials.

- Waste collection and analysis of material would result in unacceptable risk of radiation exposure. DOE policy requires that exposure to hazardous material must be maintained as low as reasonable achievable (ALARA).

- Waste is too heterogenous in composition to the extent that collecting a representative sample is difficult.

2.4.1 Mixed Waste Management Process for Evaluation and Treatment

A general functional-based process was developed for determining the proper treatment of mixed waste at the FEMP. The process is progressive to allow for near term treatment and disposal of the FEMP mixed waste inventory. Near term reduction in the mixed waste inventory will effectively reduce long term exposure to workers and the environment. The process integrates new data obtained on individual containers to ensure prescribed treatment standards are achieved. Currently, all identified containers of mixed waste at the FEMP have an assigned treatment. However, as new information is gathered, treatment of any waste container identified in the DSTP may be modified to assure regulatory compliance.

As illustrated in Figure 1 on page 19, current Hazardous and TSCA waste inventories and future generated Hazardous and TSCA waste, is divided into radioactively contaminated waste and non-radioactively contaminated waste. If the waste is non-radioactively contaminated, the material will be sent off-site for treatment by a commercial treatment, storage, disposal facility (TSDF). Radiologically contaminated waste continues through the Mixed Waste Management Process.

Mixed waste is evaluated by the FEMP engineers based on two existing data bases:

- General hazardous waste characterization information, such as EPA waste codes, general material description, and Material Evaluation Form (MEF) number(s).

- Inventory numbers, current drum locations and the location of generation. Typically, these data bases will be consistent in the general information provided. However, there are instances where the engineer are required to resolve discrepancies between the data bases. As they are identified, these discrepancies is required to resolved and incorporated into the treatment plan for each waste container.

After a general evaluation of the waste is completed, the waste is assigned to a "Project". A project is the mechanism for managing a group of wastes of a specific waste type through a treatment process or treatment train to meet EPA treatment standards. The project may contain one or more technologies (represented in treatment trains) to treat the waste. A review of options (which provide the needed technology) for treatment: on-site existing or planned facilities, off-site existing or planned DOE facilities,

mobile vendors, and off-site commercial facilities is performed to determine the preferred option and the location of treatment. Treatment and technology assignments are focused on mobile treatment options. As the FEMP "Projectizes" each group of containers in the mixed waste inventory based upon the information in the data bases, a code or string of codes are assigned to the project. Each container in that project is assigned that project code or treatment train code. The codes indicate the primary treatment for the identified waste based on technical literature and EPA requirements. The waste containers can then be evaluated on a drum-by-drum basis.

> *Example: The FEMP has determined that mercury waste will require Amalgamation to meet the EPA treatment standard (Treatment code Y). Figure 1 on page 19 provides a few examples of potential treatment projects.*

A work plan will be written to describe the assigned technology, the process of the testing required to validate the assigned technology, and the parameters for the waste entering treatment. Treatment system capacity and effectiveness will depend on the volume of waste to be treated and the waste matrix. The general work plan will fix the extent of the primary treatment process, including any required pretreatment steps completing the treatment train. The workplan will also provide qualifiers for the waste to be processed through the system.

After the general project workplan is complete, each waste container assigned to the project is evaluated based on the parameters provided in the workplan. Each step of the inventory evaluation provides information that further identifies the treatment beyond initial characterization. The waste is evaluated against the established treatment. Project inventory evaluations include, but are not limited to, the following:

- Detailed evaluation of the Material Evaluation Forms (MEF).
- Detailed evaluation of the radiological concentrations.
- Evaluation of Visual Inspection forms from the previous characterization efforts. In the event that existing visual inspection forms are not sufficient, an additional visual inspection may be performed. Performing additional visual inspections will be kept to a minimum by utilizing equipment such as Real Time Radiography (RTR). RTR allows the FEMP engineers to examine inside the individual containers and keep worker exposure as low as reasonable achievable (ALARA). Visual inspections and RTR can determine or verify waste matrix type, material size and liquid content.

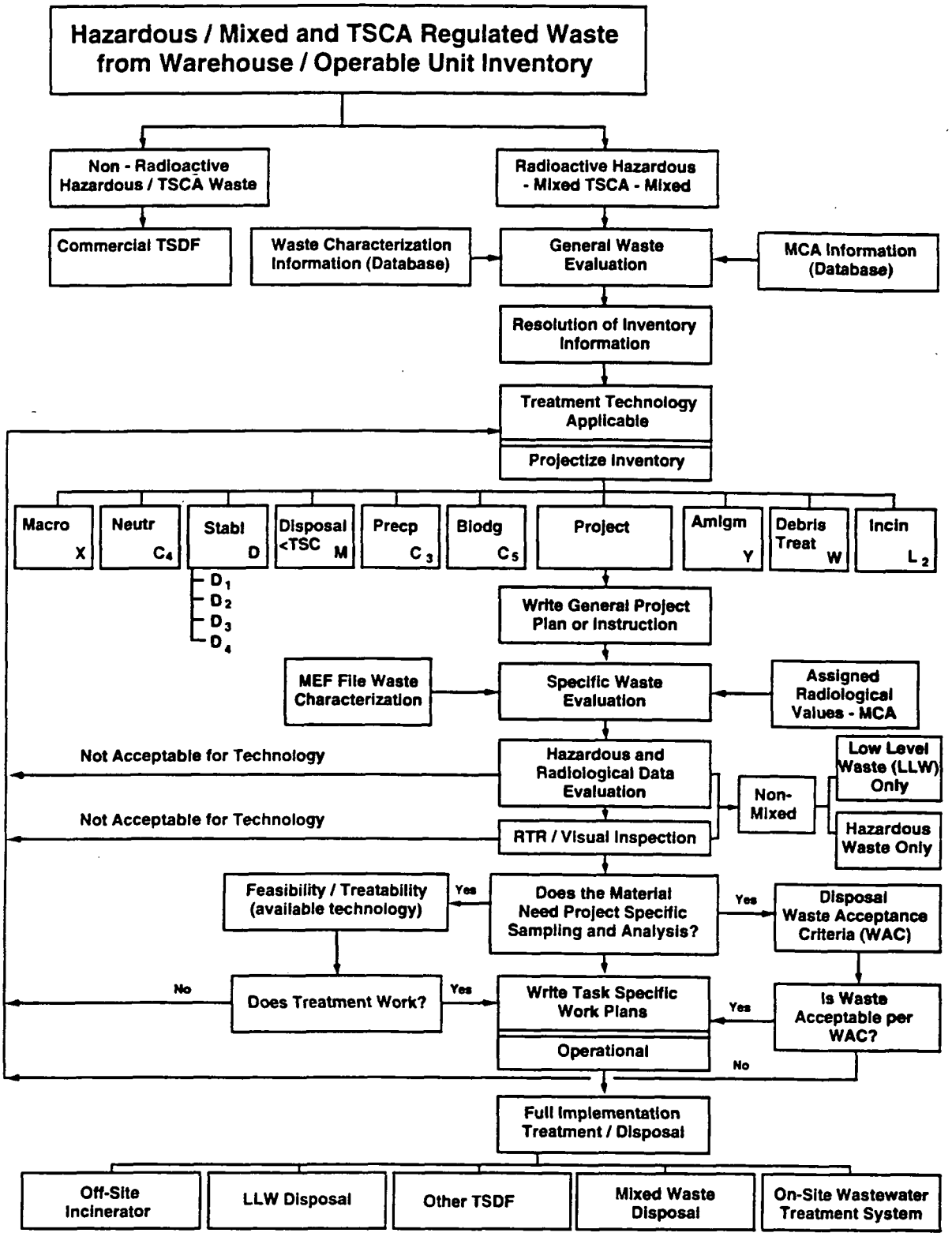
- Detailed Evaluation through sampling and analysis of the project waste inventory may be used to prove the treatment meets or exceeds EPA standards and/or that the assigned waste inventory meets the Waste Acceptance Criteria of an on-site or an off-site TSDF.

If a waste container fails the inventory evaluation, the waste container will be reassigned to a different project involving the appropriate treatment train without losing the information gained during the initial evaluation.

> *Example: Elemental mercury, collected from broken thermometers may be best suited for amalgamation. Mercury contaminated filter cake may be better suited for stabilization.*

Upon completion of the inventory evaluation, the project inventory will be finalized, task specific workplans will be produced to implement the treatment train, and field personnel and/or subcontractors will proceed in treatment and disposal of the waste.

FIGURE 1



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2.5 Waste Minimization

2.5.1 Waste Minimization Program Overview:

Waste Minimization Section is part of the Waste Management Programs Division (WPM). The Waste Minimization Sections prime charter is to actively seek out and implement waste minimization opportunities in order to reduce waste management responsibilities and costs.

The Waste Minimization Section is responsible for:

- Supporting the five operable units mixed waste minimization activities.
- Reporting the FEMP Waste Minimization Program accomplishments in documents required by DOE.
- Performing Pollution Prevention Opportunity Assessments (PPOA) on high volume, high priority waste streams and processes.
- Educating employees on mixed waste minimization/pollution prevention principles and life-cycle cost analysis.
- Implementing waste minimization opportunities.
- Establishing sitewide mixed waste reduction goals.
- Developing an affirmative procurement program for the purchase of non-hazardous, non-toxic chemicals and recycled products.
- Providing incentives for waste minimization suggestions.

2.5.2 Waste Minimization Activities Involving Mixed Waste:

The FEMP Waste Minimization and Pollution Prevention Policy (PO-1013) became effective in October 1993. It sets forth the FEMP's commitment to protecting the environment through waste minimization and pollution prevention efforts.

In direct support of the FEMP mission, the overall objective of the Waste Minimization Section is to reduce the amount and toxicity of mixed wastes generated at the FEMP. Waste minimization is and will be accomplished by eliminating or minimizing the generation of mixed waste through source reduction (i.e. segregation), material substitution, recycling and/or

beneficial reuse, and by implementing treatment technologies which reduce volume, toxicity, or mobility while minimizing secondary waste generation. The following are brief explanations of on-going or planned Waste Minimization Section activities on-site:

On-going Activities:

- Training which focuses on educating Project and Design Engineers on Waste Minimization Applications and Life-Cycle Cost Analysis.

- Identifying and reviewing chemical usage for possible waste minimization opportunities such as elimination, substitution, or reduction in use, using a chemical tracking data base designed to track chemicals from "cradle to grave".

- Recycling silver containing photographic solutions and X-ray department silver recovery cartridges.

- Compiling mixed waste generation data and rates from routine activities in 1993 and making generation projections for the next five years. This identifies and prioritizes mixed waste for assessments.

- Performing PPOA on wastewater treatment system focusing on the elimination or reduction of the toxic chemical methanol; a Superfund Amendments and Reauthorization Act of 1986, SARA Title III, Section 313.

- Recycling lead chips from dosimeter badges.

- Recycling metal components of non-leaking, non-radiologically contaminated fluorescent light ballasts. The polychlorinated biphenyl (PCB) containing capacitors are removed and sent to an EPA-approved incinerator.

- Segregating excess chemicals in the lab. The chemicals are lab-packed before being dispositioned as hazardous waste instead of mixed waste.

Planned Activities:

- Drafting a proposal to have approximately 13 drums of broken acid batteries decanted and surveyed for radiological contamination. Clean units will be placed into on-going lead recovery program; contaminated ones will be stored for future dispositioning.

- Storing non-contaminated light ballasts on the administrative side prior to recycling and thereby preventing them from becoming a mixed waste.

- Developing procedures to recycle silver-zinc and nickel-cadmium rechargeable batteries.

- Performing PPOAs on the laboratory or garage processes, the two areas which generate the highest volume of hazardous and/or mixed waste.

3.0 LOW-LEVEL MIXED WASTE STREAMS

All mixed wastes at the FEMP are considered by DOE to be restoration waste which can be divided into two general categories: containerized wastes which are currently in storage and remediation wastes which are primarily wastes to be generated from the remedial actions. This section will focus on treatment of containerized wastes. Remediation wastes are discussed in Section 6.0.

A review of the FEMP mixed waste inventory was completed July 2, 1994. The FEMP currently has identified 44 mixed waste treatability groups which represent 319 waste streams. All mixed waste identified by the FEMP can be treated using existing technology.

The FEMP waste streams are organized by treatability groups in tables located in Appendix C which presents the following information on the Mixed Waste Inventory Report (MWIR): identification number, waste description, current and five year rate quantities, radiological characteristics, basis of characterization, LDR treatment standard, project name and preferred option.

3.1 Mixed Waste Streams For Which Technology Exists

This section provides information on mixed wastes that can be treated to LDR BDAT standards using proven technologies; only minor modifications of the technology, if any, are needed to treat the waste.

The mixed waste streams identified by the FEMP are organized by preferred option of presentation in this section of the *Background Volume.* Each description of each preferred option is followed by a table which lists the waste streams that can be treated to LDR BDAT standards using the technology(s) specified in the preferred option.

3.1.1 Waste Streams For Which Technology Exists - Preferred Option: Hydrofluoric Acid Neutralization System

Table 1, beginning on page 24, represents the FEMP mixed waste stream for which the preferred option is identified as the HF Neutralization System. Treatment can be accomplished through the use of on-site existing facilities. Treatment of this single

waste stream is planned as a RCRA Closure of a Hazardous Waste Management Unit (HWMU) using the HF Neutralization System. The Closure Plan and Information Data (CPID) Package which describe the HF Neutralization System was submitted to OEPA for review and approval. The LDR treatment standard is deactivation. The process for the treatment of the HF waste will consist of elementary neutralization in an existing tank by the addition of lime slurry. The neutralized solids will be filtered through the existing Wastewater Treatment System (WWTS) (Plant 8 Filter Press) and dried for disposal. The filtrate will be discharged through the FEMP WWTS under the existing National Pollutant Discharge Elimination System (NPDES) Permit.

Consistent with closure plan requirements, this project is expected to be completed within 180 days after final approval is received from the OEPA.

The budget is prepared for this project, but not yet incorporated into the baseline.

The level of confidence in characterization for treatment of this waste stream is high. Sampling and analysis has been completed. Preliminary testing for treatment of this waste stream has been completed.

Schedules are provided in the *Plan Volume*.

TABLE #1

3.1.1 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: HF NEUTRALIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1691	FM-W112	D002A	Dilute hydrofluoric acid HF Tank Car	16,678	16.8	0	0
			ESTIMATED TOTALS:	16,678	16.8	0	0

000036

6023

3.1.2 Waste Streams for which Technology Exists - Preferred Option: Uranyl Nitrate Hexahydrate (UNH) Treatment System

Table 2, beginning on page 27, represents the FEMP mixed waste streams where the preferred option is identified as the UNH Treatment System. Treatment can be accomplished through the use of on-site existing facilities.

The FEMP is a CERCLA site and has been working with USEPA and OEPA to treat the UNH on-site through CERCLA Removal Action #20. The LDR treatment standard is deactivation. The UNH solutions will be diluted, neutralized and filtered. The UNH will be pumped in batches to a dilution/neutralization tank in Plant 2A where it will be mixed with warm water to make a solution containing less than 1N free acid and less than 100 grams per liter of uranium. Each dilute batch will then be neutralized in the same tank with a magnesium hydroxide slurry. The excess nitric acid will be neutralized to form soluble magnesium nitrate and the UNH will react to form a magnesium diuranate precipitate. Other metal contaminants such as chromium and barium also will be precipitated in the process. The neutralized UNH slurry will be transferred to existing filter feed tanks, and filtered on existing rotary vacuum filters in Plant 8 WWTS. The high-nitrate filtrate will either be discharged for treatment in the Biodenitritification facility or returned to Plant 2/3 for dilution or management as rinse waste. The solid filter cake is expected to be non-hazardous and meet acceptance criteria for shipment to the Nevada Test Site (NTS) for disposal as low-level radioactive waste. The liquid filtrate will be tested to confirm its acceptability for discharge under the present FEMP NPDES permit.

The construction phase is scheduled and proceeding. Portions of this project are funded.

The level of confidence in characterization for treatment of this waste stream is high. Sampling and analysis has been completed. Preliminary testing for treatment of this waste stream has been completed.

Schedules are provided in the *Plan Volume*.

The second waste stream to be treated utilizing this preferred option is the Thorium Nitrate currently stored in tank T-2 at the FEMP. Treatment can be accomplished through the use of on-site existing facilities. The LDR treatment standard is deactivation. Similar to the UNH, treatment of the waste stream will include neutralization and precipitation, filtration and discharge to the FEMP Wastewater Treatment System. The filter cake is expected to be a low level radioactive waste. Treatment of this waste stream is planned to begin after completion of the treatment of the UNH.

The construction phase of the UNH treatment facilities is scheduled and proceeding. The treatment of thorium nitrate is currently scheduled under a RCRA Closure. To initiate this treatment project, $1.5 million will need to be appropriated.

The level of confidence in characterization for treatment of this waste stream is high for the corrosive characteristic and low for the chromium and cadmium characteristics. Additional laboratory analysis is being preformed to produce a valid method for the analysis of RCRA metals for wastes with elevated thorium levels.

Schedules are provided in the *Plan Volume*.

TABLE #2

3.1.2 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: UNH TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
844	FM-W092	D002A D005 D007 (WW)	UNH Solution in tanks	1,038,002	1,040	0	0
2594	Unassigned	D002A D006 D007 (NWW)	Thorium Nitrate Solution in Tank T-2	8,892.0	32.0	0	0
			ESTIMATED TOTALS:	1,046,894	1,072.0	0	0

000039

6073

3.1.3 Waste Streams for which Technology Exists - Preferred Option: Wastewater Treatment

Table 3, beginning on page 29, represents the FEMP mixed waste streams where the preferred option is identified as Wastewater Treatment. Treatment of these waste streams will occur on-site in an existing facility. The LDR treatment standard for these mixed waste streams is deactivation, or is not established. This project is directly linked to the Incineration Project. Liquids will be bulked, tested and a determination will be made whether they will meet the waste acceptance criteria for the FEMP Wastewater Treatment System. Some waste streams may require chemical treatment prior to discharge into the Wastewater Treatment System.

The WWTS will receive aqueous liquids that are hazardous due the characteristic of the waste. The WWTS will accept liquids that can be effectively treated to meet the existing NPDES discharge levels.

The information on budgets and schedules for bulking and testing liquids destined for WWTS are included in the budget and schedules for the Incineration Project.

The budget is prepared for this project and has been incorporated into the baseline.

The level of confidence in characterization for treatment of this waste stream is high. Sampling and analysis has been completed for bulking this waste stream.

Schedules are provided in the *Plan Volume*.

TABLE #3

3.1.3 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: WASTEWATER TREATMENT (ON-SITE)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
358	FM-W286	D002B D019	Caustic solution (NaOH) from Plant 8 raffinate processing	292	0.4	0	0
1178	FM-W096	D007	Groundwater from Well #2649	752	1.2	1,537	1.3
1462	Unassigned	D002B	Contaminated water from Chemical Pit #2 surface cap	397	0.6	0	0
1938	FM-W319	D007 D008B D010	Non-chloride, contaminated water or sump liquor from Plant 1 Drum Painting Booth.	170	0.2	0	0
2210	FM-W325	D001F	Hydrogen peroxide solution	908	0.8	4,763	4.1
2257	FM-W329	D002A	TCLP extracts lab generated waste	155	0.2	811	0.7
10014	FM-W136	D039	U-contaminated water	2,641	2.8	0	0
			ESTIMATED TOTALS:	5,315.0	6.2	7,111.0	6.1

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3.1.4 Waste Streams for which Technology Exists - Preferred Option: Mobile Stabilization

Table 4, beginning on page 31, represents the FEMP mixed waste streams where the preferred option is identified as Mobile Stabilization. Treatment of these waste streams will occur on-site using a vendor provided service. The LDR treatment standard for these waste streams is deactivitation and or is concentration based. Mobile Stabilization will treat characteristic and listed waste requiring physical stability.

Low strength cement stabilization also falls under the broad category of inorganic based solidification and stabilization. This process uses a fine noncrystalline silica in fly ash and the calcium in lime to produce low-strength cement that is not dimensionally stable. Physical trapping of the contaminant in the cured pozzolan-concrete matrix is the primary containment mechanism. Water is removed in hydrating the lime-pozzolan concrete. Appendix C further discusses other stabilization techniques that may be utilized at the FEMP.

The FEMP published a Request for Proposal in the *Commerce Business Daily*. Multiple responses were received from companies capable of performing Mobile Stabilization.

The FEMP has initiated discussions with OEPA on implementation of the Stabilization Project prior to the issuance of a compliance order for the Final STP.

The level of confidence in characterization for treatment of this waste stream is medium. Characterization for these waste streams was completed to address storage requirements. A Treatability Study Work Plan has been prepared with the study to begin in August 1994.

The budget is prepared for this project and has been incorporated into the baseline.

Schedules are provided in the *Plan Volume*.

TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

REF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
517	FM-W056	D007 D008B	Oil dry contaminated with oil from baler	460	0.4	0	0
538	FM-W059	D006B D007 D008B	Soil Boring #1508 from fire training grounds	296	0.2	0	0
539	FM-W060	D004 D006B D007 D008B	Soil Boring #1509 from fire training grounds	691	0.4	0	0
540	FM-W061	D004 D005 D006B D007 D008B D011	Soil Boring #1512 from fire training grounds	331	0.2	0	0
541	FM-W062	D005 D006B D007 D008B	Soil Boring #1513 from fire training grounds	569	0.4	0	0
542	FM-W063	D004 D005 D006B D007 D008B	Soil Boring #1514 from fire training grounds	304	0.2	0	0
543	FM-W064	D004 D005 D006B D007 D008B	Soil Boring #1515 from fire training grounds	259	0.2	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
545	FM-W065	D004 D005 D006B D007	Soil Boring #1511 from fire training grounds	304	0.2	0	0
700	FM-W083	D003D	Magnesium flake and oily rags	75	0.2	0	0
757	Unassigned	D004 D007 D008B D010 D011	Brown particulate solid (dirt & rubble)	100	0.4	0	0
817	FM-W090	D008B	Paint chips from sand filters at Water Plant	531	1.8	1,525	1.6
1714	FM-W310	D010	Volatile solid waste from TCT-St. Louis	75	0.2	3,973	8.6
10013	FM-W135	D005 D007	Sump cake, copper contaminated	6,548	4.8	0	0
10022	FM-W141	D008B	Grit Blast	284,614	173.0	0	0
20015	Unassigned	D007	Scrap salts, low fluoride and floor sweepings from Plant 6 Nu-Sal Furnace Area	2,725	4.6	0	0
20024	FM-W159	D007 D008B	High fluoride scrap salts and floor sweepings	1,014	1.8	0	0
20027	FM-W160	D004 D011	Dust collector residues - high fluoride from Analytical Lab	245	0.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
20033	FM-W163	D008B	Process residues and waste slurries	70	0.2	0	0
20035	FM-W164	D007	Dust collector residues, high fluoride from Pilot Plant	559	0.8	0	0
20047	FM-W170	D004 D008B	Scrap salts and floor sweepings - low fluoride from Plant 6 Rolling Area	230	0.4	0	0
20058	FM-W174	D006B D008B	Dust collector residues - high fluoride	3	0.2	0	0
20120	Unassigned	D007	Dust collector bags	17.3	0.2	0	0
30027	FM-W190	D004 D005	Contaminated soil, rocks, sand from Plant 2/3 North Side Digestor Area	2,867	1.8	0	0
30036	FM-W193	D006B D008B	Dust collector residues - high fluoride from Plant 6 inspection Area	551	1.0	0	0
30060	FM-W202	D005	Wet sump or filter cake non-oily, non-halide from Pilot Plant	246	0.4	0	0
30065	FM-W203	D008B	Grit Blast from area around Plant 2\3	6,847	6.2	0	0
40137	FM-W209	D001E	Unfired reduction charges plus CaF2	1	0.2	0	0
40152	FM-W210	D005	Scrap ThO_2, high fluoride	58	0.4	0	0
40192	FM-W345	D008B	ThO_2 Powder Refinery Feed	30	0.2	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50063	FM-W224	D004 D008B	Roasted MgF2 and other material from Plant 8 Rotary Kiln	2,349	1.4	0	0
50089	Unassigned	D001E D003D	Contaminated magnesium	438	0.6	657	0.7
50090	Unassigned	D001E D003D	Contaminated magnesium	964	2.2	0	0
50091	FM-W232	D004 D008B	Dust collector residue from Plant 9	63	0.2	0	0
50102	FM-W238	D006B D008B	Process residues, trailer cakes, slurries, raffinates, etc. from Plant 6 Rolling Area	54	0.4	0	0
50148	FM-W242	D004	Scrap U308, high fluoride, from crucible burnout in Plant 5 Casting Area	109,938	109.2	0	0
50165	FM-W245	D007	Roasted sump and filter cake from Plant 8 Rotary Kiln	14,944	11.4	0	0
50169	FM-W246	D007	Non-oily clean-out sludge for roasting from Plant 9 Casting	202	0.2	0	0
50173	FM-W248	D007	Salt sludge, chloride from Plant 6 Salt-Oil Furnace	4,799	2.0	0	0
50174	FM-W249	D007	Salt sludge, chloride from Plant 6 Nu Sal Furnace	9,099	10.2	0	0
50180	FM-W252	D007 D008B D010	Furnace salt, non-chloride from Plant 6 Machining	10,942	7.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50293	FM-W259	D004	U308 for re-oxidation from UNC Inc.	3,560	4.8	0	0
50314	FM-W260	D010	Scrap salts, high fluoride and floor sweepings from Pilot Plant Remelt Furnace	114	0.2	0	0
60140	FM-W344	D010	Steel shot from Plant 1 Drum Reconditioning Wheelabrator Shot Blast Unit	3,478	2.6	0	0
1229	FM-W101	D001C D008B D018 D019 D039 D040 F002 F003 (WW)	Contaminated sump water	6,019	6.6	15,280	13.4
1363	Unassigned	D005 D006B D007 D008B D009C	Oily Sludges from the WWTS Area	556	0.4	0	0
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,565	6.4	13,191	8.9
20007	FM-W156	D011	Oil contaminated wet sump or filter cake	31,735	62.2	0	0
20037	FM-W166	D029	Process residues, trailer cakes, waste slurries, etc. from Plant 8	362	0.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
20145	FM-W182	D002B D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30045	FM-W197	D001A	Oily sludges, high free metal from Plant 6 Water Treatment Area	423	0.6	0	0
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40122	FM-W208	D002A D005 D009C	Thorium waste slurries	183	0.2	0	0
40185	FM-W212	D001F D007 D008B	Impure thorium nitrate (solid)	838	0.2	0	0
40186	FM-W213	D001F D007 D008B	Impure thorium nitrate (solid)	2,000	0.6	0	0
50008	FM-W215	D001A	Copper contaminated sump cake from the General Sump	36,831	31.0	0	0
50068	FM-W225	D001A	Non-oily sludge for roasting from General Sump	13,990	11.4	0	0
50071	Unassigned	D001A D007	Solvent sludges from water treatment plant	194	0.2	0	0
50177	FM-W251	D001A D004 D008B	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0
50178	FM-W339	D001A	Furnace salt, non-chloride	76	0.2	0	0
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50202	FM-W257	D001A D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001A D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0
50346	Unassigned	D001A	Oily sludge from oxidation	292	0.4	0	0
50347	FM-W264	D001A	Discard process residues from Boiler Plant	179	0.2	0	0
50355	FM-W267	D001A	Discard process residues from General Sump	3,675	3.2	0	0
Treatment of MEF #'s 1229 through 50355 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1229 through 50355.							
			ESTIMATED TOTALS:	522,317.8	417.9	20,390.5	22.05

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3.1.5 Waste Streams for which Technology Exists - Preferred Option: Mobile Chemical Treatment

Table 5, beginning on page 39, represents the FEMP mixed waste streams where the preferred option is identified as Mobile Chemical Treatment. Treatment of these waste streams will occur on-site using vendor provided services. The LDR treatment standards for these waste streams are Fuel Substitution, Organic Recovery, or Incineration, Biodegradation, Deactivitation, Neutralization, Macroencapsulation, Thermal Recovery of Metals in an Industrial Furnace, Amalgamation, or are concentration based.

Mobile Chemical Treatment requires the utilization of a series of separate elements or pieces of equipment to treat the wastes and secondary waste streams. The mobile equipment may consist of the FEMP waste container receiving areas, bulk waste handling, dissolver trays and tanks, mixers, pumps, holding tanks for wash water and cleaning hoses, liquid filter systems, air filter systems, compactors, scales, and decontamination facilities containing steam and high pressure water cleaning systems. These mobile units will include treatment water recycle systems so the wash waters can be reused in the washing process minimizing the amount of wastewaters generated at the FEMP site during this operation. The mobile units also include treatment systems for the reuse of chemicals and acids that are generated during the treatment processes. The following are some of the treatment process being proposed for use on the FEMP site:

- Biodegradation
- Chemical or Electrolytic Oxidation
- Chemical Reduction
- Chemical Precipitation
- Recovery of Organics
- Steam Stripping
- Water Wash/Separating Contaminants
- Wet Air Oxidation
- Neutralization
- Macroencapsulation
- Amalgamation

A more detailed explanation of the above treatment operations are available in Appendix C, Treatment Trains.

The level of confidence in characterization for treatment of this waste stream is medium. Characterization for these waste streams was completed to address storage requirements.

The budget including secondary waste stream processing, and excluding low level radioactive waste disposal is prepared for this project but not yet incorporated into the baseline.

Schedules are provided in the *Plan Volume*.

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1999	Unassigned	D002A D007 D009C D011 (NWW)	Nessler Reagent, COD digestion solution, Rochelle Salt	4	0.2	38	<0.1
10002	FM-W125	D005 D008B	Scrap salts, Low fluoride from RMI, Inc.	6,217	4.8	0	0
30080	FM-W206	D002A D004 D007 D008B D011 (NWW)	Contaminated soil, rocks, debris (contains liquids only)	228	0.2	0	0
30081	FM-W207	D002A	Discard process residues, trailer cakes from Hot Raffinate Building in Plant 2/3	387	0.2	0	0
40181	FM-W211	D002A D007 D008B (WW)	Thorium nitrate solution	2,280	0.6	0	0
50025	FM-W219	F001 F002	Contaminated graphite	413	0.4	0	0
50139	FM-W347	D039	U308 +8Mesh, low F from Plant 8 Oxidation System Box Furnace	449	0.4	0	0
50188	FM-W255	D004 D007 D008B D010	Scrap salts, high F from Plant 4 Bank 7	1,885	2.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50323	FM-W261	D004	Solidified furnace salts, non-chloride from Plant 9 Rockwell Furnace molten salt cleaning	110,367	137.2	0	0
50349	FM-W265	D008B	Dust collector residues - high fluoride from Plant 8	87	0.2	0	0
50351	FM-W266	D004 D008B	Dust collector residues - high fluoride from green salt production in Pilot Plant	267	0.2	0	0
50387	FM-W272	D005	Salt sludge, chloride from Lab	324	0.4	0	0
50405	FM-W273	D006B D007	Non-recoverable trash from Plant 6 - dark grey solids	298	0.8	0	0
50406	FM-W274	D004 D011	Furnace salt, chloride from Plant 6 Salt-Oil Furnace	2,945	5.4	0	0
50408	FM-W342	D008B D010	Furnace salt, non-chloride from Pilot Plant Rockwell Furnace	2,036	2.2	0	0
60307	Unassigned	D005 D008B	Barium chloride salts	16,267	13.2	0	0
89	FM-W284	F002	Soil Boring #1412	234	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
386	FM-W288	D019 D039 F001 F002	Floor sump clean-out sludge	633	0.4	0	0
390	FM-W013	D005 D008B F001 F002	Oily sludges from water treatment process	469	0.8	0	0
456	FM-W044	D007 D039 D040 F001 F002	Solvent wastes	508	0.4	0	0
526	Unassigned	F001 F002	Contaminated soil from Pit #5 HWMU area	192	0.2	0	0
588	FM-W070	F002	Merco and oily Merco dry from the baler	1,983	2.0	0	0
661	FM-W080	F001	Soil Boring #1594 from northwest corner of Bldg 12	216	0.2	0	0
720	FM-W085	F001	Soil Boring #1261	250	0.2	0	0
776	FM-W088	F001	Soil Boring #1674, located inside Pilot Plant	154	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
819	FM-W091	F001	Soil Boring #1251	414	0.4	0	0
1550	FM-W302	D003D	Uranium Hexafluoride	7	0.2	0	0
1706	FM-W114	D018 D021 D035 D038 D039 D040 D043 F002 F005A (WW)	Lab waste, TCLP extract	2,035	2.2	3,059	3.0
1841	FM-W121	F001 F002	Soil	1,512	1.6	0	0
1842	FM-W122	F001 F002	Grass and soil	19	0.2	0	0
2425	FM-W332	D002A F001 F002 F005A (WW)	CTC corrosive waste	198	0.2	1,040	1.0
10003	FM-W126	D001A D039 F001	Oily oxidation sludges with high free metal	2,590	2.8	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
10007	FM-W130	D007 F001	Oily sludges	430	0.6	0	0
10009	FM-W131	D001A D008B D035 F005A	Sludges - solvent (trichlor, perchlor)	133	0.4	0	0
10010	FM-W132	D029 D039 D040 F001	Sludges, oily	77,665	105.8	0	0
10016	FM-W137	D010 D039 F002	Oily sludge for oxidation	1,352	1.0	0	0
10021	FM-W140	D008B D039 D040 F001	Sludges, oily	311	0.4	0	0
10026	FM-W145	D001A F001	1,1,1-trichloroethane still bottoms from National Electric Coil	7,545	8.6	0	0
10028	FM-W147	D008B F001	Sludges, oily	1,476	2.0	0	0
10031	FM-W150	D029 D030 F001	Floor sump clean-out sludge	594	0.6	0	0
20006	FM-W155	F002	Oil contaminated wet sump cake produced from coextrusion operations at UNC Corp.	16,397	25.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20045	FM-W168	D019 D022 D039 F002	Contaminated TBP and/or kerosene mixtures and sludges from lab	50	0.4	0	0
30005	FM-W185	D001A D019 D039 D040 F001 F003 F005A	Oily sludges from oil decantation system	15,541	15.8	0	0
30010	FM-W187	D039 D040 F002	Oil contaminated wet sump or filter cake from service building sump	10,611	10.6	0	0
30018	FM-W188	D039 F002	Wet sump or filter cake - non-oily	3,231	4.2	0	0
30026	FM-W189	D039 F002	Non-oily clean-out sludges for roasting from Plant 2/3	3,968	5.4	0	0
30037	FM-W194	D039 F002	Discard process residues, trailer cakes, waste slurry from Pilot Plant catch basin	454	0.8	0	0
30042	FM-W196	D039 F002	Wet sump or filter cake - non-oily, non-halide from Pilot Plant sump	592	0.8	0	0
30046	FM-W198	D019 F001	Non-oily clean-out sludges for roasting from garage sumps	1,864	2.0	0	0
30051	FM-W200	D001E D003D	Non-metallic misc. samples (Magnesium metal)	7	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50085	FM-W229	D001A F002 F003 F005A	Wet sump or filter cake, non-oily/non-halide from Plant 1	56	0.2	0	0
50113	Unassigned	F001	Roasted calcium precipitated from sump or filter cakes	1,487	3.8	0	0
50129	FM-W240	F001	Scrap U308 - Low F from Oxidation Furnace in Plant 8	6,151	7.6	0	0
50131	FM-W241	F002	Scrap U308 - low F from Plant 8 Oxidation Furnace	56	1.0	0	0
50152	FM-W243	F002	Scrap U308, high fluoride burned in Oxidation Furnace #1 and screened at Plant 8 Rotex	13,646	8.4	0	0
50154	FM-W244	F001	Roasted calcium-precipitated sump and filter cake	21,067	32.6	0	0
50175	FM-W250	F002	Salt sludge, chloride from Plant 9 Casting Area	500	1.0	0	0
50183	FM-W253	F001	Scrap salts, low F from Plant 6 Degreasing and Pickling Area	216	0.4	0	0
50200	Unassigned	D001A F001	Oily sludge for oxidation	90	0.2	0	0
50339	FM-W262	F002	Sludges, oily, for oxidation, high free metal from Plant 6 Machining	1,601	2.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
60119	FM-W279	D001A F001 F002	Oily Sludges, high free metal from Garage	2,954	3.2	0	0
60123	FM-W280	D039 F002	Solvent semi-solid from the Service Building and Administration Building laundry	40	0.2	0	0
60149	FM-W281	F001 F002	U308 from Plant 8 Oxidation Box Furnace	40,712	50.2	0	0
60152	FM-W282	F001	U308 rotexed Plant 8 Furnace product	75,533	69.4	0	0
1421	FM-W298	D008B	Non-recoverable trash: Oily rags, pads, gloves and plastic with grease	64	0.2	0	0
1430	Unassigned	D010	Plastic sheeting, gloves, floor sweepings	1,377	1.6	0	0
1906	FM-W318	U134	HF Tank car clean-out material	3,877	0.8	0	0
2016	FM-W324	D001A D018 D026	Paint bitumastic 300 M A and B coal tar coating	33	0.2	0	0
2021	FM-W322	D005	Barium carbonate from Plant 2/3 Processing	1,870	3.0	0	0
10025	FM-W144	D005	Contaminated soil, rocks bricks, sand and ceramics from RMI	5,471	4.4	0	0
20046	FM-W169	D007	Non-metallic miscellaneous samples from lab	35	0.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20139	FM-W180	D005	Samples, non-metallic from RMI	84	0.2	0	0
30039	FM-W195	D011	Contaminated rocks, soil, bricks and ceramics from Pilot Plant	449	0.6	0	0
50031	FM-W220	D008B D010	Contaminated metallic filter elements	1,293	3.2	0	0
50367	FM-W271	D008B	Non-recoverable trash	194	0.2	0	0
180	FM-W002	F002	Rags, solvent	25	0.2	0	0
376	FM-W004	F002	Solvent contaminated rags	43	0.2	14	<0.1
387	FM-W010	D010 D018 F002	Oil soaked rags	268	1.2	0	0
396	FM-W015	F002 F003 F005A	Paint thinner rags	74	0.4	12	<0.1
398	FM-W017	D008B D009C F001	Non-recoverable trash contaminated absorbent pads	19	0.2	0	0
399	FM-W018	D008B D039 F001	Solvent contaminated rags, pads, and plastic from boiler plant oil storage area	49	0.2	178	0.2
404	FM-W021	D008B D018 F002	Oily rags	59	0.4	0	0
410	FM-W024	F001 F002	Oily rags	129	0.4	0	0
415	FM-W028	D008B D018 F002	Oily rags and absorbents, WD-40 and various oils	35	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
434	FM-W040	D004 D005 D006B D007 D008B D022 F002 F003	Laboratory contaminated waste	562	2.2	21,451	18.9
460	FM-W047	D004 D005 D006B D007 D008B D010 D018 F002	PCB Materials, ballast, PCB-contaminated rags	11	0.2	0	0
514	FM-W055	D001A D007 D008B F002 F003 F005A	Bad paint from paint booth	572	1.2	0	0
584	FM-W068	D018	Kerosene (Diesel Fuel)/ sludge	1,115	1.6	0	0
627	FM-W072	F001	5-gal. can w/ spill clean-out material	6	0.2	0	0
628	FM-W073	F001	Spill clean-up material	65	0.2	0	0
743	FM-W086	F001	Container of pump oil and rags	18	0.2	0	0
870	FM-W093	D001A	Varnish - unused	89	0.2	0	0
1425	FM-W299	D005 F001	Contaminated rags, paper, polyethylene from RMI	134	0.6	0	0
1427	FM-W106	F002	Non-recoverable trash - mop heads and pads contaminated with TCA	41	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1428	FM-W300	F001 F002	Spill clean-up material from Building 79 RCRA storage pad	86	0.2	0	0
1504	FM-W335	D001A	Flammable paint and paint-related products	495	0.4	2,598	2.0
1537	FM-W111	F001 F002	Filter material - sand, gravel, fly ash, anti-Cs, misc. trash, plywood, concrete forms from ETF removal	186,313	23.0	0	0
1617	FM-W305	F001 F002 F005A	Contaminated protective clothing	69	1.2	0	0
1705	FM-W306	D001A D004 D006B D008B D010	Laboratory generated waste, waste oil from TCLP extracts	51	0.2	269	0.2
1707	FM-W115	D002A D007 D008B D019 D028 D039 F001 F002 (WW)	Lab-generated waste, acid digestates	2,549	2.6	0	0
1716	FM-W118	F001 F002 F005A	Lab generated waste, contact waste solid	620	3.0	0	0
2080	Unassigned	D004 D005 F001 F002	Pit 5 Treatability Study	13	0.2	0	0
2235	FM-W328	D010 F002	Lab generated organic liquid waste	1,746	2.0	9,152	9.5

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
2259	FM-W330	D009C F001 F002	TCLP leachate	191	0.2	999	0.9
2401	Unassigned	F001 F002 F005A	Contact Waste from PACD Sampling	130	1.0	0	0
2500	Unassigned	D012 F002 F003	Metal Tank Abandoned Pilot Plant Sump	294	0.4	0	0
10012	FM-W134	D029 D039 D040 F001	Contaminated burnables	1,352	2.8	0	0
10023	FM-W142	D008B F001	Non-recoverable trash	3,043	3.8	0	0
10024	FM-W143	D018 F001	Contaminated burnables	99	0.4	0	0
20036	FM-W165	F001	Scrap salts and floor sweepings	387	0.8	0	0
20048	FM-W171	F005A	Discard process residues from Lab	9	0.2	0	0
20094	FM-W175	D008B D011 F001	Contaminated burnables, rags, filter cloth, paper, cartridges, rubber, wood, etc.	359	1.4	0	0
20114	FM-W178	F001	Contaminated burnables: rags, paper, poly-ethylene	184	0.4	0	0
20142	FM-W181	D001A D019 D022 D039 F002 F003	Contaminated TBP and kerosene mixtures from Analytical Lab	15	0.4	0	0
30004	FM-W184	F001	Incinerator cinders	66,340	108.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
30009	FM-W186	D008B	Scrap salts (high fluoride) and floor sweepings	7,663	10.2	0	0
30053	FM-W201	D006B D007 D008B D018 D040 F002 F005A	Discard process residues - gloves, paint, misc. debris	78	0.2	0	0
30074	FM-W204	F002	Contaminated non-burnables: filter cartridges, gravel, rocks, soil	1,139	1.0	0	0
30075	FM-W205	F002	Contaminated non-burnables: Metallic filter elements and cartridges	14	0.2	0	0
50002	FM-W214	D001A F003 F005A	Non-recoverable trash from lab	60	0.6	0	0
50010	FM-W187	F002 F005A	Non-recoverable trash from Plant 1 - contains liquids and oil	204	0.2	0	0
50014	FM-W217	D019 F002	Non-recoverable trash	455	1.0	0	0
50036	FM-W221	D007 F002	Contaminated burnables from Plant 8 Box Furnace	531	1.8	0	0
50070	FM-W226	D008B F001 F002	Non-oily sludge for roasting from Plant 8 Box Furnace	332	0.4	0	0
50079	FM-W228	F002	Incinerator cinders from Solid Waste Incinerator	2,768	4.2	0	0
50170	FM-W247	D004 D019 D039 F002	Salt sludge from Plant 4	602	0.8	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50359	FM-W269	F002	Non-recoverable trash	225	0.8	0	0
50364	FM-W341	D007 F001 F002	U308, +8Mesh, low F from Plant 8 Box Furnace	640	0.4	0	0
405	FM-W022	D002A D009C	Dry cell batteries	134	0.2	0	0
547	FM-W290	D008C	Misc. lead tools, piping, etc.	679	1.2	2,317	5.1
854	FM-W293	D006A	Nickel-cadmium batteries	134	0.2	481	0.7
855	FM-W294	D009C	Mercury batteries	667	0.6	2	<0.1
874	Unassigned	D008B	Lead bricks, lead window sashings, babbitt hammer	260	0.4	0	0
1281	FM-W295	D008C	Lead bricks	336	0.6	0	0
1585	FM-W303	D002A D008A	Lead acid battery (split)	3,566	4.2	15,768	13.3
1731	FM-W314	D008C	Lead	76	0.2	0	0
1987	FM-W123	D008C	Lead/lead seals	13,202	2.8	18,244	15.4
1969	Unassigned	D001D D007 D008 D018 D019 D035 D039	Flammable aerosols	11	0.2	262	0.3
423	FM-W034	D009D	Used mercury (elemental) from Lab	20	0.2	0	0
432	FM-W038	D006B D008B D009C	Mercury thermometer spill clean-up materials from lab	119	1.0	307	0.2

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
635	FM-W291	D009C	Mercury spill residue and spent mercury-containing batteries	143	0.4	0	0
1199	FM-W100	D009C	Mercury contaminated floor tile & pipe insulation	909	1.6	0	0
1272	Unassigned	D007 D008B D009C	Mercury Contaminated Materials from sink traps in Lab.	32	0.2	0	0
2211	FM-W326	D009D	Elemental mercury in equipment - switches, thermometers, etc.	202	0.4	961	1.1
50185	FM-W254	D009C	Scrap salt, high F from MMES, Inc.	5	0.2	0	0
			ESTIMATED TOTALS:	778,810.0	761.6	77,152.0	72.2

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3.1.6 Waste Streams for which Technology Exist - Preferred Option: TSCA Incinerator

Table 6, beginning on page 55, represents the FEMP mixed waste streams (liquid portion only) where the preferred option is identified as TSCA Incinerator. Treatment of these waste streams will occur off-site at an existing and operating DOE facility. The TSCA Incinerator is located at the DOE K-25 Site in Oak Ridge, Tennessee. The LDR treatment standard for these waste streams is Fuel Substitution, Organic Recovery, or Incineration or is concentrated based.

The TSCA Incinerator is a rotary kiln incinerator with a secondary combustion chamber designed to treat hazardous organic components of liquid mixed low-level wastes, including polychlorinated biphenyls (PCBs) contaminated with low levels of radioactivity. The FEMP is currently allotted 300,000 pounds or 136,200 kilograms of low level mixed waste per year to be treated at the TSCA Incinerator. The FEMP plans to bulk mixed waste shipments to the TSCA Incinerator.

The FEMP has discussed the return of incinerator residues with the TSCA Facility. Current plans are that incinerator residues will not be returned to the FEMP. TSCA Incinerator personnel are pursuing shipment of the residues to Envirocare as their preferred option and use of another commercial vendor as a secondary option.

The budget is prepared for this project and has been incorporated into the baseline.

The level of confidence in characterization for treatment of this waste stream is high. Sampling and analysis has been completed for bulking this waste prior to shipment.

Schedules are provided in the *Plan Volume*.

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
183	FM-W285	D001B D018 D035	Water/gas mixture from Tank #8	1,990	2.4	0	0
379	FM-W005	D008B D018 F001 F002	Spent 1,1,1-trichloroethane	77	0.2	0	0
383	FM-W008	D011 (WW)	X-ray fixer & developer, clear liquid	123	0.2	0	0
385	FM-W009	D018 F001 F002	Spent solvent (1,1,1, - trichloroethane)	108	0.2	0	0
388	FM-W011	D010 D018 F002	Used oil	5,313	6.4	0	0
393	FM-W014	D008B	Lubricating oil from reduction remelt	316	0.4	0	0
395	Unassigned	D001A F002 F003 F005A	Paint thinners and paint residues	143	<0.1	752	0.6
397	FM-W016	D018 F001 F002	1,1,1, - Trichloroethane (cleaning solution)	103	0.2	0	0
400	FM-W019	D001A D008B F001	Used oil from Maintenance	105	0.2	0	0
402	FM-W020	D008B D018 F001	Used oil	404	0.8	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
408	FM-W023	D005 D006B D008B F001	Used oil	146	0.2	0	0
412	FM-W025	D001A D006B F001 F002	1,1,1-Trichloroethane	10	0.2	0	0
414	FM-W027	D001A D006B D008B D009C D039 F001 F002	Used oil	198	0.4	0	0
418	FM-W030	D001A F003	Spent acetone	869	11.2	1,061	1.0
419	FM-W031	D001A F003	Spent xylene	314	2.6	255	0.2
421	FM-W032	D001A F003	Spent methanol	140	2.0	71	0.1
422	FM-W033	F002	Spent methylene chloride	15	0.2	95	0.1
425	FM-W035	D001A D002A	Laboratory acids (Nitric acid and cyclohexane)	546	8.6	885	0.9
426	FM-W036	D001A	Spent methylene chloride	3,055	43.8	3,252	3.2
428	FM-W037	D001A	Acetonitrile in water	2	0.2	0	0
438	FM-W041	D018	Hydraulic oil from baler in drum reconditioning	177	0.2	0	0
455	FM-W289	D001A F001	Unlabeled drum containing 1,1,1 - trichloroethane	111	0.2	0	0
459	FM-W046	D001A F001 F002	Paint	204	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
479	FM-W050	D001A D008 D009C D035 F003 F005	Used paint thinner	436	0.4	0	0
480	FM-W333	D018 F002	Used oil generated during construction projects.	1,172	1.4	0	0
485	FM-W051	D001A	Kerosene	92	0.2	0	0
507	Unassigned	D001A D018	Gasoline	113	0.2	0	0
508	FM-W054	D001A D035	Paint thinner	220	0.2	0	0
533	FM-W058	D001A D006B	Paint: Grey Epoxy	130	0.2	0	0
587	FM-W069	D001A	Grease and water	113	0.2	0	0
633	FM-W075	D007 D008B D009C	Oil - unknown generation	1,514	2.4	0	0
638	FM-W076	D018	Used oil	142	0.2	0	0
658	FM-W078	D018	Coded as oil - strong solvent odor	40	0.2	0	0
777	FM-W089	D001A D008B F001 F002	Used Agitene	268	0.4	533	0.5
873	FM-W094	D011 (WW)	Spent fixer	612	1.2	0	0
1337	FM-W104	D001A	Contaminated water, non-chloride	169	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1411	Unassigned	D001A D005 D007 D008B D009C D010 D011 D019 F002 F003	Contaminated solvent from paint shop	217	0.2	0	0
1412	FM-W105	D001A D006B D008B F001 F002	Used solvent: 1,1,1-trichloroethane	188	0.2	0	0
1414	FM-W297	D001A D008B	Oil and fuel from Garage area	355	0.4	0	0
1423	Unassigned	D008B D009E D034 D040 F001 F002 F003 F005	Contaminated insoluble oil	170	0.2	0	0
1432	FM-W107	DOO1A	Non-chloride contaminated water or sump liquor (kerosene)	869	1.2	0	0
1447	FM-W301	D001A D008B	Nonchloride contaminated water or sump liquor from Plant 1 Drum Painting Booth.	56	0.4	0	0
1536	FM-W110	F001 F002 (WW)	Rainwater from waste pit area	30,076	31.2	0	0
1708	Unassigned	F002	Lab generated waste, methylene chloride extracts	246	0.4	994	1.0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1711	FM-W308	D002A D008B D009C D010 F001 F002 F005A (WW)	Metals extracts, digests and leachates	2,017	2.4	19,068	16.8
1713	FM-W309	D040 F001 D002 F005A	Oil from TCLP extracts	32	0.4	169	0.2
1725	FM-W119	D018	Lubricating oil from garage	2,629	3.2	6,968	7.5
1728	FM-W312	D018	Crankcase oil	1,199	1.8	4,499	4.8
1729	FM-W313	D001A D008B D018	Gasoline	1,084	1.8	5,548	6.9
1773	FM-W315	D011 (WW)	Concentrate Fixer	98	0.4	0	0
1815	FM-W316	D018 D001A	Spent fuels	317	0.4	773	0.9
1949	Unassigned	D001F	Draw Temp 275	92	0.2	0	0
1998	FM-W124	D001A F003	Methanol and cyclohexane	104	1.2	333	0.3
2014	FM-W323	D001A D035	Epoxy - prime coat LDC - 1,000	74	0.4	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
2363	Unassigned	D001C D002B D006B D008B D009C D018 D035 D038 D039 D040 (WW)	Caustic lab waste from analysis of samples	1,517	1.6	0	0
2364	Unassigned	D001C D006B D007 D008B D018 D035 D039 D040	Neutral lab waste from the analysis of samples	2,300	2.4	0	0
2498	Unassigned	D008B D012 D039 F002 F003 (WW)	Sump Liquor	560	0.6	0	0
10004	FM-W127	D007 D018 D019 D021 D029 D039 D040 F001	Contaminated solvent	3,479	4.4	0	0
10006	FM-W129	D008B D009E D039 F001	Contaminated oil - insoluble	122	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
10027	FM-W146	D039 D040 F001	Contaminated oil, insoluble	2,502	2.8	0	0
10029	FM-W148	D006 D007 D008 D019 D029 D040 F001	Used oil	1,387	1.6	0	0
10030	FM-W149	D001A F003	Contaminated solvent (methanol)	82	0.6	0	0
10032	FM-W51	F001	Contaminated oil, insoluble	303	0.4	0	0
10034	FM-W152	D001A D018 U019	Benzene (labpacked)	3	0.2	0	0
10035	FM-W153	D019 U211	Carbon tetrachloride (labpacked)	20	0.2	0	0
20003	FM-W154	D001A D019 D022 D028 D029 D035 D039 D040 F001 F003 F005A	Degreasing solvent from National Electric Coil	56,832	56.0	0	0
20021	FM-W158	D019 D029 D039 D040 F001	Contaminated insoluble oil from drum baler	2,637	3.0	0	0
20028	FM-W161	D039 D040 F001	Insoluble quench oil used in Pilot Plant casting operation	1,245	2.0	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20031	FM-W162	D008B D018 D028 D029 D039 D040 F002	Contaminated oil, insoluble gear oil, lubricating oil from Plant 1	1,263	1.8	0	0
20038	FM-W167	D006B D008B D018 D019 D028 D029 D039 D040 F002 F005A	Contaminated oil - insoluble from Pilot Plant processing equipment	288	0.4	0	0
20054	FM-W172	D019 D022 D028 D029 D039 F001 F005A	Contaminated solvent - trichlor, perchlor, etc. from Plant 5 casting area	171	0.2	0	0
20055	FM-W173	D029 D039 F002	Contaminated oil - insoluble from processing equipment at the Pilot Plant	196	0.2	0	0
30033	FM-W191	D001A D039 F003 F005A	Contaminated solvent from maintenance	2,544	3.4	0	0
30034	FM-W192	D018 F001	Oil contaminated with solvents (from Tank #5)	12,466	17.0	0	0
50022	FM-W218	D001A F003	Contaminated water or sump liquor, non-chloride from Plant 1 sampling area	11	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50072	FM-W227	D001A D008 D019 D039 D040 F002 F003 F005A	Contaminated sump water and hydraulic oil from drum baler in Plant 1 Drum Reconditioning Area	671	0.6	0	0
50095	FM-W233	D007	Contaminated insoluble oil from Plant 9 General	168	0.2	0	0
50096	FM-W234	D001A D007 F003	Contaminated solvents from water treatment	153	0.2	0	0
60055	Unassigned	D001A D008B D018	Leaded Gasoline from Tank #12	2374	4.0	0	0
60056	Unassigned	D001A D007 D008B D009C D039 F002	Used chlorinated solvent mixture	4,591.3	4.0	0	0
60059	Unassigned	D001A D008B F002	Used 1.1.1 Trichloroethane mix	190.2	0.2	0	0
60062	Unassigned	D001A D008B D009C F002	Contaminated insoluble oil	1,152.3	1.6	0	0
60067	Unassigned	D008B F002	Used oil with 1.1.1 Trichloroethane	154.8	0.2	0	0
60068	FM-W277	D008B F001	Contaminated insoluble oil from Plant 5 Oil Storage Area	510	0.8	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
60069	FM-W278	D008B F001	Contaminated, insoluble oil from Metal Reduction Area	1,883	2.6	0	0
60072	Unassigned	D008B F002	Solvent Contaminated Waste Oil	582.5	0.8	0	0
60083	Unassigned	D001A D008B D019 F002	Contaminated insoluble oil from Boiler Plant	674.7	0.8	0	0
60085	Unassigned	D001A D005 D006B D007 D008B D010 F002	Waste oil from Plant 8 maintenance	7,785.2	10.6	0	0
60087	Unassigned	D001A D008B D039 F002	Used oil with solvents	1,984.4	2.4	0	0
60331	FM-W283	D001B D018	Water/diesel fuel from UST #9	3,941	4.2	0	0
1229	FM-W101	D001C D008B D018 D019 D039 D040 F002 F003 (WW)	Contaminated sump water	6,019	6.6	15,280	13.4
1363		D005 D006B D007 D008B D009C	Oily Sludges from the WWTS Area	556	0.4	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,565	6.4	13,191	8.9
20007	FM-W156	D011	Oil contaminated wet sump or filter cake	31,735	62.2	0	0
20037	FM-W166	D029	Process residues, trailer cakes, waste slurries, etc. from Plant 8	362	0.6	0	0
20145	FM-W182	D002B D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30045	FM-W197	D001A	Oily sludges, high free metal from Plant 6 Water Treatment Area	423	0.6	0	0
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40122	FM-W208	D002A D005 D009C	Thorium waste slurries	183	0.2	0	0
40185	FM-W212	D001F D007 D008B	Impure thorium nitrate (solid)	838	0.2	0	0
40186	FM-W213	D001F D007 D008B	Impure thorium nitrate (solid)	2,000	0.6	0	0
50008	FM-W215	D001A	Copper contaminated sump cake from the General Sump	36,831	31.0	0	0
50068	FM-W225	D001A	Non-oily sludge for roasting from General Sump	13,990	11.4	0	0
50071	Unassigned	D001A D007	Solvent sludges from water treatment plant	194	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50177	FM-W251	D001A D004 D008B	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0
50178	FM-W339	D001A	Furnace salt, non-chloride	76	0.2	0	0
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0
50202	FM-W257	D001A D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001A D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0
50346	Unassigned	D001A	Oily sludge from oxidation	292	0.4	0	0
50347	FM-W264	D001A	Discard process residues from Boiler Plant	179	0.2	0	0
50355	FM-W267	D001A	Discard process residues from General Sump	3,675	3.2	0	0
1709	FM-W117	D001A D002A	Lab generated waste, flammable organic extracts	295	0.4	7,150	6.3
2006	FM-W346	D001A	Curing compound	173	0.4	0	0
2224	FM-W327	D001A	Floor coating base	356	0.8	0	0
50358	Unassigned	D001A	Contaminated non-burnables	1,445	0.8	0	0
50407	FM-W275	D001A	Non-Recoverable Trash	96	0.2	0	0
Treatment of MEF #'s 1229 through 50407 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1229 through 50407.							
			ESTIMATED TOTALS:	227,992.4	331.9	63,066.5	59.3

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3.1.7 Waste Streams for which Technology Exists - Preferred Option: Envirocare

Table 7, beginning on page 69, represents the FEMP mixed waste streams where the preferred option is identified as Envirocare. These waste streams either currently have no LDR treatment standard established or the concentration of constituents is below treatment standard. This project consists of bulking activities and waste processing for the purpose of disposal.

The FEMP mixed waste streams have not been identified as having a radioactive content greater than the waste acceptance criteria (WAC) of the current mixed waste disposal option (Envirocare of Utah). A future disposal option may need to be developed by DOE to address waste that is identified with elevated radioactive content.

The FEMP and DOE have contracts in place for the disposal of mixed waste at the Envirocare of Utah Facility.

The FEMP is a CERCLA site and will be dispositioning this material to Envirocare through CERCLA Removal Action #9.

The level of confidence in characterization for treatment of this waste stream is medium. Characterization for these waste streams was completed for storage requirements. Additional testing will need to be done to ensure the waste acceptance criteria for Envirocare are met.

The budget is prepared for this project and has been incorporated into the baseline.

Schedules are provided in the *Plan Volume*.

TABLE #7

3.1.7 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: ENVIROCARE

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1438	Unassigned	D039	Non-oily clean-out sludges from roasting	1,204	1.0	0	0
1532	FM-W109	D018 D039	Biodenitrification surge lagoon sludge	387,126	408.0	0	0
2048	Unassigned	F001 F002 F005A	Solidified lab waste	46,579.5	33	0	0
60017	Unassigned	D039	Oily rags and clothing	63.6	0.4	0	0
1709	FM-W117	D001A D002A	Lab generated waste, flammable organic extracts	295	0.4	7,150	6.3
2006	FM-W346	D001A	Curing compound	173	0.4	0	0
2224	FM-W327	D001A	Floor coating base	356	0.8	0	0
50358	Unassigned	D001A	Contaminated non-burnables	1,445	0.8	0	0
50407	FM-W275	D001A	Non-Recoverable Trash	96	0.2	0	0
Treatment of MEF #'s 1709 through 50407 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1709 through 50407.							
			ESTIMATED TOTALS:	436,155.6	443.7	3,575.0	3.15

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3.2 Mixed Waste Streams for which Technology Exists But Needs Adaptation or for which No Technology Exists

The FEMP has not identified any mixed waste streams for which significant adaptation and technology development is required before the waste could be treated. After final characterization, which will occur as a part of the project management process, certain variances may be requested. Specifically, there may some constituents for which the LDR Best Demonstrated Available Technology (BDAT) is incineration. The FEMP may request a variance to allow chemical destruction or stabilization. Also, certain debris may require a technology which is not practical, therefore, a variance may be requested for these wastes.

3.3 Mixed Wastes Streams Requiring Further Characterization Or For Which Technology Assessment Has Not Been Done

The FEMP has approximately 21,100 containers of waste which require further characterization before an appropriate treatment technology and/or disposal option can be identified. These wastes are part of the 'legacy waste', most of which was the result of operations during the production era. The FEMP anticipates the management process established in Section 2.4.1 will be sufficient to identify the treatment of these additional containers.

The following is an explanation of the scheduling process for the characterization of this group of wastes.

3.3.1 FEMP Legacy Group A/B - "Suspect" and "NFA"

Population Description: Legacy A/B is comprised of a population of approximately 9,500 drums of waste comprising 239 waste streams that were tentatively identified as mixed waste based on initial process knowledge and limited sampling and analysis data. "Suspect" drums include drums that were conservatively identified as hazardous waste prior to the establishment of the Consent Decree drummed waste characterization schedules in 1990. "NFA" waste refers to the FEMP wastes that were generated between 1990 and 1993 that "needed further action" to complete characterization.

Each waste stream in this population is assigned to a Material Evaluation Form (MEF). These drums are currently identified by MEF on the RCRA waste inventory for the site and included in the waste inventories identified in this plan. The scope of this project is to complete characterization sufficient to support ultimate treatment and/or disposal (i.e., to meet Land Disposal Restrictions (LDR) requirements). This work essentially upgrades characterization level from "medium" to "high" to support waste disposition.

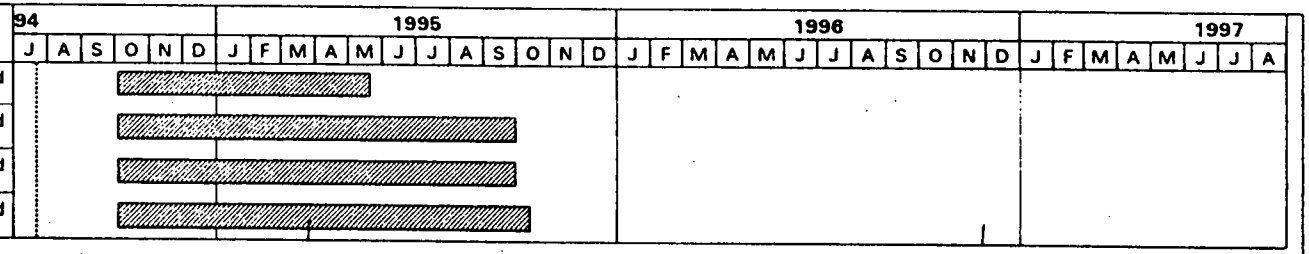
Work Scope: There are four summary characterization activities or "modules" that may apply to each waste stream in the population. The resources and durations for each of these modules were defined specifically for the waste covered under this project. These modules include: 1) process knowledge (PK) collection, 2) visual inspections, 3) sampling and analysis, and 4) final characterization and file preparation. In all cases, the first and fourth modules apply to a waste stream. About 1/3 of the waste streams require visual inspections (module 2) to verify characterizations and 2/3 of the waste stream require sampling and analysis (module 3). The detailed schedules are maintained by the FERMCO project lead to manage the project on a day-to-day basis.

Cost and Schedule: Approximately 180 of the 239 waste streams remain to be characterized in fiscal year 1995 (FY 95). The schedule runs through the first week of October 1995. A copy of the summary schedule which will become part of the FEMP FY 95 baseline is on page 72. The project is designed to run at a steady level of effort with dedicated resources in FY 95 to ensure that it is completed on schedule. The estimated cost for this project for FY 95 is $2,700,000 to characterize approximately 7,125 drums. This yields an average cost of about $380/drum.

The FY 95 baseline has been replanned to request an additional $1,360,000 to cover the full scope of characterization work for this legacy waste population.

Figure 3.3.1

ID	Name	Duration
1	1 PK Collection, Stream ID & Re	165d
2	2 Visual Inspections	260d
3	3 Drum Sampling	260d
4	4 Characterization & Document	270d



Project: Legacy A/B - "Suspect/NFA
Date: 7/21/94

Critical — Noncritical — Progress — Milestone — Summary — Rolled Up

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3.3.2 FEMP Legacy Group E2/G/H - "Unassigned Waste"

Population Description: This group is comprised of a population of approximately 10,500 drums of waste comprising 101 waste streams. 6,000 drums are drummed trash from both the FEMP and Reactive Metals, Incorporated (RMI) of Ashtabula, Ohio. This material is very similar to the contaminated trash that is processed through the FEMP contaminated trash dumpster program. The remaining 4,500 drums are waste from the FEMP and RMI that are similar to waste streams already characterized as low level waste. Based on an initial review of these wastes, few are anticipated to be identified as mixed waste.

Each waste stream in this population will be assigned to a Material Evaluation Form (MEF). These drums are currently identified on the Materials Control and Accountability (MC&A) waste inventory but are not part of the RCRA inventory and are not included in the waste inventory in this plan. The scope of this project is to complete characterization sufficient to support ultimate waste disposition. The drummed trash will be sorted to identify and remove any prohibited items and managed as low level waste. The drummed waste will be verified for addition to existing, similar waste streams.

Work Scope: There are three basic activities required to support the drummed trash disposition project. The first activity is development of a sorting criteria plan to identify all non-trash materials (e.g., waste residues) or any prohibited trash items (e.g., unpunctured aerosol cans) that must be segregated for further characterization. The second activity is the field oversight of the sorting operation to provide characterization support. The third activity is characterization of all segregated materials.

There are four summary characterization activities or "modules" that may apply to each waste stream of drummed waste. The resources and durations for each of these modules were defined specifically for the waste covered under this project. These modules include: 1) process knowledge (PK) collection, 2) visual inspections, 3) sampling and analysis, and 4) final characterization and file preparation. In all cases, the first and fourth modules apply to a waste stream. About 70% of the waste streams require visual inspections (module 2) to verify characterizations and 30% of the waste stream require sampling and analysis (module 3). The detailed schedules are maintained by the FERMCO project lead to manage the project on a day-to-day basis.

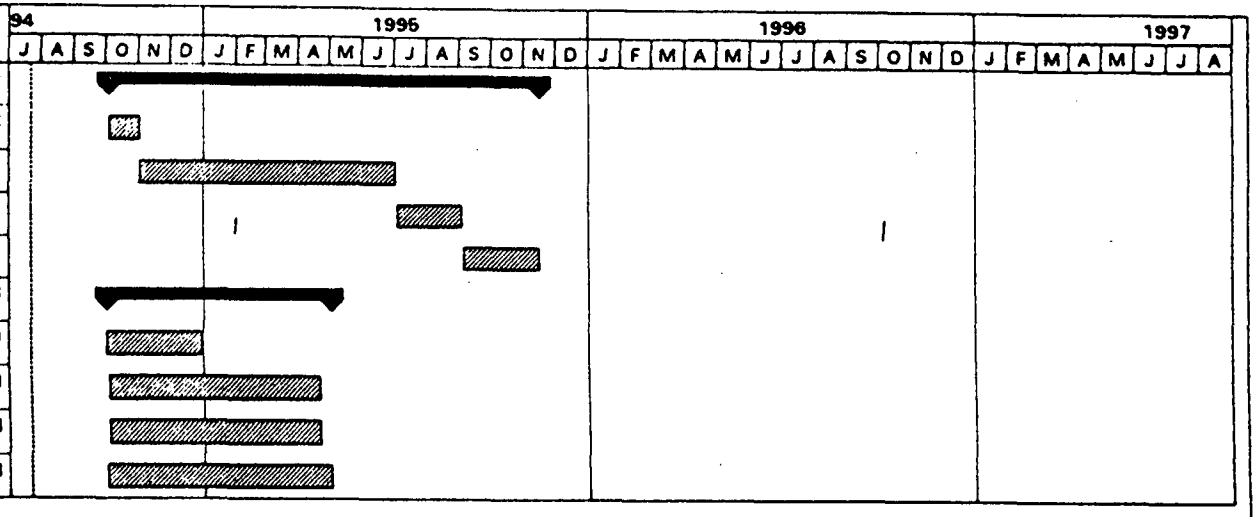
Cost and Schedule: Approximately 100 waste streams remain to be characterized in fiscal year 1995 (FY 95). The schedule for sorting the trash drums runs through July of 1995 with the follow-on characterization of the segregated materials finishing in November of 1995. The schedule for characterizing waste drums runs through May of 1995. A copy of the summary schedule which will become part of the FEMP FY 95 baseline is on page 75. The project is designed to run at a steady level of effort with

dedicated resources in FY 95 to ensure that it is completed on schedule. The estimated characterization cost for FY 95 for the characterization of 6,000 drums of trash is about $100,000, excluding the cost of the operations personnel to do the actual sorting. This yields an estimated cost of about $17/drum. The estimated characterization cost for FY 95 for the 4,500 drums of waste is $900,000. This yields an average cost of about $200/drum. Combined, the estimated characterization cost for FY 95 for the 10,500 drums is about $1,000,000 or about $95/drum.

The FY 95 baseline has been replanned to request an additional $1,000,000 to cover the full scope of characterization work for this legacy waste population.

Figure 3.3.2

ID	Name	Duration
1	1 Drummed Trash	293d
2	1.1 Sorting Criteria/Plan	22d
3	1.2 Field Characterization S	174d
4	1.3 S&A for Segregated M	45d
5	1.4 Characterization Docu	53d
6	2 Residues	151d
7	2.1 PK Collection, Stream I	65d
8	2.2 Visual Inspection	144d
9	2.3 Drum Sampling	144d
10	2.4 Characterization and D	151d



Project: Legacy H - "Unassigned"
Date: 7/21/94

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

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3.3.3 FEMP Legacy Group I - "Backlogged Boxes"

Population Description: Legacy I is comprised of a population of approximately 2,100 boxes (4'x4'x 7' white metal boxes) of backlogged construction waste which required final characterization review prior to disposition. The review is a quality control check on the material prior to disposition. The majority of these boxes are being released for disposal as low level waste. Boxes containing scrap metal may be dispositioned for recycle. Approximately 240 white metal boxes contain radiologically contaminated regulated asbestos containing materials (RACM) that can not be dispositioned until a disposal option becomes available (e.g., Nevada Test Site - NTS) for LLRW/RACM. Other than a small amount of prohibited items that may need to be segregated, no mixed waste is expected to be identified through this characterization review process. These boxes are currently included in the Material Control and Accountability (MC&A) box inventory and are not included in the waste inventory in this plan.

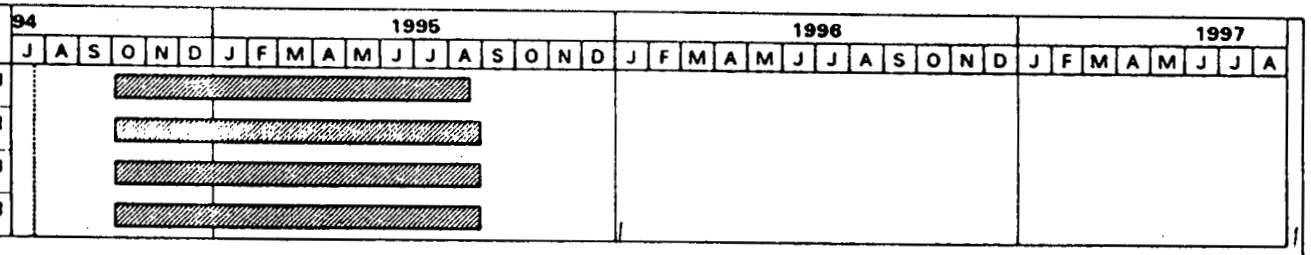
Work Scope: There are four summary characterization activities or "modules" that may apply to set of boxes in the population. The resources and durations for each of these modules were defined specifically for the waste covered under this project. These modules include: 1) process knowledge (PK) collection, 2) visual inspections, 3) sampling and analysis, and 4) final characterization and file preparation. In all cases, the first, second, and fourth modules apply to a waste stream. Based on an initial review of the materials ten sampling and analysis episodes will be required to characterize specific sets of boxes. This sampling and analysis is required to meet waste acceptance criteria for NTS. The detailed schedules are maintained by the FERMCO project lead to manage the project on a day-to-day basis.

Cost and Schedule: Approximately 1,000 boxes remain to be characterized during fiscal year 1995 (FY 95). The schedule runs through September of 1995. A copy of the summary schedule which will become part of the FEMP FY 95 baseline is on page 77. The project is designed to run at a steady level of effort with dedicated resources in FY 95 to ensure that it is completed on schedule. The estimated cost for this project for FY 95 is $260,000. This yields an average cost of $260/box.

The FY 95 baseline has been replanned to request an additional $260,000 to cover the full scope of characterization work for this legacy waste population.

Figure 3.3.3

ID	Name	Duration
1	1 PK Collection	230d
2	2 Visual Inspection	238d
3	3 Box Sampling	238d
4	4 Characterization Documentati	238d



Project: Legacy I - Boxes
Date: 7/21/94

Critical
Noncritical
Progress
Milestone
Summary
Rolled Up

4.0 TRU MIXED WASTE STREAMS

This section is not applicable as the FEMP does not generate or store mixed transuranic wastes.

5.0 HIGH-LEVEL MIXED WASTE STREAMS

This section is not applicable as the FEMP does not generate or store mixed high-level wastes.

6.0 FUTURE GENERATION OF MIXED WASTE STREAMS

This chapter address wastes expected to be generated within the next five years (to 1999), i.e., environmental remediation wastes including wastes resulting from D&D activities. Those environmental remediation wastes previously generated through response actions which are currently being stored, are identified in Chapter 3 and included in the *Plan Volume* of this DSTP.

Potential sources of mixed wastes for which cleanup is scheduled within the next five years (and for which treatment in accordance with the RCRA LDRs may be required) are identified below for general planning purposes. Due to the uncertainty of how these environmental restoration wastes ultimately will be managed, their inclusion into the *Plan Volume* of this STP (and therefore the specification of how and when they will be treated) will not occur until a final cleanup decision (i.e., CERCLA ROD or equivalent document) has been negotiated. This final decision will be made in compliance with applicable, statutory/regulatory requirements, and where appropriate, established schedules in existing compliance agreements/orders.

There are five operable units (OUs) at the FEMP expected to generate remediation wastes and are currently undergoing RI/FS activities. OU definitions and schedules for submittal of RI/FS documentation, as established in the Amended Consent Agreement, are described below:

Operable Unit 1 - Waste Pits 1-6, the Clearwell, the Burn Pit, berms, liners, and associated contaminated soil within the operable unit boundaries.

Initial Screening of Alternatives: January 4, 1991
RI Report/Baseline Risk Assessment: October 12, 1993
FS Report/Comprehensive Response Action Risk Evaluation: March 7, 1994
Proposed Plan Report: March 7, 1994
Proposed Draft Record of Decision: November 6, 1994

Operable Unit 2 - the fly ash piles, other Southfield disposal areas, the lime sludge ponds, the solid waste landfill, berms, liners, and associated contaminated soil within the operable unit boundary.

Initial Screening of Alternatives: April 18, 1991
RI Report/Baseline Risk Assessment: February 18, 1994
FS Report/Comprehensive Response Action Risk Evaluation: April 29, 1994
Proposed Plan Report: April 29, 1994
Proposed Draft Record of Decision: January 5, 1995

Operable Unit 3 - the production area and production associated facilities and equipment (includes all above- and below-grade improvements) including but not limited to, all structures, equipment, utilities, drums, tanks, solid waste, waste, product, thorium, effluent lines, K-65 transfer line, wastewater treatment facilities, fire training facilities, scrap metal piles, feedstocks, and the coal pile.

RI/FS Work Plan Addendum: August 4, 1993
Record of Decision for the Interim Remedial Action (IROD): May 12, 1994
RI Report/Baseline Risk Assessment: March 13, 1996
FS Report/Comprehensive Response Action Risk Evaluation: August 7, 1996
Proposed Plan Report: August 7, 1996
Proposed Draft Record of Decision: April 2, 1997

In addition, the Draft Treatability Study Work Plan for OU3 was conditionally approved by the USEPA on May 12, 1994, although this date was not established by the Amended Consent Agreement.

Operable Unit 4 - four silos, a decant sump system, a buried concrete trench, and the surrounding soils. Two silos contain residues from the processing of pitchblende uranium ores at the FEMP and at St. Louis (Mallinckradt Chemical Works). One silo contains dried uranium-bearing refinery raffinates generated from Fernald production operations. One silo has not been used and remains empty.

Initial Screening of Alternatives: October 31, 1990
RI Report/Baseline Risk Assessment: April 19, 1993
FS Report/Comprehensive Response Action Risk Evaluation: September 10, 1993
Proposed Plan Report: September 10, 1993
Proposed Draft Record of Decision: August 9, 1994

Operable Unit 5 - environmental media: perched and regional groundwater, surface water, sediments, soils (not included in the other operable units), flora, and fauna.

Initial Screening of Alternatives: April 16, 1993
RI Report/Baseline Risk Assessment: June 24, 1994
FS Report/Comprehensive Response Action Risk Evaluation: November 16, 1994
Proposed Plan Report: November 16, 1994
Proposed Draft Record of Decision: July 3, 1995

The following sections provide waste stream information for future wastes to the extent possible where it is currently available. This data is for information purposes only and may change with the final cleanup decision.

The available information on the projected generation of mixed wastes from the five Ous in the next five years is detailed below:

Operable Unit 1

FY	HWMU#	HWMU NAME	TOTAL PROJECTED VOLUME OF CERCLA REMEDIATION WASTE WASTE IN m3
1996	27	Waste Pit 4	42,130*
1996	42	Waste Pit 5	74,854*

* The quantity for Waste Pits 4 and 5 represents the total volume of waste projected to be generated. OU1 does not expect this waste to be a mixed waste, however these units are still listed on the Part A as HWMUs.

Operable Unit 2

Operable Unit 2 does not anticipate generating any mixed waste during remedial activities.

Operable Unit 3

Operable Unit 3 is in process of closing, or plans closure of several Hazardous Waste Management Units (HWMUs) in FY 1994 and FY 1995 which will generate mixed waste. For FY 94 to date, these activities have generated 11.3 m^3 of mixed waste pending characterization. HWMU closure activities are expected to generate additional mixed waste as described below.

FY 1994	HWMU #	HWMU NAME	PROJECTED MIXED WASTE IN m^3
	26	Detrex Still	2.8
	31	Storage Tanks T-5	1.5
	36	Storage Pad North of Plant 6	35.5
	1	Fire Training Facility	178.6
	3	Waste Oil Storage (Garage)	0.8
		Total	219.2

FY 1995	HWMU#	HWMU NAME	PROJECTED MIXED WASTE IN m^3
	13	Wheelabrator Dust Collector	38.0
	21	Hilco Oil Recovery	1.0
	53	Safe Geometry Sump	0.5
		Total	39.5

The remaining HWMUs in OU3 will be closed under the Remedial Design/Remedial Action (RD/RA) work plan for the Interim Remedial Action. Those projects are detailed below.

The draft RD/RA Work Plan for the OU3 Interim Remedial Action is under final FEMP review prior to submittal to USEPA by September 20, 1994. The first three work packages have been identified and are currently out for bid. They are:

Package #1 Pilot Plant Complex
Package #2 Plant 4 Complex
Package #3 Plant 1 Complex

The schedules for these three packages have been accelerated and all waste from implementation of these wok packages will be generated in FY 95 through FY 97. The total estimated volume of CERCLA Remediation Waste and the subset of that waste that is projected to be mixed waste generated from these projects is listed below. Note that no more than 2% of the total waste from these projects is estimated to be mixed waste.

FY	Total Projected Volume of CERCLA Remediation Waste in m^3	Total Projected Volume of Mixed Waste: 2% in m^3
1995	6,580	131.6
1996	4,336	86.7
1997	42	0.8

Since work packages beyond package three have not yet been identified, it is not possible to estimate the waste generation rate beyond early FY 97. Additional information will be provided as sequencing of remedial action is finalized.

The work package implementation plan is currently being evaluated and prioritized. Additional work packages will be identified and a schedule will be included in the March 17, 1995 submittal to USEPA of the draft OU3 Remedial Design Prioritization and Sequencing Report.

Operable Unit 4

OU4 does not anticipate generating any mixed waste over the next five years.

Operable Unit 5

OU5 anticipates generating carbon filters from the Plant 8 VOC System as a mixed waste within the next five years.

FY	PROJECTED MIXED WASTE IN m^3
1995-1999	1.6

000092

6.1 Description of Technology and Capacity Needs

The FEMP is in the process of developing and evaluating treatment technologies for these future generated waste streams as part of the CERCLA remediation process.

The final remedy for a specific mixed waste stream will be identified in the Record of Decision (ROD) for the Operable Unit responsible for that waste stream. The ROD and the ensuing Remedial Design/Remedial Action (RD/RA) will become the basis for identifying the appropriate treatment technology. Information developed through these CERCLA decision documents will be used to address FFCAct requirements for remediation wastes.

6.2 Anticipated Schedule for Incorporating In Plan

Schedules in the STP for developing treatment capacity for these waste streams will be based on the CERCLA schedules associated with implementing the selected remedy. Only those CERCLA schedule items that directly relate to the FFCAct requirements will be included in the Plan. The FEMP will submit annual updates, to incorporate CERCLA schedules and treatment technologies into the STP and to update information on remediation wastes.

7.0 STORAGE REPORT

DOE is committed to storing waste in compliance with RCRA storage requirements in 40 CFR 264 or 40 CFR 265 pending the development of treatment capacity and implementation of the Site Treatment Plans.

For mixed waste to be shipped off-site for treatment, storage of the mixed waste before and after treatment will be arranged on a case-by-case basis between the shipping and receiving facilities, in consultation with the affected states. Factors such as inadequate compliant storage capacity at the shipping site and the need to facilitate closure of the shipping site will be considered.

As a general rule, mixed wastes will be stored at the generating site until such time as transfer is needed to support execution of treatment. Variations to this arrangement will be considered in the event of a potential compliant storage situation at the shipping site (for example, where there is insufficient storage capacity at the shipping site), to facilitate closure of the shipping site, or when other arrangements are acceptable to affected sites and states.

7.1 Current Storage Capacity

The FEMP is currently seeking to permit seven low-level mixed waste storage facilities with a total maximum storage capacity of 2,431,168 cubic meters (m^3). A Part B Permit Application for these units was submitted to OEPA in October 1991 and was subsequently revised and updated through March 1993. Information on these seven storage units, including their location, maximum capacity, and types of wastes stored is presented below.

STORAGE UNIT	LOCATION	MAXIMUM CAPACITY (m^3)	WASTE TYPES
Plant 6 Warehouse/ Bldg. 79	E Street between 1st and 2nd Street	48,043	Combustible and flammable liquids, solids, trash
Plant 9 Warehouse/ Bldg. 81	D Street - North of 3rd Street	17,953	Combustible liquids and solids, corrosives
KC-2 Warehouse/ Bldg. 63	B Street - North of 2nd Street	41,768	Combustible and flammable liquids
Pilot Plant Warehouse/ Bldg. 68	Southwest corner of production area	2,748	Ignitable dry wastes, metals, metal salts and oxides
Plant 8 Warehouse/ Bldg. 80	Corner of A Street and 1st Street	28,990	Combustible solids
Plant 1 Pad	North of 2nd Street; West of B Street	2,267,484	Various hazard classes
CP Storage Warehouse/ Bldg. 56	B Street - North of 2nd Street	24,182	Various hazard classes except ignitables

It should be noted that discussions have been initiated with OEPA to integrate the Part B Permit Application requirements with the CERCLA remediation program. As a result of these discussions, the Part B Permit Application may be withdrawn. In such an event, the storage facilities will continue to be operated in compliance with RCRA requirements.

Mixed waste at the FEMP is stored in accordance with the provisions of the Consent Decree and its Stipulated Amendment and the Drum Management Plan. The mixed waste storage areas are inspected per applicable regulations by the FEMP site personnel. All inspections are recorded in inspection logs which are maintained in the FEMP RCRA Operating Record. The drums stored on Plant 1 Pad are inspected daily for leakage. Any deteriorations, problems or malfunctions revealed by the inspection are remedied as soon as possible. Any noncompliance items are identified and appropriate parties are notified in accordance with site policies and procedures. Where a hazard is imminent, or has already occurred, remedial action is taken immediately. If the hazard is declared an "emergency", the RCRA Contingency Plan is implemented. All other problems are recorded in the inspection log and a work order for correction is placed by the supervisor. Outstanding problems are

tracked through completion. Periodic site assessments are conducted internally to determine RCRA compliance. Assessment reports are completed and sent to the appropriate personnel for follow-up action.

7.2 Future Storage Requirements

The FEMP is currently utilizing approximately 90% of available capacity. Further reduction in mixed waste inventories from planned and current shipments to Envirocare, the TSCA Incinerator and other treatment/disposal activities developed through this Plan should ensure that there remains sufficient space to meet future storage needs for mixed wastes to be generated from routine operations, maintenance activities, and the treatment of residues.

The majority of mixed waste expected to be generated in the future will be comprised of soil, possibly sludges, and debris from remediation activities. Currently, soil and debris generated from removal actions, construction projects, and maintenance activities is being managed in accordance with the Removal Action 17 Work Plan for Improved Storage of Soils and Debris. This work plan addresses storage of soil and debris in two phases - interim storage during the design and construction of four improved storage facilities (Phase 1) and storage until selection and implementation of the final remedial alternatives through the CERCLA Records of Decision (Phase II). During Phase I, mixed soils and debris are containerized and stored on an interim basis in existing mixed waste storage areas pending completion of the Central Storage Facility (CSF). The CSF will be used to store contaminated soil and non-recoverable debris during Phase II. Additional storage facilities for soil and debris may be added, if required.

The CERCLA Records of Decision (RODs) for each Operable Unit will address management of wastes to be generated from remediation activities. Final decisions on these wastes will be dependant on the RODs for each OU.

8.0 PROCESS FOR EVALUATING DISPOSAL ISSUES IN SUPPORT OF THE STP DISCUSSIONS

The Federal Facility Compliance Act requires only that DOE develop a plan for the treatment of mixed wastes. The Act does not impose any similar requirement for the disposal of mixed wastes. DOE recognizes, however, the need to address this final phase of mixed waste management. The following process reflects DOE's current strategy for evaluating the potential options for disposal and consistent with the purpose of this Background Volume, is provided for informational purposes only.

8.1 Introduction

This section discusses the overall process developed by DOE for evaluating issues related to the disposal of residues from the treatment of mixed low-level wastes (MLLW) subject to the Act. The FEMP is among the sites being analyzed further under this process for potential development as a disposal site for residues from the treatment of MLLW subject to the Act. Currently there are no active permitted disposal facilities operated by DOE for residues from the treatment of MLLW.

It is important to note that the ultimate identification of sites that may host mixed waste disposal activities will follow state and federal regulations for siting and permitting and will include public involvement in the decision-making and preparation of the appropriate environmental impact analyses in accordance with the National Environmental Policy Act. Moreover, any recommendations concerning removal of sites from further evaluation under this process do not affect environmental restoration decisions by DOE under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) concerning remediation activities. Once the process of acquiring permits for these sites is initiated, along with associated design and radiological performance assessment efforts, some sites may be found to not be desirable for disposal activities. Additionally, some sites which have not been before considered for disposal activities may be suitable for the disposal of some MLLW residues.

Previously, the DOE planning baseline included the development of MLLW disposal facilities at the six DOE sites currently disposing of low-level waste (Hanford Site, Savannah River Site, Oak Ridge, Idaho, Nevada, and Los Alamos). Plans for the development of these facilities are currently on hold pending the results of this process and the Environmental Management Programmatic Environmental Impact Statement (EM PEIS) currently being prepared by DOE.

Pursuant to discussions between DOE and the States, DOE developed a process for evaluating the potential options for disposal of the residues from treatment of mixed waste subject to the Act. The sites subject to this evaluation are the 49 sites reported to Congress by DOE in the Mixed Waste Inventory Report, April 1993, as currently storing or expected to generate mixed waste.

This chapter outlines the process developed by DOE, in consultation with the States, for evaluating potential options for the disposal of residues from the treatment of MLLW. Importantly, because MLLW disposal sites are not currently being developed by DOE, preferred alternatives or final destinations for disposal of treatment residues may not be known at the time final proposed Site Treatment Plans are submitted to the States and USEPA in February 1995. The results of this process are intended to be considered during the discussions about development of the Act Site Treatment Plans, both between DOE and States and among States themselves.

8.2 Disposal Site Evaluation Process to Date

Although the Act does not specifically address disposal of treated mixed wastes, both DOE and the States have recognized that disposal issues are an integral part of treatment discussions. A process was established to evaluate and discuss the issues related with potential disposal of the residues from the treatment of DOE MLLW at the sites subject to the Act. The focus of this process has been to identify, from among the sites currently storing or expected to generate mixed waste, sites that are suitable for further evaluation regarding their disposal capability. Sites determined to have marginal or no potential for disposal activities will be removed or postponed from further evaluation under this process. Remaining sites will be evaluated more extensively. Ultimately, a number of sites are expected to be technically acceptable for disposal activities.

Site Grouping

The initial step in this process was to examine each of the 49 sites to determine which sites, while individually listed in the Mixed Waste Inventory Report, were in such geographic proximity that further analysis could address them as a single site. This grouping reduced the number of sites to 44, as follows:

- The Idaho National Engineering Laboratory and Argonne National Laboratory (West) are located within several miles of each other on a single Federally-owned reservation in Idaho Falls, Idaho, and were considered a single site for further analysis;

- The Sandia National Laboratory, Livermore, and Lawrence Livermore National Laboratory are located on adjoining properties in Livermore, California, and were considered a single site for further analysis;

- The Inhalation Toxicology Research Institute and Sandia National Laboratory, Albuquerque, New Mexico, are located on the same Federally- owned reservation within several miles of each other, and were considered a single site for further analysis; and

- The Oak Ridge National Laboratory, Oak Ridge K-25 Site, and Oak Ridge Y-12 are all located within the Federally-owned Oak Ridge Reservation, in Oak Ridge, Tennessee, and were considered a single site for further analysis.

Initial Site Screening

The remaining 44 sites were screened against three exclusionary criteria. These criteria were developed by reviewing Federal and State laws regarding the siting of waste treatment, storage, and disposal facilities to determine whether any criteria existed which could be considered exclusionary minimum requirements for hosting disposal activities and which could be applied uniformly across

sites. It was agreed at a joint DOE/States meeting in Tucson, Arizona on March 3-4, 1994, that in order to be further evaluated for potential disposal activities, a site:

- must not be located within a 100-year floodplain;
- must not be located within 61 meters (200 feet) of an active fault; and
- must have sufficient area to accommodate a 100-meter buffer zone.

Two of the criteria (100-year floodplain and active fault) are derived from regulatory requirements under the Resource Conservation and Recovery Act which restrict the location of waste treatment, storage, and disposal facilities. The third criteria (sufficient area for 100-meter buffer) is derived from guidance from the U.S. Environmental Protection Agency, U.S. Nuclear Regulatory Commission, and U.S. Department of Energy concerning the area required to properly operate such facilities.

Application of the three exclusionary criteria identified 18 sites which did not meet the criteria (see Figure 8-1). The results were presented at a March 30-31, 1994, joint DOE/States meeting in Dallas, Texas. At the meeting, it was agreed to remove the 18 sites from further evaluation and that DOE would collect additional site-specific information on the remaining 26 sites to identify the strengths and weaknesses of the remaining sites for the purpose of disposal activities (see Figure 8-2). It was also agreed that DOE and any affected States may propose additional sites for elimination from further evaluation after review of the site-specific information and further discussions.

26 Site Evaluation

DOE and the States met on July 26-27, 1994, in Denver, Colorado to discuss the site specific information on the 26 sites and to consider proposals for elimination of sites from further evaluation. The focus of these discussions was to identify sites suitable for further evaluation regarding their disposal capability. It was agreed that sites determined to have marginal or no potential for disposal activities would be removed or postponed from further evaluation under this process. As a result of the meeting, DOE and the States agreed that the following sites would be eliminated from further evaluation due to their limited potential for disposal activities:

SITE	STATE
Energy Technology Engineering Center	California
General Atomics	California
General Electric Vallecitos Nuclear Center	California
Pinellas Plant	Florida
Site A/Plot M	Illinois

Additionally, DOE and the States agreed that due to its geographic proximity, the Knolls Atomic Power Laboratory at Niskayuna, New York, would be merged with the Knolls Atomic Power Laboratory at Kesselring, New York, for further analysis. DOE and the States also agreed that the following sites, while not eliminated from further evaluation, would be given a lower priority for further evaluation:

SITE	STATE
Weldon Spring Remedial Action Project	Missouri
Brookhaven National Laboratory	New York
Mound Plant	Ohio
Bettis Atomic Power Laboratory	Pennsylvania

Sites assigned a lower priority for further evaluation had issues that required further consideration, including whether the technical abilities of the site were adequately known, the volume of mixed waste which may be generated by the site, and whether other arrangements for disposal of the sites' mixed waste were adequate. DOE and the States agreed to further evaluate these sites in terms of their ability to dispose of their own mixed waste on-site only if no other options for disposal of their wastes could be identified through the disposal evaluation process. In no case would these sites be considered as a disposal option for wastes from other sites, and could be eliminated from further analysis if sufficient information suggests that their potential for disposal activities is too limited.

8.3 Next Steps in Disposal Site Evaluation Process

For the sites not eliminated from further evaluation or assigned a lower priority for evaluation, a more technically detailed performance evaluation will be conducted to increase the understanding of the strengths and weaknesses of a site's potential for disposal activities and to better identify what types of disposal activities could or could not occur at a site. A configuration analysis (risk, cost, transportation) will also be prepared, and a final set of sites will be identified as disposal options which will be technically capable of disposing of some waste. DOE officials, in concert with the public and pursuant to the National Environmental Policy Act, will then identify those sites that will be further evaluated for potential development as disposal sites. Permitting and preparation of performance assessments in accordance with radioactive waste management regulations will then be undertaken collaboratively with States and regulators.

Performance Evaluation

The performance evaluation to be conducted for each of the remaining sites will entail the collection of site-specific data related to the natural surroundings, geotechnical setting, groundwater and surface water characteristics, and other factors related to the disposal capabilities of each site. This information will then be used to evaluate the sites and determine what types and quantities of waste may be able to be disposed at a given site. The

performance evaluations will be initiated in August, 1994, and will be completed by February, 1995. The 16 sites being carried forward for this analysis are:

SITE	STATE
Lawrence Livermore National Laboratory, Site 300	California
Rocky Flats Plant	Colorado
Idaho National Engineering Laboratory	Idaho
Argonne National Laboratory	Illinois
Paducah Gaseous Diffusion Plant	Kentucky
Nevada Test Site	Nevada
Los Alamos National Laboratory	New Mexico
Sandia National Laboratory	New Mexico
Knolls Atomic Power Laboratory - Kesselring	New York
West Valley Demonstration Project	New York
Fernald Environmental Management Project	Ohio
Portsmouth Gaseous Diffusion Plant	Ohio
Savannah River Site	South Carolina
Oak Ridge Reservation	Tennessee
Pantex Plant	Texas
Hanford Site	Washington

Configuration Analysis

Through the Draft EM PEIS currently being prepared by DOE, the potential cost, risks, transportation, and other environmental impacts of using each of the remaining 16 sites for some level of disposal activity will be analyzed. This analysis is currently scheduled to be released for public review and comment in Late 1994/early 1995.

Site Limitations Analysis

Following public comment on the Draft EM PEIS and completion of the performance evaluations on the remaining 16 sites, DOE will work with the States and public to develop estimates of the quantities and types of waste that could be disposed at the 16 sites. It is expected that the results of these two analyses may indicate that some of the remaining 16 sites are not suitable for further analysis.

Final EM PEIS

While the final proposed Site Treatment Plans are being prepared, and following their submission by DOE to the States and other regulators, it is expected that individual States and DOE will enter discussions concerning what wastes will be treated at which sites. It is also expected that as a part of these discussions, some arrangements may be established between DOE sites and States as to how any future disposal activities will be handled. DOE expects that the information supplied throughout this process will be used in those discussions. Likewise, DOE expects that the Final EM PEIS analyses will encompass the range of discussions and arrangements under consideration.

Post-Compliance Order Activities

It is expected that by October, 1995, when Compliance Orders are expected to be issued under the Act, discussions among States and DOE sites concerning disposal of the residues from the treatment of mixed waste may not completed. It is therefore expected that a Record of Decision under the EM PEIS relative to disposal activities may be delayed somewhat to allow discussions to continue further. When a Record of Decision is issued, it will identify preferred sites to be recommended for further development as disposal facilities.

Post-Record of Decision Activities

Following the issuance of a Record of Decision under the EM PEIS on disposal activities, DOE sites will, as appropriate, initiate site-specific Environmental Impact Statements on the proposed disposal facilities, initiate performance assessment processes in accordance with radioactive waste management regulations, and collaboratively with the States and other regulators initiate processes for permitting of disposal facilities.

FIGURE 8-1
SITES ELIMINATED IN INITIAL SCREENING

SITE	EXCLUSIONARY CRITERIA		
	100 meter buffer	100-Year Floodplain	Active Fault
California			
Lawrence Berkeley Laboratory	●		
Laboratory for Energy-Related Health Research	●		
Mare Island Naval Shipyard (a)		●	
Colorado			
Grand Junction Project Office		●	
Connecticut			
Knolls Atomic Power Laboratory, Windsor	●		
Hawaii			
Pearl Harbor Naval Shipyard (a)		●	
Iowa			
Ames Laboratory	●		
Maine			
Portsmouth Naval Shipyard (a)		●	
Missouri			

FIGURE 8-1 SITES ELIMINATED IN INITIAL SCREENING			
SITE	EXCLUSIONARY CRITERIA		
	100 meter buffer	100-Year Floodplain	Active Fault
Kansas City Plant		●	
University of Missouri	●		
New Jersey			
Middlesex Sampling Plant	●		
Princeton Plasma Physics Laboratory	●		
New York			
Colonie Interim Storage Site	●		
Ohio			
Battelle Columbus Laboratory	●		
RMI Titanium, Inc.	●		
South Carolina			
Charleston Naval Shipyard (a)		●	
Virginia			
Norfolk Naval Shipyard (a)		●	
Washington			
Puget Sound Naval Shipyard (a)		●	
● = Site fails Criteria (a) = Site Potentially in Coastal High-Hazard Area			

The FEMP has been meeting with USEPA and OEPA since the summer of 1993 to discuss the large volumes of low level radioactive, mixed, solid, and construction and demolition debris waste that will be generated during remediation at the FEMP. Discussions are continuing on the possibility of an on-site engineered disposal area.

8.4 FEMP DISPOSAL FACTORS

The FEMP has included the option for disposal of mixed waste residues or low level waste in the treatment train diagrams detailing how each waste stream will be treated, located in Appendix C. This demonstrates that each waste stream has been evaluated not only for treatment, but also for final disposition. Testing after treatment will be required to ensure waste acceptance criteria are met for the specific receiving facility.

Existing capacity is available at the Nevada Test Site (NTS) for disposal of low level waste from the FEMP and at Envirocare of Utah for low-level and mixed waste disposal.

The FEMP considers, as a necessary part of the STP, that hazardous debris cleaned and treated to the debris treatment standard is no longer hazardous/mixed waste and may be disposed as LLW only. The FEMP recognizes that residues resulting from the decontamination process will still be considered hazardous until further processing.

The FEMP has not identified any MLLW streams which have a radioactive content greater than the waste acceptance criteria (WAC) of the current mixed waste disposal option, (Envirocare of Utah). A future disposal option may need to be developed by DOE to address waste that is identified with elevated radioactive content.

APPENDIX A

DSTP DEVELOPMENT FRAMEWORK APPLICATIONS

APPENDIX A
DSTP DEVELOPMENT FRAMEWORK APPLICATIONS
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APPENDIX A

DSTP DEVELOPMENT FRAMEWORK APPLICATIONS

1.0 Evaluation Process and Methodology

The FEMP CSTP presented numerous potential options for the treatment of mixed waste. Appendix A presents an evaluation of those treatment options that were considered viable for FEMP waste streams. Each viable option was further evaluated to develop a preferred option for each waste stream.

The process and methodology used in identifying and evaluating the treatment technology options included the following:

A. The process was initiated by identifying and listing the on-site, existing and planned treatment technologies/facilities which might be available to treat mixed waste. Initially these options were listed without regard to regulatory/permit concerns or the modifications which might be necessary to actually treat mixed waste.

B. The CSTP was consulted and the listed options deemed viable were added to the list to be further evaluated.

C. There were certain obvious preferred options (POs) which were being used or were in the planning stages. These were added to the list.

D. An Ohio Work Group was formed from the five Ohio DOE sites (Fernald Environmental Management Project, Portsmouth Gaseous Diffusion Plant, Mound Plant, Battelle Columbus Laboratory, and RMI Titanium). This group added further alternatives through discussions concerning various common waste streams as well as from the "Technology Catalog" developed by the DOE-HQ Technology Support Team (see Appendix B).

An initial list of potential treatment technologies was first screened by members of the Ohio Work Group, FEMP engineers, and members of the Technology Support Team. This process allowed for the further refinement of the list to eliminate options which were not viable because of obvious engineering constraints, budgetary limitations, inability of the technology to meet the LDR standards, or the technology is not protective of human health and the environment. The initial list was screened to create a list of viable treatment technologies for further evaluation of on-site, Ohio and out-of-state options.

The list of viable treatment technologies was then evaluated using the "Treatment Selection Guides" prepared by the DOE FFCAct Task Force, March 1, 1994, Revision 0. Schedule information contained in this document has been developed in support of cost estimates required by the DSTP Cost Information Guidance Document, Revision 1, April 21, 1994 and are subject to change. In some cases, schedules were developed solely to enable cost estimates to be developed and are based on typical timeframes for DOE projects and hypothetical start dates. To the extent that the schedules represent actual

DOE plans for implementation of the option, the schedules have been included in the DSTP Plan Volume and are still subject to change. The cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for "Mixed Low-Level Waste", INEL, March 1994. If the cost guidance did not contain comparable treatment technologies or units, the most similar technology or unit cost estimate was used. A secondary source of cost information was the "Mixed Waste Treatment Feasibility Study", Westinghouse Materials Company of Ohio, March 1991.

The information assembled at this point allowed for the application of the treatment technology evaluation process contained in the "Treatment Selection Guides".

1.1 Treatment Selection Guides

The Treatment Selection Guides were prepared by the DOE FFCAct Task Force (March 1, 1994, Revision 0). Their purpose was to provide a list of general selection guides for use by all sites to add uniformity to the manner in which treatment options were evaluated and preferred options were selected and will be appropriate for making decisions required to meet the STP requirement of the FFCAct. The seven criteria which are used for this comparison are:

- Regulatory Compliance
- Environmental Health and Safety
- Treatment Effectiveness
- Implementability
- Stakeholder Concerns
- Life-Cycle Costs
- Technology Development

Each criteria was further divided into sub-elements which were identified to ensure that evaluations of treatment effectiveness and other guides are assessed in a comparable manner from site to site. These selection guides are representative of those currently in use across the DOE complex and by some key stakeholders (e.g., the Western Governor's Association and the EPA). The definitions of the primary guides and their sub-elements are identified below.

1.1.1 Regulatory Compliance

This guide assesses the ease with which process-specific regulations (e.g., federal, state, and local) and commitments in compliance agreements or orders are satisfied. The regulatory requirements include state and local laws, EPA and Department of Transportation (DOT) laws, and other laws that specify requirements or milestones. Treatment systems under consideration should be developed to ensure that at a minimum the waste meets the LDR standards.

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(It is anticipated that options not meeting regulatory requirements, either through standard application of regulatory requirements or established variance procedures, will not pass a basic viability screening.) This parameter gives high scores to treatment technologies or options that have been previously permitted and are relatively straightforward, and lower scores to technologies or options that require regulatory exemptions or demonstrations of equivalency that may pose additional permitting difficulties.

1.1.2 Environmental Health and Safety

The environmental health and safety guide gives high marks to processes providing little or no additional risk to the industry workers, the public, or the environment in general. This includes all occupational safety and health issues, pollution issues, and mechanical and electrical hazard issues, as well as legally driven issues.

Environmental/Public Health and Safety: This sub-element assesses risk to all off-site populations due to routine operations and potential accidents at a facility with the proposed process. This assessment includes routine emissions (radiological and hazardous) from the facility under normal operating conditions, under less than ideal conditions (e.g., waste streams marginally characterized or overly aggressive production schedules), and all accident scenarios (both high probability/low consequence and low probability/high consequence).

Non-Operational Worker Health and Safety: This sub-element assesses occupation risk to all on-site workers due to activities exclusive of facility operations using the proposed process. Risks include those from construction of the facility, non-routine maintenance (e.g., substitution of technologies, equipment replacement, etc.), and decontamination/decommissioning of the facility).

Operational Worker Health and Safety: This sub-element assesses the radiological and hazardous risks to all on-site workers during operations at a facility with the proposed process including both routine operations and accidents. Risks due to routine operations include radiological and hazardous exposure during drum handling, waste sorting, primary and/or secondary treatment, packaging of the treatment residuals, and routine equipment maintenance. Risks due to accidents include radiological and hazardous exposure resulting from equipment failure (with possible associated fires and explosions) or worker error.

Transportation Risk: This sub-element assesses the radiological and hazardous risks to workers and the public posed by off-site transportation of mixed waste. Risks include those from additional waste characterization required for transportation, handling of waste containers during certification and loading/unloading, fatalities and accidents due to traffic accidents, and chronic and acute effects of exposure to radiological and hazardous constituents of the waste during both routine operations and as the result of an accident.

1.1.3 Treatment Effectiveness

The treatment effectiveness guide assesses how well the proposed process performs technically and what the anticipated advantages are compared to alternatives.

Volume Reduction: This sub-element assesses the ability of the treatment technology or option to reduce volume of the original waste. Net volume of residuals divided by net input volume provides a measurable way to express this factor. This sub-element provides a measure of the system's waste minimization as compared to other alternatives under consideration. The determination of volume reduction should include volumes of secondary waste generated during the process.

Secondary Waste Generation: This sub-element assesses the difficulty of managing contaminated material generated during the treatment of primary waste. Secondary waste may have additional chemical or other characteristics providing new problems relating to treatment and disposal, including contaminated filters, contaminated protective equipment, swipes, used oil, and off-gases. The difficulty of meeting any additional treatment requirements for treatment residuals would account for by ranking the sub-element of destruction and removal efficiency. The value of this assessment should be weighed according to the level of difficulty associated with managing the secondary waste.

Destruction, Removal, and/or Demobilization Efficiency: This sub-element assesses the ability of the treatment option to destroy or remove unwanted contaminants from the waste stream or to reduce the potential hazard by isolating of rendering the hazardous constituents immobilized.

Flexibility: This sub-element assesses the system's ability to process a rang of inputs with minimal effect on system operations. This includes accommodating the expected waste

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stream changes and daily variations as well as unanticipated spikes in the waste stream rate and composition. A treatment system that can accept a broad range of treatability groups would be given a high flexibility rating.

Final Waste Form Performance: The treatment systems posed as options for evaluation should at a minimum be able to meet the LDR treatment standards. This sub-element assesses the long-term stability of the treatment residuals, or the difficulty encountered in meeting post-treatment acceptance criteria required to comply with disposal requirements. Although disposal WACs have not been developed, the evaluation of this sub-element should represent a first order approximation of the closeness of the treatment residuals to the anticipated disposal requirements. This evaluation may need to include consideration of factors such as: compressive strength; biological stability; radiation stability; resistance to thermal cycling; TCLP analysis results; radionuclide leachability; and, solubility.

Ability to be Shipped: This sub-element assesses the amount of additional treatment required to make the treatment required to make the treatment residuals meet shipping requirements.

1.1.4 Implementability

The implementability guide assesses the ease and likelihood of bringing a treatment facility or technology into operation within the proposed schedule and estimated cost. It gives high scores to existing or proven treatment technologies and options and lower scores to new or unproven technologies. Existing facilities should use this guide to evaluate the availability of capacity to meet the specific treatment requirements. Implementability guides give high scores to technologies that can be designed, built, demonstrated, and put into production within specified schedules while exhibiting high levels of maturity, development, and availability.

System Implementability: This sub-element assesses the ability to build, construct, or implement the treatment option on the site. The demonstrability of the system is assesses by the ration of the number of process sub-elements previously demonstrated and validated in both actual and similar environments to the total number of sub-elements in the treatment system. The technical analysis of alternatives should not be based on the presumed performance of untested methods. An estimate of the probability of failure, in either qualitative or quantitative terms, should be made for each component technology and for the complete

alternative process. The ranking of this sub-element should give preference to technologies proven effective under conditions similar to those anticipated.

Availability: This sub-element assesses the fraction of time the system is available, considering labor and materials as well as the frequency and complexity of necessary maintenance. Availability is decreased by technologies requiring frequent or complex operation and maintenance activities as opposed to technologies requiring straightforward (less) operation and maintenance.

Scalability: This sub-element assesses the ability to transfer the technology from bench scale or demonstration testing to full scale operation or vice versa. It also addresses the ease with which a treatment system or technology can be scaled up to a larger capacity or down to a smaller capacity.

Waste Management Schedule: This sub-element assesses the time required to process the waste, including special studies, design, demonstrations, construction, permitting, and any other steps that may be required to complete treatment of the waste. The sub-element is also affected by facility capacity limitations where a waste stream may not be able to be treated for a lengthy period of time.

1.1.5 Stakeholder Concerns

The stakeholder concerns guide assesses the ability of the treatment option to satisfy concerns of the stakeholders. Recognition of stakeholder's concerns is important to the progress of DOE's waste management program and successful achievement of milestones. Stakeholders may include the local public, public near the intermediate and final destinations of the waste, state and local governments, Indian tribes, Congress, Department of Defense (DOD), and industry.

Equity Concerns: This sub-element assesses the likelihood that equity concerns in the part of the site's regulators will affect the plans for the facility.

Public Acceptance: This sub-element assesses the acceptability of the plan and schedules by stakeholders, as well as the adequacy of the stakeholders involvement. A potential for political controversy may affect public acceptance and the public's perceptions of a process could affect its use, as could tribal rights and future land users associated with technology demonstration, deployment, and socioeconomic interests.

1.1.6 Life-Cycle Cost

The life-cycle cost guide includes all factors relating to the life-cycle, maintainability, and the expected lifetime of a proposed system. Factors included in the life-cycle cost estimate will be detailed in guidance currently being developed by DOE Headquarters. Capital and operating cost estimates should be developed the Waste Management Facilities Cost Information Report (EGG-WTD-10443, Oct.92, unless better system-specific or site-specific information is available. To ensure that the life-cycle costs from one facility to another are comparable, a facility should include all of the treatment systems necessary to meet LDR treatment standards for the primary waste, treatment residuals, and all secondary waste generated during the treatment process(es). The cost estimates must be developed in consideration of the particular radionuclides present by incorporating the containment, accountability, and special handling requirements posed.

1.1.7 Technology Development

The Technology Development guides encompass privatization concerns to be considered when evaluating technology development options. This guide assesses the value of a technology development activity or program to the commercial sector.

Market for Technology: This sub-element assesses the market inside and outside of the DOE complex for the option under consideration. This assessment includes determination of whether the development would be beneficial to others or whether there is a potential for commercialization of the technology or facility.

Private Sector Involvement: This sub-element assesses the potential for private sector involvement in the development and marketing of the proposed process in a teaming arrangement with DOE. The desire of a private company to develop or assist in the development of a process increases the desirability for the development of that process. Technologies and facilities may be developed and privatized by DOE to be operated by the private sector.

1.2 Modifications of the Treatment Selection Guides

The Ohio Work Group assumed the task of developing a uniform method for evaluating the various treatment technology options, especially for the Ohio option (see Appendix B). The Work Group looked at the Treatment Selection Guides and determined that an objective, quantitative approach would be a useful method of comparing competing options: (1) the On-site option; (2) the Ohio

option; and, (3) the Off-site (out-of-state) option. Fact Sheet No. 2 (on page A-9) is an example of the form used for the evaluation of alternative treatment options. Note that the original intent was to use the fact sheet 'rankings' within each of the three competing options. When put into practice at the FEMP, it was found that the fact sheet was a more useful tool for comparing technologies across competing options. This was due to the obvious weaknesses of various technologies within competing options.

The FEMP did not always evaluate the Ohio option or the Off-site option if a viable on-site option existed. This is consistent with the process described by the DOE-HQ Framework. That process stated that if a viable on-site option exists, no further treatment options need to be evaluated.

It was determined to assign the values of: 5 = high; 3 = medium; and, 1 = low, for the evaluated score of each of the sub-elements. At this point in DSTP development Regulatory Compliance and Environmental Health and Safety were determined to be threshold criteria. If a technology failed (received a score = 1) in any of the sub-elements under these two criteria, the technology was not evaluated further. Stakeholder concerns criteria evaluation has been reserved this time. As the *Site Treatment Plan* is being developed, stakeholder concerns will be incorporated based on their input from review of the *Draft Site Treatment Plan*.

The four remaining criteria were each then assigned a relative weight equal to its perceived relative importance in this early stage of the evaluation process. The following represents the remaining criteria and associated weightings:

- Treatment Effectiveness = 45% of total score
- Implementability = 30% of total score
- Life-Cycle Costs = 20% of total score
- Technology Development = 5% of total score

The total score was obtained by multiplying the average score of all the sub-element scores within each remaining criteria by the respective weighted percentage. The maximum total score for any evaluated technology is '5.00'. The initial weighted values used in the evaluation process are subject to change at various decision points based on input received in the process of developing the Site Treatment Plan (STP).

FIGURE A-1

Ohio Work Group

Federal Facilities Compliance Act

Treatment Technology Selection Process

- Fact Sheet No. 2 -

Evaluation of Alternative Treatment Technologies

The following selection criteria are being utilized for the comparison of treatment technology options and selection of the preferred treatment option for presentation in the
Draft Site Treatment Plan, as required by the Federal Facilities Compliance Act (FFCAct).

The technologies will be ranked first within an option category; such as an on-site option, an in-state option, an out-of-state option. A final ranking will be used to determine a 'Preferred Option' between the categories.

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	(High = 5) (Medium = 3) (low = 1)
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	(High = 5) (Medium = 3) (low = 1)
Non-Operational Worker Health and Safety	(High = 5) (Medium = 3) (low = 1)
Operational Worker Health and Safety	(High = 5) (Medium = 3) (low = 1)
STAKEHOLDER CONCERNS	Reserved for future evaluation
Public Acceptance	
Equity Issues	

CRITERIA	WEIGHTED VALUE
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	(High = 5) (Medium = 3) (low = 1)
Secondary Waste Generation	(High = 5) (Medium = 3) (low = 1)
Destruction, Removal & Demobilization Efficiency	(High = 5) (Medium = 3) (low = 1)
Flexibility	(High = 5) (Medium = 3) (low = 1)
Final Waste Form	(High = 5) (Medium = 3) (low = 1)
Ability to be Shipped	(High = 5) (Medium = 3) (low = 1)
SCORE	**AVERAGE X .45**
IMPLEMENTABILITY	30% of total
System Implementability	(High = 5) (Medium = 3) (low = 1)
Availability	(High = 5) (Medium = 3) (low = 1)
Scalability	(High = 5) (Medium = 3) (low = 1)
Schedule for Waste Treatment	(High = 5) (Medium = 3) (low = 1)
SCORE	**AVERAGE X .30**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	(High = 5) (Medium = 3) (low = 1)
SCORE	**AVERAGE X .20**

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TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	(High = 5) (Medium = 3) (low = 1)
Private Sector Involvement	(High = 5) (Medium = 3) (low = 1)
SCORE	**AVERAGE X .05**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**TOTAL OF INDIVIDUAL SCORES [MUST EQUAL AT LEAST 1.0, BUT NOT GREATER THAN 5.0]** **NOTE:** Threshold Criteria are not used in this comparison.

NOTE 1: The weighted values used in the above evaluation are subject to change at various decision points based on input received in the process of developing the Draft Site Treatment Plan into the Final Site Treatment Plan.

NOTE 2: Regulatory Compliance and ES&H criteria have been considered to be Threshold Criteria and are not calculated into the weighted average score. These criteria are evaluated on the basis of being met or not being met. A technology does not proceed further in the evaluation process if a score of 1 is received in any threshold criteria.

The Regulatory Compliance criteria include issues such as compliance with ARARs under CERCLA and appropriate permit requirements under RCRA, CWA and CAA. The ES&H criteria include issues such as assessments of risk associated with the implementation of a particular treatment technology. These include occupational safety and health issues, pollution issues, and mechanical and electrical hazard issues.

NOTE 3: It should be noted that the final implementation of technologies will be influenced by factors including the integration of the CERCLA process with the FFCAct Consent Order, funding of the proposed budget for Implementation, and Stakeholder Concerns and Public Acceptance of the technology, and Equity Issues. All of these are beyond the scope of this initial evaluation for the purpose of determining logical candidate technologies.

Stakeholder Concerns will be evaluated after the stakeholders have had the opportunity to review and comment on the document. This input will be then be factored into the evaluation of technologies for the final STP.

2.0 Alternatives Identification and Evaluation

An in-depth evaluation of the Preferred Options (POs) is presented below. The options are presented according to the FEMP projects into which these options fall. At the FEMP, specific projects will be utilized to implement Pos. Cost estimates for those Pos which have already been identified as projects by the FEMP are tied to the scheduling process. Existing facilities identified in the Conceptual Site Treatment Plan (CSTP) (e.g., rotary kiln, MAWS) are being evaluated for their potential as on-site or Ohio options.

The CSTP listed numerous treatment options for each waste stream. Most of those options were reviewed and rejected as being viable for reasons such as not being an existing facility; not being available for treatment of off-site waste; the necessity of having to utilize more than one site to treat the waste stream and secondary waste streams to meet LDR treatment standards or disposal Waste Acceptance Criteria; the option proved not to adequately treat the waste to meet LDR treatment standards; as well as scheduling and potential costs not being competitive with those options which were chosen for further evaluation. Therefore, many of the options from the CSTP have been removed from further evaluation. Viable options for treating FEMP waste are evaluated in the following sections.

2.1 PO - HYDROFLUORIC ACID (HF) NEUTRALIZATION SYSTEM

Option Description

Treatment of this single waste stream is being conducted as part of a RCRA Closure of a Hazardous Waste Management Unit (HWMU) using the HF Neutralization System. The single waste stream (MWIR ID# FM-W112) is listed in the *Background Volume*, Section 3.1.1, Table 1. The Closure Plan and Information Data (CPID) Package which describes the HF Neutralization System was submitted to OEPA for review and approval. The system for the treatment of the HF will consist of elementary neutralization in an existing tank by the addition of a lime slurry. The neutralized solids will be filtered and dried for disposal. The filtrate will be discharged through FEMP WWTS for discharge under the existing NPDES permit.

Options Evaluation

The HF Neutralization System is an active RCRA Closure and therefore was chosen as the PO for this project. Equipment necessary for this project exists on-site and is available for the processing of this waste stream. No alternate options were considered in the DSTP evaluation process. Alternate options were evaluated during the selection of a preferred treatment system under the RCRA Closure process.

The evaluation of the HF Neutralization System is presented in Figure A-3. That evaluation indicates the following:

> HF Neutralization System - A total weighted score of 4.3 was assigned to the PO. This option allows for the LDR treatment of the waste stream and is consistent with the RCRA Closure Plan for this HWMU. All required equipment exists on-site. The project is awaiting approval of the CPID by the OEPA and funding approval from DOE.

Cost Estimates

A cost estimate was prepared for the PO.

> HF Neutralization System
> Total estimated project cost = $ 470,232
> (See cost estimate on page 14.)

References

The cost estimate was prepared by FERMCO based on the scheduled project. The cost estimate includes procurement and construction as well as treatment cost.

FIGURE A-2
DSTP PROJECT (MODULE) COST ESTIMATE

Project (Module) Name: HF Neutralization System Option Name: RCRA Closure

Waste Type: MLLW Project (Module) Location: FEMP

Project (Module) Status: Awaiting Approval From Ohio EPA

	WBS ELEMENT	($ x 1000) SUB $	($ x 1000) ELEMENT $
1.0	Pre-Operations		
	1.1 Studies and Bench Scale Tests	32.640	
	1.2 Demonstration Costs		
	1.3 Operations Budget Funded Activities		
	1.3.1 Conceptual Design	44.880	
	1.3.2 Safety Assurance Documentation		
	1.3.3 Permitting	31.200	
	1.3.4 Preparation for Operations	50.160	
	1.3.5 Project Management		
	TOTAL PRE-OPERATIONS		158.880
2.0	Facility Construction Costs		
	2.1 Design (Title I & II)		
	2.2 Inspection		
	2.3 Project Management		
	2.4 Building Construction (inc. indirect)		
	2.5 Equipment (inc. indirect)		
	2.6 Construction Management		
	2.7 Contingency		
	TOTAL FACILITY CONSTRUCTION COSTS	154.232	154.232
3.0	Operations and Maintenance		
	3.1 Annual Operating Labor		
	3.2 Annual Utilities		
	3.3 Annual Materials		
	3.4 Annual Maintenance		
	3.5 Annual Contingency		
	TOTAL ANNUAL O&M	117.160	
	X NUMBER OF YEARS OPERATION	1 Year	
	TOTAL OPERATIONS AND MAINTENANCE COSTS	117.160	117.160
4.0	Decontamination and Decommissioning		
	4.1 Facility D&D		
	4.2 Closure, Post-Closure, Monitoring		
	TOTAL DECONTAMINATION AND DECOMMISSIONING	39.960	39.960
5.0	Contracted Services		
	5.1 Commercial Treatment/Disposal		
	5.2 Mobile Treatment		
	TOTAL CONTRACTED SERVICES		
6.0	Off-Site Treatment (DOE)		
7.0	Transportation		

TOTAL COST FOR HF NEUTRALIZATION SYSTEM = $470.232

FIGURE A-3

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Hydrofluoric Acid (HF) Neutralization System

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 5.0 X .45 = 2.25**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	3
Schedule for Waste Treatment	5
SCORE	**AVERAGE 4.5 X .30 = 1.35**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	1
SCORE	**AVERAGE 2.0 X .05 = 0.1**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.3**

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2.2 PO - URANYL NITRATE HEXAHYDRATE (UNH) TREATMENT SYSTEM

Option Description

UNH Neutralization is being conducted under CERCLA Removal Action #20. Thorium nitrate neutralization is to be conducted under a RCRA Hazardous Waste Management Unit (HWMU) Closure Plan. The waste streams are listed in the *Background Volume*, Section 3.1.2, Table 2. The facilities for the treatment of these wastes exist at the FEMP and are currently being upgraded prior to the processing of the UNH. Treatment will consist of neutralization and precipitation followed by filtration to remove the solids for disposal and treatment of the aqueous portion through the FEMP WWTS.

Options Evaluation

Neutralization was chosen as the PO for these wastes to reflect the on-going CERCLA Removal Action. The equipment necessary to perform the treatment exists on-site. No alternate options were considered as part of the DSTP process. Alternate options were evaluated during the selection of a preferred treatment system as part of the UNH Removal Action and the Thorium Nitrate RCRA HWMU Closure Plan process.

The evaluation of the UNH Treatment System is presented in Figure A-4. That evaluation indicates the following:

> UNH Treatment System - A total weighted score of 4.3 was assigned to the PO. This option allows for the LDR treatment of the waste streams and is consistent with Removal Action #20 and the Closure Plan for Thorium Nitrate. The filtered solids will be managed as low level radioactive waste and the liquids will be managed at the on-site FEMP WWTS. The equipment exists on-site but will require upgrading prior to processing the UNH. The construction phase of the UNH project is scheduled, funded and proceeding. Scheduling and the cost estimating for the treatment phase of the UNH project will begin in CY 95 with a tentative start date of January 1995 and completion date of July 1995. The thorium nitrate is scheduled for treatment in this system beginning October 1995 with a completion date set for December 1995.

Cost Estimates

A partial cost estimate was prepared for the PO.

UNH Removal Action:
Partial estimated project cost = $ 8,300,000
(Construction Phase only)

Thorium Nitrate RCRA Closure:
Estimated project cost = $1,500,000
(Treatment Phase only)

References

The cost estimate was prepared by FERMCO based on the projected schedules for Removal Action #20 and the Thorium Nitrate Closure Plan. The UNH Removal Action cost estimate includes only the construction cost. The Thorium Nitrate RCRA Closure cost estimate includes only treatment cost.

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FIGURE A-4

Fernald Environmental Management Project

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Evaluation of Alternative Treatment Technologies

Technology: FEMP UNH Treatment System

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	3
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 5.0 X .45 = 2.25**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	3
Schedule for Waste Treatment	5
SCORE	**AVERAGE 4.5 X .30 = 1.35**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	1
SCORE	**AVERAGE 2.0 X .05 = 0.1**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.3**

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2.3 PO - MOBILE STABILIZATION

Option Description

The Mobile Stabilization Option consists of treatment of the various waste streams listed in *Background Volume*, Section 3.1.4, Table 4. The Preferred Option is to be implemented through the On-Site Mobile Stabilization Project. The treatment trains necessary to complete the project and the LDR treatment technologies are as follows:

1. Treatment Train D / Deactivation
2. Treatment Train E / Deactivation, Incineration (Only those waste streams for which deactivation is the LDR Treatment Standard are included in this treatment train.)

These treatment trains and the necessary equipment elements are described in Appendix C.

Treatment options for these wastes are identified in Appendices B and C. Not all of the options listed in these appendices were identified for further evaluation by the FEMP. Some of those options listed were identified by other Ohio sites for consideration as options for treatment at the respective site. These FEMP options were not considered viable and were not evaluated further for the following reasons:

1. Incompatibility of physical/chemical form of waste with treatment option:

   UNH Treatment System
   FEMP WWTS/AWWT
   Evaporation
   Hg Treatment

2. Facility does not currently exist and no scheduling information is available:

   Stabilization (PORTS)

3. Small volume of waste will not support the costs associated with mobile incineration. Other unresolved issues include facility siting, permitting, testing and procurement:

   Mobile Incineration

4. Extremely limited capacity of treatment unit:

   Mound Packed Bed Reactor

5. Cannot treat due to physical diversity of waste:

Wet Air Oxidation
Biological Treatment

6. Waste form does not meet current waste acceptance criteria:

TSCA Incinerator

The Mobile Stabilization Project was chosen for implementation of the PO because it is currently scheduled and identified in the FEMP baseline. Additionally, it allows for the most timely and cost effective treatment of all of the options identified and evaluated.

Options Evaluation and Selection Rationale

The viable options that have been evaluated are:

On-Site Mobile Stabilization
Off-Site (Ohio) Mobile Stabilization
Mound Glass Melter

The evaluations of the PO and the alternate viable options are presented in Figures A-7, A-8 and A-9. A comparison of the evaluations is summarized on page 25. Those evaluations indicate the following:

On-Site Mobile Stabilization - A total weighted score of 4.2 was assigned to the PO. This option allows for the LDR treatment of all the waste streams included in this Project using currently available technology and existing mobile vendors. The On-site Mobile Stabilization Project will primarily use cements and macro-encapsulation to accomplish treatment. Vitrification utilizing the MAWS facility may be utilized to augment the use of mobile units when a particular waste stream requires alternate technology. Mobile stabilization is currently in the treatability study phase of the project with treatment planned for December 1994. The project is currently identified in the FY 95 baseline.

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Off-Site (Ohio) Mobile Stabilization - A total weighted score of 4.0 was assigned to this option. This option scored lower than the Preferred Option in the following criteria: Flexibility, Schedule for Waste Treatment and Life-Cycle Cost. This option, while similar to On-site treatment in the area of technology, does not have the flexibility necessary to maintain the current project schedule and budget due to the necessity for waiting for use of the facility and the transportation of wastes. This option includes the risk of transportation and the potential for cross contamination of various radionuclides from one DOE site to another.

> *NOTE: Discussions in the Ohio Work Group concerning the Ohio option have included the sharing of technical specifications/engineering for mobile stabilization as an alternate to the transportation of the wastes to another site. The technology currently exists and as procurement specifications are developed the language could be shared with other Ohio sites. This will compensate for the negative aspects of the Ohio option by sending information from site to site instead of mixed waste.*

Mound Glass Melter - A total weighted score of 2.9 was assigned to this option. This option scored lower than the Preferred Option in the following criteria: Environmental/Public Health & Safety, Non-Operational Worker Health & Safety, Flexibility, Availability, Scalability, Schedule for Waste Treatment, Life-Cycle Cost, Market for Technology and Private Sector Involvement. The Mound Glass Melter has very limited throughput which would limit the ability of the FEMP to utilize it for timely treatment of wastes. Additionally, utilization of this option would include transportation risks and modifications to Mound permits to allow for the acceptance of off-site wastes. Therefore, no further evaluation of this alternate option was performed.

Cost Estimates

Cost estimates were prepared for the PO, On-Site Mobile Stabilization and the Off-site (Ohio) Mobile Stabilization option. LLW disposal costs were not included in either estimate.

On-Site Mobile Stabilization
Total estimated project cost = $ 3,050,000
(See cost estimate on page 26.)

Off-Site (Ohio) Mobile Stabilization
Total estimated project cost = $ 3,500,000

The off-site project costs are assumed to be greater than the on-site project costs. It has been assumed that the shared off-site construction costs would be increased by additional transportation, safety and personnel costs encountered.

References

The cost estimate for the on-site option was prepared by FERMCO based on the actual project schedule. The off-site cost estimate was prepared by FERMCO based on Draft Site Treatment Plan Cost Information Guidance, Revision 0 - March 8, 1994 and Interim Report: Waste Management Facilities Cost Information for Mixed Low-Level Waste, EGG-WM-10962, March 1994.

FIGURE A-5
COMPARISON OF OPTIONS FOR MOBILE STABILIZATION PREFERRED OPTION

CRITERIA	ON-SITE MOBILE STABILIZATION	OFF-SITE (OHIO) MOBILE STABILIZATION	MOUND GLASS MELTER
REGULATORY COMPLIANCE	5	5	5
ENVIRONMENTAL/PUBLIC HEALTH	5	5	3
NON-OPERATIONAL WORKER HEALTH AND SAFETY	5	5	3
OPERATIONAL WORKER HEALTH AND SAFETY	3	3	3
TRANSPORTATION RISK	3	3	3
PUBLIC ACCEPTANCE	-	-	-
EQUITY ISSUES	-	-	-
VOLUME REDUCTION	1	1	1
SECONDARY WASTE GENERATION	5	5	5
DESTRUCTION, REMOVAL & DEMOBILIZATION	5	5	5
FLEXIBILITY	5	3	1
FINAL WASTE FORM	5	5	5
ABILITY TO BE SHIPPED	5	5	5
SYSTEM IMPLEMENTABILITY	5	5	5
AVAILABILITY	5	5	1
SCALABILITY	5	5	1
SCHEDULE FOR WASTE TREATMENT	5	3	1
LIFE-CYCLE COST	5	3	3
MARKET FOR TECHNOLOGY	3	3	1
PRIVATE SECTOR INVOLVEMENT	5	5	1
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	4.2	4.0	2.9

FIGURE A-6
DSTP PROJECT (MODULE) COST ESTIMATE

Project (Module) Name: ON-SITE MOBILE STABILIZATION PROJECT
Option Name: SAME

Waste Type: MLLW **Project (Module) Location:** FEMP

Project (Module) Status: ACTIVE

	WBS ELEMENT	($ x 1000) SUB $	($ x 1000) ELEMENT $
1.0	Pre-Operations		
	1.1 Studies and Bench Scale Tests	200	
	1.2 Demonstration Costs		
	1.3 Operations Budget Funded Activities		
	1.3.1 Conceptual Design	50	
	1.3.2 Safety Assurance Documentation	100	
	1.3.3 Permitting (DF&O)	60	
	1.3.4 Preparation for Operations	150	
	1.3.5 Project Management	190	
	TOTAL PRE-OPERATIONS		750
2.0	Facility Construction Costs		
	2.1 Design (Title I & II)	20	
	2.2 Inspection	20	
	2.3 Project Management	10	
	2.4 Building Construction (inc. indirect)	100	
	2.5 Equipment (inc. indirect)		
	2.6 Construction Management	10	
	2.7 Contingency		
	TOTAL FACILITY CONSTRUCTION COSTS		160
3.0	Operations and Maintenance		
	3.1 Annual Operating Labor	320	
	3.2 Annual Utilities	60	
	3.3 Annual Materials	360	
	3.4 Annual Maintenance	50	
	3.5 Annual Contingency	20	
	TOTAL ANNUAL O&M	810	
	X NUMBER OF YEARS OPERATION	X 1 YR	
	TOTAL OPERATIONS AND MAINTENANCE COSTS		810
4.0	Decontamination and Decommissioning		
	4.1 Facility D&D		
	4.2 Closure, Post-Closure, Monitoring		
	TOTAL DECONTAMINATION AND DECOMMISSIONING		
5.0	Contracted Services		
	5.1 Commercial Treatment/Disposal		
	5.2 Mobile Treatment	1,330	
	TOTAL CONTRACTED SERVICES		1,330
6.0	Off-Site Treatment (DOE)		
7.0	Transportation		
	TOTAL COST FOR ON-SITE MOBILE STABILIZATION PROJECT		3,050

FIGURE A-7

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: On-Site Mobile Stabilization

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	1
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.33 X .45 = 1.95**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	5
Schedule for Waste Treatment	5
SCORE	**AVERAGE 5.0 X .30 = 1.5**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	5
SCORE	**AVERAGE 5.0 X .20 = 1.0**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	5
SCORE	**AVERAGE 4.0 X .05 = 0.2**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.2**

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FIGURE A-8

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Off-Site (Ohio) Mobile Stabilization

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	1
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	3
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.0 X .45 = 1.8**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	5
Schedule for Waste Treatment	3
SCORE	**AVERAGE 4.5 X .30 = 1.35**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	5
SCORE	**AVERAGE 4.0 X .05 = 0.2**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.0**

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FIGURE A-9

Fernald Environmental Management Project

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Evaluation of Alternative Treatment Technologies

Technology: Mound Glass Melter

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	3
Non-Operational Worker Health and Safety	3
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	1
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	1
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 3.67 X .45 = 1.65**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	1
Scalability	1
Schedule for Waste Treatment	1
SCORE	**AVERAGE 2.0 X .30 = 0.6**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	1
Private Sector Involvement	1
SCORE	**AVERAGE 1.0 X .05 = 0.05**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	2.9

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2.4 PO - MOBILE CHEMICAL TREATMENT

Option Description

The Mobile Chemical Treatment Option consists of treatment of the various waste streams listed in *Background Volume*, Section 3.1.5, Table 5. These waste streams are scheduled for treatment on-site under the Mobile Chemical Treatment Project using mobile vendor supplied treatment equipment. The treatment trains necessary to complete the project and the LDR treatment technologies are as follows:

1. Treatment Train F - deactivation
2. Treatment Train G - fuel substitution; organic recovery or incineration
3. Treatment Train H - neutralization; fuel substitution, organic recovery or incineration
4. Treatment Train I - deactivation; fuel substitution, organic recovery or incineration
5. Treatment Train J - deactivation, thermal recovery or metals, macroencapsulation
6. Treatment Train L - deactivation
7. Treatment Train M - amalgamation

These treatment trains and the necessary equipment elements are described in Appendix C.

Treatment options for these wastes are identified in Appendices B and C. As in Section 2.3, not all of the options listed in these appendices were consider to be FEMP options. These options were not considered viable and were not evaluated further for the following reasons:

1. Inability of treatment technology to achieve LDR treatment standards and incompatibility of waste form:

   Evaporation
   HF Neutralization
   UNH Treatment System

2. Facility does not currently exists, no scheduling information exists and permitting issues associated with the receipt of off-site waste are not resolved:

   PORTS Carbon Treatment
   PORTS Physical Chemical Treatment
   PORTS Stabilization

3. Small volume of waste will not support the costs associated with mobile incineration. Other unresolved issues include facility siting, permitting, testing, and procurement:

   Mobile Incinerator

4. Extremely limited capacity of treatment unit, incompatibility of waste form:

   Mound Packed Bed Reactor
   FEMP Plant 8 VOC

5. Limited capacity and unresolved permitting issues associated with the receipt and treatment of off-site waste:

   PORTS WWTS

The Mobile Chemical Treatment Option was chosen as the preferred option based on the evaluation of several alternate options. The alternate options included the location of the Mobile Chemical Treatment equipment at another DOE site in Ohio, building fixed facilities at the FEMP and the use of existing and future facilities at other DOE sites out of the State of Ohio.

Building fixed facilities at the FEMP was rejected on the basis of a cost estimate exceeding $100,000,000. This cost is excessive for a site undergoing Environmental Restoration. Additionally the facilities would require decommissioning and dismantlement, adding to the restoration cost of the entire Fernald Environmental Management Project. The fixed facility option was not evaluated further. The use of existing and future facilities at other DOE sites out of state was rejected as a viable option on the basis of the increased costs, transportation risks, and time factors. No further evaluation of this option was conducted.

The Mobile Chemical Treatment Option requires the utilization of a series or 'train' of separate elements or pieces of equipment to adequately treat the wastes and secondary waste streams for final disposal. The elements may include, but are not be limited to, the following:

- segregation
- bulking/aggregation
- shredding/screening
- chemical treatment (such as wet air oxidation and biological treatment)
- waste water treatment
- mercury treatment

high pressure wash
pressurized container treatment
macroencapsulation
incineration (off-site)
stabilization

Options Evaluation and Selection Rationale

The viable options that have been evaluated are:

On-Site Mobile Chemical Treatment
Off-Site (Ohio) Mobile Chemical Treatment

The evaluations of the PO and the alternate options are presented in Figures A-12, A-13. A comparison of these evaluations is summarized on page 37. Those evaluations indicate the following:

On-Site Mobile Chemical Treatment Option - A total weighted score of 4.7 was assigned to this project. This option allows for the treatment to LDR treatment standards of all the waste streams included in this Project. This treatment option consists of utilizing currently available technologies from existing mobile vendors augmented with the use of existing on-site facilities. This option would limit the transportation risks. Additionally, utilization of the mobile vendor option at the FEMP allows for timely, critical input in managing the extremely diverse wastes involved in this project. FEMP engineers familiar with the generation of this waste are currently part of the project team. The Chemical Treatment Project includes the use of FEMP WWTS or TSCA Incinerator for the treatment for secondary waste streams.

Off-Site (Ohio) Mobile Chemical Treatment - A total weighted score of 4.2 was assigned to this option. This option is essentially equivalent to the preferred option with the exception that the location of the treatment equipment would be one of the other DOE sites within the State of Ohio. This option scored lower than the Preferred Option in the following criteria: Schedule for Waste Treatment and Life-Cycle Cost. The differences in the weighted scores are attributable to aspects associated with the use of a facility located off-site. The shipment of waste between Ohio sites has raised equity issues in the past. Also, there is increased risk associated with the transportation of the wastes. Additionally, the time it takes to treat this group of wastes programs would be increased substantially, pushing the current schedule well past 1998.

An alternate to the Ohio option would be similar to the above with the exception that the waste would not be transported, the technology would. A cost savings would be realized if a common design were to be used by two or more of the Ohio sites. Because of the unknowns of design sharing, logistics, scheduling, etc. this option was not formally evaluated nor a cost estimate prepared. Where mobile systems are indicated by two or more sites within Ohio, procurement specifications will be shared with other Ohio sites.

Cost Estimates

Cost estimates were prepared for the PO, On-Site Mobile Chemical Treatment Project and the Off-Site (Ohio) Mobile Chemical Treatment option. No separate cost estimates were prepared for individual elements of the treatment trains as these costs are reflected in the overall project cost. LLW disposal costs were not included in either estimate.

On-Site Mobile Chemical Treatment
Total estimated project cost = $ 16,100,000
(See cost estimate on page 38.)

Off-Site Mobile (Ohio) Chemical Treatment
Total estimated project cost = $ 18,000,000

The off-site project costs are assumed to be greater than the on-site project costs. It has been assumed that the shared off-site construction costs would be increased by additional transportation, safety and personnel costs encountered.

References

The cost estimate for the on-site option was prepared by FERMCO based on the actual project schedule. The off-site cost estimate was prepared by FERMCO based on Draft Site Treatment Plan Cost Information Guidance, Revision 0 - March 8, 1994 and Interim Report: Waste Management Facilities Cost Information for Mixed Low-Level Waste, EGG-WM-10962, March 1994.

FIGURE A-10
COMPARISON OF OPTIONS FOR
MOBILE CHEMICAL TREATMENT PREFERRED OPTION

CRITERIA	ON-SITE MOBILE CHEMICAL TREATMENT	OFF-SITE (OHIO) MOBILE CHEMICAL TREATMENT
REGULATORY COMPLIANCE	5	5
ENVIRONMENTAL/PUBLIC HEALTH	5	5
NON-OPERATIONAL WORKER HEALTH AND SAFETY	5	5
OPERATIONAL WORKER HEALTH AND SAFETY	3	3
TRANSPORTATION RISK	5	3
PUBLIC ACCEPTANCE	-	-
EQUITY ISSUES	-	-
VOLUME REDUCTION	3	3
SECONDARY WASTE GENERATION	5	5
DESTRUCTION, REMOVAL & DEMOBILIZATION	5	5
FLEXIBILITY	5	5
FINAL WASTE FORM	5	5
ABILITY TO BE SHIPPED	5	5
SYSTEM IMPLEMENTABILITY	5	5
AVAILABILITY	5	5
SCALABILITY	3	3
SCHEDULE FOR WASTE TREATMENT	5	3
LIFE-CYCLE COST	5	3
MARKET FOR TECHNOLOGY	3	3
PRIVATE SECTOR INVOLVEMENT	5	5
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	4.7	4.2

FIGURE A-11
DSTP PROJECT (MODULE) COST ESTIMATE

Project (Module) Name: Chemical Treatment Option Name: (Same)
Waste Type: MLLW Project (Module) Location: FEMP

Project (Module) Status: Active

	WBS ELEMENT	($ x 1000) SUB $	($ x 1000) ELEMENT $
1.0	Pre-Operations		
	1.1 Studies and Bench Scale Tests	400	
	1.2 Demonstration Costs		
	1.3 Operations Budget Funded Activities		
	1.3.1 Conceptual Design	300	
	1.3.2 Safety Assurance Documentation	200	
	1.3.3 Permitting	150	
	1.3.4 Preparation for Operations	1,200	
	1.3.5 Project Management	600	
	TOTAL PRE-OPERATIONS		2,850
2.0	Facility Construction Costs		
	2.1 Design (Title I & II)	120	
	2.2 Inspection	20	
	2.3 Project Management	60	
	2.4 Building Construction (inc. indirect)		
	2.5 Equipment (inc. indirect)	180	
	2.6 Construction Management	90	
	2.7 Contingency	30	
	TOTAL FACILITY CONSTRUCTION COSTS		500
3.0	Operations and Maintenance		
	3.1 Annual Operating Labor	500	
	3.2 Annual Utilities	75	
	3.3 Annual Materials	375	
	3.4 Annual Maintenance	50	
	3.5 Annual Contingency	100	
	TOTAL ANNUAL O&M	1,100	
	X NUMBER OF YEARS OPERATION	X 2 yrs	
	TOTAL OPERATIONS AND MAINTENANCE COSTS		2,200
4.0	Decontamination and Decommissioning		
	4.1 Facility D&D	150	
	4.2 Closure, Post-Closure, Monitoring	150	
	TOTAL DECONTAMINATION AND DECOMMISSIONING		300
5.0	Contracted Services		
	5.1 Commercial Treatment/Disposal	5,400	
	5.2 Mobile Treatment	3,875	
	TOTAL CONTRACTED SERVICES		9,275
6.0	Off-Site Treatment (DOE)	300	
7.0	Transportation	675	
	TOTAL COST FOR ON-SITE MOBILE CHEMICAL TREATMENT PROJECT		**$16,100**

FIGURE A-12

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: On-Site Mobile Chemical Treatment

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	5
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	3
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.7 X .45 = 2.115**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	3
Schedule for Waste Treatment	5
SCORE	**AVERAGE 4.5 X .30 = 1.35**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	5
SCORE	**AVERAGE 5.0 X .20 = 1.0**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	5
Private Sector Involvement	5
SCORE	**AVERAGE 5.0 X .05 = 0.25**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	4.7

000146

FIGURE A-13

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Off-Site (Ohio) Mobile Chemical Treatment

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	3
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.7 X .45 = 2.115**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	3
Schedule for Waste Treatment	3
SCORE	**AVERAGE 4.0 X .30 = 1.2**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	5
Private Sector Involvement	5
SCORE	**AVERAGE 5.0 X .05 = 0.25**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.2**

000148

2.5 PO - TSCA INCINERATOR

Option Description

The Preferred Option consists of treatment of the various waste streams listed in the *Background Volume*, Sections 3.1.3 and 3.1.6, Tables 3 and 6. The preferred option will be accomplished under the TSCA Incinerator Project. The treatment trains necessary to complete the project and the LDR treatment technologies are as follows:

1. Treatment Train A / deactivation
   Note: This treatment train has been included in the Incineration Project even though individual waste streams in this group are planned to be treated through the FEMP Waste Water Treatment System provided that constituent concentrations do not exceed waste acceptance criteria. If constituent concentrations exceed the waste acceptance criteria, the waste stream will be incinerated.
2. Treatment Train C / deactivation, incineration
3. Treatment Train E / deactivation, incineration
   Note: Only waste streams which have incineration as the LDR Treatment Standard are included in this treatment train.
4. Treatment Train K / deactivation, incineration
   Note: Only waste streams which have incineration as the LDR Treatment Standard are included in this treatment train.

These treatment trains and the necessary equipment elements are described in Appendix C.

The FEMP treatment options for these waste streams are identified in Appendix B and C. Not all of the options listed in these appendices were identified for further evaluation by the FEMP. Some of those options listed were identified by other Ohio sites for consideration as options for treatment at the respective site. The following options were not considered viable and were not evaluated further for the following reasons:

1. Facility does not currently exist and no scheduling information is currently available:

   PORTS Physical/Chemical
   PORTS Carbon Treatment
   PORTS Stabilization

2. As a stand-alone/independent treatment unit it lacks the ability to achieve LDR treatment standards for the majority of the waste streams in this project:

   Evaporation
   UNH Treatment System
   Wet Air Oxidation
   FEMP Plant 8 VOC

3. Not permitted to treat identified waste streams:

   DSSI

4. Limited treatment capacity and unresolved permitting issues associated with the receipt and treatment of off-site waste:

   PORTS WWTS
   Mound Glass Melter

The TSCA Incinerator was chosen as the preferred option on the basis that no alternate option evaluated will allow for the timely and cost effective treatment of these waste streams. Additionally, this is a project which is currently underway. Viable options which have been evaluated are:

Options Evaluation & Selection Rationale

The viable options that have been evaluated are:

TSCA Incinerator
On-Site Mobile Incinerator
Off-Site (Ohio) Mobile Incinerator
Mound (Mobile) Packed Bed Reactor
FEMP Rotary Kiln

The evaluations of the PO and the alternate options are presented in Figures A-16, A-17, A-18, A-19 and A-20. A comparison of these evaluations is summarized on pages 47 and 48. Those evaluations indicate the following:

TSCA Incinerator - A total weighted score of 4.9 was assigned to the TSCA Incinerator. After stabilization of the treatment residual, this option allows for the LDR treatment of all the waste streams included in this Project in a timely and cost effective manner. The FEMP has utilized this option in the past and is currently working with the TSCA incinerator to develop options for management of the treatment residual. Many of the waste streams scheduled for treatment have an elevated BTU value which provides the TSCA incinerator with the ability to burn other generators low BTU value wastes, without having to provide supplemental fuel. Additionally, the utilization of this option is a fraction of the cost of a mobile incinerator. This project is currently funded and identified in the FY 95 baseline.

On-Site Mobile Incinerator - A total weighted score of 4.0 was assigned to this option. The following criteria scored lower than the preferred option: Environmental/Public Health, Non-Operational Worker Health & Safety, Availability, Scalability, Schedule for Waste Treatment, and Life-Cycle Cost. The scores for these criteria preclude this option being competitive with the Preferred Option, which is an active project. Transportation Risk and Private Sector Involvement scored higher than the preferred option, but the overall score was significantly lower. Implementation of this option for the relatively small volume of wastes would push the current project schedule to the late 1990's or early 2000. Additionally, the cost of mobilization, operation and decommissioning would far exceed current budget. This option has been removed from further consideration.

Off-Site (Ohio) Mobile Incinerator - A total weighted score of 4.0 was assigned to this option. The following criteria scored lower than the preferred option: Environmental/Public Health, Non-Operational Worker Health & Safety, Availability, Scalability, Schedule for Waste Treatment, and Life-Cycle Cost. The scores for these criteria preclude this option being competitive with the Preferred Option. Private Sector Involvement scored higher than the preferred option, but the overall score was significantly lower. Implementation of this option for the relative small volume of wastes would push the current project schedules to the late 1990's or early 2000. Additionally, the cost of mobilization, operation and decommissioning would far exceed current budget. This option has been removed from further consideration.

Mound Packed Bed Reactor - This on-site, skid-mounted option was assigned a total weighted score of 3.3. The low score was due to the following criteria: Flexibility, Availability, Scalability, Schedule for Waste Treatment, Life-Cycle Cost, and Market for Technology. The scores for these criteria preclude this option being competitive with the Preferred Option. Transportation Risk and Private Sector Involvement scored higher than the preferred option, but the overall score was significantly lower. This option was not considered viable due to these limitations and was not evaluated further.

FEMP Rotary Kiln - This existing inactive facility was assigned a total weighted score of 3.1. The Rotary Kiln has never been operational and was not designed for the destruction of mixed LLW containing toxic organics. Retrofitting may not be cost effective when compared to the use of a comparable mobile on-site incinerator. The facility would require extensive modification to meet regulatory requirements, including LDR treatment standards. The considerable, complex modifications would impact the current budget and schedule as identified in the baseline for the Incineration Project. This option was not considered viable due to FERMCO life-cycle cost analysis which concluded that the cost of retrofitting, start-up and D&D would be prohibitive. The following criteria scored lower than the Preferred Option: Environmental/Public Health, Non-Operational Worker Health & Safety, Flexibility, Ability to be Shipped, Availability, Scalability, Schedule for Waste Treatment, Life-Cycle Cost, Market for Technology and Private Sector Involvement. The scores for these criteria preclude this option being competitive with the preferred option. This option was not evaluated further.

Cost Estimates

A cost estimate was prepared only for the PO, TSCA Incinerator because the other four options were rejected from further consideration as viable options for the reasons stated above.

Incineration Project:
Total estimated project cost = $ 620,000
(See cost estimate on page 49.)

References

The cost estimate was prepared by FERMCO based on the scheduled project.

FIGURE A-14
COMPARISON OF OPTIONS FOR TSCA INCINERATOR PREFERRED OPTION

CRITERIA	TSCA INCINER-ATOR	ON-SITE MOBILE INCINER-ATOR	OFF-SITE (OHIO) MOBILE INCINER-ATOR	MOUND PACKED BED REACTOR	FEMP ROTARY KILN
REGULATORY COMPLIANCE	5	5	5	5	5
ENVIRONMENT-AL/PUBLIC HEALTH	5	3	3	5	3
NON-OPERATIONAL WORKER HEALTH AND SAFETY	5	3	3	5	3
OPERATIONAL WORKER HEALTH AND SAFETY	3	3	3	3	3
TRANSPORTA-TION RISK	3	5	3	5	3
PUBLIC ACCEPTANCE	-	-	-	-	-
EQUITY ISSUES	-	-	-	-	-
VOLUME REDUCTION	5	5	5	5	5
SECONDARY WASTE GENERATION	5	5	5	5	5
DESTRUCTION, REMOVAL & DEMOBILIZA-TION	5	5	5	5	5
FLEXIBILITY	5	5	5	1	3
FINAL WASTE FORM	5	5	5	5	5
ABILITY TO BE SHIPPED	5	5	5	5	3

SYSTEM IMPLEMENTA-BILITY	5	5	5	5	5
AVAILABILI-TY	5	3	3	1	3
SCALABILITY	5	3	3	1	3
SCHEDULE FOR WASTE TREATMENT	5	1	1	1	1
LIFE-CYCLE COST	5	3	3	3	1
MARKET FOR TECHNOLOGY	5	5	5	3	3
PRIVATE SECTOR INVOLVEMENT	1	5	5	3	1
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	4.9	4.0	4.0	3.3	3.1

FIGURE A-15
DSTP PROJECT (MODULE) COST ESTIMATE

Project (Module) Name: TSCA INCINERATOR **Option Name:** INCINERATION

Waste Type: MLLW **Project (Module) Location:** OAK RIDGE

Project (Module) Status: ACTIVE

	WBS ELEMENT	($ x 1000) SUB $	($ x 1000) ELEMENT $
1.0	Pre-Operations		
	1.1 Studies and Bench Scale Tests	60	
	1.2 Demonstration Costs N/A		
	1.3 Operations Budget Funded Activities		
	1.3.1 Conceptual Design	10	
	1.3.2 Safety Assurance Documentation	50	
	1.3.3 Permitting	20	
	1.3.4 Preparation for Operations	20	
	1.3.5 Project Management	100	
	TOTAL PRE-OPERATIONS		260
2.0	Facility Construction Costs N/A		
	2.1 Design (Title I & II)		
	2.2 Inspection		
	2.3 Project Management		
	2.4 Building Construction (inc. indirect)		
	2.5 Equipment (inc. indirect)		
	2.6 Construction Management		
	2.7 Contingency		
	TOTAL FACILITY CONSTRUCTION COSTS		N/A
3.0	Operations and Maintenance		
	3.1 Annual Operating Labor	100	
	3.2 Annual Utilities	10	
	3.3 Annual Materials	200	
	3.4 Annual Maintenance		
	3.5 Annual Contingency	10	
	TOTAL ANNUAL O&M	320	
	X NUMBER OF YEARS OPERATION	X 1 YR	
	TOTAL OPERATIONS AND MAINTENANCE COSTS		320
4.0	Decontamination and Decommissioning		
	4.1 Facility D&D		
	4.2 Closure, Post-Closure, Monitoring		
	TOTAL DECONTAMINATION AND DECOMMISSIONING		
5.0	Contracted Services		
	5.1 Commercial Treatment/Disposal		
	5.2 Mobile Treatment		
	TOTAL CONTRACTED SERVICES		
6.0	Off-Site Treatment (DOE)		
7.0	Transportation	40	
	TOTAL COST FOR TSCA INCINERATOR PROJECT		**620**

FIGURE A-16

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: TSCA Incinerator

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 5.0 X .45 = 2.25**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	5
Schedule for Waste Treatment	5
SCORE	**AVERAGE 5.0 X .30 = 1.5**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	5
SCORE	**AVERAGE 5.0 X .20 = 1.0**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	5
Private Sector Involvement	1
SCORE	**AVERAGE 3.0 X .05 = 0.15**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.9**

000157

FIGURE A-17

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: On-Site Incinerator

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	3
Non-Operational Worker Health and Safety	3
Operational Worker Health and Safety	3
Transportation Risk	5
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 5.0 X .45 = 2.25**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	3
Scalability	3
Schedule for Waste Treatment	1
SCORE	**AVERAGE 3.0 X .30 = 0.9**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	5
Private Sector Involvement	5
SCORE	**AVERAGE 5.0 X .05 = 0.25**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.0**

000159

FIGURE A-18

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Off-Site (Ohio) Mobile Incinerator

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	3
Non-Operational Worker Health and Safety	3
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	5
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 5.0 X .45 = 2.25**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	3
Scalability	3
Schedule for Waste Treatment	1
SCORE	**AVERAGE 3.0 X .30 = 0.9**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	5
Private Sector Involvement	5
SCORE	**AVERAGE 5.0 X .05 = 0.25**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.0**

000161

FIGURE A-19

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Mound Packed Bed Reactor

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	5
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	1
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.33 X .45 = 1.9485**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	1
Scalability	1
Schedule for Waste Treatment	1
SCORE	**AVERAGE 2.0 X .30 = 0.6**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	3
SCORE	**AVERAGE 3.0 X .20 = 0.6**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	3
SCORE	**AVERAGE 3.0 X .05 = 0.15**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	3.3

000163

FIGURE A-20

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: FEMP Rotary Kiln

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	3
Non-Operational Worker Health and Safety	3
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	5
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	3
Final Waste Form	5
Ability to be Shipped	3
SCORE	**AVERAGE 4.3 X .45 = 1.935**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	3
Scalability	3
Schedule for Waste Treatment	1
SCORE	**AVERAGE 3.0 X .30 = 0.9**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	1
SCORE	**AVERAGE 1.0 X .20 = 0.2**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	3
Private Sector Involvement	1
SCORE	**AVERAGE 2.0 X .05 = 0.1**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	3.1

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2.6 PO - ENVIROCARE

Option Description

The Envirocare Option consists of disposal of the various waste streams listed in the *Background Volume*, Section 3.1.7, Table 7. These waste streams are scheduled to be sent to Envirocare of Utah, Inc. for disposal without treatment under the Non-LDR/< TSC Project. These waste streams currently have no treatment standards established or are already below LDR treatment standard concentrations. No treatment is required, therefore no treatment options were evaluated. The treatment trains necessary to complete the project and ship for disposal are as follows:

1. Treatment Train B
2. Treatment Train K

These treatment trains and the necessary equipment elements are described in Appendix C.

The following options for treatment of these waste streams were identified in Appendices B and C:

FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization
Thermal Desorption/Stabilization
Mound Packed Bed Reactor
TSCA Incinerator

Current regulations do not require treatment prior to disposal therefore evaluation of these options was not necessary.

Options Evaluation

The evaluation of the PO is presented in Figure A-22. The evaluation indicates the following:

Envirocare - A total weighted score of 4.5 was assigned to the Envirocare facility. Shipment of the wastes to Envirocare of Utah, Inc. allows for the timely, cost effective removal of waste from the FEMP. Envirocare is a permitted RCRA facility and is approved to receive CERCLA wastes. Additionally, utilization of Envirocare is an on-going project at the FEMP and is identified in the baseline. Currently two contractual mechanisms exist for the implementation of this option.

Cost Estimates

A cost estimate was prepared only for the PO Envirocare.

Non-LDR / <TSC Disposal Project:
Total estimated project cost = $ 1,760,000
(See cost estimate on page 62.)

References

The cost estimate was prepared by FERMCO based on the existing project schedules.

FIGURE A-21
DSTP PROJECT (MODULE) COST ESTIMATE

Project (Module) Name: Non-LDR/<TSC **Option Name:** ENVIROCARE

Waste Type: MLLW **Project (Module) Location:** CLIVE, UTAH

Project (Module) Status: ACTIVE

	WBS ELEMENT	($ x 1000) SUB $	($ x 1000) ELEMENT $
1.0	Pre-Operations		
	1.1 Studies and Bench Scale Tests (Lab Analyses)	100	
	1.2 Demonstration Costs N/A		
	1.3 Operations Budget Funded Activities		
	1.3.1 Conceptual Design N/A		
	1.3.2 Safety Assurance Documentation	50	
	1.3.3 Permitting		
	1.3.4 Preparation for Operations	75	
	1.3.5 Project Management	210	
	TOTAL PRE-OPERATIONS		435
2.0	Facility Construction Costs N/A		
2.1	Design (Title I & II)		
	2.2 Inspection		
	2.3 Project Management		
	2.4 Building Construction (inc. indirect)		
	2.5 Equipment (inc. indirect)		
	2.6 Construction Management		
	2.7 Contingency		
	TOTAL FACILITY CONSTRUCTION COSTS		0
3.0	Operations and Maintenance		
	3.1 Annual Operating Labor	230	
	3.2 Annual Utilities N/A		
	3.3 Annual Materials	75	
	3.4 Annual Maintenance		
	3.5 Annual Contingency	35	
	TOTAL ANNUAL O&M	340	
	X NUMBER OF YEARS OPERATION	X 1 YR	
	TOTAL OPERATIONS AND MAINTENANCE COSTS		340
4.0	Decontamination and Decommissioning N/A		
	4.1 Facility D&D		
	4.2 Closure, Post-Closure, Monitoring		
	TOTAL DECONTAMINATION AND DECOMMISSIONING		0
5.0	Contracted Services		
	5.1 Commercial Treatment/Disposal	840	
	5.2 Mobile Treatment N/A		
	TOTAL CONTRACTED SERVICES		840
6.0	Off-Site Treatment (DOE) N/A		
7.0	Transportation	145	
	TOTAL COST FOR NON-LDR/<TSC PROJECT		**1,760**

FIGURE A-22

Fernald Environmental Management Project

Federal Facilities Compliance Act

Evaluation of Alternative Treatment Technologies

Technology: Envirocare

CRITERIA	WEIGHTED VALUE
REGULATORY COMPLIANCE	Threshold criteria, no weighted value
Regulatory Compliance	5
ENVIRONMENTAL HEALTH AND SAFETY	Threshold criteria, no weighted value
Environmental/Public Health	5
Non-Operational Worker Health and Safety	5
Operational Worker Health and Safety	3
Transportation Risk	3
STAKEHOLDER CONCERNS	Reserved for future evaluation
PUBLIC ACCEPTANCE	
EQUITY ISSUES	
TREATMENT EFFECTIVENESS	45% of total score
Volume Reduction	3
Secondary Waste Generation	5
Destruction, Removal & Demobilization Efficiency	5
Flexibility	3
Final Waste Form	5
Ability to be Shipped	5
SCORE	**AVERAGE 4.3 X .45 = 1.935**

CRITERIA	WEIGHTED VALUE
IMPLEMENTABILITY	30% of total
System Implementability	5
Availability	5
Scalability	5
Schedule for Waste Treatment	5
SCORE	**AVERAGE 5.0 X .30 = 1.5**
LIFE-CYCLE COST	20% of total
Life-cycle Cost	5
SCORE	**AVERAGE 5.0 X .20 = 1.0**
TECHNOLOGY DEVELOPMENT	5% of total
Market for Technology	1
Private Sector Involvement	1
SCORE	**AVERAGE 1.0 X .05 = 0.05**
WEIGHTED AVERAGE FOR TREATMENT TECHNOLOGY	**4.5**

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Appendix A
References

REFERENCE LIST

1. "*Closure Plan Information and Data for the HF Tank Car*", July 1994, Revision 2, FERMCO.

2. "*Draft Site Treatment Plan Cost Information Guidance*", USDOE, April 21, 1994, Revision 1.

3. "*Interim Report: Waste Management Facilities Cost Information for Mixed Low-Level Waste*", EGG-WM-10962, March 1994.

4. "*Life-Cycle Cost Analysis, Rotary Kiln Start-Up Justification*", FERMCO, March 15, 1994, Revision 1.

5. "*Mixed Waste Program Treatment Technology Analysis*", Technology Support Team Workshop, December 14, 1993.

6. "*Mixed Waste Treatment Feasibility Study*", WMCO, Project No. 50238.01, March, 1991.

7. "*Oak Ridge National Laboratory Technology Logic Diagram*", ORNL/M-2751, 1993 Edition.

8. "*REEL Treatability Data Base*", Version 4.0, Risk Reduction Engineering Laboratory, USEPA.

9. "*Survey of Mixed Waste Treatment Technologies for Mobile Treatment*", DOE, May 1994.

10. "*Technology Catalog*", DOE-HQ (via Internet).

11. "*Treatment Selection Guides*", Revision 0, USDOE, March 1, 1994.

12. "*Vendor Information System for Innovative Treatment Technologies (VISITT)*", Version 2.0, USEPA Technology Innovation Office.

Appendix B

APPENDIX B

OHIO MIXED WASTE TREATMENT OPTION

APPENDIX B
OHIO MIXED WASTE TREATMENT OPTION

TABLE OF CONTENTS

OHIO MIXED WASTE TREATMENT OPTION B-1

Fact Sheet No. 1 - Waste Stream Options Identification B-3

KEY FOR OHIO WORK GROUP MW TREATMENT SCHEME B-4

OHIO WORKGROUP MW TREATMENT SCHEME B-5

1A ORGANIC LIQUID, TOXIC ORGANICS. B-5
(GROUP #8 IN APPENDIX C)

1B ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/MERCURY. B-5
(GROUP #13 IN APPENDIX C)

1C ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY. B-5
(GROUP #12 IN APPENDIX C)

1D ORGANIC LIQUID, TOXIC METALS W/O MERCURY. B-6
(GROUP #9 IN APPENDIX C)

1E ORGANIC LIQUID, TOXIC METAL W/MERCURY B-6
(GROUP #10 IN APPENDIX C)

1F ORGANIC LIQUID, IGNITABLE ONLY. B-6
(GROUP #14 IN APPENDIX C)

2A AQUEOUS LIQUID, TOXIC ORGANICS. B-7
(GROUP #1 IN APPENDIX C)

2B AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS W/MERCURY. B-7
(GROUP #5 IN APPENDIX C)

2C AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS W/MERCURY. B-7
(GROUP #4 IN APPENDIX C)

2D AQUEOUS LIQUID, TOXIC METALS W/O MERCURY. B-8
(GROUP #2 IN APPENDIX C)

2E AQUEOUS LIQUID, TOXIC METALS W/ MERCURY B-8
(GROUP #3 IN APPENDIX C)

2G AQUEOUS LIQUID, CORROSIVE ONLY. B-8
(GROUP #6 IN APPENDIX C)

3A ORGANIC SLLUDGES/PARTICULATES, TOXIC ORGANICS B-9
(GROUP #15 IN APPENDIX C)

3C ORGANIC SLLUDGES/PARTICULATES, TOXIC ORGANICS, TOXIC METALS W/O MERCURY B-9
(GROUP #17 IN APPENDIX C)

4A INORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS. B-10
(GROUP #21 IN APPENDIX C)

4C INORGANIC SLUDGES/PARTICULATES, TOXIC ORGANICS, TOXIC METALS W/O MERCURY B-10
(GROUP #24 IN APPENDIX C)

4D INORGANIC SLUDGES/PARTICULATES, TOXIC METALS, W/O MERCURY B-11
(GROUP #22 IN APPENDIX C)

4E INORGANIC SLUDGES/PARTICULATES, TOXIC METALS, W/ MERCURY. B-11
(GROUP #23 IN APPENDIX C)

6A ORGANIC DEBRIS, TOXIC ORGANICS. B-12
(GROUP #25 IN APPENDIX C)

6C ORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS W/O MERCURY. B-12
(GROUP #27 IN APPENDIX C)

7D INORGANIC DEBRIS, TOXIC METALS W/O MERCURY. B-12
(GROUP #30 IN APPENDIX C)

8A HETEROGENOUS DEBRIS, TOXIC ORGANICS B-13
(GROUP #33 IN APPENDIX C)

8C HETEROGENOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS W/O MERCURY B-13
(GROUP #36 IN APPENDIX C)

8D HETEROGENOUS DEBRIS, TOXIC METALS W/O MERCURY B-13
(GROUP #34 IN APPENDIX C)

12 LAB PACKS W/O METALS. B-14
(GROUP #43 IN APPENDIX C)

15D & 15F COMPRESSED GAS. B-14
(GROUP #44 IN APPENDIX C)

16E ELEMENTAL MERCURY B-14
(GROUP #41 IN APPENDIX C)

17D ELEMENTAL LEAD (ACTIVATED AND NON-ACTIVATED) B-15
(GROUP #42A IN APPENDIX C)

19D BATTERIES (LEAD ACID, CADMIUM), TOXIC METALS W/O MERCURY B-15
(GROUP #39 IN APPENDIX C)

OHIO MIXED WASTE TREATMENT OPTION

The Ohio Work Group, consisting of representatives from each of the five Ohio DOE mixed waste sites listed below, initiated DSTP interface during attendance at a Technology Support Workshop conducted by the DOE Technical Support Team in mid March 1994.

SITE	LOCATION
Battelle Columbus	Columbus
Fernald	Cincinnati
Mound	Miamisburg
Portsmouth Gaseous Diffusion Plant	Piketon
RMI Titanium	Ashtabula

The Ohio Work Group has met on a regular basis since the workshop to present, quantify, discuss and qualify Ohio DOE sites' treatability groups (and associated waste streams), existing or planned treatment activities and viable treatment options/opportunities (from the CSTP, Technology Catalog or emergent technologies) and to identify common contaminants and waste stream matrices.

Ohio Work Group activities include:

- Identify and discuss each site's on-site, existing and planned treatment technologies/facilities to address mixed waste.
- Examination of alternate treatment technologies for mixed waste treatment.
- Discuss each site's CSTP options.
- Identify out-of-state options.
- Identify and discuss common mixed waste streams/treatability groups.
- Identify and discuss each site's existing waste streams/treatability groups.
- Identify and discuss each site's to-be-generated mixed waste streams.
- Identify and discuss opportunities for common or shared on-site treatment technologies/facilities.
- "Treatment Selection Guides" usage and adjustment to reflect consensus of uniform method for sites' viable treatment technologies evaluation.
- Discuss cost and time frame considerations.
- Identify and discuss each site's preferred option for mixed waste streams/treatability groups.
- Discuss each site's DSTP preparation to accommodate common areas of presentation.

The Ohio Work Group developed and utilized Fact Sheet No. 1, "Waste Streams Options Identification" (on page B-3) as a means to identify treatment options for mixed waste treatment for each site's compatible treatability groupings and waste streams. Once options identification was exhausted the Ohio Workgroup developed Fact Sheet No. 2, "Evaluation of Alternative Treatment Technologies" (see Appendix A, on page A-9) for the evaluation and ranking of identified treatment options or technologies.

The Ohio Work Group's summary of treatment technologies, options and each site's preferred option is identified on the "OHIO WORK GROUP MW TREATMENT SCHEME" which follows beginning on page B-4.

The above information specific to FEMP Treatability Groups can also be found on the top of each applicable table in Appendix C.

Fernald Environmental Management Project

Federal Facilities Compliance Act

Treatment Technology Selection Process

- Fact Sheet No. 1 -

Waste Stream Options Identification

The following logic train is being utilized to develop the treatment technology options for presentation in the Draft Site Treatment Plan, as required by the Federal Facilities Compliance Act (FFCAct).

1. Is waste stream sufficiently characterized and technology defined so as to be able to define treatment need?
   - **If not**, define need for further waste characterization and/or technology development.
2. Can waste be treated to LDR standards?
   - **If not**, define technology development activities/schedules and/or LDR variances to be pursued.
3. A. Can waste stream be (cost-effectively) treated by an existing on-site treatment facility?
   - B. Can waste stream be (cost-effectively) treated by modifying an existing on-site treatment system?
   - C. Can waste stream be (cost-effectively) treated under current agreement with an existing commercial vendor or by a mobile treatment system?
   - D. Can waste stream be (cost-effectively) treated using a low-volume waste method?
     - **If yes** to any of these, prepare "Likely Preferred Option" justification/rationale.
4. Is transport off-site unlikely?
   - **If yes**, 5.A.
   - **If no**, 5.A., 5.B., 5.C.
5. A. Evaluate treatment at a new on-site facility.
   - B. Evaluate treatment at existing or new DOE facility
     - 1. Within the state of Ohio.
     - 2. Within the DOE complex nationwide.
   - C. Evaluate treatment by a commercial vendor or by a mobile treatment system.
6. Prepare options analysis and comparison.

KEY FOR OHIO WORK GROUP MW TREATMENT SCHEME

The alpha numeric designation above the drums was taken from the "Mixed Waste/Contaminant Treatment Matrix", and was used by all Ohio DOE sites as a means to compare common treatability groups/waste streams.

The treatability groups are organized according to the definitions provided in the CSTP.

Quantities are provided for both current and five year (five year meaning the total quantity of mixed waste expected to be generated in the next five years).

Yr.	Year	
Qty	Quantity	
m^3	cubic meters	
FEMP	(F)	Fernald Environmental Management Project
PORTS	(P)	Portsmouth Gaseous Diffusion Plant
RMI	(R)	RMI Titanium
MOUND	(M)	Mound Plant
BATTELLE	(B)	Battelle Columbus Laboratories

A

ON SITE — A list of possible on-site mixed waste treatment options identified by the Ohio Work Group for one or more of the five Ohio DOE sites.

B

OHIO — A list of possible Ohio mixed waste treatment options identified by the Ohio Work Group for one or more of the five Ohio DOE sites.

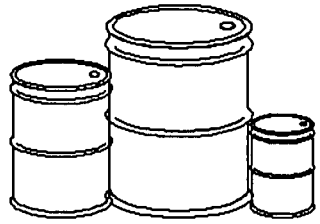
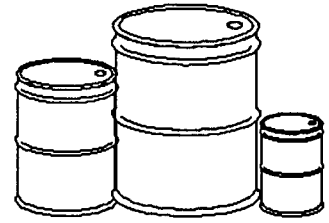
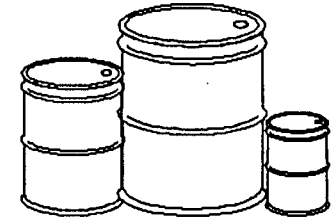
C

OUT OF STATE — A list of possible out-of-state mixed waste treatment options identified by the Ohio Work Group for one or more of the five Ohio DOE sites.

"Mobile" is used to designate either mobile or skid-mounted units.

The preferred option for each site is designated by the alpha character in parentheses at the end of the option. Each treatability group may include more than one FEMP preferred option as waste streams within each treatability group may be treated by different preferred option treatment projects. See Appendix C for further preferred option delineation.

OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	1A	1B	1C
			
	ORGANIC LIQUID TOXIC ORGANICS	ORGANIC LIQUID TOXIC ORGANICS TOXIC METALS W/ MERCURY	ORGANIC LIQUID TOXIC ORGANICS TOXIC METALS W/O MERCURY
	# of Waste Streams / Qty in m^3 Current/5 yr. FEMP 39 164.1/20.9 PORTS 3 46.9/0 RMI 3 7.5/0.69 MOUND 2 72.0/4.2	# of Waste Streams / Qty in m^3 Current/5 yr. FEMP 8 7.2/0.9 PORTS 3 172.5/0	# of Waste Streams / Qty in m^3 Current/5 yr. FEMP 25 44.2/16.9 PORTS 4 29.65/0
A ON-SITE	Mobile Incinerator Mobile Chemical Treatment (F) Mound Glass Melter (M) Mound Packed Bed Reactor Wet Air Oxidation	Mobile Incinerator Mobile Chemical Treatment (F) Hg Treatment Mound Glass Melter Mound Packed Bed Reactor Wet Air Oxidation Biological Treatment	Mobile Incinerator Mobile Chemical Treatment (F) Mobile Stabilization (F) Mound Glass Melter Mound Packed Bed Reactor Wet Air Oxidation Biological Treatment FEMP WWTS/AWWT (F)
B OHIO	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical/Treatment	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical Treatment Hg Treatment	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical Treatment
C OUT OF STATE	TSCA Incinerator (R) (P) (F) DSSI	TSCA Incinerator (P) (F)	TSCA Incineraotr (P) (F)

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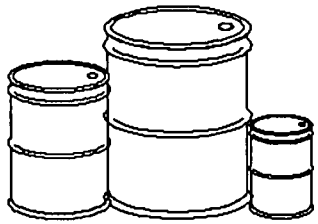
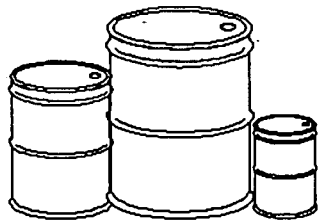
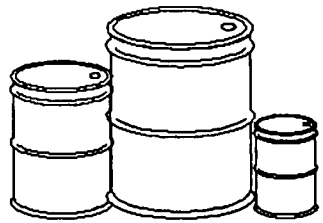
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	1D	1E	1F
			
	ORGANIC LIQUID TOXIC METALS W/O MERCURY	ORGANIC LIQUID TOXIC METALS W/ MERCURY	ORGANIC LIQUID IGNITABLE ONLY

	# of Waste Streams	Qty in m^3 Current/5 yr.	# of Waste Streams	Qty in m^3 Current/5 yr.	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	8	2.2/0.2	2	2.6/0.8	13	13.8/9.2
MOUND					1	0.005
PORTS	1	11.34/0	1	1.100/0.953	1	0.42/0

	1D	1E	1F
A ON-SITE	Mobile Incinerator Mobile Chemical Treatment (F) Mound Glass Melter Mound Packed Bed Reactor Wet Air Oxidation Biological Treatment Mobile Stabilization (F) FEMP WWTS/AWWT (F)	Mobile Incinerator Mobile Chemical Treatment Hg Treatment Mobile Stabilization (F)	Mobile Incinerator Mobile Chemical Treatment (F) Mound Glass Melter Mound Packed Bed Reactor Wet Air Oxidation Biological Treatment
B OHIO	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical Treatment Mobile Stabilization	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical Treatment Hg Treatment	Mound Glass Melter Mound Packed Bed Reactor Mobile Incinerator Mobile Chemical Treatment
C OUT OF STATE	TSCA Incinerator (P)(F)	TSCA Incinerator (P)(F)	TSCA Incineraor (P)(F)(M) DSSI Envirocare (F)

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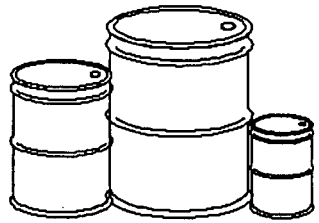
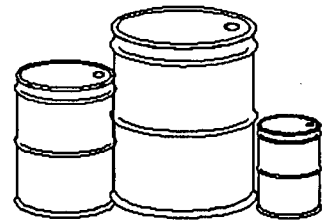
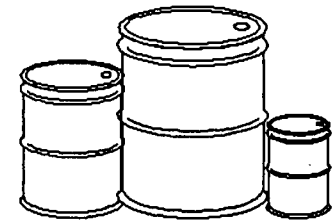
Rev. 08/20/94

OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	2A	2B	2C
			
	AQUEOUS LIQUID TOXIC ORGANICS	AQUEOUS LIQUID TOXIC ORGANICS TOXIC METALS W/ MERCURY	AQUEOUS LIQUID TOXIC ORGANICS TOXIC METALS W/O MERCURY

2A

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	5	36.8/4.0
PORTS	1	52.7/83.5
RMI	1	1.3/4.5

2B

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	2	4.0/16.8
PORTS	1	24.3/0

2C

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	4	12.2/13.4
PORTS	2	23.3/0

	2A	2B	2C
A ON-SITE	PORTS Physical/Chemical (P) FEMP Plant 8 VOC PORTS Carbon Treatment FEMP WWTS/AWWT (F) Evaporation Stabilization Mobile Chemical Treatment (F)	PORTS Physical/Chemical (P) FEMP Plant 8 VOC PORTS Carbon Treatment FEMP WWTS/AWWT Evaporation Stabilization	FEMP UNH Trt./Sys. FEMP Plant 8 VOC PORTS Physical/Chemical (P) FEMP WWTS/AWWT Removal/Stabl. of Metals Evaporation Mobile Stabilization (F) Mobile Chemical Treatment (F)
B OHIO	FEMP Plant 8 VOC PORTS WWTS Mobile Incinerator FEMP AWWT Mobile Chemical/Treatment	FEMP Plant 8 VOC PORTS WWTS FEMP AWWT Mobile Incinerator	FEMP Plant 8 VOC PORTS WWTS FEMP AWWT Removal/Stabl. of Metals Mobile Chemical Treatment
C OUT OF STATE	TSCA Incinerator (R)(F)	TSCA Incinerator (F)(P)	TSCA Incineraor (F)

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OHIO WORK GROUP MW TREATMENT SCHEME

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	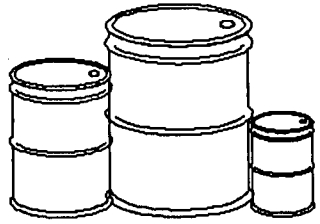	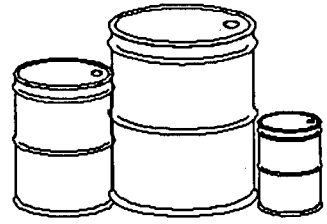	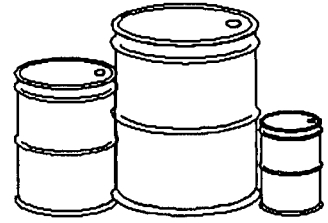
	AQUEOUS LIQUID TOXIC METALS W/O MERCURY	AQUEOUS LIQUID TOXIC METALS W/ MERCURY	AQUEOUS LIQUID CORROSIVE ONLY
	# of Waste Streams / Qty in m^3 Current/5 yr.	# of Waste Streams / Qty in m^3 Current/5 yr.	# of Waste Streams / Qty in m^3 Current/5 yr.
	FEMP 8 1043.8/1.3 PORTS 6 31.45/0	FEMP 1 0.2/<0.1 PORTS 1 3.900/12.400	FEMP 3 7.4/0.7 PORTS 3 2.96/0
A ON-SITE	FEMP WWTS/AWWT (F) FEMP UNH Removal Action (F) PORTS Physical/Chemical (P) Evaporation Stabilization Mobile Chemical Treatment (F)	Mobile Chemical Treatment (F) PORTS Physical/Chemical Treatment (P)	FEMP WWTS/AWWT (F) FEMP UNH Trt. Sys. PORTS Physical/Chemical (P) Evaporation Stabilization FEMP HF Neutralization System (F)
B OHIO	FEMP UNH Trt. Sys. PORTS WWTS Mobile Chemical Treatment (F)	Mobile Chemical Treatment	FEMP UNH Trt. Sys. PORTS WWTS
C OUT OF STATE	TSCA Incinerator (F)	TSCA Incinerator	TSCA Incineraor (F)

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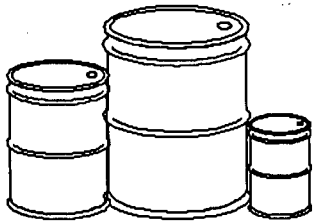
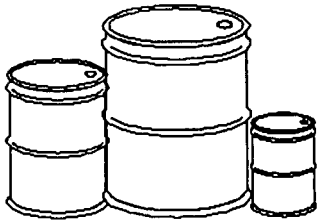
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	3A	3C
		
	ORGANIC SLUDGES/PARTICULATES TOXIC ORGANICS	ORGANIC SLUDGES/PARTICULATES TOXIC ORGANICS TOXIC METALS W/O MERCURY
	# of Waste Streams / Qty in m^3 Current/5 yr.	# of Waste Streams / Qty in m^3 Current/5 yr.
	FEMP 19 189.6/0.0 PORTS 2 87.1/8.0	FEMP 8 6.4/0.0 PORTS 2 8.88/0
A ON-SITE	Carbon Regeneration/Thermal Desorp. (P) Mobile Incinerator/Stabl. FEMP MAWS Mobile Chemical Treatment (F) FEMP Rotary Kiln	Carbon Regeneration/Thermal Desorp. Mobile Incinerator/Stabl. FEMP MAWS Mobile Chemical Treatment (F) FEMP Rotary Kiln Stabilization
B OHIO	Mobile Incinerator/Stabl. FEMP MAWS Mobile Chemical Treatment FEMP Rotary Kiln	Mobile Incinerator/Stabl. FEMP MAWS Mobile Chemical Treatment FEMP Rotary Kiln
C OUT OF STATE	TSCA Incinerator (P) (Liquid Portion Only) Envirocare (Solids Portion Only)	TSCA Incinerator (P)(F) (Liquid Portion Only) Envirocare (Solids Portion Only)

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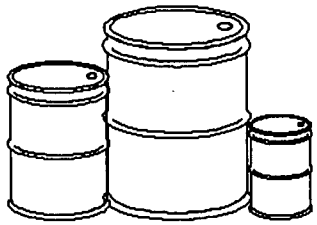
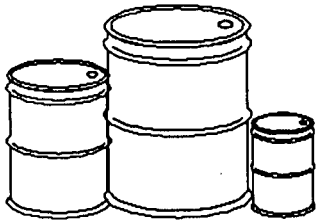
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	4A	4C
		
	INORGANIC SLUDGES/PARTICULATES TOXIC ORGANICS	INORGANIC SLUDGES/PARTICULATES TOXIC ORGANICS TOXIC METALS W/O MERCURY

4A

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	17	698.8/0.0
PORTS	2	27.9/0.0
MOUND	1	0.22/0

4C

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	4	3.4/0.0
PORTS	1	2.1/0

A
ON-SITE

4A:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

4C:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Segregation/Stabl.

B
OHIO

4A:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

4C:
FEMP Rotary Kiln
FEMP MAWS (P)
Mobile Chemical Treatment

C
OUT OF STATE

4A:
TSCA Incinerator (P)
TSCA Incinerator (F)
(Liquid Portion Only)
Envirocare (F)

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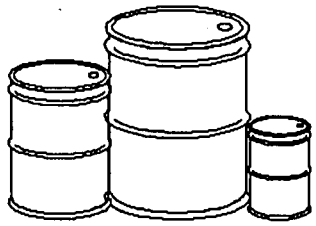
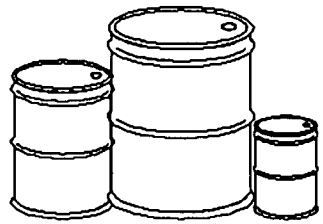
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	4D  INORGANIC SLUDGES/PARTICULATES TOXIC METALS W/O MERCURY	4E  INORGANIC SLUDGES/PARTICULATES TOXIC METALS W/ MERCURY
	# of Waste Streams / Qty in m^3 Current/5 yr. FEMP 42 507.8/1.6 PORTS 15 107.05/0	# of Waste Streams / Qty in m^3 Current/5 yr. FEMP 2 0.4/0.0 PORTS 3 382.6/2.0 BATTELLE 1 0.815/3.0
A ON-SITE	Mobile Chemical Treatment (F) Mobile Stabilization (F) FEMP MAWS Mobile Incinerator Metals Washing/Recovery Segregation/Stabl.	Low Temp. Thermal Desorp. Acid Leaching Sludge Blending Mobile Stabilization (P) Mobile Chemical Treatment (F)
B OHIO	Mobile Stabilization FEMP MAWS (P)	Mobile Stabilization Mobile Chemical Treatment
C OUT OF STATE	TSCA Incinerator (F) (Liquid Portion Only)	Hanford Wrap II A/B (B)

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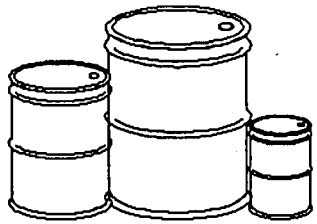
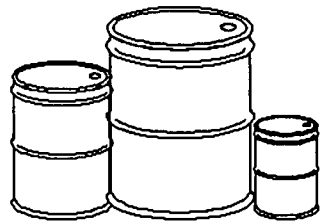
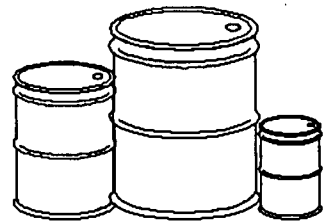
OHIO WORK GROUP MW TREATMENT SCHEME

	6A	6C	7D
			
TREATABILITY GROUP	**ORGANIC DEBRIS TOXIC ORGANICS**	**ORGANIC DEBRIS TOXIC ORGANICS TOXIC METALS W/O MERCURY**	**INORGANIC DEBRIS TOXIC METALS W/O MERCURY**
	# of Waste Streams / Qty in m^3 Current/5 yr.	# of Waste Streams / Qty in m^3 Current/5 yr.	# of Waste Streams / Qty in m^3 Current/5 yr.
FEMP	10 / 9.8/9.1	2 / 1.6/0.0	10 / 25.8/8.6
PORTS	2 / 117.0/36.0	1 / 0.500/0.500	7 / 186.26/0
RMI	1 / 4.93/0.69		1 / 5.64/0.23
A ON-SITE	Mobile Incinerator Low Temp. Thermal Desorp. Washing/Stabilization (P) FEMP Rotary Kiln FEMP MAWS Mobile Chemical Treatment (F) Mobile Stabilization (F)	Mobile Chemical Treatment (F) Washing/Stabilization (P) Mobile Stabilization	Mobile Incinerator Mobile Chemical Treatment (F) Mobile Stabilization (F)(P) Mobile Metals Recovery/Stabl. Low Temp. Thermal Desorp.
B OHIO	FEMP Rotary Kiln FEMP MAWS Mobile Chemical Treatment Mobile Stabilization	FEMP Rotary Kiln/Stabilization FEMP MAWS Mobile Chemical Treatment Mobile Stabilization	Mobile Metals Recovery/Stabl. Mobile Stabilization
C OUT OF STATE	TSCA Incinerator (F) (Liquid Portion Only) Envirocare (R)	TSCA Incinerator (Liquid Portion Only) Envirocare	Envirocare (R)

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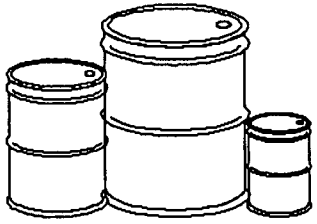
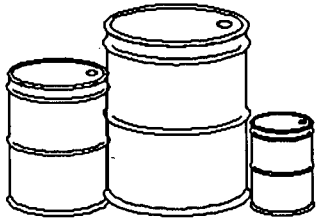
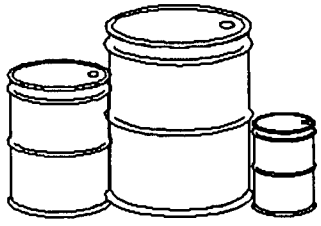
OHIO WORK GROUP MW TREATMENT SCHEME

	8A	8C	8D
			
TREATABILITY GROUP	**HETEROGENOUS DEBRIS TOXIC ORGANICS**	**HETEROGENOUS DEBRIS TOXIC ORGANICS TOXIC METALS W/O MERCURY**	**HETEROGENOUS DEBRIS TOXIC METALS W/O MERCURY**

	# of Waste Streams	Qty in m^3 Current/5 yr.
8A		
FEMP	13	12.8/0.0
PORTS	2	3.14/1.7
8C		
FEMP	9	9.0/19.1
PORTS	1	10.7/0
8D		
FEMP	3	12.0/0.0
PORTS	3	14.9/0
RMI	2	0.23/0.23
MOUND	1	0.02/0

	8A	8C	8D
A ON-SITE	FEMP Rotary Kiln Mobile Chemical Treatment (F)(P) Mobile Incineration Low Temp. Thermal Desorp.	FEMP Rotary Kiln Mobile Chemical Treatment (F)(P) Mobile Incineration Low Temp. Thermal Desorp.	Mobile Chemical Treatment (F)(P) Mobile Encapsulation (M) Mobile Incineration Low Temp. Thermal Desorp.
B OHIO	FEMP Rotary Kiln Mobile Chemical Treatment	FEMP Rotary Kiln Mobile Chemical Treatment	Mobile Chemical Treatment
C OUT OF STATE	Envirocare (F)	Envirocare	Envirocare (R)

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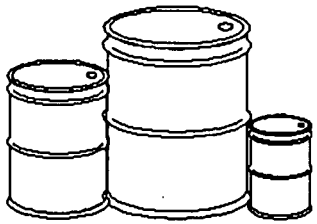
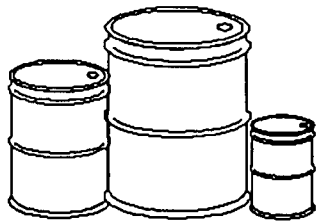
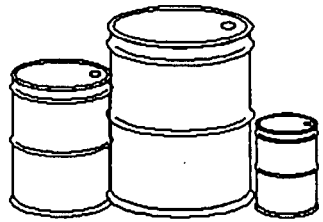
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	12	15D 15F	16E
			
	LAB PACKS W/O METALS	**COMPRESSED GAS**	**ELEMENTAL MERCURY**

	# of Waste Streams	Qty in m^3 Current/5 yr.
BATTELLE	1	0.4/0.0
FEMP	2	0.400
MOUND	2	0.400

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	1	0.2/0.3
PORTS	2	2.3/0

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	2	0.6/1.1
MOUND	1	0.100/0.0072
PORTS	1	1.000/0

	LAB PACKS W/O METALS	COMPRESSED GAS	ELEMENTAL MERCURY
A ON-SITE	Further Characterization (M) Mobile Incinerator	Puncture/Capture Unit Mobile Incinerator Segregate/Reuse/Treatment (P) Mobile Chemical Treatment (F)	Mobile (LANL) Amalgamation/Recycling (M) Mobile Chemical Treatment (F)
B OHIO	Mobile Incinerator	Puncture/Capture Unit Mobile Chemical Treatment	Mobile Amalgamation/Recycling Mobile Chemical Treatment
C OUT OF STATE	TSCA Incinerator (F) Hanford Thermal Treatment Facility (B)	Puncture/Capture Unit TSCA Incinerator (Liquid Portion Only)	Y-12/Recycle (P)

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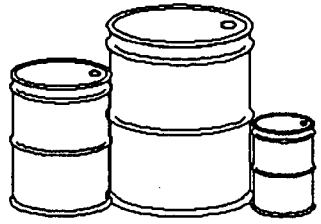
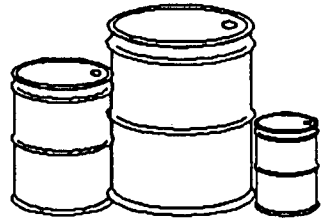
OHIO WORK GROUP MW TREATMENT SCHEME

TREATABILITY GROUP	17D	19D
		
	ELEMENTAL LEAD (ACTIVATED AND NON-ACTIVATED)	**BATTERIES (LEAD ACID, CADMIUM) TOXIC METALS W/O MERCURY**

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	4	4.8/20.5
BATTELLE	1	0.407/1.282
MOUND	1	5.0/0

	# of Waste Streams	Qty in m^3 Current/5 yr.
FEMP	2	4.4/14.0
MOUND	1	0.85/0.79
PORTS	1	58.3/0

	17D	19D
A ON-SITE	Mobile Chemical Treatment (F) Decon/Recycle LANL Mobile Decon Trailer	Mobile Chemical Treatment (F) Decon/Recycle (M)(P)
B OHIO	LANL Mobile Decon Trailer Mobile Chemical Treatment	Mobile Chemical Treatment Decon/Recycle
C OUT OF STATE	LANL Mobile Decon Trailer Hanford Wrap II A/B (B)	Commercial Recycler

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Appendix C

APPENDIX C

FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS, TREATMENT DESCRIPTIONS AND TREATMENT TRAINS

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS AND TREATMENT DESCRIPTIONS
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Appendix C presents supplemental information on FEMP mixed waste streams by treatability group. The key to this appendix is presented below.

KEY FOR WASTE STREAM MATRIX

The waste streams are organized by Treatability Group. A general Treatment Train has been identified with each Treatability Group. Diagrams for each Treatment Train are in the back of this appendix.

OHIO WORK GROUP MW TREATMENT SCHEME

The Ohio Work Group MW Treatment Scheme is located in the upper left section of each table. The schemes presented represent only those treatability groups the FEMP had in common with one or more of the other four Ohio DOE mixed waste sites. The preferred option for each site is designated by the alpha character in parenthesis at the end of the option.

Fernald	(F)
Portsmouth	(P)
RMI	(R)
Mound	(M)
Battelle	(B)

The summary of the Ohio Work Group's treatment technologies, options and each site's preferred option is presented in Appendix B.

<u>Column #1</u> <u>MEF#</u>

The FEMP's internal identification number used for tracking waste streams.

<u>Column #2</u> <u>Waste Stream ID #</u>

Identification number assigned to waste stream in FFCAct Final Mixed Waste Inventory Report.

NOTE: No waste stream ID #'s were provided for waste streams characterized after submittal of the Final Mixed Waste Inventory Report.

<u>Column #3</u> <u>EPA Codes</u>

Identifies EPA Waste Codes and LDR subcategories as follows:

KEY FOR WASTE STREAM MATRIX	
Code	Description
D001A	Ignitable liquids, high TOC nonwastewater (≥ 10% TOC)
D001B	Ignitable liquids, low TOC nonwastewater (≤ 10% TOC)
D001C	Ignitable liquids, wastewater (≤ 1% TSS, & TOC except certain F, K codes; see 40 CFR 268.2)
D001D	Ignitable compressed gasses
D001E	Ignitable reactives
D001F	Oxidizers
D002A	Acid liquids (Ph ≤ 2)
D002B	Alkaline liquids (Ph ≥ 12.5)
D003D	Water reactives
D006A	Cadmium-containing batteries
D006B	Cadmium
D007	Chromium
D008A	Lead acid batteries
D008B	Lead
D008C	Radioactive lead solids
D009C	Low mercury
D009D	Elemental mercury contaminated with radioactive materials
D009E	Hydraulic oil contaminated with mercury; reactive materials category
F005A	Spent solvents (other than 2-nitropropane and 2-ethoxyethanol)

The ★ after the EPA code correlates to the technology based LDR Treatment Standard identified in Column 9.

LDR Waste subcategories of wastewater (WW) and non-waste water (NWW) are identified in Column #3.

Column #4 Waste Description

Provides waste stream description as recorded on the Material Evaluation Form (MEF).

KEY FOR WASTE STREAM (Continued)

Column #5 Current Inventory

Quantities in kg's are taken from the Materials Control and Accountability (MC&A). Inventory is current as of July 2, 1994.

Quantities in m^3 are estimated using a conversion factor of 0.2 m^3/container.

Column #6 Five Year Rate

The total quantity of mixed waste projected to be generated over the five years (FY 1994 - FY 1999) from routine operations. These projections do not include remediation waste.

Column #7 Radiological Concentration

Uran: Uranium
U235: Uranium 235
Th: Thorium

Column #8 Basis of Characterization

PK: Process Knowledge
SA: Sampling and Analysis

Column #9 LDR Treatment Standard/Treatment Technology

The specific technology based LDR Treatment Standard is identified where applicable. The ★ after the technology based LDR Treatment Standard correlates to the EPA code marked with a ★ in Column 3.

The remaining established treatment standards are concentration based.

Column #10 Treatment Train/Project Name

The large letter identified with each waste stream represents the specific FEMP treatment train assigned to that waste stream. Diagrams of each treatment train are in the back of Appendix C.

The project name identifies the specific project that treats each waste stream.

Column #11 Preferred Option

Identifies the preferred option from appendices A and B for treatment of the waste stream.

The FEMP has identified a total of seven preferred options for the treatment of mixed low level waste. These seven preferred options are listed below including the location of treatment.

PREFERRED OPTION	TREATMENT LOCATION
Hydrofluoric Acid (HF) Neutralization System	ON-SITE Existing Facilities
UNH Treatment System	ON-SITE Existing Facilities
Wastewater Treatment	ON-SITE Existing Facilities
Mobile Stabilization	ON-SITE Mobile Vendor
Mobile Chemical Treatment	ON-SITE Mobile Vendor
TSCA Incinerator	OFF-SITE Existing DOE Facility
Envirocare	OFF-SITE Existing Commercial Facility

Changes in FEMP mixed waste streams, quantities and treatability groups from the Final Mixed Waste Inventory Report to the DSTP have resulted from:

- Re-characterization of the waste upon the availability of analytical data resulting from sampling and analysis.
- Re-characterization of the waste due to visual inspections and real time radiography.
- Wastes with the same characterization were combined.
- Mixed waste debris shipped to Envirocare of Utah for disposal.

GROUP #1

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Ports Physical/Chemical (P)
FEMP Plant 8 VOC
Ports Carbon Treatment
FEMP WWTS/AWWT (F)
Evaporation
Stabilization
Mobile Chemical Treatment (F)

OHIO:
FEMP Plant 8 VOC
Ports WWTS
FEMP AWWT
Mobile Incinerator
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (R)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTION(S)
358	FM-W286	D002B ★ D019 (WW)	CAUSTIC SOLUTION (NAOH) FROM PLANT 8 RAFFINATE PROCESSING	292	0.4	0	0	Uran. 0.4 ppm U235 1.5 wt%	___ ___	PK SA	DEACTIVATION ★	A INCINERATION PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site)
1536	FM-W110	F001 F002 (WW)	RAINWATER FROM WASTE PIT AREA	30,076	31.2	0	0	Uran. 0.01 U235 0.840 wt% PK Only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1706	FM-W114	D018 D021 D035 D038 D039 D040 D043 F002 F005A (WW)	LAB WASTE, TCLP EXTRACT	2,035	2.2	3,059	3.0	Uran. 1,242 ppm U235 6.97 ppm	1,602 ppm 19.03 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000199

GROUP #1

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Ports Physical/Chemical (P)
FEMP Plant 8 VOC
Ports Carbon Treatment
FEMP WWTS/AWWT (F)
Evaporation
Stabilization
Mobile Chemical Treatment (F)

OHIO:
FEMP Plant 8 VOC
Ports WWTS
FEMP AWWT
Mobile Incinerator
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (R)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTION(S)
2425	FM-W332	D002A ★ F001 F002 F005A (WW)	CTC CORROSIVE WASTE	198	0.2	1,040	1.0	Uran. 24.5 ppm U235 0.14 wt%		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10014	FM-W136	D039 (NWW)	U-CONTAMINATED WATER	2,641	2.8	0	0	Uran. 4.9 ppm U235 0.58 wt%	Uran. 12.1 ppm U235 0.73 wt%	PK SA	NO LDR TREATMENT STANDARD ESTABLISHED	A INCINERATION PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site)

000200

6073

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

GROUP #2

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP WWTS/AWWTS (F)
FEMP UNH Treatment System (F)
Ports Physical/Chemical (P)
Evaporation
Stabilization
Mobile Chemical Treatment (F)

OHIO:
FEMP UNH Treatment System
Ports WWTS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)
383	FM-W008	D011 (WW)	X-RAY FIXER & DEVELOPER, CLEAR LIQUID	123	0.2	0	0	Uran. 0.01 U235 .500 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUID ONLY)	TSCA INCINERATOR
844	FM-W092	D002A ★ D005 D007 (WW)	UNH SOLUTION IN TANKS	1,038,002	1,040	0	0	Uran. 120 g/l U235 0.99 wt%	— —	PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	N UNH NEUTRALIZATION PROJECT	UNH TREATMENT SYSTEM
873	FM-W094	D011 (WW)	SPENT FIXER	612	1.2	0	0	Uran. 0.01 U235 0.2 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUID ONLY)	TSCA INCINERATOR

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000201

GROUP #2

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP WWTS/AWWTS (F)
FEMP UNH Treatment System (F)
Ports Physical/Chemical (P)
Evaporation
Stabilization
Mobile Chemical Treatment (F)

OHIO:
FEMP UNH Treatment System
Ports WWTS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)
1178	FM-W096	D007 (WW)	GROUNDWATER FROM WELL #2649	752	1.2	1,537	1.3	Uran. 9.3 ppb	—	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A INCINERATION PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site)
1773	FM-W315	D011 (WW)	CONCENTRATE FIXER	98	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2594	Un-assigned	D002A ★ D006 D007 (NWW)	THORIUM NITRATE SOLUTION IN TANK T-2	8,892.0	22.0	0	0	Th. 228 pci/ml Th. 230 pci/ml Th. 232 pci/ml	0.0021 pci/ml <0.0038 pci/ml <0.0027 pci/ml	PK SA	DEACTIVIATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	N THORIUM NITRATE NEUTRALIZATION SYSTEM	UNH TREATMENT SYSTEM

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000202

6023

GROUP #2

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP WWTS/AWWTS (F)
FEMP UNH Treatment System (F)
Ports Physical/Chemical (P)
Evaporation
Stabilization
Mobile Chemical Treatment (F)

OHIO:
FEMP UNH Treatment System
Ports WWTS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)
30080	FM-W206	D002A ★ D004 D007 D008B D011 (NWW)	CONTAMINATED SOIL, ROCKS, DEBRIS (CONTAINS LIQUIDS ONLY)	228	0.2	0	0	Uran. 96,983 ppm U235 1.25 wt%	___ ___	SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
40181	FM-W211	D002A D007 D008B (WW)	THORIUM NITRATE SOLUTION	2,280	0.6	0	0	NOT AVAILABLE		PK	DEACTIVATION REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

000203

6073

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

GROUP #3

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC METALS w/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F) Ports Physical/Chemical Treatment (P) **OHIO:** Mobile Chemical Treatment **OUT OF STATE:** TSCA Incinerator

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1999	Un-assigned	D002A ★ D007 D009C D011 (NWW)	NESSLER REAGENT, COD DIGESTION SOLUTION, ROCHELLE SALT	4	0.2	38	<0.1	NOT AVAILABLE		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

000204

6023

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

GROUP #4

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP UNH Treatment System
FEMP WWTS/AWWT
Ports Physical/Chemical (P)
Evaporation
Stabilization
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP UNH Treatment System
Ports WWTS
Mobile Chemical Treatment

OUT OF STATE: TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTIONS(S)
1229	FM-W101	D001C ★ D008B D018 D019 D039 D040 F002 F003 (WW)	CONTAMINATED SUMP WATER	6,019	6.6	15,280	13.4	Uran. 577 ppm U235 1.1 ppm Th 7.62 ppm		PK SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
1707	FM-W115	D002A ★ D007 D008B D019 D028 D039 F001 F002 (WW)	LAB GENERATED WASTE, ACID DIGESTATES	2,549	2.6	0	0	Uran. 522 ppm U235 3.6 ppm	711 ppm 5.0 ppm	PK SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000205

6073

GROUP #4

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP UNH Treatment System
FEMP WWTS/AWWT
Ports Physical/Chemical (P)
Evaporation
Stabilization
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP UNH Treatment System
Ports WWTS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTIONS(S)
2364	Un-assigned	D001C ★ D006B D007 D008B D018 D035 D039 D040 (WW)	NEUTRAL LAB WASTE FROM THE ANALYSIS OF SAMPLES	2,300	2.4	0	0	Uran. 1.70 ppm U235 45.12 pci/l		PK SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2498	Un-assigned	D008B D012 ★ D039 F002 F003 (WW)	SUMP LIQUOR	560	0.6	0	0	Uran. 3.3 ppm Th 910 ppm	410	PK SA	BIODEGRADATION ★ OR INCINERATION REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

000206

6073

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

GROUP #5

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS w/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Ports Physical/Chemical (P)
FEMP Plant 8 VOC
Ports Carbon Treatment
FEMP WWTS/AWWT
Evaporation
Stabilization

OHIO:
FEMP Plant 8 VOC
Ports WWTS
FEMP AWWT
Mobile Incinerator

OUT OF STATE:
TSCA Incinerator (F)(P)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave. / Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTIONS(S)
1711	FM-W308	D002A ★ D008B D009C D010 F001 F002 F005A (WW)	METALS EXTRACTS, DIGESTS AND LEACHATES	2,017	2.4	19,068	16.8	RADIOACTIVITY SCREEN 2 X 10 -6 UCI/G UNSPECIFIED	PK SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2363	Un-assigned	D001C ★ D002B ★ D006B D008B D009C D018 D035 D038 D039 D040 (WW)	CAUSTIC LAB WASTE FROM ANALYSIS OF SAMPLES	1,517	1.6	0	0	Uran. 215 ppm U235 29.55 pci/l	PK SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

002007

GROUP #6

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, IGNITABLE, REACTIVE, or (CORROSIVE) ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP WWTS/AWWT (F)
FEMP UNH Removal Action
Ports Physical/Chemical (P)
Evaporation
Stabilization
FEMP HF Neutralization System (F)

OHIO: FEMP UNH Removal Action
Ports WWTS

OUT OF STATE: TSCA Incinerator (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)
1462	Un-assigned	D002B ★ (WW)	CONTAMINATED WATER FROM CHEMICAL PIT #2 SURFACE CAP	397	0.6	0	0	Uran. 0.1 ppm U235 0.579 wt%	0.1 ppm 0.201 wt%	PK SA	DEACTIVATION ★	A INCINERATION PROJECT	WASTEWATER TREATMENT (On-site)
1691	FM-W112	D002A ★ (WW)	DILUTE HYDROFLUORIC ACID HF TANK CAR	16,678	16.8	0	0	Uran. 63 ppm Th <45 ppm		PK	DEACTIVATION ★	O HF RCRA CLOSURE	HF NEUTRALIZATION SYSTEM
2257	FM-W329	D002A ★ (WW)	TCLP EXTRACTS LAB GENERATED WASTE	155	0.2	811	0.7	NOT AVAILABLE		PK SA	DEACTIVATION ★	A INCINERATION PROJECT	WASTEWATER TREATMENT (On-site)

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000208

6073

GROUP #6A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, (IGNITABLE), REACTIVE, or CORROSIVE ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2210	FM-W325	D001F ★ (WW)	Hydrogen peroxide solution	908	0.8	4,763	4.1	NOT AVAILABLE		PK	DEACTIVATION ★	A INCINERATION PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site)

WW = WASTEWATER
NWW = NONWASTEWATER

Revised August 27, 1994

000209

00723

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
183	FM-W285	D001B ★ D018 D035	WATER/GAS MIXTURE FROM TANK #8	1,990	2.4	0	0	Uran. ___ U235 0.5 wt%	1 ppm 0.6 wt%	PK	DEACTIVATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
385	FM-W009	D018 F001 F002	SPENT SOLVENT (1,1,1-TRICHLOROETHANE)	108	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
395	Un-assigned	D001A ★ F002 F003 F005A	PAINT THINNERS AND PAINT RESIDUES	143	<0.1	752	0.6	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000210

6073

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
397	FM-W016	D018 F001 F002	1,1,1-TRICHLOROETHANE (CLEANING SOLUTION)	103	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
418	FM-W030	D001A ★ F003	SPENT ACETONE	869	11.2	1,061	1.0	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
419	FM-W031	D001A ★ F003	SPENT XYLENE	314	2.6	255	0.2	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000211

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
421	FM-W032	D001A ★ F003	SPENT METHANOL	140	2.0	71	0.1	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
422	FM-W033	F002	SPENT METHYLENE CHLORIDE	15	0.2	95	0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
426	FM-W036	D001A ★	METHANOL AND CYCLOHEXANE MIXTURE	3,055	43.8	3,252	3.2	NOT AVAILABLE		PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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60723

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
438	FM-W041	D018	HYDRAULIC OIL FROM BALER IN DRUM RECONDITIONING	177	0.2	0	0	Uran. 6 ppm U235 0.62 wt%	14 ppm 0.82 wt%	PK SA	NO LDR TREATMENT STANDARD ESTABLISHED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
455	FM-W289	D001A ★ F001	UNLABELED DRUM CONTAINING 1,1,1-TRICHLOROETHANE	111	0.2	0	0	Uran. 0.5 ppm U235 0.346 wt%	0.6 ppm 1.411 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
459	FM-W046	D001A ★ F001 F002	PAINT	204	0.2	0	0	Uran. 22 ppm U235 0.71 wt%	86 ppm 0.67 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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Revised August 27, 1994

6073

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
480	FM-W333	D018 F002	USED OIL GENERATED DURING CONSTRUCTION PROJECTS	1,172	1.4	0	0	Uran. 24 ppm U235 0.69 wt%	Uran. 51 ppm U235 0.84 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
507	Un-assigned	D001A ★ D018	GASOLINE	113	0.2	0	0	NOT AVAILABLE		PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
508	FM-W054	D001A ★ D035	PAINT THINNER	220	0.2	0	0	Uran. 1 ppm U235 0.55 wt%	Uran. 3 ppm U235 0.65 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
638	FM-W076	D018	USED OIL	142	0.2	0	0	Uran. 0.01 U235 0.05 wt% PK only		PK	NO LDR TREATMENT STANDARD ESTABLISHED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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Revised August 27, 1994

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GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
658	FM-W078	D018	CODED AS OIL - STRONG SOLVENT ODOR	40	0.2	0	0	Uran. 0.01 U23 0.0 wt% PK only		PK	NO LDR TREATMENT STANDARD ESTABLISHED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1708	Un-assigned	F002	LAB GENERATED WASTE, METHYLENE CHLORIDE EXTRACTS	246	0.4	994	1.0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1713	FM-W309	D040 F001 F002 F005A	OIL FROM TCLP EXTRACTS	32	0.4	169	0.2	Uran. 0.01 U235 0.5 wt% PK only		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1725	FM-W119	D018	LUBRICATING OIL FROM GARAGE	2,629	3.2	6,968	7.5	Alpha <2.2 pci/mi Beta <5.1 pci/mi		PK	NO LDR TREATMENT STANDARD ESTABLISHED	C INCINERATOR PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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Revised August 27, 1994

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GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1728	FM-W312	D018	CRANKCASE OIL	1,199	1.8	4,499	4.8	NOT AVAILABLE		PK	NO LDR TREATMENT STANDARD ESTABLISHED	C INCINERATOR PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1815	FM-W316	D001A ★ D018	SPENT FUELS	317	0.4	773	0.9	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1998	FM-W124	D001A ★ F003	METHANOL AND CYCLOHEXANE	104	1.2	333	0.3	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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6023

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
2014	FM-W323	D001A ★ D035	EPOXY - PRIME COAT LDC -1,000	74	0.4	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2016	FM-W324	D001A ★ D018 D026	PAINT BITUMASTIC 300M A AND B COAL TAR COATING	33	0.2	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10027	FM-W146	D039 D040 F001	CONTAMINATED OIL, INSOLUBLE	2,502	2.8	0	0	Uran. 27.3 ppm U235 0.23 wt%	47.3 ppm 0.28 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
10030	FM-W149	D001A ★ F003	CONTAMINATED SOLVENT (METHANOL)	82	0.6	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10032	FM-W151	F001	CONTAMINATED OIL, INSOLUBLE	303	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20003	FM-W154	D001A ★ D019 D022 D028 D029 D035 D039 D040 F001 F003 F005A	DEGREASING SOLVENT FROM NATIONAL ELECTRIC COIL	56,832	56.0	0	0	Uran. 40.0 ppm U235 0.998 wt%	____ ____	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20021	FM-W158	D019 D029 D039 D040 F001	CONTAMINATED INSOLUBLE OIL FROM DRUM BALER	2,637	3.0	0	0	Uran. 48.7 ppm U235 0.48 wt%	134.9 ppm 0.56 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20028	FM-W161	D039 D040 F001	INSOLUBLE QUENCH OIL USED IN PILOT PLANT CASTING OPERATION	1,245	2.0	0	0	Uran. 107 ppm U235 0.27 wt%	Uran. 260 ppm U235 0.33 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20054	FM-W172	D019 D022 D028 D029 D039 F001 F005A	CONTAMINATED SOLVENT - TRICHLOR, PERCHLOR, ETC. FROM PLANT 5 CASTING AREA	171	0.2	0	0	Uran. 530 ppm U235 0.37 wt%	Uran. 1,430 ppm U235 0.42 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20055	FM-W173	D029 D039 F002	CONTAMINATED OIL - INSOLUBLE FROM PROCESSING EQUIPMENT AT THE PILOT PLANT	196	0.2	0	0	Uran. 0.50 U235 0.950 wt% PK only		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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Revised August 27, 1994

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20142	FM-W181	D001A ★ D019 D022 D039 F002 F003	CONTAMINATED TBP AND KEROSENE MIXTURES FROM ANALYTICAL LAB	15	0.4	0	0	Uran. 13,000 ppm U235 0.93 wt%	29,000 ppm 1.12 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30033	FM-W191	D001A ★ D039 F003 F005A	CONTAMINATED SOLVENT FROM MAINTENANCE	2,544	3.4	0	0	Uran. 1,061 ppm U235 0.99 wt%	2,052 ppm 1.28 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
30034	FM-W192	D018 F001	OIL CONTAMINATED WITH SOLVENTS (FROM TANK #5)	12,466	17.0	0	0	Uran. 74 ppm U235 0.45 wt%	— —	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000220

GROUP #8

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment(F)
Mound Glass Melter (M)
Mound Packed Bed Reactor
Wet Air Oxidation

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator(R)(P)(F)
DSSI

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50010	FM-W187	F002 F005A	NON-RECOVERABLE TRASH FROM PLANT 1 - CONTAINS LIQUIDS AND OIL	204	0.2	0	0	Uran. 220 ppm U235 0.45 wt%	290 ppm 0.47 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50022	FM-W218	D001A ★ F003	CONTAMINATED WATER OR SUMP LIQUOR, NON-CHLORIDE FROM PLANT 1 SAMPLING AREA	11	0.2	0	0	Uran. 325 ppm U235 0.91 wt%	329 ppm 0.92 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60331	FM-W283	D001B ★ D018	WATER/DIESEL FUEL FROM UST #9	3,941	4.2	0	0	Uran. 1 ppm U235 0.59 wt%	0.99 wt%	SA	DEACTIVATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

000221

6073

Revised August 27, 1994

GROUP #9

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment
Mobile Stabilization (F)
FEMP WWTS/AWWT (F)

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
393	FM-W014	D008 ★	LUBRICATING OIL FROM REDUCTION REMELT	316	0.4	0	0	Uran. 2,057 ppm U235 0.44 wt%	Uran. 2,057 ppm U235 0.67 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
533	FM-W058	D001A ★ D006B	PAINT: GREY EPOXY	130	0.2	0	0	Uran. 13 ppm U235 0.70 wt%	Uran. 35 ppm U235 0.87 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000222

0073

GROUP #9

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment
Mobile Stabilization (F)
FEMP WWTS/AWWT (F)

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1414	FM-W297	D001A ★ D008B	OIL AND FUEL FROM GARAGE AREA	355	0.4	0	0	Uran. 6 ppm U235 0.25 ppm	16 ppm 0.69 ppm	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1447	FM-W301	D001A ★ D008B	NON-CHLORIDE CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1' DRUM PAINTING BOOTH	56	0.4	0	0	Uran. 60 ppm U235 0.66 wt%		PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000223

GROUP #9

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment
Mobile Stabilization (F)
FEMP WWTS/AWWT (F)

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1705	FM-W306	D001A ★ D004 D006B D008B D010	LABORATORY GENERATED WASTE, WASTE OIL FROM TCLP EXTRACTS	51	0.2	269	0.2	NOT AVAILABLE		SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1938	FM-W319	D007 D008B D010	NONCLORIDE, CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1 DRUM PAINTING BOOTH.	170	0.2	0	0	Uran. U235	401 ppm 0.65 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A INCINERATION PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site)

Revised August 27, 1994

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GROUP #9

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment
Mobile Stabilization (F)
FEMP WWTS/AWWT (F)

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50071	Un-assigned	D001A ★ D007	SOLVENT SLUDGES FROM WATER TREATMENT PLANT	194	0.2	0	0	Uran. 34 ppm U235 0.59 wt%	Uran. 38 ppm U235 0.6 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50095	FM-W233	D007	CONTAMINATED INSOLUBLE OIL FROM PLANT 9 GENERAL	168	0.2	0	0	Uran. 1,856 ppm U235 0.88 wt%	Uran. 3,959 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000225

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GROUP #10

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS W/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical Treatment
Hg Treatment
Mobile Stabilization (F)

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction
Hg Treatment

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
633	FM-W075	D007 D008B D009C	OIL - UNKNOWN GENERATION	1,514	2.4	0	0	Uran. 47 ppm U235 1.7 wt%	185 ppm 3.4 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
40122	FM-W208	D002A ★ D005 D009C	THORIUM WASTE SLURRIES	183	0.2	0	0	Uran. 20 ppm U235 0.44 wt%	57 ppm 0.67 wt%	SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
379	FM-W005	D008B D018 F001 F002	SPENT 1,1,1-TRICHLOROETHANE	77	0.2	0	0	Uran. 0.01 U235 0.200 wt%		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
388	FM-W011	D010 D018 F002	USED OIL	5,313	6.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
400	FM-W019	D001A ★ D008B F001	USED OIL FROM MAINTENANCE	105	0.2	0	0	Uran. 1.0 ppm U235 0.76 wt%	0.82 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
402	FM-W020	D008B D018 F001	USED OIL	404	0.8	0	0	Uran. 0.01 U235 0.99 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
408	FM-W023	D005 D006B D008B F001	USED OIL	146	0.2	0	0	Uran. 31 ppm U235 0.4 wt%	86 ppm 0.65 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
412	FM-W025	D001A ★ D006B F001 F002	1,1,1-TRICHLOROETHANE	10	0.2	0	0	Uran. 1.0 ppm U235 0.51 wt%	1.28 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
514	FM-W055	D001A ★ D007 D008B F002 F003 F005A	BAD PAINT FROM PAINT BOOTH	572	1.2	0	0	Uran. 3.0 ppm U235 0.33 wt%	0.44 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
777	FM-W089	D001A ★ D008B F001 F002	USED AGITENE	268	0.4	533	0.5	Uran. 2.0 ppm U235 1.07 wt%	5.0 ppm	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1412	FM-W105	D001A ★ D006B D008B F001 F002	USED SOLVENT: 1,1,1-TRICHLOROETHANE	188	0.2	0	0	Uran. 10 ppm U235 0.75 wt%		PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE:
TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1729	FM-W313	D001A ★ D008B D018	GASOLINE	1,084	1.8	5,548	6.9	NOT AVAILABLE		SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2235	FM-W328	D010 F002	LAB GENERATED ORGANIC LIQUID WASTE	1,746	2.0	9,152	9.5	Alpha 76.0 pci/mi Beta 113.0 pci/mi		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10004	FM-W127	D007 D018 D019 D021 D029 D039 D040 F001	CONTAMINATED SOLVENT	3,479	4.4	0	0	Uran. 45.5 ppm U235 0.35 wt%	141.5 ppm 0.41 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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000231

6028

GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10029	FM-W148	D006 D007 D008 D019 D029 D040 F001	USED OIL	1,387	1.6	0	0	Uran. 48.4 ppm U235 0.76 wt%	Uran. 59.7 ppm U235 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20031	FM-W162	D008B D018 D028 D029 D039 D040 F002	CONTAMINATED OIL, INSOLUBLE GEAR OIL, LUBRICATING OIL FROM PLANT 1	1,263	1.8	0	0	Uran. 391 ppm U235 1.53 wt%	Uran. 575 ppm U235 2.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
20038	FM-W167	D006B D008B D018 D019 D028 D029 D039 D040 F002 F005A	CONTAMINATED OIL - INSOLUBLE FROM PILOT PLANT PROCESSING EQUIPMENT	288	0.4	0	0	Uran. 41 ppm U235 0.76 wt%	Uran. 113 ppm U235 0.90 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50072	FM-W227	D001A ★ D008 D019 D039 D040 F002 F003 F005A	CONTAMINATED SUMP WATER AND HYDRAULIC OIL FROM DRUM BALER IN PLANT 1 DRUM RECONDITIONING AREA	671	0.6	0	0	Uran. 3,128 ppm U235 0.55 wt%	8,978 ppm 0.62 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
50096	FM-W234	D001A ★ D007 F003	CONTAMINATED SOLVENTS FROM WATER TREATMENT	153	0.2	0	0	Uran. 20 ppm U235 0.80 wt%	40 ppm 0.81 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60055	Un-assigned	D001A ★ D008B D018	LEADED GASOLINE FROM TANK #12	2,374	4.0	0	0	Uran. 0.01 U235 0.5 wt% PK only		PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60059	Un-assigned	D001A ★ D008B F002	USED 1.1.1 TRICHLOROETHANE MIX	190.2	0.2	0	0	Uran. 2 ppm U235 0.9 wt%		SA PK	FUEL SUBSTITUTION, ORGANIC RECOVERY or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60067	Un-assigned	D008B F002	USED OIL WITH 1.1.1 TRICHLOROETHANE	154.8	0.2	0	0	Uran. 2 ppm U235 0.7 wt%		SA PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60068	FM-W277	D008B F001	CONTAMINATED INSOLUBLE OIL FROM PLANT 5 OIL STORAGE AREA	510	0.8	0	0	Uran. 16 ppm U235 0.46 wt%	Uran. 20 ppm U235 0.65 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60069	FM-W278	D008B F001	CONTAMINATED, INSOLUBLE OIL FROM METAL REDUCTION AREA	1,883	2.6	0	0	Uran. 38 ppm U235 0.4 wt%	Uran. 74 ppm U235 0.5 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000235

GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60083	Un-assigned	D001A ★ D008B D019 F002	CONTAMINATED INSOLUBLE OIL FROM BOILER PLANT	674.7	0.8	0	0	Uran 7 ppm U235 0.79 wt%		SA PK	FUEL SUBSTITUTION, ORGANIC RECOVERY or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60085	Un-assigned	D001A ★ D005 D006B D007 D008B D010 F002	WASTE OIL FROM PLANT 8 MAINTENANCE	7,785.2	10.6	0	0	Uran 95 ppm U235 0.79 wt%		SA PK	FUEL SUBSTITUTION ORGANIC RECOVERY OR INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #12

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Treatment

OUT OF STATE: TSCA Incinerator (P)(F)

MEF#	WASTE STREAM ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60087	Un-assigned	D001A ★ D008B D039 F002	USED OIL WITH SOLVENTS	1,984.4	2.4	0	0	Uran. 1,659 ppm U235 0.44 wt%		SA PK	FUEL SUBSTITUTION, ORGANIC RECOVERY or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #13

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT GROUP

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Hg Treatment
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical Treatment
Hg Treatment

OUT OF STATE: TSCA Incinerator (M)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
414	FM-W027	D001A ★ D006B D008B D009C D039 F001 F002	USED OIL	198	0.4	0	0	Uran. 2.0 ppm U235 0.57 wt%	Uran. 3.0 ppm U235 1.26 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #13

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT GROUP

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Hg Treatment
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical Treatment
Hg Treatment

OUT OF STATE:
TSCA Incinerator (M)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
479	FM-W050	D001A ★ D008 D009C D035 F003 F005	USED PAINT THINNER	436	0.4	0	0	Uran. 9.0 ppm U235 0.89 wt%	1.16 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1411	Un-assigned	D001A ★ D005 D007 D008B D009C D010 D011 D019 F002 F003	CONTAMINATED SOLVENT FROM PAINT SHOP	217	0.2	0	0	NOT AVAILABLE		PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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GROUP #13

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT GROUP

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Hg Treatment
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical Treatment
Hg Treatment

OUT OF STATE:
TSCA Incinerator (M)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1423	Un-assigned	D008B D009E ★ D034 D040 F001 F002 F003 F005	CONTAMINATED INSOLUBLE OIL	170	0.2	0	0	NOT AVAILABLE		PK SA	INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
2259	FM-W330	D009C F001 F002	TCLP LEACHATE	191	0.2	999	0.9	Uran. 346 ppm U235 6,290 Pci/l	___ ___	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10006	FM-W129	D008B D009E D039 F001	CONTAMINATED OIL - INSOLUBLE	122	0.2	0	0	Uran. 135.5 ppm U235 0.55 wt%	164.7 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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GROUP #13

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS W/ MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT GROUP

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Hg Treatment
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical Treatment
Hg Treatment

OUT OF STATE:
TSCA Incinerator (M)(F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60056	Un-assigned	D001A ★ D007 D008B D009C D039 F002	USED CHLORINATED SOLVENT MIXTURE	4,591.3	4.0	0	0	Uran. 183 ppm U235 0.5 wt%		SA	FUEL SUBSTITUTION, ORGANIC RECOVERY or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
60062	Un-assigned	D001A ★ D008B D009C F002	CONTAMINATED INSOLUBLE OIL	1,152.3	1.6	0	0	Uran. 32 ppm U235 0.77 wt%		SA PK	FUEL SUBSTITUTION, ORGANIC RECOVERY or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

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GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
425	FM-W035	D001A ★[1] D002A ★[2]	LABORATORY ACIDS (NITRIC ACID AND CYCLOHEXANE)	546	8.6	885	0.9	NOT AVAILABLE		PK	1) FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★[1] 2) DEACTIVATION ★[2]	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
428	FM-W037	D001A ★	ACETONITRILE IN WATER	2	0.2	0	0	Uran. <0.005 mg/l	—	PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
485	FM-W051	D001A ★	KEROSENE	92	0.2	0	0	Uran. 0.5 ppm U235 0.739 wt%	0.801 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
587	FM-W069	D001A ★	GREASE AND WATER	113	0.2	0	0	Uran. 1.0 ppm U235 0.62 wt%	2.0 ppm 1.03 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
870	FM-W093	D001A ★	VARNISH - UNUSED	89	0.2	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1337	FM-W104	D001A ★	CONTAMINATED WATER, NON-CHLORIDE	169	0.2	0	0	Uran. 16 ppm U235 0.7 wt%	Uran. 54 ppm U235 0.8 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1432	FM-W107	D001A ★	NON-CHLORIDE CONTAMINATED WATER OR SUMP LIQUOR (KEROSENE)	869	1.2	0	0	Uran. 3.0 ppm U235 0.50 wt%	Uran. 8.0 ppm U235 1.1 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
1504	FM-W335	D001A ★	FLAMMABLE PAINT AND PAINT-RELATED PRODUCTS	495	0.4	2,598	2.0	NOT AVAILABLE		PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1990

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GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1709	FM-W117	D001A ★[1] D002A ★[2]	LAB GENERATED WASTE, FLAMMABLE ORGANIC EXTRACTS	295	0.4	7,150	6.3	Uran. 357 ppm U235 1.9 ppm	375 ppm 2.0 ppm	PK SA	1) FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★[1] 2) DEACTIVATION ★[2]	K INCINERATION PROJECT (LIQUIDS ONLY) NON-LDR/<TSC DISPOSAL PROJECT	TSCA INCINERATOR ENVIROCARE

Revised August 27, 1994

000245

6073

GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2006	FM-W346	D001A ★	CURING COMPOUND	173	0.4	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	K INCINERATION PROJECT (LIQUIDS ONLY) NON-LDR/<TSC DISPOSAL PROJECT	TSCA INCINERATOR ENVIROCARE

Revised August 27, 1994

000246

6073

GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2224	FM-W327	D001A ★	FLOOR COATING BASE	356	0.8	0	0	Uran. 0.01 U235 0.5 wt% PK only		PK	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	K INCINERATION PROJECT (LIQUIDS ONLY) NON-LDR/<TSC DISPOSAL PROJECT	TSCA INCINERATOR ENVIROCARE

Revised August 27, 1994

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GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50358	Un-assigned	D001A ★	CONTAMINATED NON-BURNABLES	1,445	0.8	0	0	Uran. 100 ppm U235 0.54 wt%	Uran. 126 ppm U235 0.63 wt%	SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	K INCINERATION PROJECT (LIQUIDS ONLY) NON-LDR/<TSC DISPOSAL PROJECT	TSCA INCINERATOR ENVIROCARE

Revised August 27, 1994

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6072

GROUP #14

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Mobile Chemical/Treatment (F)
Mound Glass Melter
Mound Packed Bed Reactor
Wet Air Oxidation
Biological Treatment

OHIO:
Mound Glass Melter
Mound Packed Bed Reactor
Mobile Incinerator
Mobile Chemical/Destruction

OUT OF STATE:
TSCA Incinerator (P)(F)(M)
DSSI
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50407	FM-W275	D001A ★	NON-RECOVERABLE TRASH	96	0.2	0	0	Uran. 4,187 ppm U235 ___ wt%	11,427 ppm 0.38 wt%	SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★	K INCINERATION PROJECT (LIQUIDS ONLY) NON-LDR/<TSC DISPOSAL PROJECT	TSCA INCINERATOR ENVIROCARE

Revised August 27, 1994

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6073

GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
386	FM-W288	D019 D039 F001 F002	FLOOR SUMP CLEAN OUT SLUDGE	633	0.4	0	0	Uran. 486 ppm U235 0.6 wt%	662 ppm 0.6 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10003	FM-W126	D001A ★ D039 F001	OILY OXIDATION SLUDGES WITH HIGH FREE METAL	2,590	2.8	0	0	Uran. 220 ppm U235 0.49 wt%	501 ppm 0.75 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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6073

GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10010	FM-W132	D029 D039 D040 F001	SLUDGES, OILY	77,665	105.8	0	0	Uran. 841 ppm U235 0.30 wt%	Uran. 1,091 ppm U235 0.41 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10026	FM-W145	D001A ★ F001	1,1,1-TRICHLOROETHANE STILL BOTTOMS FROM NATIONAL ELECTRIC COIL	7,545	8.6	0	0	Uran. 133 ppm U235 0.65 wt%	Uran. 247 ppm U235 0.74 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10031	FM-W150	D029 D030 F001	FLOOR SUMP CLEAN-OUT SLUDGE	594	0.6	0	0	Uran. 1,871 ppm U235 0.47 wt%	Uran. 5,093 ppm U235 0.52 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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6073

GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20006	FM-W155	F002	OIL CONTAMINATED WET SUMP CAKE PRODUCED FROM CO-EXTRUSION OPERATIONS AT UNC CORP.	16,397	25.4	0	0	Uran. 9,400 ppm U235 1.01 wt%	___ ___	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20045	FM-W168	D019 D022 D039 F002	CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES FROM LAB	50	0.4	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30005	FM-W185	D001A ★ D019 D039 D040 F001 F003 F005A	OILY SLUDGES FROM OIL DECANTATION SYSTEM	15,541	15.8	0	0	Uran. 5,800 ppm U235 0.61 wt%	9,200 ppm 0.77 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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6023

GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
30010	FM-W187	D039 D040 F002	OIL CONTAMINATED WET SUMP OR FILTER CAKE FROM SERVICE BUILDING SUMP	10,611	10.6	0	0	Uran. 7,000 ppm U235 0.43 wt%	Uran. 11,000 ppm U235 0.48 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30018	FM-W188	D039 F002	WET SUMP OR FILTER CAKE - NON-OILY	3,231	4.2	0	0	Uran. 22,500 ppm U235 0.93 wt%	Uran. 32,400 ppm U235 0.96 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30026	FM-W189	D039 F002	NON-OILY CLEAN-OUT SLUDGES FOR ROASTING FROM PLANT 2/3	3,968	5.4	0	0	Uran. 10,000 ppm U235 0.96 wt%	Uran. 21,000 ppm U235 1.01 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
30037	FM-W194	D039 F002	DISCARD PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRY FROM PILOT PLANT CATCH BASIN	454	0.8	0	0	Uran. 37,000 ppm U235 1.05 wt%	Uran. 59,000 ppm U235 1.29 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30042	FM-W196	D039 F002	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE FROM PILOT PLANT SUMP	592	0.8	0	0	Uran. 10.7 ppm U235 0.89 wt%	Uran. 17.7 ppm U235 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30046	FM-W198	D019 F001	NON-OILY CLEAN-OUT SLUDGES FOR ROASTING FROM GARAGE SUMPS	1,864	2.0	0	0	Uran. 1,000 ppm U235 0.51 wt%	Uran. 3,000 ppm U235 0.56 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50085	FM-W229	D001A ★ F002 F003 F005A	WET SUMP OR FILTER CAKE, NON-OILY/NON-HALIDE FROM PLANT 1	56	0.2	0	0	Uran. 46,450 ppm U235 0.31 wt%	Uran. 55,030 ppm U235 0.53 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50200	Un-assigned	D001A ★ F001	OILY SLUDGE FOR OXIDATION	90	0.2	0	0	Uran. 8,200 ppm U235 0.40 wt%	Uran. 13,320 ppm U235 0.49 wt%	SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50339	FM-W262	F002	SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL FROM PLANT 6 MACHINING	1,601	2.2	0	0	Uran. 31,500 ppm U235 0.26 wt%	Uran. 57,000 ppm U235 0.29 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
60119	FM-W279	D001A ★ F001 F002	OILY SLUDGES, HIGH FREE METAL FROM GARAGE	2,954	3.2	0	0	Uran. 190 ppm U235 0.31 wt%	Uran. 390 ppm U235 0.53 wt%	PK SA	FUEL SUBSTITUTION, ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #15

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regeneration/ Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
60123	FM-W280	D039 F002	SOLVENT SEMI-SOLID FROM THE SERVICE BLDG. AND ADMIN. BLDG. LAUNDRY	40	0.2	0	0	Uran. 1.0 ppm U235 0.791 wt%	 0.945 wt%	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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6073

GROUP #16

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20007	FM-W156	D011	OIL CONTAMINATED WET SUMP OR FILTER CAKE	31,735	62.2	0	0	Uran. 61.2 ppm U235 1.11 wt%	___ ___ wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
30047	FM-W199	D007 D011	SOLVENT SLUDGE - TRICHLOR, PERCHLOR FROM ANALYTICAL LAB	36	0.2	0	0	Uran. 247,000 ppm U235 0.95 wt%	507,000 ppm 0.97 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50197	FM-W340	D007	SLUDGES FOR BLENDING FROM PLANT 9 N-R FURNACE	207	0.4	0	0	Uran. 3,030 ppm U235 1.11 wt%	12,350 ppm 1.91 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

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60279

GROUP #16

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50202	FM-W257	D001A ★ D010	OILY SLUDGE FOR OXIDATION WITH HIGH FREE METAL FROM PLANT 9 CASTING	88	0.2	0	0	Uran. 18,000 ppm U235 0.67 wt%	Uran. 19,000 ppm U235 0.73 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50204	FM-W258	D001A ★ D010	OILY SLUDGE FOR OXIDATION WITH HIGH FREE METAL FROM LEBLOND RAPID BORER IN PLANT 9 MACHINING AREA	153	0.2	0	0	Uran. 115,000 ppm U235 0.79 wt%	Uran. 139,000 ppm U235 1.10 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

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GROUP #16A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES TOXIC METALS w/ MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1363	Un-assigned	D005 D006B D007 D008B D009C	OILY SLUDGES FROM THE WWTS AREA	556	0.4	0	0	Uran. 37,274 ppm U235 0.37 wt%	42,055 ppm 0.51 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

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Revised August 27, 1994

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GROUP #17

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regenertion/
Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln
Stabilization

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)(F)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
390	FM-W013	D005 D008B F001 F002	OILY SLUDGES FROM WATER TREATMENT PROCESS	469	0.8	0	0	Uran. U235	266 ppm 0.43 wt%	521 ppm 0.770 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
456	FM-W044	D007 D039 D040 F001 F002	SOLVENT WASTES	508	0.4	0	0	Uran. U235	6,261 ppm 0.53 wt%	16,003 ppm 1.00 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10007	FM-W130	D007 F001	OILY SLUDGES	430	0.6	0	0	Uran. U235	2,767 ppm 0.85 wt%	2,896 ppm 0.90 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #17

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regenertion/
Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln
Stabilization

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)(F)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10009	FM-W131	D001A ★ D008B D035 F005A	SLUDGES - SOLVENT (TRICHLOR, PERCHLOR)	133	0.4	0	0	Uran. U235	3.5 ppm 0.61 wt%	14.3 ppm 0.78 wt%	PK SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10016	FM-W137	D010 D039 F002	OILY SLUDGE FOR OXIDATION	1,352	1.0	0	0	Uran. U235	535 ppm 0.21 wt%	886 ppm 0.30 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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6073

GROUP #17

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Carbon Regenertion/
Thermal Desorp (P)
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment (F)
FEMP Rotary Kiln
Stabilization

OHIO:
Mobile Incinerator/Stabl.
FEMP MAWS
Mobile Chemical Treatment
FEMP Rotary Kiln

OUT OF STATE:
TSCA Incinerator (P)(F)
(liquid portion only)
Envirocare
(solid portion only)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10021	FM-W140	D008B D039 D040 F001	SLUDGES, OILY	311	0.4	0	0	Uran. 872 ppm U235 0.46 wt%	Uran. 3,468 ppm U235 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10028	FM-W147	D008B F001	SLUDGES, OILY	1,476	2.0	0	0	Uran. 1.60 U235 0.950 wt% PK only		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
60072	Un-assigned	D008B F002	SOLVENT CONTAMINATED WASTE OIL	582.5	0.8	0	0	Uran 14 ppm U235 0.8 wt%		SA PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

Revised August 27, 1994

000263

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GROUP #18

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
30045	FM-W197	D001A ★	OILY SLUDGES, HIGH FREE METAL FROM PLANT 6 WATER TREATMENT AREA	423	0.6	0	0	Uran. 151,300 ppm U235 0.193 wt%	___ ___	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50008	FM-W215	D001A ★	COPPER CONTAMINATED SUMP CAKE FROM THE GENERAL SUMP	36,831	31.0	0	0	Uran. 667 ppm U235 1.01 wt%	1,356 ppm 1.04 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50068	FM-W225	D001A ★	NON-OILY SLUDGE FOR ROASTING FROM GENERAL SUMP	13,990	11.4	0	0	Uran. 1,080 ppm U235 0.84 wt%	1,390 ppm 0.98 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

000264

6073

GROUP #18

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50178	FM-W339	D001A ★	FURNACE SALT, NON-CHLORIDE	76	0.2	0	0	Uran. 250,000 ppm U235 0.92 wt%	— —	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50346	Un-assigned	D001A ★	OILY SLUDGE FROM OXIDATION	292	0.4	0	0	Uran. 70,000 ppm U235 0.86 wt%	210,000 ppm 1.14 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50347	FM-W264	D001A ★	DISCARD PROCESS RESIDUES FROM BOILER PLANT	179	0.2	0	0	Uran. 94 ppm U235 .53 wt%	232 ppm .62 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

000265

6073

GROUP #18

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, (IGNITABLE), REACTIVE, OR CORROSIVE ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
50355	FM-W267	D001A ★	DISCARD PROCESS RESIDUES FROM GENERAL SUMP	3,675	3.2	0	0	Uran. 60 ppm U235 0.87 wt%	120 ppm 0.89 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

Revised August 27, 1994

002300

6023

GROUP #19

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, IGNITABLE, REACTIVE, or (CORROSIVE) ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PROJECT NAME
1906	FM-W318	U134 ★	HF TANK CAR CLEAN-OUT MATERIAL	3,877	0.8	0	0	Uran. 0.01 U235 0.95 wt% PK only		PK SA	NEUTRALIZATION ★	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30081	FM-W207	D002A ★	DISCARD PROCESS RESIDUES, TRAILER CAKES FROM HOT RAFFINATE BUILDING IN PLANT 2/3	387	0.2	0	0	Uran. 1,277 ppm U235 0.95 wt%	— —	SA	DEACTIVATION ★	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000267

6073

GROUP #19A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, (IGNITABLE), REACTIVE, or CORROSIVE ONLY

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFFERED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1949	Un-assigned	D001F ★	DRAW TEMP 275	92	0.2	0	0	Uran. U235	0.01 0.50 wt% PK only	PK SA	DEACTIVATION ★	C INCINERATION PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
588	FM-W070	F002	MERCO AND OILY MERCO DRY FROM THE BALER	1,983	2.0	0	0	Uran. 412 ppm U235 0.5 wt%	— —	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1438	Un-assigned	D039	NON-OILY CLEANOUT SLUDGES FROM ROASTING	1,204	1.0	0	0	Uran. 1,435 ppm U235 0.5 wt%	4,136 ppm 0.6 wt%	PK SA	NO LDR TREATMENT STANDARD ESTABLISHED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE
1532	FM-W109	D018 D039	BIO-DENITRIFICATION SURGE LAGOON SLUDGE	387,126	408.0	0	0	Uran. 992 ppm U235 0.97 wt%	— —	PK SA	NO LDR TREATMENT STANDARD ESTABLISHED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20037	FM-W166	D029	PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRIES, ETC. FROM PLANT 8	362	0.6	0	0	Uran. 77,000 ppm U235 0.57 wt%	Uran. 139,000 ppm U235 0.72 wt%	PK SA	NO LDR TREATMENT STANDARD ESTABLISHED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
20048	FM-W171	F005A	DISCARD PROCESS RESIDUES FROM LAB	9	0.2	0	0	Uran. 87,200 ppm U235 0.77 wt%	Uran. 105,200 ppm U235 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30004	FM-W184	F001	INCINERATOR CINDERS	66,340	108.2	0	0	Uran. 16,147 ppm U235 ——	Uran. 22,350 ppm U235 0.68 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50079	FM-W228	F002	INCINERATOR CINDERS FROM SOLID WASTE INCINERATOR	2,768	4.2	0	0	Uran. 41,000 ppm U235 0.734 wt% *	___ ___	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50113	Un-assigned	F001	ROASTED CALCIUM PRECIPITATED FROM SUMP OR FILTER CAKES	1,487	3.8	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50129	FM-W240	F001	SCRAP U308 - LOW F FROM OXIDATION FURNACE IN PLANT 8	6,151	7.6	0	0	Uran. 755,000 ppm U235 0.33 wt% *	Uran. 714,000 ppm U235 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50131	FM-W241	F002	SCRAP U308 - LOW F FROM PLANT 8 OXIDATION FURNACE	56	1.0	0	0	Uran. 83.85 ppm U235 0.766 wt%	___ ___	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50139	FM-W347	D039	U308 +8MESH, LOW F FROM PLANT 8 OXIDATION SYSTEM BOX FURNACE	449	0.4	0	0	Uran. 28,300 ppm U235 0.28 wt% *	Uran. 101,700 ppm U235 0.43 wt%	SA	NO LDR TREATMENT STANDARD ESTABLISHED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50152	FM-W243	F002	SCRAP U308, HIGH FLUORIDE BURNED IN OXIDATION FURNACE #1 AND SCREENED AT PLANT 8 ROTEX	13,646	8.4	0	0	Uran. 801,200 ppm U235 0.210 wt% *	Uran. — U235 —	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50154	FM-W244	F001	ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKE	21,067	32.6	0	0	Uran. 30,700 ppm U235 0.9 wt% *	Uran. 38,100 ppm U235 0.9 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50175	FM-W250	F002	SALT SLUDGE, CHLORIDE FROM PLANT 9 CASTING AREA	500	1.0	0	0	Uran. 27,240 ppm U235 0.8 wt% *	Uran. 72,470 ppm U235 —	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50183	FM-W253	F001	SCRAP SALTS, LOW F FROM PLANT 6 DEGREASING AND PICKLING AREA	216	0.4	0	0	Uran. 521,000 ppm U235 0.742 wt% *	___ ___	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
60149	FM-W281	F001 F002	U308 FROM PLANT 8 OXIDATION BOX FURNACE	40,712	50.2	0	0	Uran. 317,900 ppm U235 1 wt% *	499,001 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #21

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)
Thermal Desorption/Stabl.
Mound Packed Bed Reactor (M)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment

OUT OF STATE:
TSCA Incinerator (P)
TSCA Incinerator (F)
(liquid portion only)
Envirocare (F)

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
60152	FM-W282	F001	U308 ROTEXED PLANT 8 FURNACE PRODUCT	75,533	69.4	0	0	Uran. 770,000 ppm U235 ___	Uran. 800,000 ppm U235 0.99 wt% *	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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Revised August 27, 1994

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
817	FM-W090	D008B	PAINT CHIPS FROM SAND FILTERS AT WATER PLANT	531	1.8	1,525	1.6	Th 6.0 Pci/g Th-228 2.0 Pci/g Th-230 2.6 Pci/g Th-232 1.5 Pci/g		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
10002	FM-W125	D005 D008B	SCRAP SALTS, LOW FLUORIDE FROM RMI, INC.	6,217	4.8	0	0	Uran. 26,567 ppm U235 0.88 wt%	40,119 ppm 1.10 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10013	FM-W135	D005 D007	SUMP CAKE-COPPER CONTAMINATED	6,548	4.8	0	0	Uran. 96.8 ppm U235 0.58 wt%	Uran. 144.9 ppm U235 0.67 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
10022	FM-W141	D008B	GRIT BLAST	284,614	173.0	0	0	Uran. 123 ppm U235 0.85 ppm		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
20015	Un-assigned	D007	SCRAP SALTS, LOW FLUORIDE AND FLOOR SWEEPINGS FROM PLANT 6 NU-SAL FURNACE AREA	2,725	4.6	0	0	Uran. 20,300 ppm U235 0.31 wt%	Uran. 55,300 ppm U235 0.40 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
20024	FM-W159	D007 D008B	HIGH FLUORIDE SCRAP SALTS AND FLOOR SWEEPINGS	1,014	1.8	0	0	Uran. 12.9 ppm U235 0.69 wt%	 28.6 ppm 0.74 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
20027	FM-W160	D004 D011	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM ANALYTICAL LAB	245	0.6	0	0	Uran. 58.2 ppm U235 1.64 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
20033	FM-W163	D008B	PROCESS RESIDUES AND WASTE SLURRIES	70	0.2	0	0	Uran. 6.12 ppm U235 0.74 wt%	 12.14 ppm 0.78 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

Revised August 27, 1994

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
20035	FM-W164	D007	DUST COLLECTOR RESIDUES, HIGH FLUORIDE FROM PILOT PLANT	559	0.8	0	0	Uran. 67,000 ppm U235 0.46 wt%	195,000 ppm 1.23 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
20046	FM-W169	D007	NON-METALLIC MISCELLANEOUS SAMPLES FROM LAB	35	0.4	0	0	Uran. 35.7 ppm U235 0.56 wt%	18.2 ppm 1.56 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20047	FM-W170	D004 D008B	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE FROM PLANT 6 ROLLING AREA	230	0.4	0	0	Uran. 293,000 ppm U235 0.59 wt%	1,000,000 ppm 0.97 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

Revised August 27, 1994

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m³)	(kg)	(m³)	Ave.	Max.				
20058	FM-W174	D006B D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	3	0.2	0	0	Uran. 18,200 ppm U235 0.74 wt%	 22,800 ppm 0.76 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
20139	FM-W180	D005	SAMPLES, NON-METALLIC FROM RMI	84	0.2	0	0	Uran. 53.1 ppm U235 0.51 wt%	 103.4 ppm 0.80 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20145	FM-W182	D002B ★ D007	WET SUMP OR FILTER CAKE, OIL-CONTAMINATED PRODUCED DURING CO-EXTRUSION OPERATIONS AT UNC CORP.	271	0.4	0	0	Uran. 242,100 ppm U235 0.96 wt%	 268,200 ppm 1.02 wt%	SA	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
30036	FM-W193	D006B D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM PLANT 6 INSPECTION AREA	551	1.0	0	0	Uran. 356,000 ppm U235 0.64 wt%	634,000 ppm 0.81 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
30060	FM-W202	D005	WET SUMP OR FILTER CAKE NON-OILY, NON-HALIDE FROM PILOT PLANT	246	0.4	0	0	Uran. 323,000 ppm U235 0.58 wt%	335,000 ppm 0.60 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
30065	FM-W203	D008B	GRIT BLAST FROM AREA AROUND PLANT 2\3	6,847	6.2	0	0	Uran. 11,140 ppm U235 0.84 wt%	27,477 ppm 1.04 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
40152	FM-W210	D005	SCRAP ThO_2, HIGH FLUORIDE	58	0.4	0	0	NOT AVAILABLE		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
40185	FM-W212	D001F ★ D007 D008B	IMPURE THORIUM NITRATE (SOLID)	838	0.2	0	0	Th 41.4 wt%		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
40186	FM-W213	D001F ★ D007 D008B	IMPURE THORIUM NITRATE (SOLID)	2,000	0.6	0	0	NOT AVAILABLE		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
40192	FM-W345	D008B	THO_2 POWDER REFINERY FEED	30	0.2	0	0	NOT AVAILABLE		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50063	FM-W224	D004 D008B	ROASTED MGF2 AND OTHER MATERIAL FROM PLANT 8 ROTARY KILN	2,349	1.4	0	0	Uran. 428,000 ppm U235 0.93 wt%	475,000 ppm 0.94 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50091	FM-W232	D004 D008B	DUST COLLECTOR RESIDUE FROM PLANT 9	63	0.2	0	0	Uran. 706,500 ppm U235 0.84 wt%	708,039 ppm 0.85 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
50102	FM-W238	D006B D008B	PROCESS RESIDUES, TRAILER CAKES, SLURRIES, RAFFINATES, ETC. FROM PLANT 6 ROLLING AREA	54	0.4	0	0	Uran. 82,000 ppm U235 0.74 wt%	 118,000 ppm 0.73 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50148	FM-W242	D004	SCRAP U308, HIGH FLUORIDE, FROM CRUCIBLE BURNOUT IN PLANT 5 CASTING AREA	109,938	109.2	0	0	Uran. 740,000 ppm U235 0.43 wt%	 790,000 ppm 0.66 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50165	FM-W245	D007	ROASTED SUMP AND FILTER CAKE FROM PLANT 8 ROTARY KILN	14,944	11.4	0	0	Uran. 475,775 ppm U235 0.90 wt%	 561,266 ppm 0.95 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50169	FM-W246	D007	NON-OILY CLEANOUT SLUDGE FOR ROASTING FROM PLANT 9 CASTING	202	0.2	0	0	Uran. 160,000 ppm U235 1.03 wt%	Uran. 336,000 ppm U235 1.04 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50173	FM-W248	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	4,799	2.0	0	0	Uran. 149,000 ppm U235 0.2 wt%	Uran. 287,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50174	FM-W249	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 NU SAL FURNACE	9,099	10.2	0	0	Uran. 39,000 ppm U235 0.47 wt%	Uran. 69,000 ppm U235 0.54 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50177	FM-W251	D001A ★ D004 D008B	FURNACE SALT, NON-CHLORIDE, FROM PLANT 9 ROCKWELL FURNACE BREAKOUT STATION	834	0.8	0	0	Uran. 268,000 ppm U235 .000059 wt%	Uran. 568,000 ppm U235 .000099 wt%	SA	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
50180	FM-W252	D007 D008B D010	FURNACE SALT, NON-CHLORIDE FROM PLANT 6 MACHINING	10,942	7.6	0	0	Uran. 2,430 ppm U235 .000036 wt%	Uran. 6,230 ppm U235 .000045 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50188	FM-W255	D004 D007 D008B D010	SCRAP SALTS, HIGH F FROM PLANT 4 BANK 7	1,885	2.4	0	0	Uran. 732,000 ppm U235 0.90 wt%	Uran. 866,000 ppm U235 0.99 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50293	FM-W259	D004	U308 FOR RE-OXIDATION FROM UNC INC.	3,560	4.8	0	0	Uran. 80 ppm U235 1.25 wt%	Uran. 82 ppm U235 — wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE CHEMICAL TREATMENT
50314	FM-W260	D010	SCRAP SALTS, HIGH FLUORIDE AND FLOOR SWEEPINGS FROM PILOT PLANT REMELT FURNACE	114	0.2	0	0	Uran. 3,401 ppm U235 0.28 wt%	Uran. 4,845 ppm U235 0.42 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
50323	FM-W261	D004	SOLIDIFIED FURNACE SALTS, NON-CHLORIDE FROM PLANT 9 ROCKWELL FURNACE MOLTEN SALT CLEANING	110,367	137.2	0	0	Uran. 360,000 ppm U235 0.21 wt%	Uran. 406,000 ppm U235 0.21 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
50349	FM-W265	D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM PLANT 8	87	0.2	0	0	Uran. 22,300 ppm U235 0.67 wt%	28,000 ppm 0.83 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50351	FM-W266	D004 D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM GREEN SALT PRODUCTION IN PILOT PLANT	267	0.2	0	0	Uran. 690,000 ppm U235 1.5 wt%	840,000 ppm 2.3 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50387	FM-W272	D005	SALT SLUDGE, CHLORIDE FROM LAB	324	0.4	0	0	Uran. 0.01 U235 0.20 wt% PK only		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
50405	FM-W273	D006B D007	NON-RECOVERABLE TRASH FROM PLANT 6 - DARK GREY SOLIDS	298	0.8	0	0	Uran. 1,160 ppm U235 0.67 wt%	2,790 ppm 0.75 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50406	FM-W274	D004 D011	FURNACE SALT, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	2,945	5.4	0	0	Uran. 111,000 ppm U235 0.4 wt%	177,000 ppm 0.6 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50408	FM-W342	D008B D010	FURNACE SALT, NON-CHLORIDE FROM PILOT PLANT ROCKWELL FURNACE	2,036	2.2	0	0	Uran. 103,000 ppm U235 0.90 wt%	186,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #22

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Mobile Stabilization (F)
FEMP MAWS
Mobile Incinerator
Metals Washing/Recovery
Segregation/Stabl.

OHIO: Mobile Stabilization
FEMP MAWS

OUT OF STATE: TSCA Incinerator (F)
(liquid portion only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
60140	FM-W344	D010	STEEL SHOT FROM PLANT 1 DRUM RECONDITIONING WHEELABRATOR SHOT BLAST UNIT	3,478	2.6	0	0	Uran. 858 ppm U235 0.59 wt%	2,025 ppm 0.67 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

Revised August 27, 1994

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GROUP #23

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS WITH MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Low Temp. Thermal Desorp.
Acid Leaching
Sludge Blending
Mobile Stabilization (P)
Mobile Chemical Treatment (F)

OHIO: Mobile Stabilization
Mobile Chemical Treatment

OUT OF STATE: Hanford Wrap II A/B (B)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1272	Un-assigned	D007 D008B D009C	MERCURY CONTAMINATED MATERIALS FROM SINK TRAPS IN LAB.	32	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50185	FM-W254	D009C	SCRAP SALT, HIGH F FROM MMES, INC.	5	0.2	0	0	Uran. 553,000 ppm U235 0.72 wt%	567,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP 24

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Segregation/Stabl.

OHIO:
FEMP Rotary Kiln
FEMP MAWS (P)
Mobile Chemical Treatment

OUT OF STATE:

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50036	FM-W221	D007 F002	CONTAMINATED BURNABLES FROM PLANT 8 BOX FURNACE	531	1.8	0	0	Uran. 102,000 ppm U235 1.16 wt%	 191,000 ppm 1.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50070	FM-W226	D008B F001 F002	NON-OILY SLUDGE FOR ROASTING FROM PLANT 8 BOX FURNACE	332	0.4	0	0	Uran. 190,000 ppm U235 0.93 wt%	 610,000 ppm 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50170	FM-W247	D004 D019 D039 F002	SALT SLUDGE FROM PLANT 4	602	0.8	0	0	Uran. 232,000 ppm U235 0.98 wt%	 404,000 ppm 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP 24

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Segregation/Stabl.

OHIO:
FEMP Rotary Kiln
FEMP MAWS (P)
Mobile Chemical Treatment

OUT OF STATE:

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50364	FM-W341	D007 F001 F002	U308, +8MESH, LOW F FROM PLANT 8 BOX FURNACE	640	0.4	0	0	Uran. 631,833 ppm U235 0.96 wt%	788,044 ppm 1.00 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #25

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Low Temp. Thermal Desorp.
Washing/Stabilization (P)
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (F)
(liquid portion only)
Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
180	FM-W002	F002	RAGS, SOLVENT	25	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
376	FM-W004	F002	SOLVENT CONTAMINATED RAGS	43	0.2	14	<0.1	Uran. 185 ppm U235 0.44 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
396	FM-W015	F002 F003 F005A	PAINT THINNER RAGS	74	0.4	12	<0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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GROUP #25

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Low Temp. Thermal Desorp.
Washing/Stabilization (P)
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (F)
(liquid portion only)
Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
410	FM-W024	F001 F002	OILY RAGS	129	0.4	0	0	Uran. 21 ppm U235 0.51 wt%	64 ppm 0.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
743	FM-W086	F001	CONTAINER OF PUMP OIL AND RAGS	18	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1427	FM-W106	F002	NON-RECOVERABLE TRASH - MOP HEADS AND PADS CONTAMINATED WITH TCA	41	0.2	0	0	Uran. 8,700 ppm U235 0.26 wt%	10,900 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000296

6023

GROUP #25

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Low Temp. Thermal Desorp.
Washing/Stabilization (P)
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (F)
(liquid portion only)
Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1501	FM-W108	D018	SPILL CLEANUPS OF OIL AND GAS	2,565	6.4	13,191	8.9	NOT AVAILABLE		PK	NO LDR TREATMENT STANDARD ESTABLISHED	E INCINERATION PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR MOBILE STABILIZATION
10024	FM-W143	D018 F001	CONTAMINATED BURNABLES	99	0.4	0	0	Uran. 63 ppm U235 0.50 wt%	191 ppm 0.52 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000297

GROUP #25

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE:
Mobile Incinerator
Low Temp. Thermal Desorp.
Washing/Stabilization (P)
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment (F)
Mobile Stabilization (F)

OHIO:
FEMP Rotary Kiln
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization

OUT OF STATE:
TSCA Incinerator (F)
(liquid portion only)
Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50002	FM-W214	D001A ★ F003 F005A	NON-RECOVERABLE TRASH FROM LAB	60	0.6	0	0	NOT AVAILABLE		PK SA	FUEL SUBSTITUTION ORGANIC, or INCINERATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50359	FM-W269	F002	NON-RECOVERABLE TRASH	225	0.8	0	0	Uran. 4,187 ppm U235 0.29 wt%	11,427 ppm 0.38 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000298

6073

GROUP #27

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Washing/Stabilization (P)
Mobile Stabilization

OHIO: FEMP Rotary Kiln/Stabilization
FEMP MAWS
Mobile Chemical Treatment
Mobile Stabilization

OUT OF STATE: TSCA Incinerator (liquid portion only)
Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
387	FM-W010	D010 D018 F002	OIL SOAKED RAGS	268	1.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
404	FM-W021	D008B D018 F002	OILY RAGS	59	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000299

60283

GROUP #27A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS w/MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION			BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
398	FM-W017	D008B D009C F001	NON-RECOVERABLE TRASH CONTAMINATED ABSORBENT PADS	19	0.2	0	0	Uran. U235	9.0 ppm 0.67 wt%	19 ppm 0.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000300

6073

GROUP #29

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC ORGANICS

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1537	FM-W111	F001 F002	FILTER MATERIAL - SAND, GRAVEL, FLY ASH, ANTI-CS, MISC. TRASH, PLYWOOD, CONCRETE FORMS FROM ETF REMOVAL	186,313	23.0	0	0	Uran. 0.01 U235 0.84 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1617	FM-W305	F001 F002 F005A	CONTAMINATED PROTECTIVE CLOTHING	69	1.2	0	0	Uran. 0.01 U235 0.95 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
2500	Un-assigned	D012 F002 F003	METAL TANK ABANDONED PILOT PLANT SUMP	294	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50025	FM-W219	F001 F002	CONTAMINATED GRAPHITE	413	0.4	0	0	Uran. 30,000 ppm U235 0.947 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000301

6078

GROUP #30

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC METAL w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Incinerator
Mobile Chemical Treatment (F)
Mobile Stabilization (F)(P)
Mobile Metals Recovery/Stabl.
Low Temp. Thermal Desorp.

OHIO: Mobile Metals Recovery/ Stabl.

OUT OF STATE: Envirocare (R)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
517	FM-W056	D007 D008B	OIL DRY CONTAMINATED WITH OIL FROM BALER	460	0.4	0	0	Uran. 6,269 ppm U235 0.711 wt%	17,524 ppm 0.619 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
874	Un-assigned	D008B	LEAD BRICKS, LEAD WINDOW SASHINGS, BABBITT HAMMER	260	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1714	FM-W310	D010	VOLATILE SOLID WASTE FROM TCT-ST. LOUIS	75	0.2	3,973	8.6	Uran. 0.01 ppm U235 0.55 wt% PK only		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

Revised August 27, 1994

000302

6078

GROUP #30

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC METAL w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Incinerator
Mobile Chemical Treatment (F)
Mobile Stabilization (F)(P)
Mobile Metals Recovery/Stabl.
Low Temp. Thermal Desorp.

OHIO: Mobile Metals Recovery/ Stabl.

OUT OF STATE: Envirocare (R)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
2021	FM-W322	D005	BARIUM CARBONATE FROM PLANT 2/3 PROCESSING	1,870	3.0	0	0	Uran. 0.01 wt% PK only	0.95 wt%	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10025	FM-W144	D005	CONTAMINATED SOIL, ROCKS BRICKS, SAND AND CERAMICS FROM RMI	5,471	4.4	0	0	U238 104.1 pCi/g U235 3.85 pCi/g	111.4 pCi/g 4.05 pCi/g	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20120	Un-assigned	D007	DUST COLLECTOR BAGS	17.3	0.2	0	0	Uran. 29.5 ppm U235 1.39 wt%		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
30039	FM-W195	D011	CONTAMINATED ROCKS, SOIL, BRICKS AND CERAMICS FROM PILOT PLANT	449	0.6	0	0	Uran. 128,000 ppm U235 0.82 wt%		SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000303

6073

GROUP #30

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC METAL w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Incinerator
Mobile Chemical Treatment (F)
Mobile Stabilization (F)(P)
Mobile Metals Recovery/Stabl.
Low Temp. Thermal Desorp.

OHIO: Mobile Metals Recovery/ Stabl.

OUT OF STATE: Envirocare (R)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50031	FM-W220	D008B D010	CONTAMINATED METALLIC FILTER ELEMENTS	1,293	3.2	0	0	Uran. 62,000 ppm U235 0.43 wt%	100,000 ppm 0.51 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50367	FM-W271	D008B	NON-RECOVERABLE TRASH	194	0.2	0	0	Uran. 0.01 U235 1.25 wt% PK only		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
60307	Un-assigned	D005 D008B	BARIUM CHLORIDE SALTS	16,267	13.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000304

0 0 2 3 6

GROUP #31

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC METALS WITH MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
432	FM-W038	D006B D008B D009C	MERCURY THERMOMETER SPILL CLEANUP MATERIALS FROM LAB	119	1.0	307	0.2	U235 0.452 wt%	0.530 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
635	FM-W291	D009C	MERCURY SPILL RESIDUE AND SPENT MERCURY-CONTAINING BATTERIES	143	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1199	FM-W100	D009C	MERCURY CONTAMINATED FLOOR TILE & PIPE INSULATION	909	1.6	0	0	Uran. 0.10 U235 0.5 wt% PK only		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000305

6023

GROUP #32

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, IGNITABLE, REACTIVE, OR CORROSIVE ONLY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
40137	FM-W209	D001E ★	UNFIRED REDUCTION CHARGES PLUS CAF2	1	0.2	0	0	NOT AVAILABLE		PK	DEACTIVATION ★	D STABILIZATION PROJECT	MOBILE STABILIZATION

000306

Revised August 27, 1994

6073

GROUP #33

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare (F)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
584	FM-W068	D018	KEROSENE (DIESEL FUEL)/ SLUDGE	1,115	1.6	0	0	NOT AVAILABLE		PK	NO LDR TREATMENT STANDARD ESTABLISHED	CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
627	FM-W072	F001	5-GAL. CAN W/ SPILL CLEANOUT MATERIAL	6	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
628	FM-W073	F001	SPILL CLEANUP MATERIAL	65	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1428	FM-W300	F001 F002	SPILL CLEANUP MATERIAL FROM BUILDING 79 RCRA STORAGE PAD	86	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000307

6073

GROUP #33

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare (F)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1716	FM-W118	F001 F002 F005A	LAB GENERATED WASTE, CONTACT WASTE SOLID	620	3.0	0	0	Uran. 440 ppm U235 .0026 wt%	816 ppm .0012 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
2401	Un-assigned	F001 F002 F005A	CONTACT WASTE FROM PACD SAMPLING	130	1.0	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
10012	FM-W134	D029 D039 D040 F001	CONTAMINATED BURNABLES	1,352	2.8	0	0	Uran. 2875 ppm U235 0.61 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20036	FM-W165	F001	SCRAP SALTS AND FLOOR SWEEPINGS	387	0.8	0	0	Uran. 546,000 ppm U235 0.93 wt%	878,000 ppm 1.19 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000308

6023

GROUP #33

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare (F)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
20114	FM-W178	F001	CONTAMINATED BURNABLES: RAGS, PAPER, POLY-ETHYLENE	184	0.4	0	0	Uran. 35,200 ppm U235 .000031 wt%	109,700 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30074	FM-W204	F002	CONTAMINATED NON-BURNABLES: FILTER CARTRIDGES, GRAVEL, ROCKS, SOIL	1,139	1.0	0	0	Uran. 2,500 ppm U235 0.85 wt%	4,100 ppm 0.75 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30075	FM-W205	F002	CONTAMINATED NON-BURNABLES: METALLIC FILTER ELEMENTS AND CARTRIDGES	14	0.2	0	0	Uran. 1,900 ppm U235 0.91 wt%	2,500 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000309

6073

GROUP #33

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare (F)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
50014	FM-W217	D019 F002	NON-RECOVERABLE TRASH	455	1.0	0	0	Uran. 6,080 ppm U235 0.47 wt%	15,330 ppm 0.78 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
60017	Un-assigned	D039	OILY RAGS AND CLOTHING	63.6	0.4	0	0	U235 .0015 pci/ml		SA	NO LDR TREATMENT STANDARD ESTABLISHED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE

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000310

6073

GROUP #34

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)(P)
Mobile Encapsulation
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: Mobile Chemical Treatment

OUT OF STATE: Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
1421	FM-W298	D008B	NON-RECOVERABLE TRASH: OILY RAGS, PADS, GLOVES AND PLASTIC WITH GREASE	64	0.2	0	0	Uran. 16,900 ppm U235 0.675 wt%	Uran. 17,208 ppm U235 0.712 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1430	Un-assigned	D010	PLASTIC SHEETING, GLOVES, FLOOR SWEEPINGS	1,377	1.6	0	0	Uran. 1,136 ppm U235 0.71 wt%	Uran. 2,326 ppm U235 0.72 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30009	FM-W186	D008B	SCRAP SALTS (HIGH FLUORIDE) AND FLOOR SWEEPINGS	7,663	10.2	0	0	Uran. 37,626 ppm U235 0.510 wt%	Uran. 77,367 ppm U235 0.702 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

000311

6023

GROUP #36

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
399	FM-W018	D008B D039 F001	SOLVENT CONTAMINATED RAGS, PADS, AND PLASTIC FROM BOILER PLANT OIL STORAGE AREA	49	0.2	178	0.2	Uran. 6.0 ppm U235 1.03 wt%	19 ppm 2.14 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
415	FM-W028	D008B D018 F002	OILY RAGS AND ABSORBENTS, WD-40 AND VARIOUS OILS	35	0.2	0	0	Uran. 0.01 wt% PK only	0.5 wt%	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
434	FM-W040	D004 D005 D006B D007 D008B D022 F002 F003	LABORATORY CONTAMINATED WASTE	562	2.2	21,451	18.9	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000312

6023

GROUP #36

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
460	FM-W047	D004 D005 D006B D007 D008B D010 D018 F002	PCB MATERIALS, BALLAST, PCB-CONTAMINATED RAGS	11	0.2	0	0	Uran. 1,920 ug/g U235 0.77 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1425	FM-W299	D005 F001	CONTAMINATED RAGS, PAPER, POLYETHYLENE FROM RMI	134	0.6	0	0	Uran. 3,844 ppm U235 0.72 wt%	13,732 ppm 1.33 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
2080	Un-assigned	D004 D005 F001 F002	PIT 5 TREAT-ABILITY STUDY	13	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000313

6073

GROUP #36

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: FEMP Rotary Kiln
Mobile Chemical Treatment (F)(P)
Mobile Incineration
Low Temp. Thermal Desorp.

OHIO: FEMP Rotary Kiln
Mobile Chemical Treatment

OUT OF STATE: Envirocare

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
10023	FM-W142	D008B F001	NON-RECOVERABLE TRASH	3,043	3.8	0	0	Uran. 324 ppm U235 1.08 wt%		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
20094	FM-W175	D008B D011 F001	CONTAMINATED BURNABLES, RAGS, FILTER CLOTH, PAPER, CARTRIDGES, RUBBER, WOOD, ETC.	359	1.4	0	0	Uran. 60,000 ppm U235 0.70 wt%	150,000 ppm 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30053	FM-W201	D006B D007 D008B D018 D040 F002 F005A	DISCARD PROCESS RESIDUES - GLOVES, PAINT, MISC. DEBRIS	78	0.2	0	0	Uran. 7,000 ppm U235 0.42 wt%	7307.8 ppm 0.77 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000314

6073

GROUP #37A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
SOILS, TOXIC ORGANICS

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION			BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
89	FM-W284	F002	SOIL BORING #1412	234	0.2	0	0	Th Uran.	23.0 pCi/g 17.0 pCi/g		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
526	Un-assigned	F001 F002	CONTAMINATED SOIL FROM PIT #5 HWMU AREA	192	0.2	0	0	Uran. U235	229 ppm 0.76 wt%	349 ppm 0.78 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
661	FM-W080	F001	SOIL BORING #1594 FROM NORTHWEST CORNER OF BLDG 12	216	0.2	0	0	Uran.	23 ppm		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
720	FM-W085	F001	SOIL BORING #1261	250	0.2	0	0	Uran.	N/A		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
776	FM-W088	F001	SOIL BORING #1674, LOCATED INSIDE PILOT PLANT	154	0.2	0	0	Th Uran.	28 ppm 359 ppm		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000315

60273

GROUP #37A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
SOILS, TOXIC ORGANICS

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
819	FM-W091	F001	SOIL BORING #1251	414	0.4	0	0	Uran. N/A		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1841	FM-W121	F001 F002	SOIL	1,512	1.6	0	0	Uran. 330.0 ug/g		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1842	FM-W122	F001 F002	GRASS AND SOIL	19	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000316

6073

GROUP #38

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
SOILS, TOXIC METALS w/o MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
538	FM-W059	D006B D007 D008B	SOIL BORING #1508 FROM FIRE TRAINING GROUNDS	296	0.2	0	0	Th 14 pCi/g Uran. 16.4 pCi/g	18 pCi/g 19.0 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
539	FM-W060	D004 D006B D007 D008B	SOIL BORING #1509 FROM FIRE TRAINING GROUNDS	691	0.4	0	0	Th 16 pCi/g Uran. 67.8 Pci/g	20 pCi/g 75.9 Pci/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
540	FM-W061	D004 D005 D006B D007 D008B D011	SOIL BORING #1512 FROM FIRE TRAINING GROUNDS	331	0.2	0	0	Th 135 pCi/g Uran. 38.4 pCi/g	162 pCi/g 43.7 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
541	FM-W062	D005 D006B D007 D008B	SOIL BORING #1513 FROM FIRE TRAINING GROUNDS	569	0.4	0	0	Th 11.0 pCi/g Uran. 22.8 pCi/g	14.0 pCi/g 27.4 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
542	FM-W063	D004 D005 D006B D007 D008B	SOIL BORING #1514 FROM FIRE TRAINING GROUNDS	304	0.2	0	0	Th 7.0 pCi/g Uran. 28.3 pCi/g	10.0 pCi/g 33.8 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #38

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
SOILS, TOXIC METALS w/o MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
543	FM-W064	D004 D005 D006B D007 D008B	SOIL BORING #1515 FROM FIRE TRAINING GROUNDS	259	0.2	0	0	Th 10.0 pCi/g Uran. 42.3 pCi/g	12.0 pCi/g 48.3 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
545	FM-W065	D004 D005 D006B D007	SOIL BORING #1511 FROM FIRE TRAINING GROUNDS	304	0.2	0	0	Th 82.0 pCi/g Uran. 23.2 pCi/g	99.0 pCi/g 27.9 pCi/g	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
757	Un-assigned	D004 D007 D008B D010 D011	BROWN PARTICULATE SOLID (DIRT & RUBBLE)	100	0.4	0	0	Uran. 75 ppm U235 0.717 wt%	88 ppm 0.735 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION
30027	FM-W190	D004 D005	CONTAMINATED SOIL, ROCKS, SAND FROM PLANT 2/3 NORTH SIDE DIGESTOR AREA	2,867	1.8	0	0	Uran. 39,000 ppm U235 1.17 wt%	76,000 ppm 1.27 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	MOBILE STABILIZATION

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GROUP #39

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
BATTERIES (LEAD ACID, CADMIUM), TOXIC METALS W/O MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Decon/Recycle (M)(P)

OHIO: Mobile Chemical Treatment
Decon/Recycle

OUT OF STATE: Commercial Recycler

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
854	FM-W293	D006A ★	NICKEL-CADMIUM BATTERIES	134	0.2	481	0.7	NOT AVAILABLE		PK	THERMAL RECOVERY OF METALS IN AN INDUSTRIAL FURNACE ★	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1585	FM-W303	D002A ★[1] D008A ★[2]	LEAD ACID BATTERY (SPLIT)	3,566	4.2	15,768	13.3	Uran. 0.01 wt% PK only	0.5	PK	1) DEACTIVATION ★[1] 2) MACROENCAPSUL-ATION ★[2]	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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6073

GROUP #40

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
BATTERIES (LEAD ACID, CADMIUM), TOXIC METALS WITH MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
405	FM-W022	D002A ★ D009C	DRY CELL BATTERIES	134	0.2	0	0	NOT AVAILABLE		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
855	FM-W294	D009C	MERCURY BATTERIES	667	0.6	2	<0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000320

6073

GROUP #41

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ELEMENTAL MERCURY

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile (LANL) Amalgamation/ Recycling (M)
Mobile Chemical Treatment (F)

OHIO: Mobile Amalgamation/ Recycling
Mobile Chemical Treatment

OUT OF STATE: Y-12/Recycle (P)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
423	FM-W034	D009D ★	USED MERCURY (ELEMENTAL) FROM LAB	20	0.2	0	0	NOT AVAILABLE		PK	AMALGAMATION ★	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
2211	FM-W326	D009D ★	ELEMENTAL MERCURY IN EQUIPMENT - SWITCHES, THERMOMETERS, ETC.	202	0.4	961	1.1	NOT AVAILABLE		PK	AMALGAMATION ★	M CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000321

6023

GROUP #42

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
REACTIVE METALS

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
700	FM-W083	D003D ★	MAGNESIUM FLAKE AND OILY RAGS	75	0.2	0	0	Uran. 10.0 wt% PK only	0.5 wt%	PK	DEACTIVATION ★	D STABILIZATION PROJECT	MOBILE STABILIZATION
1550	FM-W302	D003D ★	URANIUM HEXAFLUORIDE	7	0.2	0	0	Uran. 50.0 1.25 wt% PK only		PK	DEACTIVATION ★	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
30051	FM-W200	D001E ★ D003D ★	NON-METALLIC MISC. SAMPLES (MAGNESIUM METAL)	7	0.2	0	0	Uran. 50.0 0.2 wt% PK only		PK SA	DEACTIVATION ★	G CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
50089	Un-assigned	D001E ★ D003D ★	CONTAMINATED MAGNESIUM	438	0.6	657	0.7	Uran. 10.0 U235 1.10 wt% PK only		PK SA	DEACTIVATION ★	D STABILIZATION PROJECT	MOBILE STABILIZATION
50090	Un-assigned	D001E D003D ★	CONTAMINATED MAGNESIUM	964	2.2	0	0	Uran. 58.10 U235 0.2 wt% PK only		PK SA	DEACTIVATION ★	D STABILIZATION PROJECT	MOBILE STABILIZATION

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000322

6023

GROUP #42A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ELEMENTAL LEAD (ACTIVATED and NON-ACTIVATED)

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Decon/Recycle
LANL Mobile Decon Trailer (M)

OHIO: LANL Mobile Decon Trailer
Mobile Chemical Treatment

OUT OF STATE: LANL Mobile Decon Trailer
Hanford Wrap II A/B (B)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION Ave.	RADIOLOGICAL CONCENTRATION Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
547	FM-W290	D008C ★	MISC. LEAD TOOLS, PIPING, ETC.	679	1.2	2,317	5.1	Uran. 0.01	0.5 wt% PK only	PK	MACRO-ENCAPSULATION ★	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1281	FM-W295	D008C ★	LEAD BRICKS	336	0.6	0	0	NOT AVAILABLE		PK	MACRO-ENCAPSULATION ★	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT
1731	FM-W314	D008C ★	LEAD	76	0.2	0	0	Uran. 0.01	0.5 wt% PK only	PK	MACRO-ENCAPSULATION ★	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

GROUP #42A

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
ELEMENTAL LEAD (ACTIVATED and NON-ACTIVATED)

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Mobile Chemical Treatment (F)
Decon/Recycle
LANL Mobile Decon Trailer (M)

OHIO: LANL Mobile Decon Trailer
Mobile Chemical Treatment

OUT OF STATE: LANL Mobile Decon Trailer
Hanford Wrap II A/B (B)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1987	FM-W123	D008C ★	LEAD/LEAD SEALS	13,202	4.8	18,244	15.4	Uran.	0.01 0.5 wt% PK only	PK	MACRO-ENCAPSULATION ★	J CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

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000344

GROUP #43

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
LAB PACKS W/O METALS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Further Characterization (M)
Mobile Incinerator

OHIO: Mobile Incinerator

OUT OF STATE: TSCA Incinerator (F)
Hanford Thermal Treatment Facility (B)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
10034	FM-W152	D001A ★ D018 U019 ★	Benzene (labpacked)	3	0.2	0	0	NOT AVAILABLE		PK	FUEL SUBSTITUTION ORGANIC RECOVERY, or INCINERATION ★	C INCINERATOR PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR
10035	FM-W153	D019 U211 ★	Carbon tetrachloride (labpacked)	20	0.2	0	0	NOT AVAILABLE		PK	INCINERATION ★	C INCINERATOR PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR

000325

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6073

GROUP #44

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
COMPRESSED GAS

OHIO WORK GROUP MIXED WASTE TREATMENT SCHEME

ON-SITE: Puncture/Capture Unit
Mobile Incinerator
Segregate/Reuse/Treatment (P)
Mobile Chemical Treatment (F)

OHIO: Puncture/Capture Unit
Mobile Chemical Incinerator

OUT OF STATE: Puncture/Capture Unit
TSCA Incinerator
(liquid portions only)

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1969	Un-assigned	D001D ★ D007 D008 D018 D019 D035 D039	FLAMMABLE AEROSOLS	11	0.2	262	0.3	NOT AVAILABLE		PK	DEACTIVATION ★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	L CHEMICAL TREATMENT PROJECT	MOBILE CHEMICAL TREATMENT

Revised August 27, 1994

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GROUP #45

WASTESTREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC CEMENTED SOLIDS, TOXIC ORGANICS

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/PROJECT NAME	PREFERRED OPTION(S)
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2048	Un-assigned	F001 F002 F005A	SOLIDIFIED LAB WASTE	46,579.5	33	0	0	U235	0.50 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE

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Revised August 27, 1994

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1.0 Treatment Trains

In many instances when treating waste at FEMP no one unit operation is capable of removing all of the contaminants from the waste material. It may be necessary to combine several unit operations into one treatment process to effectively remove the contaminants. Connecting these processes to meet EPA requirements for each constituent is referred to as a Treatment Train.

A combination of technologies (i.e., a treatment train) may be specified as a single treatment standard in 40 CFR 268.42. This indicates that any one of several BDAT technologies or treatment trains can be used for compliance with the standard.

Treatment Processes in a treatment train have been designed to ensure the hazardous constituents will be treated in a logical sequence. For example, certain wastes should be incinerated prior to stabilization.

Figure C-1, on page C-133 shows an example of a blank Treatment Train Worksheet used at the FEMP for the projectization process.

This worksheet shows the treatment and disposal alternatives available when determining the appropriate treatment train for a waste stream. Lines are drawn from one box to the next based on the sequence in which the waste should be treated. The treatment options are set-up so the waste can be treated as required to allow for the safest, compliant method of disposal. In doing this, the treatment train must account for the possible by-products from the waste processing operations and allow for the by-products to be moved into the correct process for further treatment, testing and disposal. When the worksheet is completed, the end result will be a diagram which makes it easy to follow the FEMP waste through treatment, testing and disposal.

Figures C-2 and C-3, on pages C-134 and C-135 are examples of treatment trains for FEMP Trash contaminated with Lead (EPA HW #: D008).

These treatment trains are illustrated in Arrow Diagram (Figure C-2) and Table (Figure C-3) form. These types of diagrams are used after treatment alternatives have been finalized. These tables are very convenient for field use since they can be easily produced on a computer. The following will describe the steps that are performed with the treatment train in Figures C-2 and C-3:

A - Segregation of the waste by is completed by physically sorting the materials that are not consistent with the treatment train selected. Liquid removal is considered segregation.

B - Shredding and screening of the waste is the second step in the FEMP Trash Treatment Train. This operation includes shredding the waste into pieces of consistent size and shape to enhance process effectiveness throughout the waste stream. This process will also have a liquid collection system so any liquids that are produced can be segregated and treated properly.

Liquid segregated as a result of shredding and screening will be tested (T) then treated by the Wastewater Treatment Plant (L1) or be Incinerated (L2).

C - Chemical Treatment is the third step in the treatment train. The specific treatment process is:

C2 - Water Wash where the waste is washed in a tank (or equipment similar to a large wash machine) with chemicals or detergent added in order to remove the contaminants from the waste. Three secondary waste streams are produced by this operation:

Liquid wash water which will be tested (T) then Treated by the Wastewater Treatment Plant (L1) or be Incinerated (L2).

Trash over 2-1/2" in size meets the definition of debris permitting it to be Bulk Packaged (E), Tested (T), then disposed of as LLW (R).

Fines less than 2-1/2" in size and heavy metal contaminants will be Stabilized (D) utilizing the Cementation Method (D1), Tested (T), then disposed of as LLW (R).

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FIGURE C-1

TREATMENT TRAIN WORKSHEET

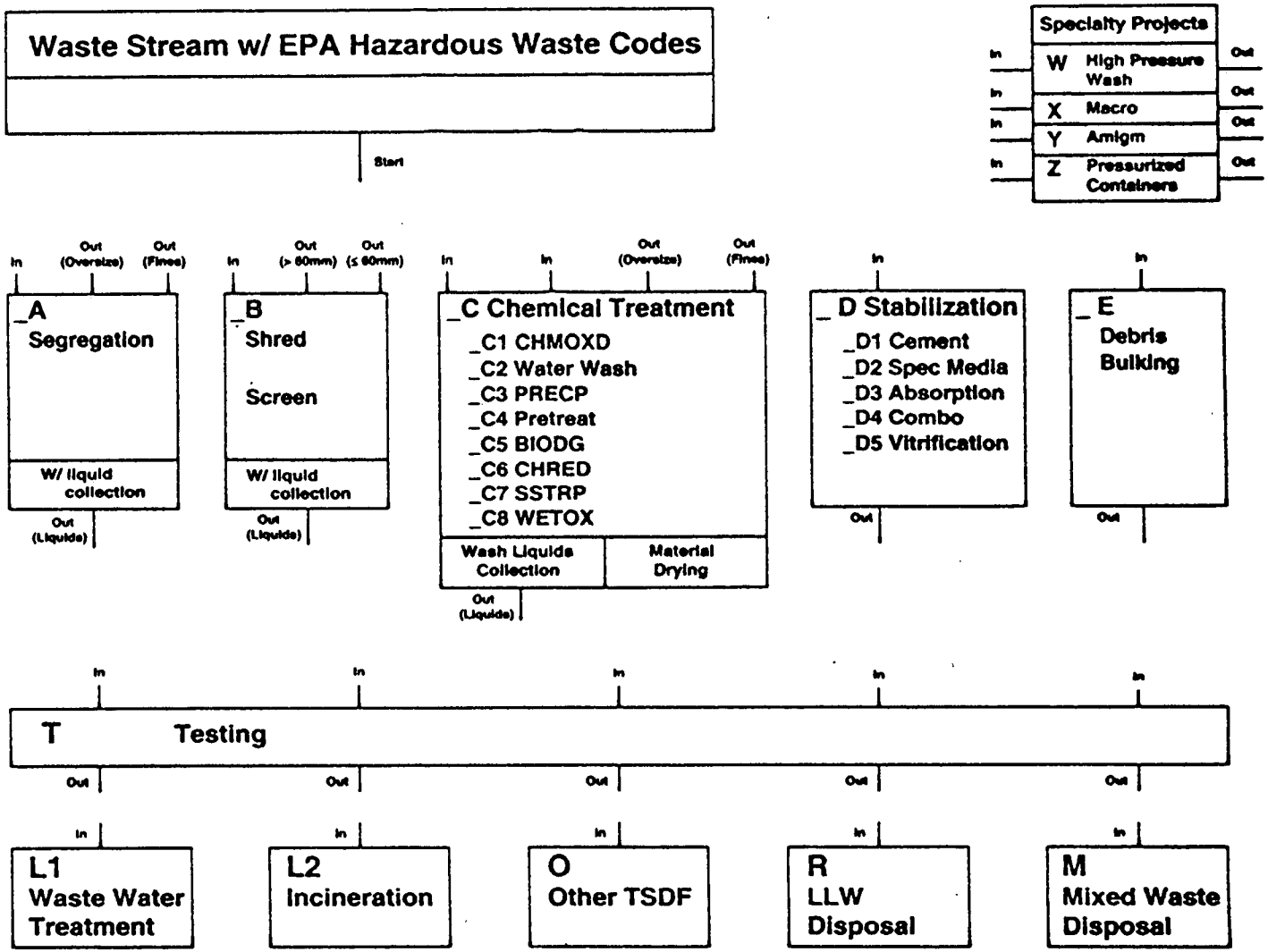

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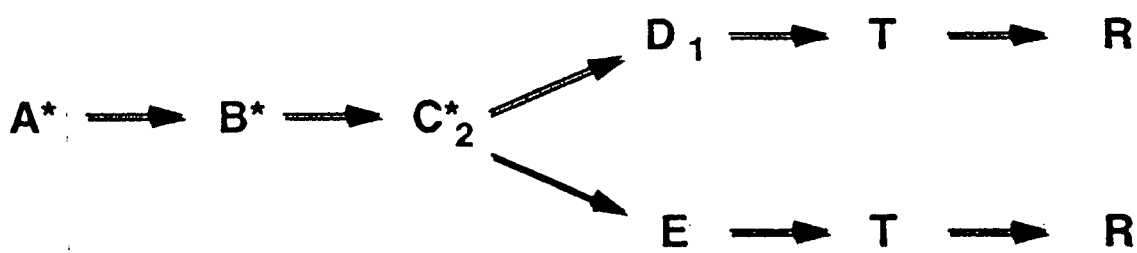
FIGURE C-2

FEMP TREATMENT TRAIN

Diagram Showing Treatment Steps Required for Mixed Waste to Meet LDR Requirements

Example: 003 Material Type [Trash - D008]



* Typical Steps for Liquids from Steps A, B & C

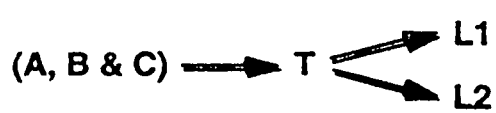


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FIGURE C-3

FEMP TREATMENT TRAIN

Table Showing Treatment Steps Required for Mixed Waste to Meet LDR Requirements

Example: 003 Material Type [Trash - D008]

Steps

A*	B*	C* 2			
		c 2	D 1	T	R
		c 2	E	T	R

* Typical Steps for Liquids from Steps A, B & C

(A, B & C) → T → L1, L2

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1.1 Treatment Trains Unit Operation

FEMP Hazardous and Mixed Waste Management anticipates using combinations of the following processes in an integrated approach to managing mixed waste. Waste streams will be directed through a series of processes to disposition waste in a manner consistent with Land Disposal Restriction (LDR) regulations. Figure C-1, on page 136 is a graphical representation of the processes detailed ont he following pages.

1.2 Segregation (Box A)

Waste Segregation is the physical separation of unlike materials in a non-homogeneous mixture. The separation process may involve sorting from a mixture of solids or may involve straining liquids from solids. Segregation provides either volume reduction by removing excess mass from the waste or enhances treatability by separating waste streams into groups. Segregation at the FEMP would be accomplished by procuring a vendor to provide and operate a trailer mounted mobile unit. This arrangement would allow capacity and length of service to be matched closely with the associated project.

1.3 Shredding (Box B)

Waste Shredding is an alteration of particle size or shape accomplished by the waste being torn or cut. Shredding will typically be used on the FEMP waste to standardize particle size thereby improving treatability. Shredding may also be used to shatter brittle particles to allow screening. Trailer mounted portable shredders are available for use at the FEMP from a large number of outside vendors. The mobile units should consist of hoppers which will feed the FEMP waste into the shredder. Shredders are available for a wide variety of material consistencies.

1.4 Screening (Box B)

Screening is a mechanical means of segregating materials by size. This could be separating solids from liquids or solids from solids. A typical screening process at the FEMP would utilize a mobile trailer mounted unit operated by an outside vendor for one or more projects.

1.5 Chemical Treatment (Box C)

Chemical Treatment Facilities planned for use at the FEMP site will be mobile trailer mounted operations. This will include a series of mobile units that can be utilized for various treatment options. The mobile units will consist of FEMP waste container receiving, bulk waste handling, dissolver trays and tanks, mixers, pumps, holding tanks for wash water and cleaning, hoses, liquid

filter systems, air filter systems, scales, and decontamination facilities containing steam and high pressure water cleaning systems. These mobile units will include treatment waste recycle systems to minimize the amount of wastewaters generated on the FEMP site during this operation. The mobile units will also include treatment systems for reuse of the chemicals and acids that generated during the treatment process. The following are some of the treatment processes being planned for use on the FEMP site:

1.5.1 Biodegradation (BIODG) of organics or non-metallic inorganics (i.e., degradable inorganics that contain phosphorus, nitrogen, and sulfur) in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the biodegradation of many organic constituents that cannot be directly analyzed in wastewater residues).

1.5.2 Chemical or Electrolytic Oxidation (CHOXD) utilizing the following oxidation reagents (or waste reagents) or combinations of reagents: (1) Hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.

1.5.3 Chemical Reduction (CHRED) utilizing the following reducing reagents (or waste reagents) or combinations of reagents: (1) Sulfur dioxide; (2) sodium, potassium, or alkali salts or sulfites, bisulfites, metabisulfites, and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Halogens can often be used as an indicator parameter for the reduction of many residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.

1.5.4 Liquid-Liquid Extraction (LLEXT) (often referred to as solvent extraction) of organics from liquid wastes into an immiscible solvent for which the hazardous constituents have a greater solvent affinity, resulting in an extract high in organics that must undergo either incineration, fuel substitution or other recovery/reuse and a raffinate (extracted liquid waste) proportionately low in organics that must undergo further treatment as specified in the standard.

1.5.5 Chemical Precipitation (PRECP) of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides); (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulation, or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.

1.5.6 Recovery of Organics (RORGS) utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporation; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) liquid-liquid extraction; (7) precipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (i.e., addition of acids, bases, demulsifiers, or similar chemicals); - Note: This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.

1.5.7 Steam Stripping (SSTRP) of organics from liquid wastes utilizing direct application of steam to the wastes. In this type of operation liquid and vapor flow rates, temperatures, and pressures have been monitored and maintained at optimal points. These points are dependent upon the design parameters of the unit such as the number of separation stages and the internal column design. The result is a condensed extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery or reuse and extracted wastewater that must undergo further treatment as specified in the standard.

1.5.8 Water Wash/Separating contaminants from debris and equipment is achieved through application of water or steam sprays providing sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants or to remove contaminated debris surface layers. This could be completed through washing the waste with detergents in machines which agitate and remove contaminants from the waste material.

1.5.9 Wet Air Oxidation (WETOX) is performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the oxidation of many organic constituents that cannot be directly analyzed in wastewater residues).

1.6 Pretreatment

Pretreatment is the chemical and/or physical treatment, of water in preparation for processing in a Wastewater Treatment System (WWTS). Pretreatment at the FEMP would be provided by a outside vendor prior to processing at the Water Treatment Facility. The following are some examples of pretreatment activities proposed for use on the FEMP site:

1.6.1 Carbon Adsorption (CARBN) onto granulated or powdered carbon particles of non-metallic inorganics, organo-metallics, or organic constituents. The process is operated while observing a compound or indicator parameter for breakthrough. Total Organic Carbon can often be used as an indicator parameter for the adsorption of many organic constituents that cannot be directly analyzed in wastewater residues. Breakthrough is the concentration indicating the carbon has become saturated with the constituent or indicator signifying a substantial change in adsorption rate of that constituent.

1.6.2 Deactivation (DEACT) removes the hazardous characteristics of a waste due to its ignitability, corrosivity, and/or reactivity. [See also 40 CFR 268, Appendix VI.]

1.6.3 Neutralization (NEUTR) with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a Ph greater than 2 but less than 12.5 as measured in the aqueous residuals.

1.6.4 Chemical Precipitation (PRECP) of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents are typically used alone

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or in combination: (1) lime containing oxides or hydroxides of calcium or magnesium; (2) caustics like sodium or potassium hydroxides; (3) soda ashes including sodium carbonate; (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; and (7) sodium sulfate. Additional flocculation, coagulation, or similar reagents and processes that enhance sludge dewatering characteristics are not precluded from use.

1.7 Stabilization (Box D)

The FEMP is considering stabilization, solidification, and encapsulation as treatment processes for FEMP wastes. These processes isolate hazardous waste from the surrounding environment without destroying the hazardous constituents. The physical treatments at FEMP will be provided by mobile equipment similar to a truck or trailer mounted concrete mixer. Treatment objectives are achieved by mixing the waste stored at the FEMP with inorganic compounds such as fly ash, lime, or clay to form a chemically and mechanically stable solid. The FEMP treated waste generally will have higher strength, lower permeability, and lower leachability than untreated waste. This treatment technology is generally limited to inorganic wastes containing heavy metals, however, organic compounds that often interfere with the setting action of the solidifying agent may be stabilized with specialized media.

There are seven major categories of industrial waste stabilization treatment technologies, 1) Portland cement based processes; 2) Pozzolanic processes not containing Portland cement; 3) Thermoplastic techniques using bitumen, paraffin, or polyethylene incorporation; 4) Organic polymer techniques including urea-formaldehyde, unsaturated polyesters; 5) Surface encapsulation techniques (jacketing); 6) Self cementing techniques; and 7) Glassification or vitrification and production of synthetic minerals and ceramics.

The following are technologies being planned as treatment alternatives for the waste at the FEMP:

1.7.1 Portland Cement Solidification Portland cement used as adhesive for the containment of mixed or hazardous waste in a rigid matrix falls under the broad category of inorganic based Stabilization/ Solidification (S/S) techniques. In this process Portland cement is combined with fly ash or other pozzolans to produce a relatively high strength, dimensionally stable, waste and concrete matrix. Waste containment is primarily by entrapment of waste particles. Soluble silicates may be added to aid processing and to assist in containment of metals through the formation of silicate gels. Water is removed through the hydration of the Portland cement.

1.7.2 Low Strength Cement Stabilization falls under the broad category of inorganic based solidification and stabilization techniques. This process uses a fine noncrystalline silica in fly ash and the calcium in lime to produce low-strength cement that is not dimensionally stable. Physical trapping of the contaminant in the cured pozzolan concrete matrix is the primary containment mechanism. Water is removed in hydrating the lime-pozzolan concrete.

1.7.3 Vitrification is a thermal treatment process that converts contaminated materials into a chemically inert mixture of stable glass and crystalline products. Vitrification processes destroy combustible and some toxic portions of hazardous waste, such as organics and nitrates, while simultaneously incorporating and immobilizing residuals, such as ash and nonvolatile heavy metals, into a geologically stable glass form. The final product is reduced in volume and mass by driving moisture from the waste and permanently destroying portions of the waste thermally, and consolidating the residuals into a dense glass and crystalline product. Glass-former additions are sometimes necessary to produce an acceptable product. Molten-glass processes operate by the principle of joule-heating. Electrodes placed in the molten glass apply an electrical voltage, passing electrical current through alkalineionic components in the glass. The electrical resistance of the molten glass creates heat within the confines of the electrodes when voltage is applied. The heat is distributed evenly within the molten glass by convective currents through the fluid.

1.8 Debris Bulking (Box E)

Although bulking liquids and solids is not considered to treatment, these activities are significant to the integration and implementation of the various treatment trains. Liquid waste is bulked and aggregated to facilitate appropriate testing, transportation and disposal. Debris is bulked to reduce the number of containers utilized for transportation and disposal.

1.9 High Pressure Washing (Box W)

High pressure washing at the FEMP is being used at the FEMP as a means of decontaminating materials and equipment. High pressure washing is accomplished through the application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants and detergents to remove contaminated debris surface layers.

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1.10 Macroencapsulation (Box X)

Macroencapsulation (MACRO) with surface coating materials containing such polymeric organics as resins and plastics or with a jacket of inert inorganic materials substantially reduces surface exposure to potential leaching media.

1.11 Amalgamation (Box Y)

Amalgamation (AMLGM) of liquid, elemental mercury contaminated with radioactive materials utilizes inorganic reagents such as copper, zinc, nickel, gold, and sulfur that result in a non-liquid, semi-solid amalgam and thereby reducing potential emissions of elemental mercury vapors to the air. The use of mobile treatment units at the FEMP to provide this service is planned.

1.12 Pressurized Container Treatment (Box Z)

Pressurized container treatment is venting of compressed gases into an absorbing or reacting media (ADGAS) (i.e., solid or liquid). Venting can be accomplished through physical release utilizing valves/piping or physical penetration of the container.

Recovery or reuse of compressed gases (RCGAS) includes techniques such as reprocessing of the gases for reuse or resale; filtering or adsorption of impurities; remixing for direct reuse or resale; and use of the gas as a fuel source.

1.13 Wastewater Treatment (Box L1)

The process consists of a neutralization step that adjusts pH by adding acid or caustic then filtering the liquid or slurry to remove suspended solids. If the waste contains hazardous organic constituents, it is processed through activated carbon filters. Finally, the waste is processed through ion exchange filters as required to remove hazardous and radioactive dissolved ions.

Mobile Water Treatment Units are being considered at eh FEMP as a possible treatment process.

1.14 Incineration (Box L2)

Incineration is the thermal destruction of hazardous waste. The primary purpose of incineration is to process low-level mixed waste liquids and sludges. An incinerator is capable of destroying a wide range of hazardous organic constituents. Hazardous metals are captured in the ash and off-gas systems. Incinerators can be stationery requiring the generator to package and ship waste to the incinerator location. The use of mobile units can be considered for short term use.

1.15 Other Treatment, Storage and Disposal Facility (TSDF) (Radiologically Decontaminated Material) (Box O)

The FEMP has identified the following technologies available at off-site commercial facilities for treatment of non-radioactive material:

1.15.1 Thermal Recovery of Lead (RLEAD) in secondary lead smelters at commercial, stationery facilities have been utilized by FERMCO to recycle spent lead-acid batteries from the FEMP.

1.15.2 Recovery/reuse of Compressed Gases (RCGAS) includes techniques such as reprocessing of the gases for reuse/resale; filtering/adsorption of impurities; remixing for direct reuse or resale; and the use of gas as a fuel source.

1.15.3 Retorting or roasting in a thermal processing unit capable of volatilizing mercury (RMERC) and subsequently condensing the volatilized mercury for recovery.

1.15.4 Thermal Recovery (RTHRM) of metals or inorganics from non-wastewaters in units identified as industrial furnaces.

1.15.5 Recovery of Metals (RMETL) or inorganics utilizing one or more of the following direct physical/removal technologies: (1) ion exchange; (2) resin or solid (i.e., zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (i.e., crystallization).

Note: this does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.

1.15.6 Recovery of Organics (RORGS) utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporation; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) liquid-liquid extraction; (7) precipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (i.e., addition of acids, bases, demulsifiers, or similar chemicals).

Note: *This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.*

TREATMENT TRAIN
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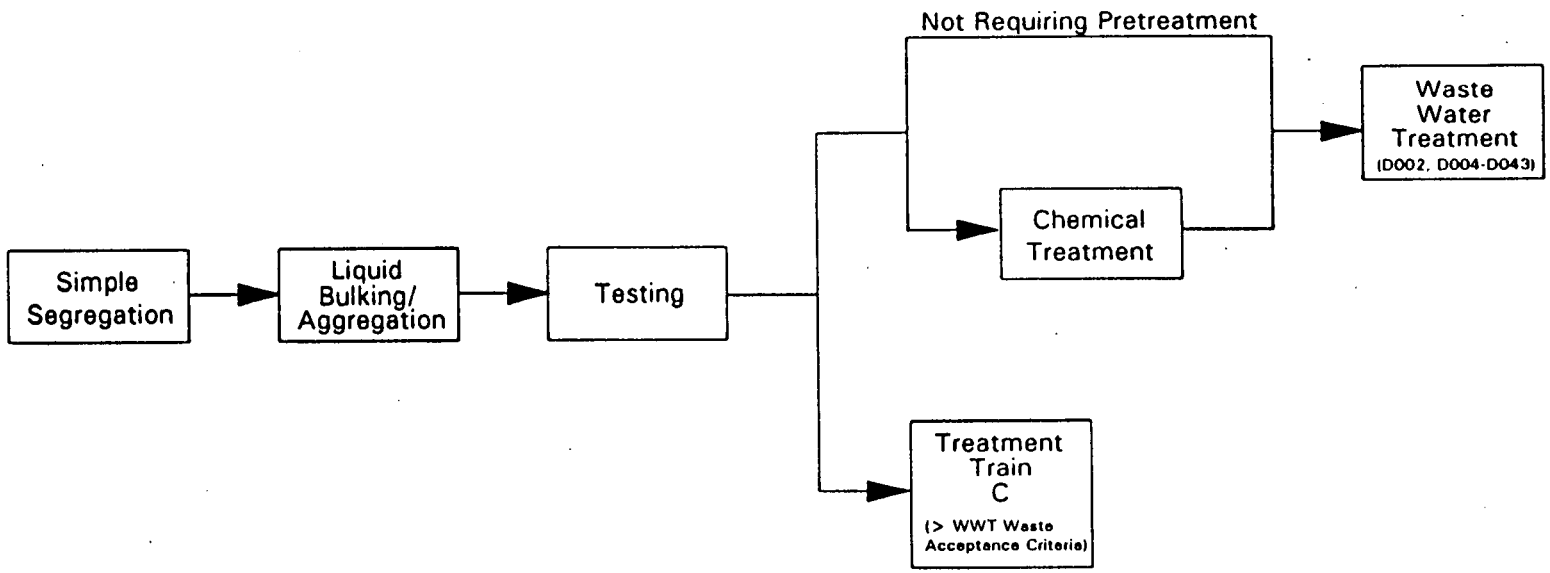

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Incineration Project

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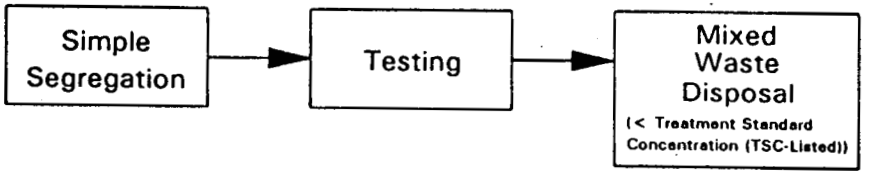

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000343

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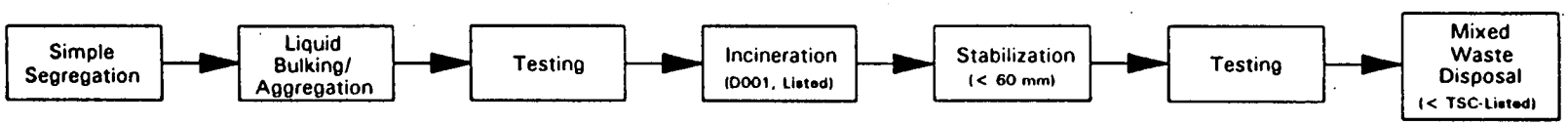

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Incineration Project

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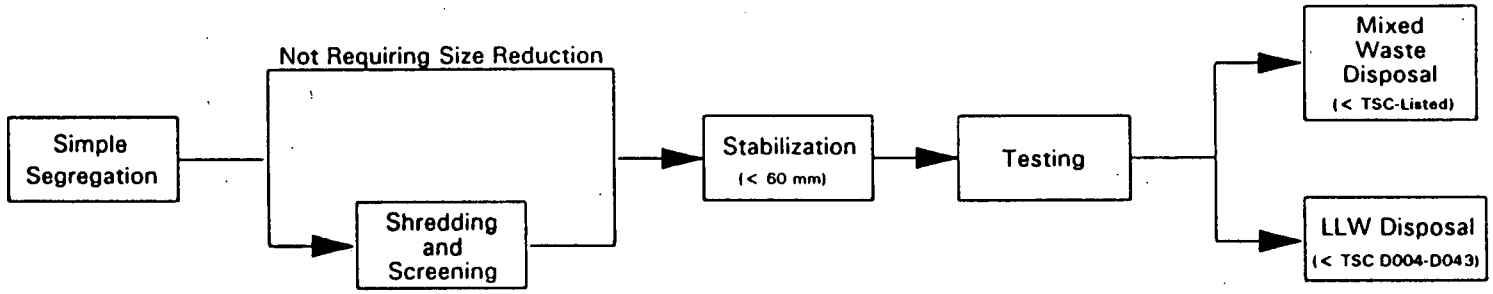

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000345

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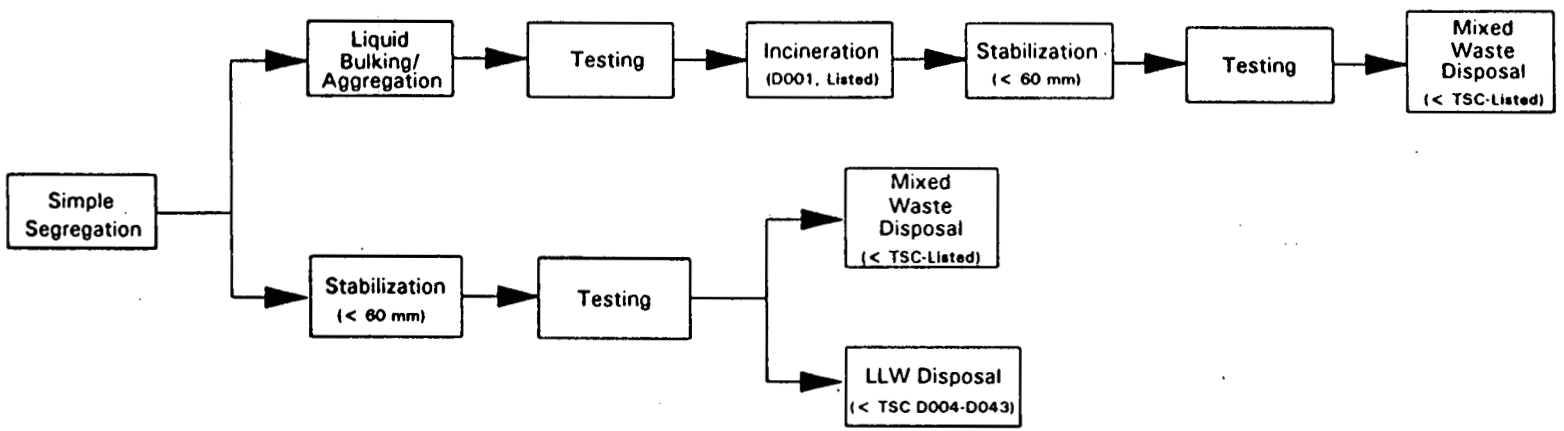

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Incineration Project
Stablization Project

000346

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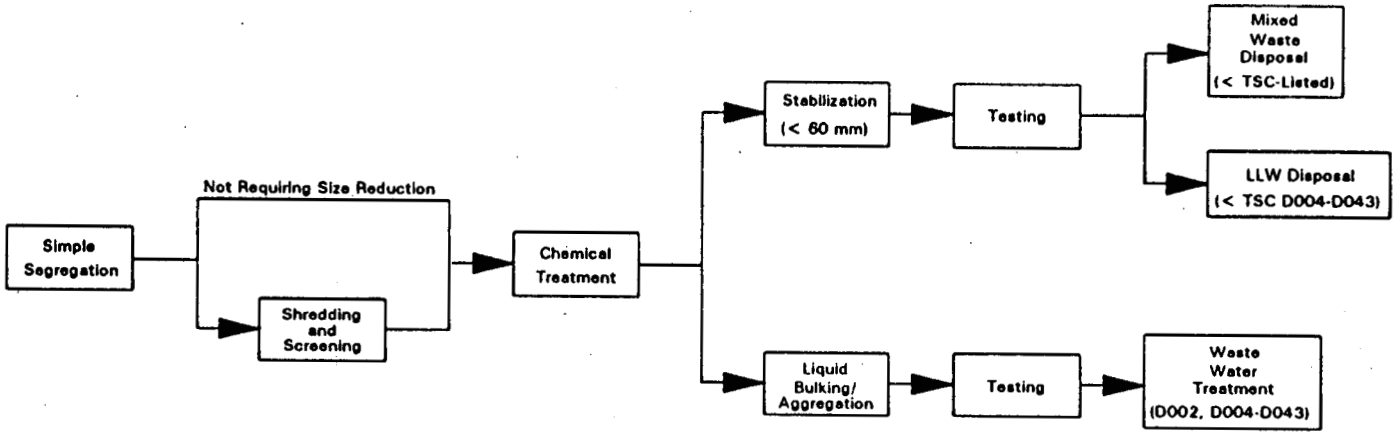

MIXED WASTE PROJECT NAME

Chemical Treatment Project*

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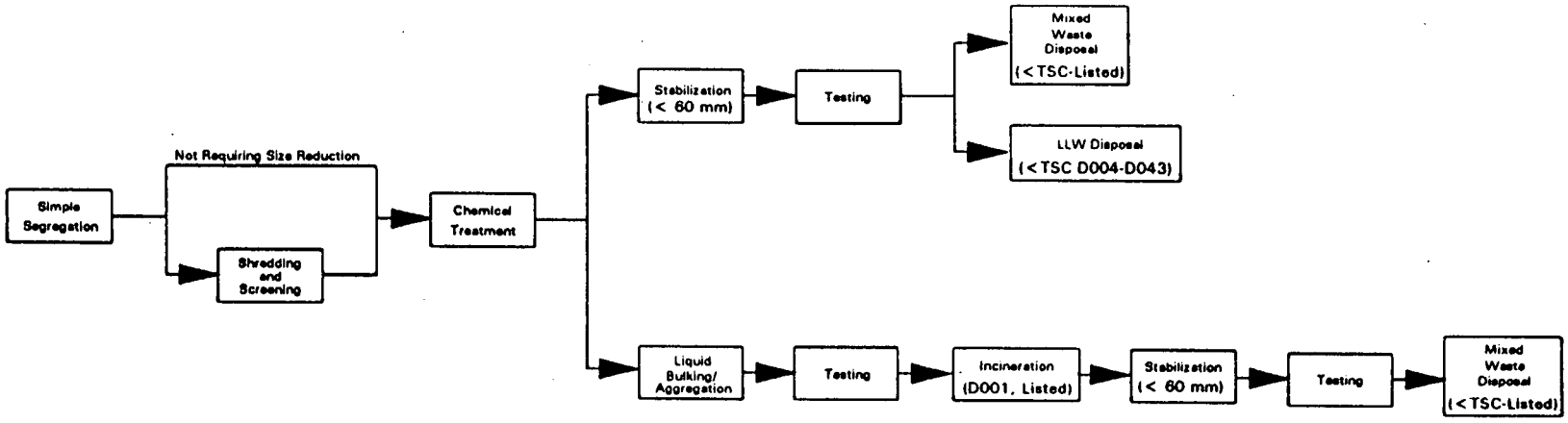

MIXED WASTE PROJECT NAME

Chemical Treatment Project

000348

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TREATMENT TRAIN

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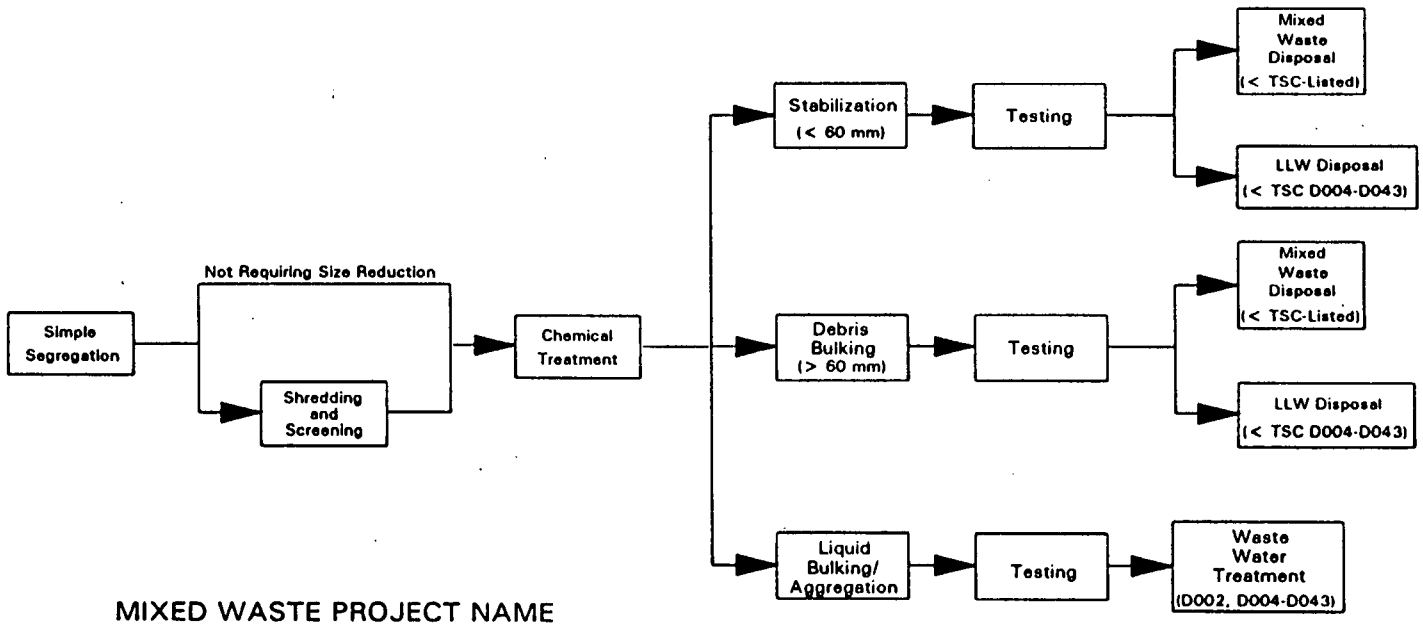

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Chemical Treatment Project

000349

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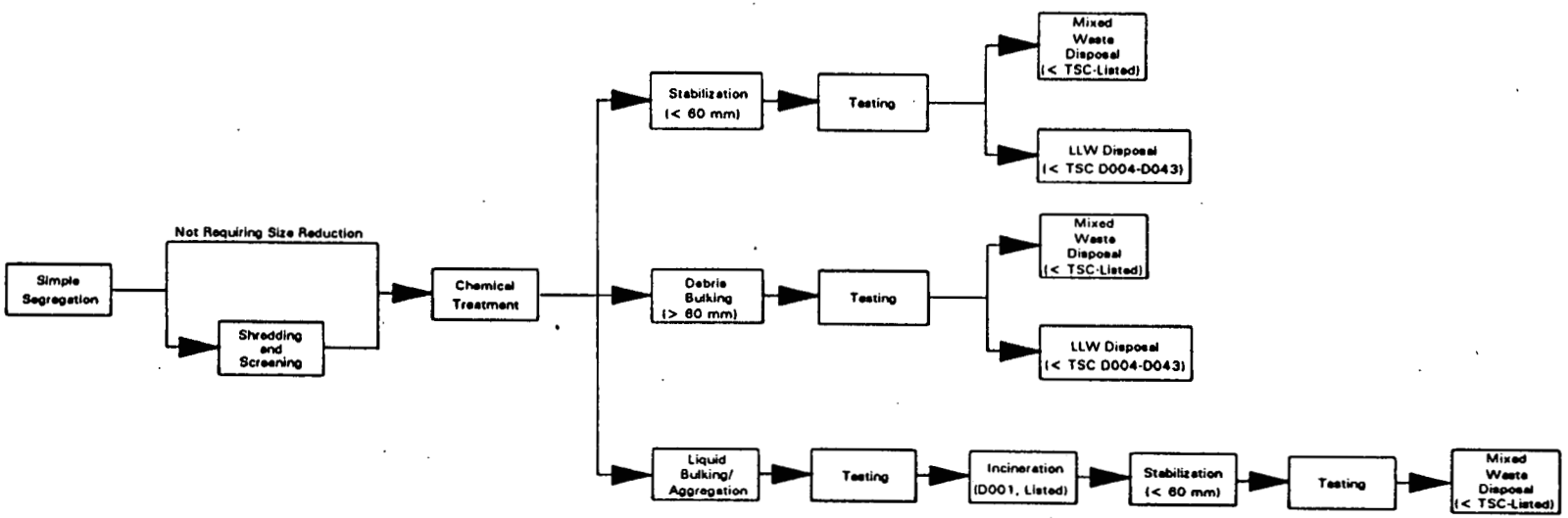

MIXED WASTE PROJECT NAME

Chemical Treatment Project

000350

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TREATMENT TRAIN

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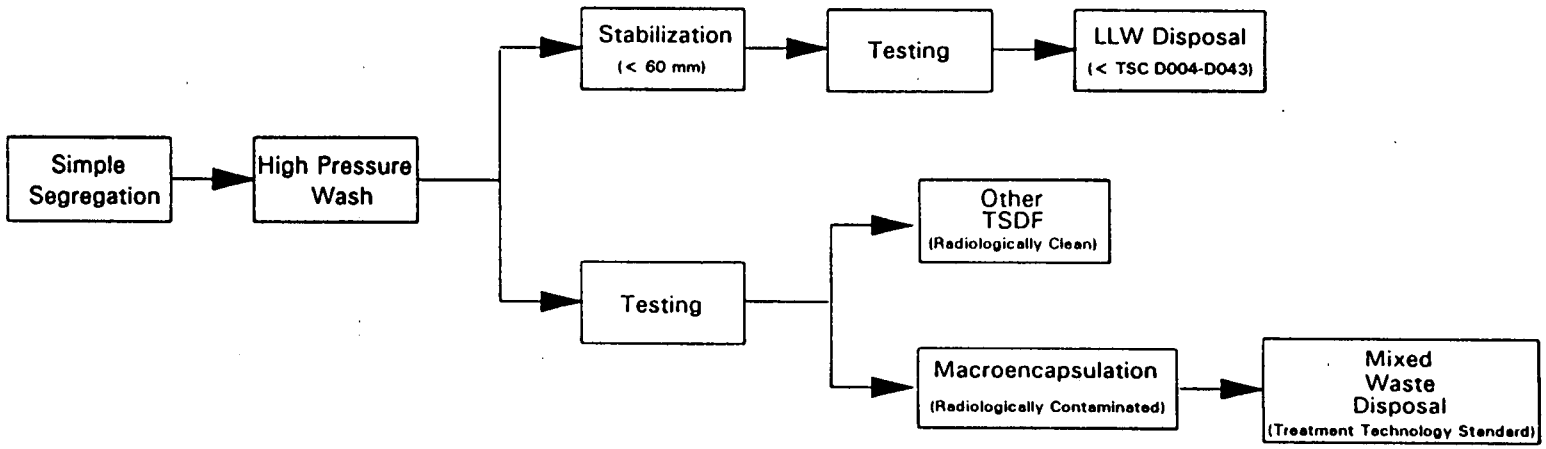

MIXED WASTE PROJECT NAME

Chemical Treatment Project

060351

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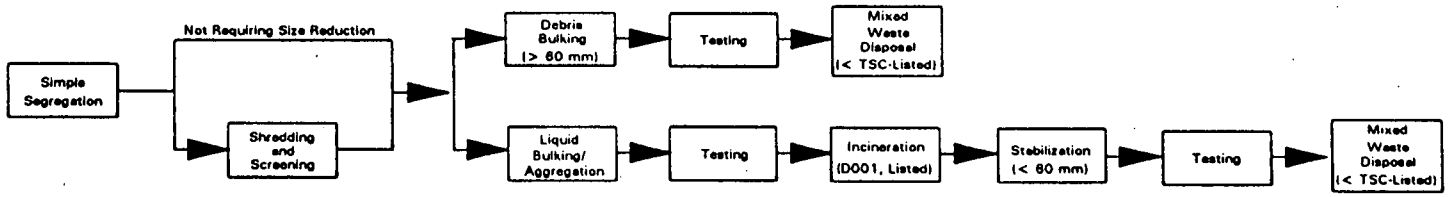
TREATMENT TRAIN

K



MIXED WASTE PROJECT NAME

Incineration Project
Non-LDR/< TSC Disposal Project

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6078

TREATMENT TRAIN

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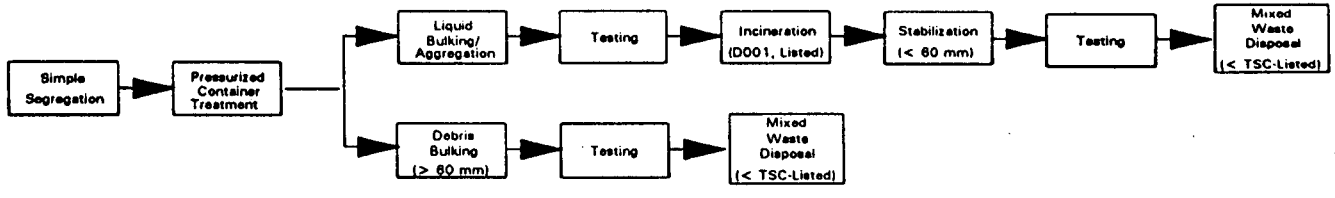

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Chemical Treatment Project

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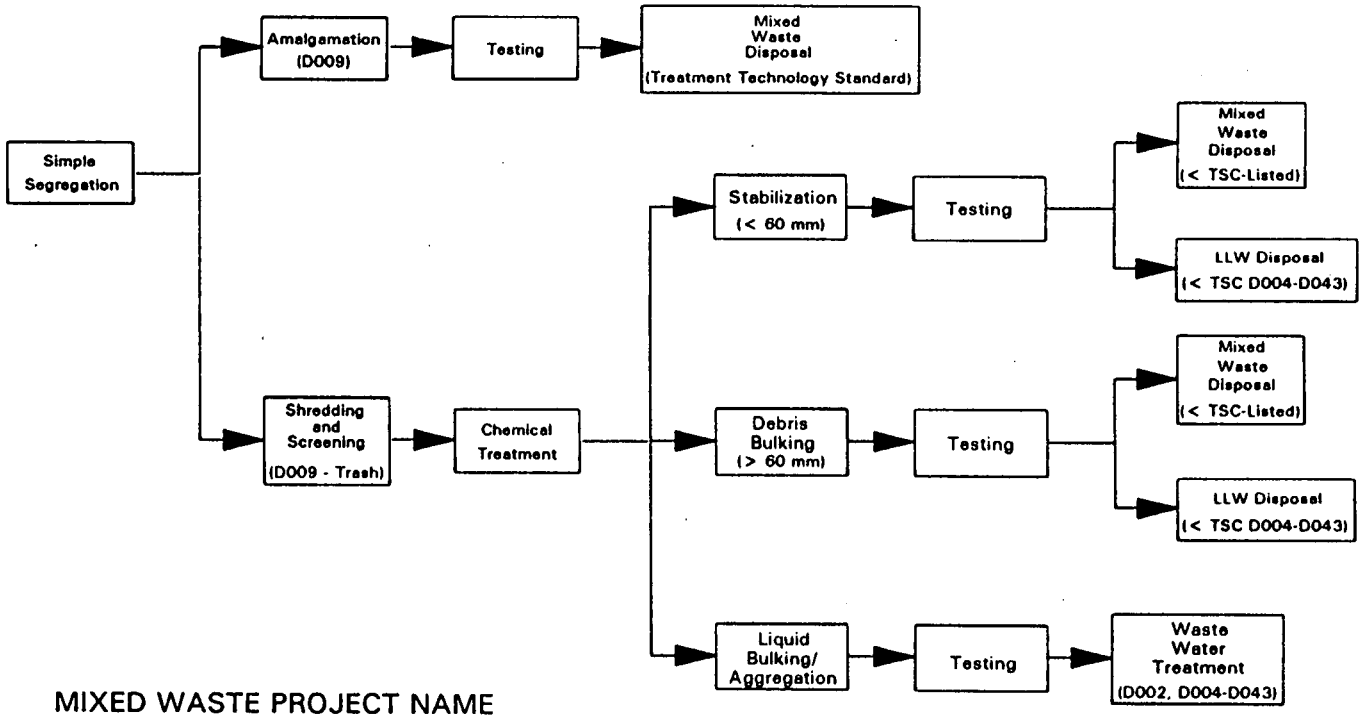
TREATMENT TRAIN

M



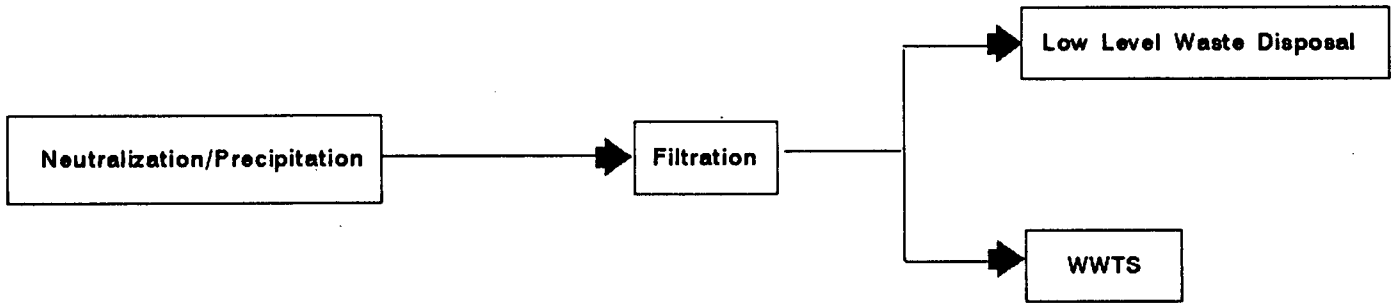
MIXED WASTE PROJECT NAME

Chemical Treatment Project

060354

6029

TREATMENT TRAIN
N



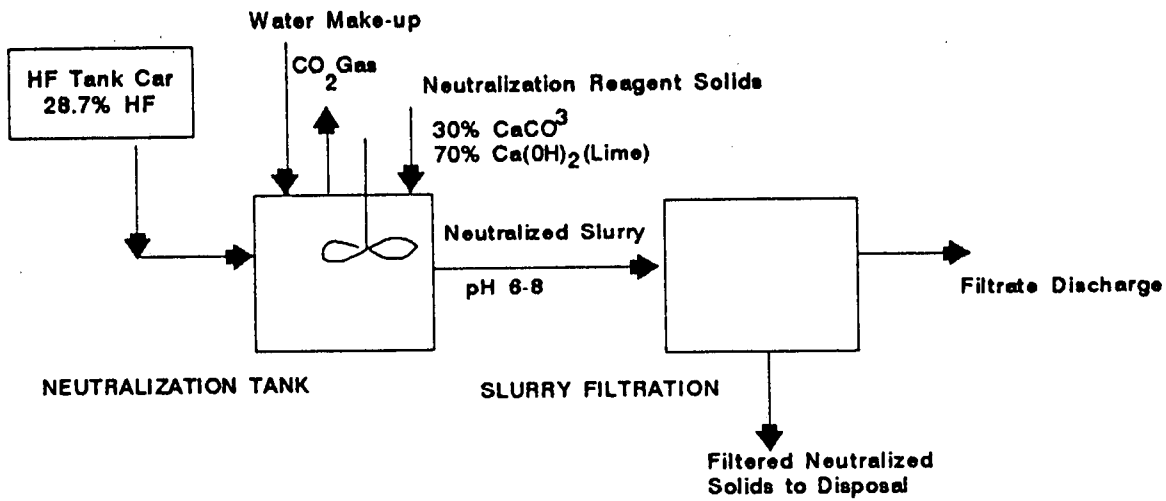
MIXED WASTE PROJECT NAME

Thorium Nitrate Neutralization
UNH Neutralization System

000355

6023

TREATMENT TRAIN
O



<u>MIXED WASTE PROJECT NAME</u>

HF Neutralization System

000356

0283

APPENDIX D

PUBLIC PARTICIPATION ACTIVITIES

APPENDIX D
PUBLIC PARTICIPATION ACTIVITIES

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ITEM NO. 1

DRAFT

PLANNING FOR PUBLIC INVOLVEMENT ON THE FEDERAL FACILITY COMPLIANCE ACT

To comply with the requirements of the Federal Facility Compliance Act (FFCA), enacted October 6, 1992, the U.S. Department of Energy (DOE) is providing opportunities for the public to become involved in developing waste treatment plans for DOE sites.

Because the State of Ohio has five DOE-funded facilities that either generate, expect to generate, and/or store mixed waste, DOE and the State (through the Ohio Environmental Protection Agency) are working together to develop Site Treatment Plans. The facilities in Ohio include:

- Battelle Columbus Laboratories, Columbus
- Fernald Environmental Management Project, Cincinnati
- Mound Plant, Miamisburg
- Portsmouth Gaseous Diffusion Plant, Piketon
- Reactive Metals, Inc., Ashtabula

According to the FFCA, public participation is required only to the extent of document review upon submittal to the State agencies: "Upon submission of a plan by the Secretary of Energy to the Administrator or a State, and before approval of the plan by the Administrator or a State, the Administrator or State shall publish a notice of availability of the submitted plan and make such submitted plan available to the public on request".

It is DOE's intent to exceed these minimal requirements by seeking out public opinion through interaction with primary stakeholders *while* the draft treatment plans are being developed, and by incorporating public concerns into succeeding treatment plans. Each site has identified key stakeholders who will be consulted during the creation of these plans. In general, stakeholders typically include State and Federal regulators, labor representatives, members of environmental groups, elected officials, community leaders, educators, and other interested members of the public.

DOE believes that direct contact with stakeholders is crucial to the success of cleanup, because if citizens feel that they were consulted during decisionmaking, they will be less likely to protest the decisions once made. If decisions are made based on open communication, and concerns of citizens are addressed, time and money will be saved that can be better spent on remediation. Determining what is done with the waste at each site is among the most important to future use, as it impacts every aspect of cleanup from characterization to transportation and disposal.

Public participation for the FFCA is integrated into the sites' comprehensive public involvement programs. The attached FFCA public participation approaches have been developed by each of the Ohio sites in their own formats reflecting site-specific levels of interest and ongoing activities.

DRAFT

Emphasis has been placed on presenting a common approach by the DOE facilities in describing waste streams, identifying treatment capacities (existing and planned), and evaluating treatment options, to encourage information exhanges between sites. The sites will work together to find solutions to shared problems, so that similar waste inventories can be treated with the most cost effective and technically sound treatment methods available.

DOE and the State of Ohio will provide various public participation opportunities through person-to-person contact, question and answer sessions, development of informational fact sheets, and notification of draft document availability in the development of the Site Treatment Plans.

ATTACHMENTS:

1.0 Supplement to BCLDP Public Information Plan on Communicating with Stakeholders about FFCA, Battelle Columbus Laboratories, Columbus, OH

2.0 FFCA Public Involvement Program, Fernald Environmental Restoration Management Corporation, Cincinnati, OH

3.0 FFCA Public Involvement Program, Mound Plant, Miamisburg, OH

4.0 FFCA Public Participation Plan, Portsmouth Gaseous Diffusion Plant, Piketon, OH

5.0 FFCA Public Involvement Plan, Reactive Metals, Inc., Ashtabula, OH

ITEM NO. 2

6073

Department of Energy
Fernald Environmental Management Project
P.O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 738-6357

SEP 29 1993

DOE-3061-93

Mr. Donald R. Schregardus
Ohio Environmental Protection Agency
P.O. Box 0149, 1800 Watermark Drive
Columbus, OH 43266-0149

Dear Mr. Schregardus:

FEDERAL FACILITY COMPLIANCE ACT

As you know, the sites at which the U.S. Department of Energy (DOE) generates or stores mixed waste are currently drafting conceptual site treatment plans in accordance with the Federal Facility Compliance Act (FFCA), which amended the Resource Conservation and Recovery Act.

DOE and Ohio EPA have agreed that the public must be involved at an early point in the evaluation of mixed waste treatment options. Public education about the potential impact of these documents, as well as historical background on the FFCA itself, will be necessary for decisions contemplated in meaningful participation.

I have enclosed for your review a draft Public Participation Plan for Federal Facility Compliance Act activities at Fernald. The plan contains an activities schedule, some background information on mixed waste and several questions which reflect concerns expected to be expressed by Fernald community members. The plan is being incorporated into existing public involvement plans for the Fernald site.

If you have any questions or suggestions, please contact Kenneth Morgan at 513-648-3131.

Sincerely,

W E Murphy

J. Phil Hamric for
Manager

FN:Morgan

Item 2

ITEM NO. 2

cc w/enc:

M. Savage, OEPA
P. Madigan, OEPA
J. Hoopes, FERMCO
K. Alkema, FERMCO
RCRA Operating Record
Administrative Record

FERNALD PUBLIC PARTICIPATION PROGRAM
for the
FEDERAL FACILITY COMPLIANCE ACT

---DRAFT---

OBJECTIVE

The objective of this plan is to set forth how the public will be involved in the development of site treatment plans (STP) for mixed waste treatment under guidance from the Federal Facility Compliance Act (FFCAct).

AUDIENCE

The audience consists primarily of people who have been identified as key stakeholders for Fernald activities, including:

- Local elected officials (Ross, Crosby, Morgan Townships trustees)
- County and state officials
- Regulators
- Fernald Residents for Environmental Safety and Health (FRESH)
- Residents within a five-mile radius of the Fernald site
- Officials in the two area school districts
- Members of the Fernald Citizens Task Force
- Fernald employees

STRATEGY

The overall strategy is two-fold: 1) To give the public information about the history and purpose of the Federal Facility Compliance Act at Fernald and 2) to provide opportunities for public participation in the development of Site Treatment Plans for mixed waste at Fernald.

MESSAGE

There are four messages that need to be disseminated about the Federal Facility Compliance Act and the Site Treatment Plans:

- Information about the history of mixed waste storage in Ohio and objective of the Federal Facility Compliance Act;

- DOE's commitment to achieving a compliance order from Ohio EPA on the Site Treatment Plan in order to set into motion a regional solution to the problem of mixed waste treatment;

ITEM NO. 2

- Propose a treatment plan for Fernald mixed waste by researching important options such as:

  - How should mixed waste be categorized and prioritized?
  - What technologies are available to treat mixed waste?
  - How and where can waste be treated?
  - How does this affect future land use and remediation?
  - As a generator, what are Ohio's role and responsibilities in a national mixed waste solution?;

- The public participation program for the FFCAct is incorporated into existing site public involvement activities and included in the internal guidance document, The Public Involvement Plan.

TACTICS

- Table 1 lists the proposed activities for informing the public on, and soliciting involvement in the site treatment plans.

BACKGROUND

- Prior to the implementation of the Federal Facility Compliance Act on October 6, 1992, it was recognized that DOE was storing mixed waste inconsistent with Land Disposal Restriction laws. The law allowed for only one year of storage, but the capacity to treat and dispose of mixed waste was inadequate or unavailable.

- When the FFCAct was made into law, the Department of Energy (DOE) became eligible to receive civil fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA) or State hazardous waste requirements. Recognizing the lack of capacity to treat mixed wastes, The FFCAct allowed that if DOE prepared plans to develop treatment capacity for mixed waste, it could avoid fines and penalties for violations as long as 1) each plan is approved by the state or EPA, 2) an order is issued by the regulator requiring compliance with each plan, and 3) DOE is in compliance with each approved plan and order.

- Mixed waste streams are from the current waste inventory and will continue to be generated during cleanup.

- Characterization and analysis of all waste material at Fernald is necessary in order to determine the precise nature, quantity, and location of each kind of waste, and how each should be handled under RCRA. The treatment schedule to be applied to these identified waste streams has become increasingly important if DOE is to meet the requirements of the FFCAct.

- Because the decisions proposed and made by these documents will not only affect Fernald, but possibly impact the future of mixed waste treatment and disposal in the United States, public input and acceptance is crucial to earning EPA's compliance order.

- People initially identified as key stakeholders will be briefed at FRESH meetings, the October Community Meeting, and will be provided with fact sheets and copies of the conceptual STP for review. A Notice Of Availability will follow, allowing 30 days for review, and listing copies in the Public Environmental Information Center.

SENSITIVITIES

- There is the potential that Fernald could become part of a regional or national treatment network. DOE has assured the local public for years that the Fernald site would be cleaned up and closed; treatment of "off-site" mixed wastes may appear to be inconsistent with this message.

- Ohio DOE sites are working as a team in response to this directive. Ohio is responsible for the generation of an immense volume of mixed waste, and may be asked to find treatment locations within its own borders.

ITEM NO. 2

Table 1

Public Information Activities
for
The Federal Facility Compliance Act
Site Treatment Plans

Activity	Responsible Party	Timing
FRESH briefing; announce that work is underway on the conceptual STP; expected goal of the documents; long-term affects (This will be an ongoing activity)	DOE Public Information; FERMCO Public Affairs	September 23, 1993
An announcement to be made at the Community Meeting about the FFCAct, the conceptual STP, the dates of the EPA public comment period, available fact sheets at the back of the room	DOE Public Information Personnel; FERMCO Public Affairs	October 21, 1993
Prepare item for employee publications (This will be an ongoing activity)	FERMCO Public Affairs	by October 25, for publication October 28
Write article on the FFCAct, what is included in the CSTP, and announce its availability for comment in new monthly newsletter to be sent to people on the site mailing list	FERMCO Public Affairs	by October 13, for publication in late October

Note: Should sufficient interest in the conceptual STP issues be expressed by the community, a workshop or other forum(s) to inform and involve the public on these issues will be scheduled.

Federal Facility Compliance Act

Purpose

On October 6, 1992, the President signed the Federal Facilities Compliance Act (FFCA) into law, making the Department of Energy (DOE) subject to fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA) or State hazardous waste requirements. The FFCA amends the Solid Waste Disposal Act, which was previously amended by RCRA.

Under current disposal laws, it is illegal to store hazardous waste for more than one year. With this new ruling, if the DOE can meet certain planning requirements, it can avoid fines and penalties for violations of such land disposal restrictions for the next 3 years.

In order to meet these requirements, each DOE site must develop a site treatment plan (STP) for mixed waste treatments and technology development and use the plan as a basis for a legal agreement with the state prior to an October 1995 deadline. If successful, sites like Fernald can extend the exemption from the one year storage requirement beyond the allowable three years.

Who is Affected?

Under the requirements of the FFCA, a site treatment plan must be developed at sites where DOE stores or has generated mixed waste. The Fernald conceptual Site Treatment Plan (STP), due to the Ohio Environmental Protection Agency (OEPA)in October, 1993, will be a preliminary version of the later plans and will be reviewed by the state of Ohio, the U.S. Environmental Protection Agency (EPA) and others.

Fernald also hopes to use the conceptual STP as a vehicle for providing information about technology needs and options to other DOE cleanup sites across the country. The Fernald plan will be used in conjunction with plans from the other DOE sites as a basis for nationwide discussions on treatment strategies and options.

Implementation

A schedule for the development and submittal of the Plans to Ohio EPA is as follows:

Conceptual STP	October 1993
Draft STP	August 1994
Final STP	February 1995

Following this schedule of activities, Ohio EPA is expected to issue a compliance order to DOE at Fernald in October 1995.

Public Involvement

Public input can improve both the quality and feasibility of the proposed treatments. In order to assure public concerns are addressed in the developmental stages of the site treatment plan,

comment periods will be announced and the documents will be available at the Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Ross, Ohio, (513)738-0164.

Interested stakeholders have a key role to play in the decisions involving mixed waste treatment and disposal. New ideas and creative planning can lay the groundwork for solutions both locally and nationwide.

Objectives

The conceptual STP addresses mixed waste, (waste containing both a hazardous component subject to RCRA and a nuclear or by-product material subject to the Atomic Energy Act). It is important that the schedules and treatment selection processes outlined in the plan are consistent with the current cleanup activities underway at Fernald.

The conceptual STPs are intended to provide a starting point for discussion. The focus at Fernald is to provide information on technologies for treating stored wastes, mostly resulting from past production processes.

Fernald also has wastes that require further characterization and for which the appropriate technology has not been identified. The conceptual STP attempts to identify these wastes, as well as waste streams such as environmental restoration wastes that Fernald expects to generate in the future.

Development of a site treatment plan for mixed waste at Fernald is a key function of the waste management program. The intent is to prevent the release of pollutants into the environment, thereby protecting human health and limiting potential exposures to hazardous materials.

Generally, the waste management program seeks to characterize, store, treat and dispose of hazardous, mixed, and sanitary waste from Fernald in a safe and environmentally sound manner.

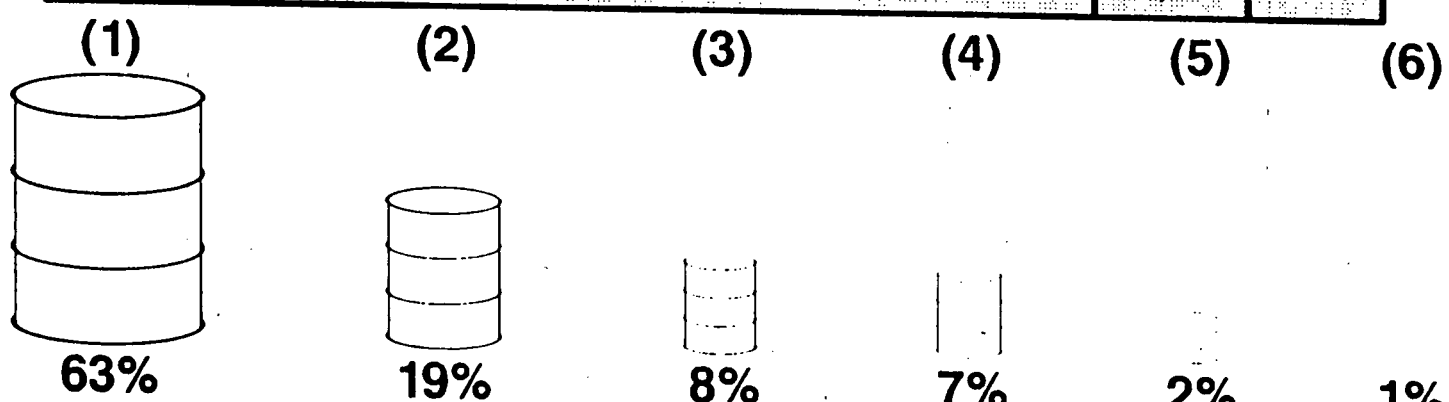
Treatment

Throughout the developmental stages of the STP, Fernald will be able to form a comprehensive plan, including a schedule and milestones for possible treatments. If the technologies do not yet exist for treatment, plan development will assist in the identification and development of new technologies.

Each progressive stage of the STP will contain further detail of the plans for treatment, with increased categorization of mixed waste inventories. The draft and final STPs will contain input from Ohio EPA and other stakeholders, and will outline the preferred alternatives for treatment. DOE at Fernald intends to have the final plans and orders in place by October 1995.

MIXED WASTE INVENTORY BREAKDOWN CHART

MIXED WASTE CATEGORIES	TOTAL	%
(1) PROCESS RESIDUES Trailer cakes, raffinates, sump cakes, graphite, alumina, magnesium, incinerator cinders, furnace salts, scrap U_3O_8	7,947	63%
(2) SOLVENTS 1,1,1-Trichloroethane, perchloroethylene, trichloroethylene, TBP & kerosene, contaminated oil, PCB contaminated solvents	2,341	19%
(3) CONSTRUCTION RUBBLE Contaminated rocks, soil, bricks, sand, concrete, trash, asbestos, lead contaminated waste, mercury contaminated waste, PCB light ballasts, & miscellaneous materials	1,067	8%
(4) GRIT BLAST RESIDUES Sand, lead paint, silica from water tower project	907	7%
(5) MISCELLANEOUS LIQUID WASTE Contaminated water	305	2%
(6) MISCELLANEOUS SOLID WASTES Metallic filter elements, & carbon filter elements	48	1%
TOTAL	12,615	100%



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FEMP TREATMENT TECHNOLOGIES

FACILITY/ SYSTEM	TREATMENT TECHNOLOGY	WASTESTREAMS TREATED	STATUS
UNH TREATMENT FACILITY	NEUTRALIZATION PRECIPITATION FILTRATION	UNH (MIXED WASTE)	PROCESS UNDERGOING INTERNAL REVIEW
MINIMUM ADDITIVE WASTE STABILIZATION	VITRIFICATION	WASTE PIT SLUDGES, SOILS	BENCH SCALE TESTING
SOIL WASHING PROCESS	SOIL WASHING	SOIL	BATCH TESTING IN PILOT SYSTEM
PLANT 8 VOC TREATMENT SYSTEM	FILTRATION	PERCHED GROUNDWATER	CURRENTLY IN OPERATION
ROTARY KILN	THERMAL	SLUDGES	SEEKING ADDITIONAL PERMITS

000370

FERNALD'S IMPLEMENTATION OF THE FEDERAL FACILITY COMPLIANCE ACT

- By the end of October, the DOE Fernald Field Office will submit to Ohio Environmental Protection Agency a conceptual version of the *Site Treatment Plan* for mixed waste. Under the Federal Facility Compliance Act, DOE sites that store or generate mixed waste are required to develop waste treatment plans to avoid penalties for violations of waste storage restrictions. The Federal Facilities Compliance Act allows DOE to continue to avoid mixed waste storage penalties as long as it develops site treatment plans, gains EPA approval for these plans, and remains in compliance with the subsequent orders issued by the Environmental Protection Agency.

  The first version of the treatment plan, the conceptual version, will be submitted this week. On November 1, the conceptual version of the site treatment plan will be available at the Public Environmental Information Center. Issues covered by the final version will impact several aspects of Fernald remediation schedules, transportation issues and technology selection. The public is encouraged to comment on each version of the plan as it is developed by Fernald personnel.

OCTOBER 25, 1993 CROSBY TOWNSHIP MEETING TALKING POINTS

ITEM NO. 6

PUBLIC ENCOURAGED TO PROVIDE INPUT ON *SITE TREATMENT PLAN*

- By the end of October, the DOE Fernald Field Office will submit to the Ohio Environmental Protection Agency a conceptual version of the *Site Treatment Plan* for mixed waste. Under the Federal Facility Compliance Act, DOE sites that store or generate mixed waste are required to develop waste treatment plans to avoid penalties for violations of waste storage restrictions. The Federal Facilities Compliance Act allows DOE to continue to avoid mixed waste storage penalties as long as it develops site treatment plans, gains EPA approval for these plans, and remains in compliance with the subsequent orders issued by the Environmental Protection Agency.

PUBLIC ENCOURAGED TO PROVIDE INPUT ON *SITE TREATMENT PLAN* (continued)

The first version of the treatment plan, the conceptual version, will be submitted this week. On November 1, the conceptual version of the site treatment plan will be available at the Public Environmental Information Center. Issues covered by the final version will impact several aspects of Fernald remediation schedules, transportation issues and technology selection. The public is encouraged to comment on each version of the plan as it is developed by Fernald personnel.

FRESH MEETING
OCTOBER 28, 1993

000372

Federal Facilities Compliance Act takes effect

A Conceptual Site Treatment Plan outlining Fernald's plans to provide for treatment of its mixed waste inventory is on schedule for submittal to the U.S. EPA and Ohio EPA in October 1993.

The regulatory agencies, in their review of site treatment plans prepared by Fernald and other DOE sites in Ohio and across the country, will consider the need for regional treatment facilities that promote the most efficient and cost-effective methods for treating waste that contains both hazardous and radiological constituents.

The Federal Facility Compliance Act (FFCAct) became effective in 1992 to bring federal facilities into compliance with the Resource Conservation and Recovery Act (RCRA), a federal law designed to ensure the safe storage, treatment, and disposal of hazardous and mixed waste.

Recognizing the lack of capacity to treat mixed wastes, the FFCAct requires DOE to prepare site-specific treatment plans to develop treatment capacity for mixed waste.

The ruling mandates that all site-specific treatment plans must be approved by appropriate regulatory agencies, which in turn will issue compliance orders. Public input and acceptance is crucial to Fernald earning Ohio EPA's compliance order.

A communications plan for the Fernald Site Treatment Plan is to be incorporated into the Fernald Public Involvement Program, so the public can participate in the development of the site treatment plan.

Fernald's Conceptual Site Treatment Plan will be a preliminary version of later plans to be reviewed by the state of Ohio and the EPA. Each progressive stage of the treatment plan will contain further detail of the plans for treatment, with increased categorization of mixed waste inventories. The draft and final plan will contain input from the Ohio EPA and other stakeholders, and will outline the preferred alternatives for treatment. DOE-Fernald expects to have its final plans and orders in place by October 1995.

Fernald also hopes to use its final Site Treatment Plan as a vehicle for providing information about technology needs and options for Fernald and other DOE cleanup sites. The Fernald plan also will be used in conjunction with plans from the other DOE sites in Ohio as a basis for nationwide discussions on treatment strategies and options for mixed waste.

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Fernald also hopes to use its final Site Treatment Plan as a vehicle for providing information about technology needs and options for Fernald and other DOE cleanup sites. The Fernald plan also will be used in conjunction with plans from the other DOE sites in Ohio as a basis for nationwide discussions on treatment strategies and options for mixed waste.

OEPA'S GRAHAM MITCHELL REQUESTS INPUT ON FINAL DISPOSITION OF FERNALD WASTE

- *Emphasizing the importance of public involvement, OEPA's Graham Mitchell documented FRESH members' input on Fernald waste disposal options.*

  Graham asked "What factors should impact the decision of where [Fernald] waste should go?" Input included:
  - *Buffer zones*
  - *Tremendous public participation*
  - *Nevada is tired of taking Fernald waste/border closures -- Graham explained that all Fernald waste cannot be shipped to Utah and Nevada because the states would rebel. He said compromise is necessary and advised FRESH to push for Envirocare as an off-site disposal facility, in case the Nevada Test Site should become unavailable.*
  - *Fault lines and the area's location relative to them*
  - *Aquifer protection -- The Crosby Township President said Fernald is not suitable for waste storage, due to its position above the aquifer. However, Graham said a northern section of the site might be suitable for waste storage. Vicky noted that most of that area is in Butler County.*
  - *Transportation*
  - *Cost/Congress' loss of interest and commitment to funding*
  - *Risk to workers*
  - *Health risks in general*
  - *Political factors*
  - *Economic factors*
  - *Treatability*
  - *Cost versus benefit*
  - *Difference between MRS and disposal cells*

  Graham asked "What wastes should go off site?" Responses included:
  - *K-65, thorium, waste pits*
  - *Higher low-level radioactive waste*
  - *Mixed waste*
    - *FRESH President said K-65 wastes, thorium and waste pit contents must be removed. Others agreed.*
    - *FRESH member said all wastes should be removed until a better option is technically, scientifically and economically proven. However, she also said she would not oppose on-site disposition of transite and asbestos.*
    - *FRESH member said he would not oppose an above-ground disposal facility for soil, transite and construction rubble. He said the land should be used for cow pastures and above-ground storage cells, and DOE should maintain responsibility and liability.*

3. Report on the Programmatic Environmental Impact Statement:

Applegate told Task Force members that Tom Wagner represented the group at a Programmatic Environmental Impact Statement meeting in the Washington, D.C., area last month. He asked Wagner to report on the meeting.

Tom Wagner said others from the Fernald area also attended the meeting, including Vicky Dastillung of FRESH and DOE's Environmental Restoration and Waste Management Advisory Board, Doug Sarno, and Laura Hegge from Ohio EPA. This meeting was a follow up from an earlier session, and dealt with the risk assessment process that will be part of PEIS.

The real purpose of this meeting was to help DOE determine what is the best means for presenting the information that comes out of the risk assessment process. Wagner said he thought there were several issues relevant to the Task Force, including waste treatment and waste disposal. Wagner said DOE was discussing having up to 49 sites -- or as few as 4 sites -- become treatment facilities. DOE also is considering using up to 13 sites -- or as few as one site -- for disposal.

Wagner suggested that the Task Force be aware of these discussions going on at a national level. He also reported that the Superfund Reauthorization legislation contains proposed language that perhaps will redefine the composition of site-specific advisory boards (SSABs). He recommended that the Task Force make sure the legislation benefits the citizens of the Fernald area.

Applegate added that waste importation is likely to be a significant issue for the Task Force. He explained that, as part of the development of technology on site, a certain amount of material from other sites may be brought to Fernald for treatment to see if the technology works. This issue is relevant to the Task Force's transportation concerns if materials are going to be coming on to the site, as well as because of the implications for future use. Applegate suggested forming a sub-committee to look into waste importation. The Task Force agreed; Lisa Crawford, Darryl Huff, and Bob Tabor volunteered to serve on this subcommittee.

STAKEHOLDER INPUT TO BE CONSIDERED AS FEDERAL FACILITIES COMPLIANCE ACT DOCUMENTS ARE DEVELOPED

- The Federal Facilities Compliance Act of October 6, 1992, requires DOE facilities to meet certain requirements regarding the storage and treatment of mixed waste on site. In October 1993, a "Conceptual Site Treatment Plan" was submitted to Ohio EPA. Development of a "Draft Site Treatment Plan" for mixed waste at Fernald is due by August 31, 1994.

  The Draft Site Treatment Plan will present DOE's preferred option(s) (or schedules for determining the preferred options), based on technical evaluation of alternatives for the transportation, storage, and treatment of mixed waste. These will be the subject of "equity" discussions with the states, EPA, and stakeholders.

  Under the Federal Facilities Compliance Act, public participation is required only for document review and comment upon submittal of the "Final Site Treatment Plan" (February 1995). However, DOE intends to exceed these minimal public participation requirements by seeking stakeholder input through one-on-one discussions and incorporating their concerns into the actual treatment plans as they are being developed. Portsmouth, Mound, RMI and Battelle are also preparing Draft Site Treatment Plans in coordination with Ohio EPA.

  A section of the Draft Site Treatment Plan will focus on the following seven treatment selection guides to be used for comparing treatment options and selecting the preferred treatment option(s):

  1. Regulatory Compliance
  2. Environmental Health and Safety
  3. Treatment Efficiency
  4. Implementability
  5. Stakeholder Concerns
  6. Life-cycle Cost
  7. Technology Development

  DOE and EPA will use these criteria to determine the most appropriate cleanup technology for similar waste streams from each of the five sites. It is possible that one or more mixed waste types could be designated for consolidated treatment. This would require shipment of the waste to the particular Ohio DOE site designated for treatment of that waste stream. Inter-site shipment of DOE's mixed waste would occur only after consideration of the full range of alternatives and stakeholder issues and concerns. Updates will be provided as the Draft Site Treatment Plan development progresses.

  Referring to the movement of waste to the most appropriate DOE site designated to treat a particular waste stream from another DOE site, one FRESH member commented, "As long as it's not here."

  Another FRESH member made a comment about "musical waste."

MARCH 24, 1994, FRESH MEETING EXECUTIVE SUMMARY

KEN MORGAN, PUBLIC INFORMATION DIRECTOR

ITEM NO. 12

STAKEHOLDER INPUT TO BE CONSIDERED AS FEDERAL FACILITIES COMPLIANCE ACT DOCUMENTS ARE DEVELOPED

- The Federal Facilities Compliance Act (FFCA) of October 6, 1992, requires DOE facilities to meet certain requirements regarding the storage and treatment of mixed waste on site. In October 1993, a "Conceptual Site Treatment Plan" was submitted to Ohio EPA. The "Draft Site Treatment Plan" for mixed waste at Fernald is due by August 31.

  The Draft Site Treatment Plan will present DOE's preferred option(s) (or schedules for determining the preferred options), based on technical evaluation of alternatives for the transportation, storage, and treatment of mixed waste. These will be the subject of "equity" discussions with the states, Ohio EPA, and stakeholders.

  Under the FFCA, public participation is required only for document review and comment upon submittal of the "Final Site Treatment Plan" (February 1995). However, DOE intends to exceed these minimal public participation requirements by seeking stakeholder input through one-on-one discussions and incorporating their concerns into the actual treatment plans as they are being developed. Portsmouth, Mound, RMI and Battelle are also preparing Draft Site Treatment Plans in coordination with Ohio EPA.

  A section of the Draft Site Treatment Plan will focus on the following seven treatment selection guides to be used for comparing treatment options and selecting the preferred treatment option(s):

  1. Regulatory Compliance
  2. Environmental Health and Safety
  3. Treatment Efficiency
  4. Implementability
  5. Stakeholder Concerns
  6. Life-cycle Cost
  7. Technology Development

  DOE and Ohio EPA will use these criteria to determine the most appropriate cleanup technology for similar waste streams from each of the five sites. It is possible that one or more mixed waste types could be designated for consolidated treatment. This would require shipment of the waste to the particular Ohio DOE site designated for treatment of that waste stream. Inter-site shipment of DOE's mixed waste would occur only after consideration of the full range of alternatives and stakeholder issues and concerns. Updates will be provided as the Draft Site Treatment Plan development progresses.

Draft FFCAct PPP
DOE-Fernald
July 5, 1994

DRAFT PUBLIC PARTICIPATION PLAN for the FEDERAL FACILITY COMPLIANCE ACT at the FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

1.0 Plan Overview

A Draft Public Participation Plan was submitted to Ohio EPA on September 29, 1993. This plan was prepared to set a schedule to inform the public about the initiation and purpose of the Federal Facility Compliance Act (FFCAct) at Fernald and include public involvement activities through the development of the Conceptual Site Treatment Plan (CSTP) only. Public involvement focusing on the CSTP included:

- An exhibit on the FFCAct was displayed at the DOE RI/FS Community Meeting in October 1993.
- A fact sheet on the FFCAct was included with the handouts at the DOE RI/FS Community Meeting in October 1993.
- The FFCAct process was included as a "talking point" for the October 1993 monthly meeting of the local environmental group, Fernald Residents for Environmental Safety and Health (FRESH).
- An article on the FFCAct was included in the October 1993 issue of the *Fernald Project Cleanup Report* that is mailed to 2000+ stakeholders.
- Notifications that the Conceptual STP was available on November 1, 1993, in the DOE reading room at the Public Environmental Information Center were distributed at the October meetings of the three local townships in the Fernald area.
- A representative from Ohio EPA attended the November 1993 FRESH meeting and requested input from members on on-site/off-site waste disposal at the Fernald Environmental Management Project (FEMP).

To keep the public informed of the FFCAct process and aware of the development of the treatment plans, other public involvement activities that have been conducted at the FEMP include:

- Discussion of the FFCAct at the March 1994 meeting of the Fernald Citizens Task Force resulted in the establishment of a subcommittee on waste importation.

- An update on the FFCAct was included as a "talking point" at the March 1994 FRESH meeting.

- An update on the FFCAct was included as a "talking point" at the April 1994 FRESH meeting.

- Tom Winston from OEPA held a private briefing with the Fernald Citizens Task Force subcommittee on waste importation on May 4, 1994.

- On June 14, 1994, at the DOE RI/FS Community Meeting an Exhibit on the FFCAct was prepared for the Availability Session.

2.0 Roles and Responsibilities

The Point of Contact (POC) at the FEMP is Gary Stegner, DOE Public Affairs. Mr. Stegner is responsible for all public involvement and interaction with the public. He also coordinates with DOE Headquarters on matters of public concern and is involved in the EM monthly teleconferences.

The technical representative for the FFCAct at the FEMP is John Sattler. Mr. Sattler is responsible for the submittals of the site treatment plans and meets regularly with DOE Headquarters and Ohio EPA. He also gives public briefings.

For policy issues, the POC for Ohio EPA is Tom Winston. Mike Savage is the POC for technical issues. The public outreach contact for Ohio EPA is Laura Hegge. DOE-FN and OEPA are forming a partnership to plan and conduct public involvement efforts on the FFCAct to assure that the regulator's needs, as well as DOE's objectives, are met.

3.0 Issue Identification

The issues surrounding the FFCAct process at the FEMP are:

- The importation of waste from other Ohio sites for treatment or disposal at the FEMP.

- The FEMP is in the last stages of the RI/FS process in four of its five operable units. This demands much of the public's time for reading

documents, responding with comments during the formal public comment periods, attending workshops that discuss the alternatives and remedies for cleanup, preparation of the signing of RODs, etc. Because of all the attention being focused on the RI/FS, the public isn't as aware of the FFCAct and the site treatment plans as they should be at this stage of the process.

- Technology -- how can the public understand the terminology and concept of some of the technologies selected for the treatment of waste streams?

- The local environmental group is very concerned about transportation of any waste (mixed, low-level, or hazardous) through communities. The theory of trading waste (bringing other waste to the FEMP or sending FEMP waste to another facility) for treatment is a major concern because of the chance of an accident, spill or release.

- Cost -- does the cheapest remedy necessarily mean it is the best treatment? How much of a factor will "cost" be in the final treatment selection?

- Future Land Use -- The Fernald Citizens Task Force is formulating a recommendation for land use of the site after cleanup. If the FEMP is selected as a treatment and/or disposal site, this could affect the land use decision.

4.0 Planned Activities

As previously mentioned, activities that include an exhibit, fact sheets, public notifications, news articles, and briefings have already occurred at the FEMP. The Fernald Citizens Task Force has appointed a waste importation subcommittee to address issues dealing with the FFCAct process. Ohio EPA has met with the subcommittee and has committed to them to take a leading role in public involvement.

Activities that are being planned to keep the public aware of the FFCAct and the development of the plans are:

- DOE-FN representative(s) will give a briefing on the FFCAct to the Fernald Citizens Task Force waste disposition subcommittee on July 12, 1994.

- The Ohio EPA is preparing a Fernald site-specific fact sheet for distribution.

- DOE-FN has prepared another fact sheet on the FFCAct to distribute at public meetings, township meetings, and through the Fernald Envoy Program (Attachment A).

- The FEMP is planning a community workshop in August or September 1994 on the DSTP and other waste management issues.

- The FEMP will make copies of the DSTP available for public review and comment. If comments are received, they will be considered in preparation of the Final STP.

5.0 Evaluation

Determining how effective any program is depends on how much interest and response can be generated from the public. As the final STP is being prepared, some methods to evaluate the process are:

- Feedback from the two separate briefings to the Task Force's waste importation subcommittee will be distributed to the appropriate managers.

- A procedure already in place is using evaluation forms at every meeting, roundtable, workshop, briefing, etc. conducted by DOE for input, measurement, and comment.

- Conducting a public comment period on the DSTP.

Some strategies that could be initiated at the FEMP to assist in determining whether public participation is effectively contributing to the development of the final STP are:

- Mail a questionnaire on the progress of the plan to the citizens living within a two-mile radius of the site for their input and reaction.

- Install an FFCAct Hotline where stakeholders can leave messages and DOE would commit to respond within 48 hours to all questions/concerns.

- Advertise informal Availability Sessions to be held on a particular night each month where concerned stakeholders could walk in at the designated location, or call in with their issues, questions and concerns. At the same time, the POC (or designated spokesperson) could give updates on the plan's development.

ATTACHMENT A

FEDERAL FACILITY COMPLIANCE ACT (FFCA)

Summary

The Federal Facility Compliance Act of 1992 provides an opportunity for the Department of Energy to work with its regulators to resolve a long-standing issue - how to treat large amounts of mixed radioactive and hazardous waste now being stored or generated at DOE sites. The Federal Facility Compliance Act directs DOE to prepare plans for developing mixed waste treatment capacities and technologies for each DOE site which generates or stores mixed waste. DOE will submit these site treatment plans to the appropriate agency (Ohio EPA in this case) for approval. If not in compliance with an approved plan, DOE facilities could face fines and penalties from the regulators after October, 1995.

FFCA Requirements

The FFCA makes Federal facilities subject to potential fines and penalties for violations of the Resource Conservation and Recovery Act (RCRA), the law that sets requirements for the management of hazardous waste. However, the FFCA allows a three-year delay of the imposition of fines and penalties for certain violations related to DOE's storage of mixed waste (mixed waste is waste that includes both radioactive and hazardous components.) During that time, the FFCA requires DOE to prepare Site Treatment Plans for developing the needed treatment capacity and treating the mixed waste. These plans will be developed for each site at which DOE generates or stores mixed waste.

Information in the FEMP site treatment plan will include 1) possible technologies that could treat mixed waste, 2) selection criteria and process used to pick best technology (including regulator and stakeholder input) and 3) schedules for development and implementation of needed technology.

The Federal Facility Compliance Act requires Ohio EPA to consider the need for regional treatment facilities. Regional facilities could be a cost effective way of treating mixed wastes, i.e. building a new treatment facility for a small quantity of mixed waste would not be cost effective if the same type of treatment facility already exists or is being built for a large quantity of mixed waste at another DOE site.

Disposal

Although the Federal Facilities Compliance Act does not require that disposal be addressed in the Site Treatment Plans, DOE recognizes that treatment of mixed low-level waste will result in treatment residues that will require disposal in either low-level waste or mixed low-level waste disposal facilities. The FEMP is planning to discuss the tentative disposal plans in the Site Treatment Plan.

Prioritized Treatment Considerations

DOE has developed a framework which presents a tiered approach to evaluating and selecting preferred treatment options. The objective is to reduce and simplify the number of waste streams likely to be the subject of equity discussions between states.

a. Treatment in Existing On-site Facilities: Treatment in existing facilities is the preferred option for mixed wastes.

b. Modify Existing On-Site Facilities: In some instances, existing facilities may be capable of treating additional waste streams with small modifications.

c. Treatment in Commercial or Mobile Treatment Units: If existing capacity does not exist on-site to treat a waste stream, other options including commercial facilities and mobile treatment systems should be investigated. Mobile treatment systems could potentially be relocated between various DOE facilities after treatment is completed at a DOE facility.

When on-site treatment is not practicable, the use of existing off-site treatment facilities within the state of Ohio will be considered.

d. Identify Treatment for Low-Volume Wastes: Low volume waste streams should be analyzed to identify cost effective treatment strategies. Examples might include treating waste in research and development or pilot-scale equipment, or development of mobile treatment units that could handle multiple low-volume waste streams.

Options for off-site treatment of mixed waste in and out of the state of Ohio will be considered. Treating mixed waste outside of the state of Ohio could initiate a series of complex issues such as transportation between states or potential trading of mixed waste streams between DOE sites. For example, the state of Tennessee could agree to accept mixed wastes from the FEMP for treatment in the Oak Ridge TSCA Incinerator if the FEMP agrees to accept other mixed wastes from the DOE Oak Ridge facility for treatment or disposal purposes.

Required Actions to Ship and Treat Mixed Waste

Ohio EPA will approve, approve with modifications, or disapprove the final Site Treatment Plan. Ohio EPA will direct DOE's implementation of the approved final Site Treatment Plan through formal Compliance Orders.

The major waste management decisions facing DOE and Ohio EPA will affect the local community. Decisions include the location of treatment facilities, the type of treatment to be used, where the waste will be shipped for treatment and how the treated waste will be disposed. The FFCA requires that the final Site Treatment Plan be available to the public

so that public comments and concerns can be addressed.

Comprehensive Environmental Response, Compensation and Liability Act's (CERCLA's) permit exemptions may be applicable to treatment of FEMP mixed waste on-site and may be applicable to treatability studies of off-site mixed waste. Air, water and hazardous waste permits could be necessary for treatment of any mixed waste from offsite facilities.

Site Treatment Plans

The FFCA requires Ohio EPA to publish a notice of the availability of the final Site Treatment Plan and make the plan available to the public on request. Although the FFCA requires only that DOE submit a plan for review and approval, DOE will issue the Site Treatment Plan for public review at three levels of development to provide multiple opportunities for comment and discussion. A conceptual, draft, and final Site Treatment Plan will be prepared for each site. The conceptual Site Treatment Plan identifies preliminary options for treating each site's wastes. The draft Site Treatment Plan identifies the preferred option to the extent practicable for treating each site's mixed wastes. It also identifies specific mixed waste treatment facilities and locations and proposed treatment schedules. The final Site Treatment Plan identifies the final DOE options for treatment technologies, facilities, locations and schedules for each site's wastes. It goes to the regulators for review and approval.

The schedule to submit the FEMP site treatment plan to Ohio EPA is as follows:

Conceptual Site Treatment Plan	October 1993
Draft Site Treatment Plan	August 1994
Final Site Treatment Plan	February 1995
OEPA Issuance of Compliance Order	October 1995

Public Involvement

The FEMP is working with the regulators, with site-specific interest and advisory groups, and through other established means to provide additional opportunities for public discussion throughout the Site Treatment Plan's development process.

Providing opportunities for the public to participate in decision-making early in the process can lead to a more complete identification and consideration of issues and alternatives. Addressing public and state concerns and comments early will help DOE and Ohio EPA to develop a final Site Treatment Plan that reflects public interests and can be more readily accepted and approved by the regulators. In addition to the Site Treatment Plans being made available to the public, roundtables and meetings are being planned to discuss FFCA issues. Two of the meetings planned include:

July 1994	Briefing to Task Force Subcommittee
August/Sept 1994	Public Meeting

ITEM NO. 15

AGENDA/TALKING POINTS

Waste Disposition Subcommittee Meeting
July 12, 1994

7 p.m., UNO Building

Welcome and Introduction . . . . . Darryl Huff

Overview of Federal Facilities Compliance Act . . . . . John Sattler

- What is the FFCAct?
- What is its history?
- What is the schedule?

Roles and Responsibilities . . . . . John Sattler

- DOE?
- Ohio EPA?
- U.S. EPA?
- National Governor's Association?
- Ohio Work Group?

Conceptual Site Treatment Plan . . . . . John Sattler

- What did it say?
- What are the relevant waste streams for Fernald and Ohio?

Development of the Draft Treatment Plan . . . . . John Sattler

- What is its status?
- What does it say now (even though in development and only a proposal)?
- Relationship with the Programmatic Environmental Impact Statement?
- What treatment options are being considered?
- What is the relationship with disposal?

Discussion of Impacts on Fernald Cleanup . . . . . John Sattler

- What are the impacts for Fernald?
- How does the FFCAct integrate with cleanup?
- What does this mean for future use?

Public Involvement Opportunities . . . . . Ken Alkema

- How can the public be involved?
- When?

Appendix E

APPENDIX E

DEFINITIONS

APPENDIX E
DEFINITIONS

The terms defined below have been collected or derived from documentation from regulatory agencies and DOE sites, as well as, from environmental journals and other sources of regulations and documents, and some have been written by 180 day report team members. The words and phrases are listed alphabetically. Common abbreviations, if any, follow the term.

Amalgamation (AMLGM) - A process applicable to radioactive wastes containing mercury and particularly to wastes containing radioactive mercury isotopes. Mercury compounds are converted into a solid mercury-zinc alloy, which is more easily managed and less mobile than solutions containing mercury. Amalgamation provides a significant reduction in air emissions of mercury and provides a change in mobility from liquid mercury to a paste-like solid, potentially reducing leachability. Amalgamation may be performed using any of the following elements: zinc, copper, nickel, gold, and sulfur.

Aqueous Liquids (as a waste matrix) - Liquids/slurries with a total organic carbon (TOC) content less than 1 percent. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40 percent). Only liquids/slurries packaged/stored in bulk form (i.e., tank stored, drummed bulk free liquids) are included in this category. Liquids packaged in lab pack-type configuration are categorized as lab packs.

Batteries (as a waste matrix) - This category includes lead acid, cadmium, and miscellaneous batteries.

Best Available Technology (BAT) or Best Demonstrated Available Technology (BDAT) - (1) The preferred technology for treating a particular process liquid waste, selected from among others after taking into account factors related to technology, economics, public policy, and other parameters. As used in DOE Order 5400.5, BAT is not a specific level of treatment, but the conclusion of a selection process that includes several treatment alternatives. (2) Treatment technologies that have been shown through actual use to yield the greatest environmental benefit among competing technologies that are practically available.

Biodegradation (BIODG) - The degradation of organics or non-metallic inorganics by microorganisms (i.e. inorganics that contain the elements of phosphorous, nitrogen, and sulfur) in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., Total Organic Carbon can often be used as an indicator parameter for the biodegradation of many organic constituents than cannot be directly analyzed in wastewater residues).

Bulking - The process of putting materials into bulk packaging.

Bulk Packaging - Packaging other than a vessel or a barge, including a transport vehicle, freight container, or mobile tank in which hazardous materials are loaded which has one of the following: a maximum capacity greater than 450 L (119 gallons) as a receptacle for a liquid; a maximum net mass greater than 400 kg (882 pounds) or a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid.

Capacity (of a facility) - The annual process throughput, in m^3/yr under normal operating conditions. "Normal operating conditions" are defined as the shift schedule under which the facility normally operates; i.e., one 8-hour shift/day, five days a week; two shifts/day, five day a week; twenty-four hours a day, seven days a week.

Carbon Adsorption (CARBN) - A treatment technology used to treat waste waters containing dissolved organics at concentrations less than about five percent and, to a lesser extent, dissolved metal and other inorganic contaminants. The two most common carbon adsorption processes are the granular activated carbon (GAC), which is used in packed beds, and the powdered activated carbon (PAC), which is added loosely to wastewater.

Cemented Solids (as a waste matrix) - Sludges or solids (e.g. particulates, etc.) that have been solidified/stabilized with cement or other solidifying agents but do not meet land disposal restriction treatment standards. These wastes may require pretreatment (e.g. crushing/grinding) prior to subsequent land disposal restriction treatment.

Characterization - The determination of waste contents and properties, whether by review of process knowledge or sampling and analysis.

Chemical Fixation - Any waste treatment process that involves reactions between the waste and certain chemicals, and results in solids that encapsulate, immobilize, or otherwise tie up hazardous components in the waste to minimize the leaching of such components and to render the waste nonhazardous and more suitable for disposal.

Chemical Oxidation (CHOXD) - Chemical or electrolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combinations of reagents: (1) hypochlorite (e.g. bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g. Total Organic Carbon can often be used as an indicator parameter for the oxidation) of many organic constituents that cannot be directly analyzed in wastewater residues). Chemical oxidation specifically includes what is commonly referred to as alkaline chlorination.

Chemical Precipitation (PRECP) - Chemical Precipitation of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium

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and/or potassium hydroxides); (3) soda ash (i.e., sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculation, coagulation, or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.

Chemical Reduction (CHRED) - Chemical reduction utilizing the following reducing reagents (or waste reagents) or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium, or alkali salts of sulfites, bisulfites, metabisulfates, and polyethylene glycols (e.g. Total Organic Halogens can often be used as an indicator parameter for the reduction of many halogenated organic constituents that cannot be directly analyzed in wastewater residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.

Cleanup - (1) Actions undertaken during a removal or remedial response to physically remove or treat a hazardous substance that poses a threat or potential threat to human health and welfare, the environment, and/or real and personal property. Sites are considered cleaned up when removal or remedial programs have no further expectation or intention of returning to the site and threats have been mitigated or do not require further action. (2) Actions taken to deal with a release or threat of release of a hazardous substance that could affect humans and/or the environment. The term "cleanup" is sometimes used interchangeably with either remedial action, removal action, response action, or corrective action.

Closure - Operational Closure: Those actions that are taken upon completion of operations to prepare the disposal site or disposal unit for custodial care (e.g., addition of cover, grading, drainage, erosion control).

Closure Final Site : Those actions that are taken as part of a formal decommissioning or remedial action plan, the purpose of which is to achieve long-term stability of the disposal site and to eliminate to the extent practical the need for active maintenance so that only surveillance, monitoring, and minor custodial care are required.

Compliance Agreements - Legally binding agreements between regulators and regulated entities that set standards and schedules for compliance with environmental statutes. Include Consent Order Consent Decree and Compliance Agreements, Federal Facilities Agreements, and Federal Facility Compliance Agreements.

Compressed Gases (as a waste matrix) - Pressurized aerosol cans and gas cylinders of any gas composition. Non-pressurized aerosol cans and gas cylinders would be classified as debris.

Concentration Based Standard - These standards were based on best demonstrated available technology (BDAT). The waste or waste extract or treatment residue must not exceed these concentrations if the waste is to be land disposed.

Contact-Handled Waste (CH Waste) - Waste or waste containers whose external surface dose rate does not exceed 200 mrem per hour at surface of container.

Corrosive/Corrosivity - (1) A solid waste exhibits corrosivity if a sample of the waste is either aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, or it is a liquid and corrodes steel at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55° (130°F). (2) A chemical agent that reacts with the surface of a material causing it to deteriorate or wear away. (3) Identifies waste that must be segregated because of its ability to extract and solubilize toxic contaminants (especially heavy metals) from other waste; identifies waste that requires the use of corrosion-resistant containers for disposal.

Deactivation (DEACT) - The removal of the hazardous characteristics of a waste due to its ignitability, corrosivity, and/or reactivity.

Debris - Materials that are primarily nongeologic in origin such as grass, trees, stumps, and man-made materials such as concrete, clothing, partially buried whole or empty drums, capacitors, and other synthetic manufacturing items, such as liners. (It does not include synthetic organic chemicals, but may include materials contaminated with these chemicals.)

Decommissioning - (1) Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities. (2) Preparations taken for retirement of a nuclear facility from active service, accompanied by the execution of a program to reduce or stabilize radioactive contamination. (3) The process of removing a facility or area from operation and decontaminating and/or disposing of it or placing it in a condition of standby with appropriate controls and safeguards.

Decontamination - The removal of unwanted material (typically radioactive material) from facilities, soils, or equipment by washing, chemical action, mechanical cleaning, or other techniques.

Delist - Use of the petition process to have a waste stream's toxic designation rescinded.

Delisting - According to 40 CFR 260.20 and .22, in order to be exempted from the Resource Conservation and Recovery Act hazardous waste "system," a listed hazardous waste, a mixture of a listed and solid waste, or a derived-from waste must be delisted. Characteristic hazardous wastes never need to be delisted, but can be treated to no longer exhibit the characteristic. A contained-in waste also does not have to be delisted; it only has to "no longer contain" the hazardous waste.

Derived-From Rule - This rule states that any solid waste derived from the treatment, storage, or disposal of a listed RCRA hazardous waste is itself a listed hazardous waste (regardless of the concentration of hazardous constituents). For example, ash and scrubber water from the incineration of a listed waste are hazardous wastes on the basis of the derived-from rule. Solid wastes derived from a characteristic hazardous waste are hazardous wastes only if they exhibit a characteristic.

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Designated Facility - A hazardous or mixed waste treatment, storage, or disposal facility that has received an EPA permit (or facility with interim status) in accordance with the requirements of Parts 270 and 124 of 40 CFR, a permit from a state authorized in accordance with Part 271 of 40 CFR, or that is regulated under §261-6(c)(2) or Subpart F of Part 266 of 40 CFR, and that has been designated on the manifest by the generator pursuant to §262.20.

Disposal - The permanent isolation of waste with no intent of recovery.

Disposal Facility - (1) The land, structures, and equipment used for the disposal of waste. (2) A facility or part of a facility at which waste is intentionally placed into or on the land or water, and at which waste will remain after closure.

Effluent - (1) Airborne and liquid wastes discharged from a DOE site or facility following such engineering waste treatment and all effluent controls, including on-site retention and decay, as may be provided. This term does not include solid wastes, wastes for shipment off-site, wastes that are contained (e.g., underground nuclear test debris) or stored (e.g., in tanks) or wastes that are to remain on-site through treatment or disposal. (2) Wastewater (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall. May refer to wastes discharged into surface waters.

Elemental Lead (Activated and Non-Activated) (as a waste matrix) - Both surface contaminated and activated elemental lead. Activated lead includes lead from accelerators or other neutron sources that may result in irradiation. Surface contaminated lead materials include bricks, counterweights, shipping casks, and other shielding materials.

Environmental Impact Statement (EIS) - (1) A document prepared in accordance with the requirements of §102(2)(C) of National Environmental Policy Act (NEPA). (2) A tool for decision making; it describes the positive and negative effects of the undertaking and lists alternative actions. The draft document (DEIS) is prepared by the EPA, or under EPA guidance, and attempts to identify and analyze the environmental impacts of a proposed action and feasible alternatives, and is circulated for public comment prior to preparation of the final environmental impact statement.

Environmental Restoration (ER) - Measures taken to clean up and stabilize or restore a site to pre-violation conditions that has been contaminated with hazardous substances during past production or disposal activities.

Environmental Restoration Waste - Waste generated by environmental restoration program activities.

Existing Facility - (1) Any equipment, structure, system, process or activity that fulfills a specific purpose. Examples include accelerators, storage areas, fusion research devices, nuclear reactors, production or processing plants, coal conversion plants, magnetohydrodynamics experiments, windmills, radioactive waste disposal systems and burial grounds, testing laboratories, research laboratories, transportation activities, and accommodations for analytical examinations of

irradiated and unirradiated components. (2) Buildings and other structures; their functional systems and equipment, including site development features such as landscaping, roads, walks and parking areas; outside lighting and communications systems; central utility plants; utilities supply and distribution systems; and other physical plant features. (3)(a) Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (b) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

Facilities - Buildings and other structures; their functional systems and equipment, including site development features such as landscaping, roads, walks and parking areas; outside lighting and communications systems; central utility plants; utilities supply and distribution systems; and other physical plant features.

Federal Facility Compliance Act (FFCAct) - On October 6, 1992, the President of the United States signed the Federal Facility Compliance Act (FFCAct) into law. The FFCAct amends the Solid Waste Disposal Act, which was previously amended byt he Resource Conservation and Recovery Act (RCRA). The FFCAact subjects the Department of Energy (DOE) to civil fines and penalties for violations of RCRA or State hazardous waste requirements. However, DOE is not subject to fines and penalties for violations of the land disposal restrictions (LDR) storage prohibition for mixed waste (regulations prohibit storage of hazardous waste for more than one year) for the next three years if it meets certain requirements.

Federal Facility Compliance Agreement (FFCA) - An agreement between the DOE and a host state with respect to how and/or when some waste-related activity will be conducted to achieve compliance with applicable regulations in a timely manner. A major driver or constraint on activities that a particular site must undertake for waste operations.

Filtration - Removal/separation of particles from a mixture of fluid and particles by a medium that permits the flow of the fluid but retains the particles. Usually, the larger the particles, the easier they are to remove from the fluid.

Free Liquid - Liquid that is not absorbed into host material such that it could readily separate from the solid portion of a waste under ambient temperature and pressure, and spill or drain from its container.

Generator - Refers to current or previously operated facilities of the DOE that have produced or are producing waste.

Hazardous Substance - (1)(a) Any substance designated pursuant to §311(b)(2)(A) of the FWPCA; (b) any element, compound, mixture, solution, or substance designed pursuant to §102 of Comprehensive Environmental Response Compensation and Liability Act (CERCLA); (c) any hazardous waste having the characteristics identified under or listed pursuant to §3002 of the SWDA; (d) any toxic

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pollutant listed under §307(a) of the FWPCA; (e) any hazardous air pollutant listed under §112 of the CAA; and (f) any imminently hazardous chemical substance or mixture with respect to which the Administrator of EPA has taken action pursuant to §7 of Toxic Substance Control Act (TSCA). (2) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive, or chemically reactive. Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if otherwise emitted into the environment. (3) §101(14) of CERCLA, as amended, defines "hazardous substance" chiefly by reference to other environmental statutes, such as the SWDA, FWPCA, CAA, and Toxic Substance Control Act (TSCA). The term excludes petroleum, crude oil or any fraction thereof, natural gas, natural gas liquids, or synthetic gas usable for fuel. Under the Act, OERR also may include other substances that it specifically designates as "hazardous".

Hazardous Waste (HW) - (1) Those wastes that are designated hazardous by EPA [or state] Regulations. (2) Byproducts of production or operation that can pose a potential hazard to human health or the environment when improperly managed and that possess at least one of four characteristics (ignitability, corrosivity, reactivity, toxicity), or that appear on special EPA lists. (3) A solid waste or combination of solid waste, that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may (a) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible illness; or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. (4) Those wastes listed by EPA or meeting characteristics specified by EPA in their criteria pursuant to the Resource Conservation and Recovery Act (RCRA). Disposal treatment or storage of hazardous wastes can only take place in a site or facility issued a permit by EPA or a state.

Heterogeneous Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 land disposal restriction (LDR) debris rule making (57 FR 37194, 8/18/92). This category includes debris that do not meet the criteria for categorization as either Organic Debris or Inorganic Debris. This category also includes mixtures of debris and solid progress residues or soil, provided debris comprises no more than 50 percent of the waste.

High-Level Radioactive Waste (HLW) - (1) The highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid waste derived from the liquid, that contains a combination of transuranic (TRU) waste and fission products in concentrations requiring permanent isolation. (2)(a) Irradiated reactor fuel, (b) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and (c) solids into which such liquid wastes have been converted. (3) As defined by the NWPA, high-level waste is (a) the highly radioactive material resulting from the reprocessing of spent nuclear fuel, including the liquid waste produced directly in reprocessing and any solid material derived from such liquid waste that contains fission products in sufficient

concentrations; and (b) other highly radioactive material that the NRC, consistent with existing law, determines by rule to require permanent isolation. (4) Waste generated in the fuel of a nuclear reactor, or waste found at nuclear reactors or nuclear fuel reprocessing plants. These wastes are a serious threat to anyone who comes near them without shielding.

High Pressure Washing - High pressure washing at the Fernald Environmental Management Project (FEMP) is a means of decontaminating materials and equipment on-site. High pressure washing is accomplished through the application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants and detergents to remove contaminated debris surface layers.

Ignitability - A waste property describing liquid waste with a flash point lower than 140°F or is an oxidizer or ignitable compressed liquid per Department of Transportation Regulations or is a solid and ignites due to friction and burns vigorously.

Immobilization - Treatment of waste through macroencapsulation, microencapsulation, or sealing to reduce surface exposure to potential leaching media or to reduce the leachability of the hazardous constituents.

Immobilized Materials - Materials that are fixed in a matrix.

Incineration - (1) The controlled process by which combustible solid, liquid, or gaseous wastes are burned and changed into noncombustible gases and solid ash. (2) A treatment technology using combustion to destroy organic constituents and reduce the volume of wastes.

Inorganic Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 land disposal restriction debris rule making (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90 percent inorganic debris. Example inorganic debris materials are: metal shapes (e.g. equipment, scrap), metal turnings, glass (e.g. light tubes, leaded glass, etc.), ceramic materials, concrete, rocks.

Inorganic Sludges/Particulates (as a waste matrix) - Solid process residues with a predominately inorganic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50 percent (based on land disposal restriction debris rule). The solids in this category may be contaminated with, or contain organics, such that thermal treatment is required. However, the matrices are predominantly inorganic such that thermal treatment would result in a high residue. Example waste materials in this category are: sludges, ashes, sand blasting media, absorbed aqueous or organic liquids (or inorganic particulate absorbents), ion exchange resins, and paint chips/residues.

Lab Packs with Metals and Lab Packs without Metals (as waste matrices) - Wastes with one or more small containers of free liquids or solids surrounded by solid materials (virgin or waste materials) within a larger container. These categories include scintillation fluids that are packaged with vials. The difference between wastes within these categories is contaminants. Lab packed

wastes contaminated with TC metals are categorized as "Lab packs with Metals". Lab packed wastes that are not contaminated with TC metals are categorized as "Lab packs without Metals".

Land Disposal Restrictions (LDRs) - A Resource Conservation and Recovery Act (RCRA) program that restricts land disposal of RCRA hazardous wastes and requires treatment to promulgated treatment standards.

Leachate - (1) Any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste. (2) A contaminated liquid resulting when water percolates, or trickles, through waste materials and collects components of those wastes.

Legacy Waste - The Legacy Waste population consists largely of wastes generated as part of former production operations including maintenance activities and utility operations.

Listed Waste - Wastes specifically listed as hazardous under Resource Conservation and Recovery Act (RCRA).

Liquid-Liquid Extraction (LLEXT) - Extraction (often referred to as solvent extraction) of organics from liquid wastes into an immiscible solvent for which the hazardous constituents have a greater solvent affinity, resulting in an extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery/reuse and a raffinate (extracted liquid waste) proportionately low in organics that must undergo further treatment as specified in the standard.

Low-Level Radioactive Waste (LLW) - (1) Waste that contains radioactivity and is not classified as high-level waste, Transuranic (TRU) waste, or spent nuclear fuel, or the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. 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 TRU is less than 100 Nci/g.

Macroencapsulation (MACRO) - Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media. Macroencapsulation specifically does not include any material that would be classified as a tank or container according to 40 CFR 260.10.

Metals Recovery (RMETL) - Recovery of metals or inorganics utilizes one or more of the following direct physical/removal technologies: (1) ion exchange; (2) resin or solid (i.e., zeolites) adsorption; (3) reverse osmosis; (4) chelation/solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (i.e. crystallization). Note: This does not preclude the use of other physical phase separation or concentration techniques such as decantation, filtration, (including ultrafiltration) and centrifugation, when use in conjunction with the above listed recovery technologies.

Mixed Low Level Waste (MLLW) - Low level waste that also includes hazardous constituents as identified in 40 CFR 261, Subparts C and D.

Mixed TRU (MTRU) Waste - Transuranic (TRU) waste that also includes hazardous constituents as identified in 40 CFR 261, Subparts C and D.

Mixed Waste - (1) Radioactive waste (as defined by the Atomic Energy Act) that contains material listed as hazardous waste in Subpart C of 40 CFR 261 or that exhibits any of the hazardous waste characteristics identified in Subpart C of 40 CFR 261. (2) Waste that contains both radioactive and hazardous components, as defined by the Atomic Energy Act (AEA) and the Resource Conservation and Recovery Act (RCRA). The term "radioactive component" refers only to the actual radionuclides dispersed or suspended in the waste substance.

Mixture Rule - Under the mixture rule, when any solid waste and a listed hazardous waste are mixed, the entire mixture is a listed hazardous waste. Mixtures of solid wastes and characteristic hazardous wastes are hazardous only if the mixture exhibits a characteristic. (40 CFR 261.3(a)(2))

Neutralization (NEUTR) - use of the following reagents (or waste reagents) or combinations of reagents: (1) acids; (2) bases; or (3) water (including waste waters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals.

On-site - Within a single research or production site of the DOE weapons complex; e.g., LANL is a site, as is Idaho National Engineering Laboratory (INEL), SNL, etc.

On-site Facility - A hazardous waste treatment, storage, or disposal area that is located on the generating site.

Operable Unit (OU) - (1) A discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site; (2) A discrete portion of a site consisting of one to many release sites considered together for assessment and cleanup activities. The primary criteria for placement of release sites into an operable unit include geographic proximity, similarity of waste characteristics and site type, and the possibilities for economy of scale. (3) An overall response action that by itself eliminates or mitigates a release, a threat of a release, or an exposure pathway.

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Organic Debris (as a waste matrix) - Wastes with matrices meeting the definition of debris per the 8/18/92 land disposal restriction (LDR) debris rule making (57 FR 37194, 8/18/92). More specifically this category is defined for wastes that contain >90 percent organic debris. Example organic debris materials are: rags (including "solvent rags") plastic/rubber, paper, wood, and glovebox gloves (including lead-lined), animal carcasses.

Organic Liquids (as a waste matrix) - Liquids/slurries with a total organic carbon (TOC) content greater than or equal to 1 percent. Slurries must be pumpable (e.g. suspended/settled solids can be up to approximately 35-40 percent). Only liquids/slurries packaged/stored in bulk form (i.e., tank stored, drummed bulk free liquids) are included in this category. Liquids packaged in lab pack-type configuration are categorized as lab packs.

Organic Sludges/Particulates (as a waste matrix) - Solid process residues with an organic matrix. Solid process residues are solids that do not fit the definition of debris. Typically, these solids are sludge or particulate materials. Waste in this category may also contain some debris materials provided the amount of debris is less than 50 percent (based on Land Disposal Restriction (LDR) debris rule). As opposed to Inorganic Sludges/Particulates, wastes in this category would not leave a large residue when thermally treated. Example waste materials in this category are: organic sludges, (e.g. sewage sludges) activated carbon, organic resins, and absorbed liquids (organic particulate absorbents).

Package - Package means for radioactive materials, the packaging together with its radioactive contents.

Packaging - Packaging means for radioactive materials, the assembly of components necessary to ensure compliance with the packaging requirements with Department of Transportation (DOT). It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulators, radiation shielding, and devices for cooling or absorbing mechanical shocks. The conveyance, tie-down system, and auxiliary equipment may sometimes be designed as part of the packaging.

pH - Used to describe the hydrogen-ion activity of a system.

Pollutant or Contaminant - Includes, but is not limited to, any element, substance, compound, or mixture, including disease-causing agents, that after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring; except that the term "pollutant or contaminant" shall not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of paragraph (14) and shall not include natural gas, liquefied natural gas, or synthetic gas of pipeline quality (or mixtures of natural gas and such synthetic gas).

Precipitation (PRECP) -- Treatment of metals and other inorganics to form insoluble precipitates of oxides, hydrides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. The following reagents (or waste reagents) are typically used alone or in combination: (1) Lime (i.e., containing oxides and/or hydroxides of calcium and/or magnesium; (2) caustic (i.e., sodium and/or potassium hydroxides; (3) soda ash (i.e. sodium carbonate); (4) sodium sulfide; (5) ferric sulfate or ferric chloride; (6) alum; or (7) sodium sulfate. Additional flocculating, coagulating or similar reagents/processes that enhance sludge dewatering characteristics are not precluded from use.

Preferred Option - Specific technology(s) and facility (s) used to treat mixed waste.

Pretreatment Processes - Processes (e.g., shredding, grinding, physical separation, etc.) that make the waste amenable to the treatment process that ultimately destroys, removes, or immobilizes the hazardous contaminants or characteristics.

Project - Two or more planned activities or tasks that when performed, lead to a common goal. A project has a single starting and a single ending point. A project is the mechanism used for managing a specific waste type through a treatment process (treatment train). All Fernald Environmental Management Project (FEMP) waste is assigned to a project.

Projectize - The operation of sorting, organizing, and assigning waste to a project by evaluating of the waste against the parameters of each possible project.

Radiation - (1) Ionizing radiation that includes any or all of the following: gamma rays and x-rays, alpha and beta particles, high-speed electrons, neutrons, high-speed protons, and other atomic particles. This definition does not include nonionizing radiations, such as sound, microwave, radiowave or visible, infrared, or ultraviolet light. (2) Refers to the process of emitting energy in the form of rays or particles that are thrown off by disintegrating atoms. The rays or particles emitted may consist of alpha, beta, or gamma radiation.

Radioactive Mixed Waste - (See Mixed Waste)

Radioactive Waste - (1) Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act (AEA) of 1954, as amended, and of negligible economic value considering costs of recovery. (2) A solid, liquid, or gaseous material of negligible economic value that contains radionuclides in excess of threshold quantities. Does not include material contaminated by radionuclides from nuclear weapons testing.

Radioactivity - (1) The spontaneous nuclear decay of a material with a corresponding release of energy in the form of particles and/or electromagnetic radiation. (2) The property or characteristic of radioactive material to spontaneously "disintegrate" with the emission of energy in the form of radiation. The unit of radioactivity is the curie (or becquerel).

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Radionuclide - (1) A species of atom having an unstable nucleus, that is subject to spontaneous decay. (2) Any nuclide that emits radiation. A nuclide is a species of atom characterized by the constitution of its nucleus and hence by the number of protons, the number of neutrons, and the energy content.

RCRA Closure - Means the act of securing a Hazardous Waste Management Facility pursuant to the requirements of 40 CFR, Part 264.

Reactive Metals (as a waste matrix) - Bulk reactive metals and equipment contaminated with reactive metals. Bulk reactive metals include sodium, alkali metal alloys, aluminum fines, uranium fines, zirconium fines, and other pyrophoric materials. Contaminated equipment includes piping, pumps, and other materials with a residue or reactive metals that cannot be separated from the equipment medium.

Reactivity - (1) A characteristic of a waste that is explosive, reacts violently with water, or generates toxic gases when exposed to water or liquids that are moderately acidic or alkaline. (2) An EPA characterization of hazardous waste that identifies waste that under routine management, presents a hazard because of instability or extreme reactivity.

Recovery or Reuse of Compressed Gases (RCGAS) - Recovery or reuse of compressed gases includes techniques such as reprocessing of the gases for reuse or resale; filtering or adsorption of impurities; remixing for direct reuse or resale; and use of the gas as a fuel source.

Recovery of Organics (RORGS) - Recovery of organics utilizing one or more of the following technologies: (1) Distillation; (2) thin film evaporation; (3) steam stripping; (4) carbon adsorption; (5) critical fluid extraction; (6) liquid-liquid extraction; (7) precipitation/crystallization (including freeze crystallization); or (8) chemical phase separation techniques (i.e., addition of acids, bases, demulsifiers, or similar chemicals); - Note: This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, when used in conjunction with the above listed recovery technologies.

Remedial Action (RA) - (1) Activities conducted at DOE facilities to reduce potential risks to people and/or harm to the environment from radioactive and/or hazardous substance contamination. (2) Those actions consistent with permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. (3) The term includes, but is not limited to, such actions at the location of the release as storage, confinement, perimeter protection, clay cover, neutralization, cleanup of released hazardous substances or contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative water supplies, and any monitoring reasonably required to ensure that such actions protect the public health and welfare and the environment. The term includes the costs of permanent relocation of residents

and businesses and community facilities where the President determines that, alone or in combination with other measures, such relocation is more cost-effective than, and environmentally preferable to, the transportation, storage, treatment, destruction, or secured disposition off-site of such hazardous substances, or may otherwise be necessary to protect the public health or welfare. The term does not include off-site transport of hazardous substances or contaminated materials unless the President determines that such actions: are more cost-effective than other remedial actions; will create new capacity to manage in compliance with Subtitle C of the SWDA, hazardous substances in addition to those located at the affected facility; or are necessary to protect public health or welfare or the environment from a present or potential risk that may be created by further exposure to the continued presence of such substances or materials [as defined by §101(24) of CERCLA].

Remote-Handled Waste (RH Waste) - (1) Packaged waste with an external surface dose rate that exceeds 200 mrem per hour.

Remote Handling - The handling of wastes from a distance so as to protect human operators from unnecessary exposure.

Resource Conservation and Recovery Act (RCRA) Part A Permit - The first part of a Resource Conservation and Recovery Act permit application that identifies treatment, storage, and disposal units within a to-be-permitted facility.

Resource Conservation and Recovery Act (RCRA) Permit, Part B - The detailed second part of a RCRA permit application that describes waste to be managed, and waste quantities, and facilities.

Screening - A system or apparatus designed to prevent particles or liquids in one area from mixing or reacting with another.

Segregation - The separation of waste materials to facilitate handling, storage, treatment, transportation, and/or disposal.

Shredding - Any system that cuts or tears material into smaller pieces.

Site - (1) A geographic entity comprising land, buildings, and other facilities required to perform program objectives. Generally a site has, organizationally, all of the required facilities for management functions. That is, it is not a satellite of some other site. (2) For the purposes of the ERWM Five-Year Plan, sites are lands, installations, and/or facilities for which DOE has or shares responsibility for ERWM activities. (3) An area or a location at which hazardous substances have been stored, treated, disposed of, placed, or otherwise come to be located. This includes all contiguous land, structures, other appurtenances, and improvements on the land used for treatment, storage, or disposal of hazardous substances. A site may consist of several treatment, storage, or disposal facilities (e.g., impoundments, containers, buildings, or equipment).

Site Characterization - The program of exploration and research, both in the laboratory and in the field, undertaken to establish the geologic conditions and the ranges of those parameters of a particular site relevant to the procedures

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under this part. Site characterization includes borings, surface excavations, excavation of exploratory shafts, limited subsurface lateral excavations and borings and geophysical testing.

Site Closure and Stabilization - Those actions that are taken upon completion of operations that prepare the disposal site for custodial care and that ensure that the disposal site will remain stable and will not need ongoing active maintenance.

Soil (as a waste matrix) - Soils contaminated with hazardous constituents and radioactivity that are stored in waste containers. Includes soils contaminated with organics, inorganics, or both.

Stabilization (STABL) - A broad class of treatment processes that immobilize hazardous constituents in a waste. For treatment of metals in low-level mixed wastes and for Transuranic (TRU) wastes containing low-level radioactive components, stabilization technologies will reduce the leachability of the hazardous metal constituents (regardless of whether the metals are radioactive) in nonwastewater matrices.

Steam Stripping - A continuous process conducted in a unit that consists of a boiler, a stripping column, a condenser, and a collection tank. Steam stripping of organics from liquid wastes utilizes direct application of steam to the wastes operated such that liquid and vapor flow rates, as well as, temperature and pressure ranges have been optimized, monitored and maintained. These operating parameters are dependent upon the design parameters of the unit such as, the number of separation stages and the internal column design. Thus, resulting in a condensed extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery/reuse and an extracted wastewater that must undergo further treatment as specified in the standard.

Storage - (1) Temporary holding of waste pending treatment or disposal. Storage methods include containers, tanks, waste piles, and surface impoundments. (2) The containment of hazardous waste, either on a temporary basis or for a period of years, in such a manner as not to constitute disposal of such hazardous waste. (3) Retrievable retention of waste pending disposal.

Storage Facility - Land area, structures, and equipment used for the storage of waste.

Storage Unit - A discrete part of the storage facility in which waste is stored.

Technology Based Standard - Specified technology or an equivalent treatment method approved by the Administrator of EPA and must be achieved to land disposal.

Thermal Treatment - The treatment of hazardous waste in a device that uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, pyrolysis, calcination, wet air oxidation, and microwave discharge.

Transuranic Waste (TRU) - This core definition appears in modified form in various relevant documents: Waste containing alpha-emitting radionuclides with an atomic number greater than 92 and half-lives greater than 20 years, at concentrations greater than 100 Nci/g of waste.

Treatability Group - Based on the radioactive characteristics, hazardous components, and physical/chemical matrices as discussed DOE has grouped its wastes to reflect salient treatment considerations for each waste stream. These "treatability groups" are used to relate waste streams and waste quantities to treatment facilities and technology development needs.

Treatment - Any method, technique, or process designed to change the physical or chemical character of waste to render it less hazardous, safer to transport, store or dispose of, or reduce in volume.

Treatment Facility - The specific area of land, structures, and equipment dedicated to waste treatment and related activities.

Treatment, Storage, and Disposal (TSD) Facility - Any building, structure, or installation where a radioactive or hazardous substance is treated, stored, or disposed.

Treatment System - The equipment and processes used for similar waste types at treatment facilities. A treatment system is the unit treatment operation or sequence of unit treatment operations carried out on all wastes that enter the system.

Vitrification - (1) A waste treatment process in which calcined or another decomposed form of waste is mixed with glass and fused into a solid mass. (2) The process of immobilizing waste that produces a glass-like solid that permanently captures the radioactive materials.

Volatile Organic Compound (VOC) - An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature.

Waste Acceptance Criteria (WAC) - The criteria used to determine if waste and waste packages are acceptable for treatment, storage, transportation and disposal purposes.

Waste Characterization - Activities to determine the extent and nature of the waste.

Waste Form - The physical and/or chemical form of the waste such as sludges, combustibles, metals, etc.

Waste Isolation Pilot Plant (WIPP) - (1) The project authorized under §213 of the DOE National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164; 93 Stat. 1259, 1265) to demonstrate the safe disposal of radioactive waste materials generated by atomic energy defense activities. (2) A research and development facility, located near Carlsbad, New Mexico, to be used for demonstrating the safe disposal of transuranic (TRU) wastes from DOE activities.

Waste Management - The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.

Waste Minimization - (1) An action that effectively avoids or reduces the generation of waste by source reduction, improving energy usage, or by recycling. This action is consistent with the general goal of minimizing present and future threats to human health, safety, and the environment. (2) The reduction, to the extent feasible, of hazardous waste that is generated prior to treatment, storage, or disposal of the waste. Waste minimization includes any source reduction or recycling activity that results in either (a) reduction of total volume of hazardous waste, (b) reduction of toxicity of hazardous waste or (c) both.

Waste Segregation - The separation of waste materials before the package (or repackage process to facilitate handling, storage, treatment, transportation, and/or disposal.

Waste Stream - Waste materials with specific definable characteristics that remain the same throughout the life of the process generating the waste stream. A waste stream is produced by a single process or sub-process; however, that process or sub-process may be one that combines two or more input waste streams together to produce a single output waste stream.

Wastewaters - Wastes that contain less than 1 percent by weight total organic carbon (TOC) and less than 1 percent by weight total suspended solids (TSS) with the following exception: F001, F002, F003, F004, F005, wastewaters are solvent-water mixtures that contain less than 1 percent by weight TOC or less than 1 percent by weight total F001, F002, F003, F004, F005 solvent constituents listed in §286.41, Table CCWE (Constituent Concentrations in Waste Extract).

Water Wash/Separating - Water wash/separating contaminants from debris and equipment is achieved through application of water or steam sprays providing sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers. This could be completed through washing the waste with detergents in machines which agitate and remove contaminants from the waste material.

Wet Air Oxidation (WETOX) - A treatment technology applicable to wastewaters containing organics and oxidizable inorganics such as cyanide. The basic principle of operation for wet air oxidation is that the enhanced solubility of oxygen in water at high temperatures and pressures aid in the oxidation of organics.

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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

DRAFT SITE TREATMENT PLAN

PLAN VOLUME

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DRAFT SITE TREATMENT PLAN
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FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
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1.0 PURPOSE AND SCOPE OF THE PLAN VOLUME

For each facility at which the Department of Energy (DOE) generates or stores mixed waste, section 3021(b) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. 6721, as amended by section 105(a) of the Federal Facility Compliance Act ((P.L. 102-386) (the Act)), requires DOE to prepare a plan for developing treatment capacities and technologies to treat mixed wastes to the standards promulgated by the U.S. Environmental Protection Agency (USEPA) pursuant to section 3004(m) of RCRA. Upon submission of a plan to the appropriate regulatory agency, the Act requires the recipient agency to solicit and consider public comments, and approve, approve with modification, or disapprove the plan within six months. The agency is to consult with USEPA and any State in which a facility affected by the plan is located. Upon approval of a plan, the agency shall issue an Order requiring compliance with the approved plan.

DOE has prepared this Draft Site Treatment Plan (Draft Plan) for mixed waste at the FEMP in accordance with the schedule published in the April 6, 1993, Federal Register notice for submitting the site treatment plans for facilities at which the Department generates or stores mixed waste (58 FR 17875). The purpose of this Draft Plan is to identify the currently preferred options for treating the mixed waste at the FEMP or for developing treatment technologies where technologies do not exist or need modification. The Draft Plan reflects the site-specific preferred options, developed with the State's input and based on existing available information. The options reflect the "bottoms-up" approach and have not been completely evaluated for impacts on other DOE sites and impacts to the overall DOE program. Therefore, changes in the preferred option and associated schedules are possible between the Draft Plan, the Final Proposed Plan, and final approval and issuance of the Order as evaluation of DOE-wide impacts and State-to-State discussions progress.

To the extent possible, the Draft Plan identifies specific treatment facilities for treating the mixed waste and proposes schedules as set forth in the FFCAct. When not possible, schedules for alternative activities such as waste characterization and technology assessment are provided as appropriate. All schedule information presented is preliminary and is subject to change. For new facilities, the schedule is heavily dependent upon decisions made during the design phase and is contingent on funding availability. Assumptions and professional judgments related to the type of treatment technology, location of the

treatment facility, contracting mechanism, project approval process, cost, etc. were used to develop the estimated schedule. Any variation from these assumptions will impact the estimated schedule. In addition, cost data used in developing options and schedules are planning estimates only and do not reflect a commitment of budgetary resources.

Emerging or new technologies not yet considered may be identified in the future that provide opportunities to manage waste more safely, effectively, and at lower cost than the current technologies identified in the Draft Plan. Working closely with regulators and other interested parties during the implementation of the Draft Plan, DOE will continue to evaluate and develop technologies that offer potential advantages in the areas of public acceptance, risk abatement, and performance and life cycle cost. Should more promising technologies be identified, DOE may request a modification of its treatment plan in accordance with provisions of the final Site Treatment Plan and/or the Order.

The Draft Site Treatment Plan is comprised of two volumes: this Compliance Plan Volume and the Background Volume. The Compliance Plan Volume proposes overall schedules with target dates for achieving compliance with the land disposal restrictions (LDR) and procedures for converting these target dates into milestones to be enforced under the Order. The more detailed discussion of the options contained in the Background Volume is provided for informational purposes only.

When finalized, the Site Treatment Plan will satisfy DOE's obligation under the Act to develop and submit a treatment plan for the FEMP. In addition, inasmuch as the Plan is intended to provide DOE's plans for achieving compliance with the LDR requirements of 3004(j) of RCRA at the FEMP, it is understood that no further civil enforcement action, administrative or judicial, will be initiated for violations of RCRA section 3004(j) arising from storage of mixed waste covered by the approved Plan for so long as DOE is in compliance with the requirements of the approved Plan and the Order issued which requires compliance with the Plan. This will include all mixed waste and suspect mixed waste in storage at the FEMP and identified in the approved Plan, as well as future mixed waste generated and incorporated into the Plan in accordance with the provisions of the Plan, and any mixed waste received from off-site which is being accumulated to facilitate the treatment of such waste at the FEMP and which is covered in another site's treatment plan approved by the appropriate regulatory agency after consultation with the State of Ohio.

2.0 IMPLEMENTATION OF PLAN AND ADMINISTRATIVE PROVISIONS

Section 2.0 describes certain provisions DOE proposes to include in the Final Site Treatment Plan for the FEMP to facilitate implementation of the Plan. This Draft Plan provides a general description of what these provisions would be intended to achieve and the approach DOE proposes; it is expected that the specific language to be used in the Final Plan

and Order, as well as specific milestones, will be developed in conjunction with the State of Ohio. As discussions on the Final Plan and Order progress, the Plan for some sites may eventually be expanded to address other administrative provisions or, alternatively, some or all of these provisions may be incorporated into the Order.

2.1 Approach to Setting Milestones

This Section of the Final Plan would establish a process for committing to milestones for specific activities based on the target dates in the schedules provided in Sections 3.0 through 5.0 of the Compliance Plan Volume. Milestones would be defined as fixed, enforceable near-term dates on which a specified activity must be completed. Target dates would mark the anticipated completion of longer-term tasks and would not be enforceable until converted to milestones.

Activities to be proposed as milestones and target dates would generally be the activities identified in the Act for wastes with existing technology, for waste for which technology does not exist or needs adaptation, or for providing information when radionuclide separation is involved. However, other closely related activities, such as completion of design or characterization activities, may be proposed as milestones and target dates as well.

Target dates would be converted into milestones as the Plan is implemented according to procedures established in Section 2.0. DOE proposes establishing milestones for long-term projects such as those that will be covered by the Plan on a gradual basis because of such projects are subject to significant uncertainties. This would allow DOE and the OEPA to establish commitments as technical and funding information becomes known and would provide the OEPA, with input from the public as appropriate, to play a significant role in establishing work priorities at the site. Possible approaches to establishing milestones include:

- Establishing milestones on an annual basis for near-term activities. Milestones would be proposed for approval for activities that will take place in the ensuing one year period, with target dates covering longer-term activities.

- Establishing milestones in a phased approach that correspond to the activities identified in the Act. A milestone would be established for the current phase of each project (e.g., initiating construction of a treatment facility), and the target date for the next phase (e.g., commencing facility testing) would be converted to a milestone when the previous phase was achieved and when there is a good technical understanding of the work involved in carrying out the next phase.

For mixed waste to be shipped off-site, the final milestone and target date associated with the wastes would be the date of shipment. Other milestones and target dates for on-site activities related to preparing wastes for shipment could be proposed. When the intended treatment site is a DOE site, the Section would recognize that the development and availability of such off-site capacity is pursuant to the Site Treatment Plan and Order or other enforceable agreement at that site.

The Section would reference procedures for setting new milestones and for modifying milestones and target dates when necessary. Generally, where practical new milestones and changes to target dates would be achieved through Section 2.2, "Annual Site Treatment Plan Update". Modifications to current milestones would be governed by procedures in Section 2.5 "Modifications/Extensions or Revisions to the Plan".

2.2 Update of the Plan

This Section of the Final Plan would provide for submission of an Annual Site Treatment Plan Update intended to communicate information on progress in implementing the Plan, to provide a mechanism for establishing new milestones, amend wastes covered by the Plan, and to update the Plan, as well as proposing revisions to the Plan when necessary. These latter actions may be accomplished through other mechanisms as described in other Sections of this Plan, but the Annual Update provides a coordinated mechanism to effect such changes on a routine basis. DOE proposes that all sites with a Site Treatment Plans provide Annual Updates in the same timeframe to facilitate necessary site and State interactions and to facilitate tracking progress across the DOE complex in developing treatment capacity and treating mixed waste.

The Annual Update would amend the Background Volume as necessary, identifying changes to mixed wastes covered by the Plan, including volumes; new waste streams and waste streams no longer covered by the Plan; and progress on activities undertaken to carry out the Plan.

The Annual Update would also update the Compliance Plan Volume. It would contain proposals for new milestones, identify any changes to target dates, and propose revisions to the Plan in accordance with Section 2.5, "Modifications/Extensions or Revisions to the Plan."

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The Annual Update would be submitted to the OEPA for review and comment or approval, as appropriate, and made publicly available as defined in this Section and in accordance with the procedures in 2.8, "Submittal, Review and Approval of Deliverables". After the appropriate procedures are followed, the Compliance Plan Volume would be considered amended.

It is intended that the Annual Update be done in a way that minimizes unnecessary paperwork to the extent practical through page changes, etc. If there are no changes that require updates to the Compliance Plan and Background Volumes in a given year, a letter notifying the OEPA to that effect could be provided as an Annual Update.

2.3 Inclusion of New Waste Streams

This Section of the Final Plan would establish procedures for incorporating newly identified and newly generated or stored waste streams into the Site Treatment Plan and for developing a plan and schedules for providing treatment capacity.

It would establish procedures for notifying the OEPA of a new waste stream as soon as possible. The notification would describe the waste code, volume, current and expected generation rate, and technology needs to the extent possible and would include the waste as a covered waste.

The next Annual Update would incorporate the new waste streams and propose a plan for treatment and associated schedules where possible, or schedules for developing a treatment plan as required by the Act if necessary.

2.4 Duration of the Plan and Deletion of Wastes

This Section of the Final Plan would establish that the approved Plan will terminate when the site's mixed waste, regardless of the time it was generated, is in compliance with the storage prohibition in RCRA 3004(j). This will occur: 1) when there is no longer any mixed waste stored or generated at the site that does not meet land disposal restriction requirements, or 2) when the mixed waste currently being stored or generated at the site, or that will be stored or generated, is being stored solely for the purposes of accumulating sufficient quantities as are necessary to facilitate proper treatment, recovery, or disposal.

Similarly, it would also establish that a specific waste would be deleted from the Plan when the waste is no longer being stored or generated at the site, or when the waste meets land disposal restriction standards or is being accumulated solely for the purposes of facilitating proper treatment, recovery, or disposal. This could occur, for example, when the last scheduled milestone

under the Site Treatment Plan for treating the waste is completed; when the waste is shipped off-site, or when the characterization of the waste demonstrates it meets RCRA land disposal standards.

The Section would allow DOE and the OEPA to agree to terminate the Plan or to keep the Plan in effect, e.g., in anticipation of waste to be generated in the future, for reasons other than those provided above.

The Section would provide for notification of the OEPA and other procedures as appropriate for terminating the Plan and for deleting waste streams.

2.5 Delays/Modifications

This Section of the Final Plan would establish procedures to enable DOE to seek adjustments to milestones when events cause or may cause delays, and would define the circumstances which justify a delay. It would require DOE to notify the OEPA, provide an explanation for the delay, and set procedures for reviewing and approving/disapproving alternative milestones.

It would also define and establish procedures for those revisions to the Plan that would require the OEPA to follow procedures in Section 3021(b)(2) and (3) of RCRA, as amended by the Act, including providing the proposed revision to the public and consulting with other affected States and USEPA. The Annual Update described in Section 2.2 would generally be used to propose and approve a revision, unless the revision would become effective before it could be addressed in the regularly scheduled Annual Update.

DOE proposes that all Site Treatment Plans consistently define what constitutes a "revision" to the Plan that is subject to Sections 3021(b)(2) and (3) of the Act, since such a revision may often require the involvement of other affected States. Revisions would include addition of treatment capacity, technology development or use of radionuclide separation not previously included in the Compliance Plan Volume of the Site Treatment Plan or extensions to milestones for a period greater than one year. Inclusion of new waste streams would not constitute a revision but may result in a revision if inclusion of the new waste results in a change to the Site Treatment Plan that meets one of the above criteria. Other types of modifications to the Site Treatment Plan such as milestone changes of less than one year, although not a "revision," would require approval as described in Section 2.8.

2.6 Funding Considerations

This Section would describe DOE's obligations to seek the funding necessary to accomplish the activities in the Final Site Treatment Plan. It would also confirm DOE's authority over its budget and funding level submissions and its responsibilities under the Anti-Deficiency Act, 31 U.S.C. Section 1341, as amended.

Cost Estimates for Options Evaluated

Information on options evaluation and cost projections are located in Appendix A.

2.7 Disputes

This Section would provide procedures to address disputes concerning scheduling under Section 2.1, Modifications/Extensions or Revisions to the Plan under Section 2.5, Review and Submittal of Deliverables in Section 2.8, and other circumstances agreed to by DOE and OEPA. The Section would establish timeframes to resolve a dispute and a process that would elevate the dispute when agreement cannot be reached.

2.8 Submittal, Review and Approval of Deliverables

This Section would establish a process and timeframes for review, comment, response to comments, and approval as appropriate by the DOE and the OEPA of such deliverables as the Annual Update, notices signifying completion of milestones and identification of new wastes, and other deliverables.

3.0 LOW-LEVEL MIXED WASTE STREAMS

This section provides the schedules for treatment of the FEMP mixed wastes that can be treated to LDR standards using proven technologies. Only minor modifications of a technology, if any, are needed to treat the wastes.

3.1 Mixed Waste Streams for Which Technology Exists

The FEMP has identified seven preferred options for the treatment of characterized low level mixed waste streams in inventory. These preferred options and their respective waste streams are presented in Sections 3.1.1 through 3.1.7.

3.1.1 Waste Stream for Which Technology Exists - Preferred Option: Hydrofluoric Acid (HF) Neutralization System

Project Name: Hydrofluoric Acid Neutralization System

Table #1, beginning on page 9, represents the FEMP mixed waste stream for which the preferred option is identified as the HF Neutralization System. Treatment can be accomplished through the use of on-site existing facilities. Treatment of this single waste stream is planned as a RCRA Closure of a Hazardous Waste Management Unit (HWMU) using the HF Neutralization System. Detailed information on this treatment is located in Section 3.1.1 of the *Background Volume*.

Consistent with closure plan requirements, this project is expected to be completed within 180 days after final approval from OEPA.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 14, 1994

Schedule for submitting all applicable permit application: No additional permits are required. Treatment of this waste stream will be done under a RCRA Closure of a HWMU.

Schedule for entering into contracts: The contract necessary for this project is in place.

Schedule for initiating construction: September 1994

Schedule for conducting systems testing: October 1994

Schedule for commencing operations: October 1994

Schedule for processing backlogged and currently generated mixed wastes: October 1994 - December 1994 (weather permitting).

Project Completion Date: April 14, 1995 (Includes completion of certification and documentation as required by the *Closure Plan*.)

TABLE #1

3.1.1 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
HF NEUTRALIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1691	FM-W112	D002A	Dilute hydrofluoric acid HF Tank Car	16,678	16.8	0	0
			ESTIMATED TOTALS:	16,678	16.8	0	0

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3.1.2 Waste Streams for Which Technology Exists - Preferred Option: Uranyl Nitrate Hexahydrate (UNH) Treatment System

Project Names: UNH Neutralization Project (Removal Action #20)
Thorium Nitrate Neutralization

Table #2, beginning on page 12, represents the FEMP mixed waste streams where the preferred option is identified as the UNH Treatment System. Treatment can be accomplished through the use of on-site existing facilities augmented with skid-mounted pumps. The FEMP is a CERCLA site and has been working with USEPA and OEPA to treat these wastes on-site through CERCLA Removal Action #20 and a RCRA Closure respectively. Detailed information on this treatment is located in Section 3.1.2 of the *Background Volume*.

The construction phase of the UNH Neutralization System is scheduled and proceeding.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Name: UNH Neutralization Project

Project Start Date: November 1993

Schedule for submitting all applicable permit application: No permit required. CERCLA Removal Action.

Schedule for entering into contracts: No contracts anticipated.

Schedule for initiating construction: May 1994

Schedule for conducting systems testing: October 1994

Schedule for commencing operations: January 1995

Schedule for processing backlogged and currently generated mixed wastes: January 1995 - July 1995

Project Completion Date: July 1995

Treatment of the thorium nitrate solution is scheduled to be completed after treatment of the UNH solution.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Name: Thorium Nitrate Neutralization

Project Start Date: August 1994

Schedule for submitting all applicable permit application: No additional permits are required. Treatment of this waste stream will be done under a RCRA Closure.

Schedule for entering into contracts: No contracts anticipated.

Schedule for initiating construction: October 1995

Schedule for conducting systems testing: October 1995

Schedule for commencing operations: October 1995

Schedule for processing backlogged and currently generated mixed wastes: October 1995 - December 1995

Project Completion Date: December 30, 1995

TABLE #2

3.1.2 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: UNH TREATMENT SYSTEM

REF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
844	FM-W092	D002A D005 D007	UNH Solution in tanks	1,038,002	1,040	0	0
2594	Unassigned	D002A D006 D007	Thorium Nitrate Solution in Tank T-2	8,892.0	32.0	0	0
			ESTIMATED TOTALS:	1,046,894	1,072.0	0	0

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3.1.3 Waste Streams for Which Technology Exists - Preferred Option: Wastewater Treatment

Project Name: Incineration Project

Table #3, beginning on page 14, represents the FEMP mixed waste streams where the preferred option is identified as Wastewater Treatment. Treatment of these waste streams will occur on-site in an existing facility. This project is directly linked to the Incineration Project. Liquids will be bulked, tested and a determination will be made whether they will meet the waste acceptance criteria for the Wastewater Treatment System. Detailed information on this treatment is located in Section 3.1.3 of the *Background Volume*.

The information on budgets and schedules for bulking and testing liquids destined for Wastewater Treatment are included in the budget and schedules for the Incineration Project.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: September 27, 1993

Schedule for submitting all applicable permit application: N/A - Treatment will be performed under a CERCLA Removal Action.

Schedule for entering into contracts: N/A - No additional permits are required.

Schedule for initiating construction: N/A - No construction is required for this project.

Schedule for conducting systems testing: September 1994 - Tank set-up and testing.

Schedule for commencing operations: October 1994 - Pull drums from inventory for blending.

Schedule for processing backlogged and currently generated mixed wastes: October 1994 - October 1995.

Project Completion Date: October 19, 1995

TABLE #3

3.1.3 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: WASTEWATER TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
358	FM-W286	D002B D019	Caustic solution (NaOH) from Plant 8 raffinate processing	292	0.4	0	0
1178	FM-W096	D007	Groundwater from Well #2649	752	1.2	1,537	1.3
1462	Unassigned	D002B	Contaminated water from Chemical Pit #2 surface cap	397	0.6	0	0
1938	FM-W319	D007 D008B D010	Non-chloride, contaminated water or sump liquor from Plant 1 Drum Painting Booth.	170	0.2	0	0
2210	FM-W325	D001F	Hydrogen peroxide solution	908	0.8	4,763	4.1
2257	FM-W329	D002A	TCLP extracts lab generated waste	155	0.2	811	0.7
10014	FM-W136	D039	U-contaminated water	2,641	2.8	0	0
			ESTIMATED TOTALS:	5,315.0	6.2	7,111.0	6.1

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3.1.4 Waste Streams for Which Technology Exists - Preferred Option: Mobile Stabilization

Project Name: Mobile Stabilization

Table #4, beginning on page 16, represents the FEMP mixed waste streams where the preferred option is identified as Mobile Stabilization. Treatment of these waste streams will occur on-site using a vendor provided service. Detailed information on this treatment is located in Section 3.1.4 of the *Background Volume*.

The FEMP published a Request for information in the *Commerce Business Daily*. Multiple responses were received from companies capable of performing Mobile Stabilization.

The FEMP has initiated discussions with OEPA on implementation of the Stabilization Project prior to the issuance of a compliance order for the STP. The schedules prepared for this project are contingent on the establishment of a regulatory mechanism for implementation by the proposed start date. The detailed schedule for the treatment of these waste streams is on page 24.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: September 26, 1994

Schedule for submitting all applicable permit application: The FEMP is currently in discussions with the OEPA for a Directors Findings and Order to initiate early treatment. Expected date October 15, 1994

Schedule for entering into contracts: December 1994

Schedule for initiating construction: N/A - Vendor will supply fully constructed, operational units.

Schedule for conducting systems testing: February 1995 Complete Operational Readiness Review

Schedule for commencing operations: February 1995

Schedule for processing backlogged mixed wastes: February 1995 - September 1995

Project Completion Date: September 22, 1995

TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
517	FM-W056	D007 D008B	Oil dry contaminated with oil from baler	460	0.4	0	0
538	FM-W059	D006B D007 D008B	Soil Boring #1508 from fire training grounds	296	0.2	0	0
539	FM-W060	D004 D006B D007 D008B	Soil Boring #1509 from fire training grounds	691	0.4	0	0
540	FM-W061	D004 D005 D006B D007 D008B D011	Soil Boring #1512 from fire training grounds	331	0.2	0	0
541	FM-W062	D005 D006B D007 D008B	Soil Boring #1513 from fire training grounds	569	0.4	0	0
542	FM-W063	D004 D005 D006B D007 D008B	Soil Boring #1514 from fire training grounds	304	0.2	0	0
543	FM-W064	D004 D005 D006B D007 D008B	Soil Boring #1515 from fire training grounds	259	0.2	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
545	FM-W065	D004 D005 D006B D007	Soil Boring #1511 from fire training grounds	304	0.2	0	0
700	FM-W083	D003D	Magnesium flake and oily rags	75	0.2	0	0
757	Unassigned	D004 D007 D008B D010 D011	Brown particulate solid (dirt & rubble)	100	0.4	0	0
817	FM-W090	D008B	Paint chips from sand filters at Water Plant	531	1.8	1,525	1.6
1714	FM-W310	D010	Volatile solid waste from TCT-St. Louis	75	0.2	3,973	8.6
10013	FM-W135	D005 D007	Sump cake, copper contaminated	6,548	4.8	0	0
10022	FM-W141	D008B	Grit Blast	284,614	173.0	0	0
20015	Unassigned	D007	Scrap salts, low fluoride and floor sweepings from Plant 6 Nu-Sal Furnace Area	2,725	4.6	0	0
20024	FM-W159	D007 D008B	High fluoride scrap salts and floor sweepings	1,014	1.8	0	0
20027	FM-W160	D004 D011	Dust collector residues - high fluoride from Analytical Lab	245	0.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20033	FM-W163	D008B	Process residues and waste slurries	70	0.2	0	0
20035	FM-W164	D007	Dust collector residues, high fluoride from Pilot Plant	559	0.8	0	0
20047	FM-W170	D004 D008B	Scrap salts and floor sweepings - low fluoride from Plant 6 Rolling Area	230	0.4	0	0
20058	FM-W174	D006B D008B	Dust collector residues - high fluoride	3	0.2	0	0
20120	Unassigned	D007	Dust collector bags	17.3	0.2	0	0
30027	FM-W190	D004 D005	Contaminated soil, rocks, sand from Plant 2/3 North Side Digestor Area	2,867	1.8	0	0
30036	FM-W193	D006B D008B	Dust collector residues - high fluoride from Plant 6 inspection Area	551	1.0	0	0
30060	FM-W202	D005	Wet sump or filter cake non-oily, non-halide from Pilot Plant	246	0.4	0	0
30065	FM-W203	D008B	Grit Blast from area around Plant 2\3	6,847	6.2	0	0
40137	FM-W209	D001E	Unfired reduction charges plus CaF2	1	0.2	0	0
40152	FM-W210	D005	Scrap ThO_2, high fluoride	58	0.4	0	0
40192	FM-W345	D008B	ThO_2 Powder Refinery Feed	30	0.2	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50063	FM-W224	D004 D008B	Roasted MgF2 and other material from Plant 8 Rotary Kiln	2,349	1.4	0	0
50089	Unassigned	D001E D003D	Contaminated magnesium	438	0.6	657	0.7
50090	Unassigned	D001E D003D	Contaminated magnesium	964	2.2	0	0
50091	FM-W232	D004 D008B	Dust collector residue from Plant 9	63	0.2	0	0
50102	FM-W238	D006B D008B	Process residues, trailer cakes, slurries, raffinates, etc. from Plant 6 Rolling Area	54	0.4	0	0
50148	FM-W242	D004	Scrap U308, high fluoride, from crucible burnout in Plant 5 Casting Area	109,938	109.2	0	0
50165	FM-W245	D007	Roasted sump and filter cake from Plant 8 Rotary Kiln	14,944	11.4	0	0
50169	FM-W246	D007	Non-oily clean-out sludge for roasting from Plant 9 Casting	202	0.2	0	0
50173	FM-W248	D007	Salt sludge, chloride from Plant 6 Salt-Oil Furnace	4,799	2.0	0	0
50174	FM-W249	D007	Salt sludge, chloride from Plant 6 Nu Sal Furnace	9,099	10.2	0	0
50180	FM-W252	D007 D008B D010	Furnace salt, non-chloride from Plant 6 Machining	10,942	7.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50293	FM-W259	D004	U308 for re-oxidation from UNC Inc.	3,560	4.8	0	0
50314	FM-W260	D010	Scrap salts, high fluoride and floor sweepings from Pilot Plant Remelt Furnace	114	0.2	0	0
60140	FM-W344	D010	Steel shot from Plant 1 Drum Reconditioning Wheelabrator Shot Blast Unit	3,478	2.6	0	0
1229	FM-W101	D001C D008B D018 D019 D039 D040 F002 F003	Contaminated sump water	6,019	6.6	15,280	13.4
1363	Unassigned	D005 D006B D007 D008B D009C	Oily Sludges from the WWTS Area	556	0.4	0	0
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,565	6.4	13,191	8.9
20007	FM-W156	D011	Oil contaminated wet sump or filter cake	31,735	62.2	0	0
20037	FM-W166	D029	Process residues, trailer cakes, waste slurries, etc. from Plant 8	362	0.6	0	0
20145	FM-W182	D002B D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30045	FM-W197	D001A	Oily sludges, high free metal from Plant 6 Water Treatment Area	423	0.6	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40122	FM-W208	D002A D005 D009C	Thorium waste slurries	183	0.2	0	0
40185	FM-W212	D001F D007 D008B	Impure thorium nitrate (solid)	838	0.2	0	0
40186	FM-W213	D001F D007 D008B	Impure thorium nitrate (solid)	2,000	0.6	0	0
50008	FM-W215	D001A	Copper contaminated sump cake from the General Sump	36,831	31.0	0	0
50068	FM-W225	D001A	Non-oily sludge for roasting from General Sump	13,990	11.4	0	0
50071	Unassigned	D001A D007	Solvent sludges from water treatment plant	194	0.2	0	0
50177	FM-W251	D001A D004 D008B	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0
50178	FM-W339	D001A	Furnace salt, non-chloride	76	0.2	0	0
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0
50202	FM-W257	D001A D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001A D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0
50346	Unassigned	D001A	Oily sludge from oxidation	292	0.4	0	0

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TABLE #4

3.1.4 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE STABILIZATION

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50347	FM-W264	D001A	Discard process residues from Boiler Plant	179	0.2	0	0
50355	FM-W267	D001A	Discard process residues from General Sump	3,675	3.2	0	0
Treatment of MEF #'s 1229 through 50355 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1229 through 50355.							
			ESTIMATED TOTALS:	522,317.8	417.9	20,390.5	22.05

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3.1.5 Waste Streams for Which Technology Exists - Preferred Option: Mobile Chemical Treatment

Project Name: Mobile Chemical Treatment

Table #5, beginning on page 24, represents the FEMP mixed waste streams where the preferred option is identified as Mobile Chemical Treatment. Treatment of these waste streams will occur on-site using vendor provided services. Detailed information on this treatment is located in Section 3.1.5 of the *Background Volume* and Section 1.0 of Appendix C.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 3, 1994

Schedule for submitting all applicable permit application: Consent Orders issued as part of the completed completion of the STP by October 2, 1995.

Schedule for entering into contracts: Completed by October 1995.

Schedule for initiating construction: October 1995 - December 1995

Schedule for conducting systems testing: October 1995 - December 1995.

Schedule for commencing operations: Start processing December 1995.

Schedule for processing backlogged and currently generated mixed wastes: December 1995 - November 1997.

Project Completion Date: November 4, 1997

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1999	Unassigned	D002A D007 D009C D011	Nessler Reagent, COD digestion solution, Rochelle Salt	4	0.2	38	<0.1
10002	FM-W125	D005 D008B	Scrap salts, Low fluoride from RMI, Inc.	6,217	4.8	0	0
30080	FM-W206	D002A D004 D007 D008B D011	Contaminated soil, rocks, debris (contains liquids only)	228	0.2	0	0
30081	FM-W207	D002A	Discard process residues, trailer cakes from Hot Raffinate Building in Plant 2/3	387	0.2	0	0
40181	FM-W211	D002A D007 D008B	Thorium nitrate solution	2,280	0.6	0	0
50025	FM-W219	F001 F002	Contaminated graphite	413	0.4	0	0
50139	FM-W347	D039	U308 +8Mesh, low F from Plant 8 Oxidation System Box Furnace	449	0.4	0	0
50188	FM-W255	D004 D007 D008B D010	Scrap salts, high F from Plant 4 Bank 7	1,885	2.4	0	0
50323	FM-W261	D004	Solidified furnace salts, non-chloride from Plant 9 Rockwell Furnace molten salt cleaning	110,367	137.2	0	0
50349	FM-W265	D008B	Dust collector residues - high fluoride from Plant 8	87	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50351	FM-W266	D004 D008B	Dust collector residues - high fluoride from green salt production in Pilot Plant	267	0.2	0	0
50387	FM-W272	D005	Salt sludge, chloride from Lab	324	0.4	0	0
50405	FM-W273	D006B D007	Non-recoverable trash from Plant 6 - dark grey solids	298	0.8	0	0
50406	FM-W274	D004 D011	Furnace salt, chloride from Plant 6 Salt-Oil Furnace	2,945	5.4	0	0
50408	FM-W342	D008B D010	Furnace salt, non-chloride from Pilot Plant Rockwell Furnace	2,036	2.2	0	0
60307	Unassigned	D005 D008B	Barium chloride salts	16,267	13.2	0	0
89	FM-W284	F002	Soil Boring #1412	234	0.2	0	0
386	FM-W288	D019 D039 F001 F002	Floor sump clean-out sludge	633	0.4	0	0
390	FM-W013	D005 D008B F001 F002	Oily sludges from water treatment process	469	0.8	0	0
456	FM-W044	D007 D039 D040 F001 F002	Solvent wastes	508	0.4	0	0
526	Unassigned	F001 F002	Contaminated soil from Pit #5 HWMU area	192	0.2	0	0
588	FM-W070	F002	Merco and oily Merco dry from the baler	1,983	2.0	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
661	FM-W080	F001	Soil Boring #1594 from northwest corner of Bldg 12	216	0.2	0	0
720	FM-W085	F001	Soil Boring #1261	250	0.2	0	0
776	FM-W088	F001	Soil Boring #1674, located inside Pilot Plant	154	0.2	0	0
819	FM-W091	F001	Soil Boring #1251	414	0.4	0	0
1550	FM-W302	D003D	Uranium Hexafluoride	7	0.2	0	0
1706	FM-W114	D018 D021 D035 D038 D039 D040 D043 F002 F005A	Lab waste, TCLP extract	2,035	2.2	3,059	3.0
1841	FM-W121	F001 F002	Soil	1,512	1.6	0	0
1842	FM-W122	F001 F002	Grass and soil	19	0.2	0	0
2425	FM-W332	D002A F001 F002 F005A	CTC corrosive waste	198	0.2	1,040	1.0
10003	FM-W126	D001A D039 F001	Oily oxidation sludges with high free metal	2,590	2.8	0	0
10007	FM-W130	D007 F001	Oily sludges	430	0.6	0	0
10009	FM-W131	D001A D008B D035 F005A	Sludges - solvent (trichlor, perchlor)	133	0.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
10010	FM-W132	D029 D039 D040 F001	Sludges, oily	77,665	105.8	0	0
10016	FM-W137	D010 D039 F002	Oily sludge for oxidation	1,352	1.0	0	0
10021	FM-W140	D008B D039 D040 F001	Sludges, oily	311	0.4	0	0
10026	FM-W145	D001A F001	1,1,1-trichloroethane still bottoms from National Electric Coil	7,545	8.6	0	0
10028	FM-W147	D008B F001	Sludges, oily	1,476	2.0	0	0
10031	FM-W150	D029 D030 F001	Floor sump clean-out sludge	594	0.6	0	0
20006	FM-W155	F002	Oil contaminated wet sump cake produced from coextrusion operations at UNC Corp.	16,397	25.4	0	0
20045	FM-W168	D019 D022 D039 F002	Contaminated TBP and/or kerosene mixtures and sludges from lab	50	0.4	0	0
30005	FM-W185	D001A D019 D039 D040 F001 F003 F005A	Oily sludges from oil decantation system	15,541	15.8	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
30010	FM-W187	D039 D040 F002	Oil contaminated wet sump or filter cake from service building sump	10,611	10.6	0	0
30018	FM-W188	D039 F002	Wet sump or filter cake - non-oily	3,231	4.2	0	0
30026	FM-W189	D039 F002	Non-oily clean-out sludges for roasting from Plant 2/3	3,968	5.4	0	0
30037	FM-W194	D039 F002	Discard process residues, trailer cakes, waste slurry from Pilot Plant catch basin	454	0.8	0	0
30042	FM-W196	D039 F002	Wet sump or filter cake - non-oily, non-halide from Pilot Plant sump	592	0.8	0	0
30046	FM-W198	D019 F001	Non-oily clean-out sludges for roasting from garage sumps	1,864	2.0	0	0
30051	FM-W200	D001E D003D	Non-metallic misc. samples (Magnesium metal)	7	0.2	0	0
50085	FM-W229	D001A F002 F003 F005A	Wet sump or filter cake, non-oily/non-halide from Plant 1	56	0.2	0	0
50113	Unassigned	F001	Roasted calcium precipitated from sump or filter cakes	1,487	3.8	0	0
50129	FM-W240	F001	Scrap U308 - Low F from Oxidation Furnace in Plant 8	6,151	7.6	0	0
50131	FM-W241	F002	Scrap U308 - low F from Plant 8 Oxidation Furnace	56	1.0	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50152	FM-W243	F002	Scrap U308, high fluoride burned in Oxidation Furnace #1 and screened at Plant 8 Rotex	13,646	8.4	0	0
50154	FM-W244	F001	Roasted calcium-precipitated sump and filter cake	21,067	32.6	0	0
50175	FM-W250	F002	Salt sludge, chloride from Plant 9 Casting Area	500	1.0	0	0
50183	FM-W253	F001	Scrap salts, low F from Plant 6 Degreasing and Pickling Area	216	0.4	0	0
50200	Unassigned	D001A F001	Oily sludge for oxidation	90	0.2	0	0
50339	FM-W262	F002	Sludges, oily, for oxidation, high free metal from Plant 6 Machining	1,601	2.2	0	0
60119	FM-W279	D001A F001 F002	Oily Sludges, high free metal from Garage	2,954	3.2	0	0
60123	FM-W280	D039 F002	Solvent semi-solid from the Service Building and Administration Building laundry	40	0.2	0	0
60149	FM-W281	F001 F002	U308 from Plant 8 Oxidation Box Furnace	40,712	50.2	0	0
60152	FM-W282	F001	U308 rotexed Plant 8 Furnace product	75,533	69.4	0	0
1421	FM-W298	D008B	Non-recoverable trash: Oily rags, pads, gloves and plastic with grease	64	0.2	0	0
1430	Unassigned	D010	Plastic sheeting, gloves, floor sweepings	1,377	1.6	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1906	FM-W318	U134	HF Tank car clean-out material	3,877	0.8	0	0
2016	FM-W324	D001A D018 D026	Paint bitumastic 300 M A and B coal tar coating	33	0.2	0	0
2021	FM-W322	D005	Barium carbonate from Plant 2/3 Processing	1,870	3.0	0	0
10025	FM-W144	D005	Contaminated soil, rocks bricks, sand and ceramics from RMI	5,471	4.4	0	0
20046	FM-W169	D007	Non-metallic miscellaneous samples from lab	35	0.4	0	0
20139	FM-W180	D005	Samples, non-metallic from RMI	84	0.2	0	0
30039	FM-W195	D011	Contaminated rocks, soil, bricks and ceramics from Pilot Plant	449	0.6	0	0
50031	FM-W220	D008B D010	Contaminated metallic filter elements	1,293	3.2	0	0
50367	FM-W271	D008B	Non-recoverable trash	194	0.2	0	0
180	FM-W002	F002	Rags, solvent	25	0.2	0	0
376	FM-W004	F002	Solvent contaminated rags	43	0.2	14	<0.1
387	FM-W010	D010 D018 F002	Oil soaked rags	268	1.2	0	0
396	FM-W015	F002 F003 F005A	Paint thinner rags	74	0.4	12	<0.1
398	FM-W017	D008B D009C F001	Non-recoverable trash contaminated absorbent pads	19	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
399	FM-W018	D008B D039 F001	Solvent contaminated rags, pads, and plastic from boiler plant oil storage area	49	0.2	178	0.2
404	FM-W021	D008B D018 F002	Oily rags	59	0.4	0	0
410	FM-W024	F001 F002	Oily rags	129	0.4	0	0
415	FM-W028	D008B D018 F002	Oily rags and absorbents, WD-40 and various oils	35	0.2	0	0
434	FM-W040	D004 D005 D006B D007 D008B D022 F002 F003	Laboratory contaminated waste	562	2.2	21,451	18.9
460	FM-W047	D004 D005 D006B D007 D008B D010 D018 F002	PCB Materials, ballast, PCB-contaminated rags	11	0.2	0	0
514	FM-W055	D001A D007 D008B F002 F003 F005A	Bad paint from paint booth	572	1.2	0	0
584	FM-W068	D018	Kerosene (Diesel Fuel)/ sludge	1,115	1.6	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
627	FM-W072	F001	5-gal. can w/ spill clean-out material	6	0.2	0	0
628	FM-W073	F001	Spill clean-up material	65	0.2	0	0
743	FM-W086	F001	Container of pump oil and rags	18	0.2	0	0
870	FM-W093	D001A	Varnish - unused	89	0.2	0	0
1425	FM-W299	D005 F001	Contaminated rags, paper, polyethylene from RMI	134	0.6	0	0
1427	FM-W106	F002	Non-recoverable trash - mop heads and pads contaminated with TCA	41	0.2	0	0
1428	FM-W300	F001 F002	Spill clean-up material from Building 79 RCRA storage pad	86	0.2	0	0
1504	FM-W335	D001A	Flammable paint and paint-related products	495	0.4	2,598	2.0
1537	FM-W111	F001 F002	Filter material - sand, gravel, fly ash, anti-Cs, misc. trash, plywood, concrete forms from ETF removal	186,313	23.0	0	0
1617	FM-W305	F001 F002 F005A	Contaminated protective clothing	69	1.2	0	0
1705	FM-W306	D001A D004 D006B D008B D010	Laboratory generated waste, waste oil from TCLP extracts	51	0.2	269	0.2

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1707	FM-W115	D002A D007 D008B D019 D028 D039 F001 F002	Lab-generated waste, acid digestates	2,549	2.6	0	0
1716	FM-W118	F001 F002 F005A	Lab generated waste, contact waste solid	620	3.0	0	0
2080	Unassigned	D004 D005 F001 F002	Pit 5 Treatability Study	13	0.2	0	0
2235	FM-W328	D010 F002	Lab generated organic liquid waste	1,746	2.0	9,152	9.5
2259	FM-W330	D009C F001 F002	TCLP leachate	191	0.2	999	0.9
2401	Unassigned	F001 F002 F005A	Contact Waste from PACD Sampling	130	1.0	0	0
2500	Unassigned	D012 F002 F003	Metal Tank Abandoned Pilot Plant Sump	294	0.4	0	0
10012	FM-W134	D029 D039 D040 F001	Contaminated burnables	1,352	2.8	0	0
10023	FM-W142	D008B F001	Non-recoverable trash	3,043	3.8	0	0
10024	FM-W143	D018 F001	Contaminated burnables	99	0.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20036	FM-W165	F001	Scrap salts and floor sweepings	387	0.8	0	0
20048	FM-W171	F005A	Discard process residues from Lab	9	0.2	0	0
20094	FM-W175	D008B D011 F001	Contaminated burnables, rags, filter cloth, paper, cartridges, rubber, wood, etc.	359	1.4	0	0
20114	FM-W178	F001	Contaminated burnables: rags, paper, poly-ethylene	184	0.4	0	0
20142	FM-W181	D001A D019 D022 D039 F002 F003	Contaminated TBP and kerosene mixtures from Analytical Lab	15	0.4	0	0
30004	FM-W184	F001	Incinerator cinders	66,340	108.2	0	0
30009	FM-W186	D008B	Scrap salts (high fluoride) and floor sweepings	7,663	10.2	0	0
30053	FM-W201	D006B D007 D008B D018 D040 F002 F005A	Discard process residues - gloves, paint, misc. debris	78	0.2	0	0
30074	FM-W204	F002	Contaminated non-burnables: filter cartridges, gravel, rocks, soil	1,139	1.0	0	0
30075	FM-W205	F002	Contaminated non-burnables: Metallic filter elements and cartridges	14	0.2	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50002	FM-W214	D001A F003 F005A	Non-recoverable trash from lab	60	0.6	0	0
50010	FM-W187	F002 F005A	Non-recoverable trash from Plant 1 - contains liquids and oil	204	0.2	0	0
50014	FM-W217	D019 F002	Non-recoverable trash	455	1.0	0	0
50036	FM-W221	D007 F002	Contaminated burnables from Plant 8 Box Furnace	531	1.8	0	0
50070	FM-W226	D008B F001 F002	Non-oily sludge for roasting from Plant 8 Box Furnace	332	0.4	0	0
50079	FM-W228	F002	Incinerator cinders from Solid Waste Incinerator	2,768	4.2	0	0
50170	FM-W247	D004 D019 D039 F002	Salt sludge from Plant 4	602	0.8	0	0
50359	FM-W269	F002	Non-recoverable trash	225	0.8	0	0
50364	FM-W341	D007 F001 F002	U308, +8Mesh, low F from Plant 8 Box Furnace	640	0.4	0	0
405	FM-W022	D002A D009C	Dry cell batteries	134	0.2	0	0
547	FM-W290	D008C	Misc. lead tools, piping, etc.	679	1.2	2,317	5.1
854	FM-W293	D006A	Nickel-cadmium batteries	134	0.2	481	0.7
855	FM-W294	D009C	Mercury batteries	667	0.6	2	<0.1
874	Unassigned	D008B	Lead bricks, lead window sashings, babbitt hammer	260	0.4	0	0

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TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: MOBILE CHEMICAL TREATMENT

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1281	FM-W295	D008C	Lead bricks	336	0.6	0	0
1585	FM-W303	D002A D008A	Lead acid battery (split)	3,566	4.2	15,768	13.3
1731	FM-W314	D008C	Lead	76	0.2	0	0
1987	FM-W123	D008C	Lead/lead seals	13,202	2.8	18,244	15.4
1969	Unassigned	D001D D007 D008 D018 D019 D035 D039	Flammable aerosols	11	0.2	262	0.3
423	FM-W034	D009D	Used mercury (elemental) from Lab	20	0.2	0	0
432	FM-W038	D006B D008B D009C	Mercury thermometer spill clean-up materials from lab	119	1.0	307	0.2
635	FM-W291	D009C	Mercury spill residue and spent mercury-containing batteries	143	0.4	0	0
1199	FM-W100	D009C	Mercury contaminated floor tile & pipe insulation	909	1.6	0	0
1272	Unassigned	D007 D008B D009C	Mercury Contaminated Materials from sink traps in Lab.	32	0.2	0	0
2211	FM-W326	D009D	Elemental mercury in equipment - switches, thermometers, etc.	202	0.4	961	1.1
50185	FM-W254	D009C	Scrap salt, high F from MMES, Inc.	5	0.2	0	0
			ESTIMATED TOTALS:	778,810.0	761.6	77,152.0	72.2

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3.1.6 Waste Streams for Which Technology Exists - Preferred Option: TSCA Incinerator

Project Name: Incineration Project

Table #6, beginning on page 38, represents the FEMP mixed waste streams (liquid portion only) where the preferred option is identified as TSCA Incinerator. Treatment of these waste streams will occur off-site at an existing and operating DOE facility.

The FEMP is currently allotted 300,000 pounds or 136,200 kilograms of low level mixed waste per year to be treated at the TSCA Incinerator. The FEMP plans is bulking mixed waste for shipment to the TSCA Incinerator. Detailed information on this treatment is located in Section 3.1.6 of the *Background Volume*.

The information on budgets and schedules for bulking and testing liquids destined for the TSCA Incinerator is included in the Incineration Project along with budget and schedules for the Wastewater Treatment. The detailed schedule for the treatment of these waste streams begins on page 56.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: September 27, 1993

Schedule for submitting all applicable permit application: N/A - Treatment will be performed under a CERCLA Removal Action.

Schedule for entering into contracts: N/A - No additional permits are required.

Schedule for initiating construction: N/A - No construction is required for this project.

Schedule for conducting systems testing: September 1994 - Tank set-up and testing.

Schedule for commencing operations: October 1994 - Pull drums from inventory for blending.

Schedule for processing backlogged and currently generated mixed wastes: October 1994 - October 1995

Project Completion Date: October 19, 1995

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
183	FM-W285	D001B D018 D035	Water/gas mixture from Tank #8	1,990	2.4	0	0
379	FM-W005	D008B D018 F001 F002	Spent 1,1,1-trichloroethane	77	0.2	0	0
383	FM-W008	D011	X-ray fixer & developer, clear liquid	123	0.2	0	0
385	FM-W009	D018 F001 F002	Spent solvent (1,1,1, - trichloroethane)	108	0.2	0	0
388	FM-W011	D010 D018 F002	Used oil	5,313	6.4	0	0
393	FM-W014	D008B	Lubricating oil from reduction remelt	316	0.4	0	0
395	Unassigned	D001A F002 F003 F005A	Paint thinners and paint residues	143	<0.1	752	0.6
397	FM-W016	D018 F001 F002	1,1,1, - Trichloroethane (cleaning solution)	103	0.2	0	0
400	FM-W019	D001A D008B F001	Used oil from Maintenance	105	0.2	0	0
402	FM-W020	D008B D018 F001	Used oil	404	0.8	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
408	FM-W023	D005 D006B D008B F001	Used oil	146	0.2	0	0
412	FM-W025	D001A D006B F001 F002	1,1,1-Trichloroethane	10	0.2	0	0
414	FM-W027	D001A D006B D008B D009C D039 F001 F002	Used oil	198	0.4	0	0
418	FM-W030	D001A F003	Spent acetone	869	11.2	1,061	1.0
419	FM-W031	D001A F003	Spent xylene	314	2.6	255	0.2
421	FM-W032	D001A F003	Spent methanol	140	2.0	71	0.1
422	FM-W033	F002	Spent methylene chloride	15	0.2	95	0.1
425	FM-W035	D001A D002A	Laboratory acids (Nitric acid and cyclohexane)	546	8.6	885	0.9
426	FM-W036	D001A	Spent methylene chloride	3,055	43.8	3,252	3.2
428	FM-W037	D001A	Acetonitrile in water	2	0.2	0	0
438	FM-W041	D018	Hydraulic oil from baler in drum reconditioning	177	0.2	0	0
455	FM-W289	D001A F001	Unlabeled drum containing 1,1,1 - trichloroethane	111	0.2	0	0
459	FM-W046	D001A F001 F002	Paint	204	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
479	FM-W050	D001A D008 D009C D035 F003 F005	Used paint thinner	436	0.4	0	0
480	FM-W333	D018 F002	Used oil generated during construction projects.	1,172	1.4	0	0
485	FM-W051	D001A	Kerosene	92	0.2	0	0
507	Unassigned	D001A D018	Gasoline	113	0.2	0	0
508	FM-W054	D001A D035	Paint thinner	220	0.2	0	0
533	FM-W058	D001A D006B	Paint: Grey Epoxy	130	0.2	0	0
587	FM-W069	D001A	Grease and water	113	0.2	0	0
633	FM-W075	D007 D008B D009C	Oil - unknown generation	1,514	2.4	0	0
638	FM-W076	D018	Used oil	142	0.2	0	0
658	FM-W078	D018	Coded as oil - strong solvent odor	40	0.2	0	0
777	FM-W089	D001A D008B F001 F002	Used Agitene	268	0.4	533	0.5
873	FM-W094	D011	Spent fixer	612	1.2	0	0
1337	FM-W104	D001A	Contaminated water, non-chloride	169	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1411	Unassigned	D001A D005 D007 D008B D009C D010 D011 D019 F002 F003	Contaminated solvent from paint shop	217	0.2	0	0
1412	FM-W105	D001A D006B D008B F001 F002	Used solvent: 1,1,1-trichloroethane	188	0.2	0	0
1414	FM-W297	D001A D008B	Oil and fuel from Garage area	355	0.4	0	0
1423	Unassigned	D008B D009E D034 D040 F001 F002 F003 F005	Contaminated insoluble oil	170	0.2	0	0
1432	FM-W107	D001A	Non-chloride contaminated water or sump liquor (kerosene)	869	1.2	0	0
1447	FM-W301	D001A D008B	Nonchloride contaminated water or sump liquor from Plant 1 Drum Painting Booth.	56	0.4	0	0
1536	FM-W110	F001 F002	Rainwater from waste pit area	30,076	31.2	0	0
1708	Unassigned	F002	Lab generated waste, methylene chloride extracts	246	0.4	994	1.0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1711	FM-W308	D002A D008B D009C D010 F001 F002 F005A	Metals extracts, digests and leachates	2,017	2.4	19,068	16.8
1713	FM-W309	D040 F001 D002 F005A	Oil from TCLP extracts	32	0.4	169	0.2
1725	FM-W119	D018	Lubricating oil from garage	2,629	3.2	6,968	7.5
1728	FM-W312	D018	Crankcase oil	1,199	1.8	4,499	4.8
1729	FM-W313	D001A D008B D018	Gasoline	1,084	1.8	5,548	6.9
1773	FM-W315	D011	Concentrate Fixer	98	0.4	0	0
1815	FM-W316	D018 D001A	Spent fuels	317	0.4	773	0.9
1949	Unassigned	D001F	Draw Temp 275	92	0.2	0	0
1998	FM-W124	D001A F003	Methanol and cyclohexane	104	1.2	333	0.3
2014	FM-W323	D001A D035	Epoxy - prime coat LDC - 1,000	74	0.4	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
2363	Unassigned	D001C D002B D006B D008B D009C D018 D035 D038 D039 D040	Caustic lab waste from analysis of samples	1,517	1.6	0	0
2364	Unassigned	D001C D006B D007 D008B D018 D035 D039 D040	Neutral lab waste from the analysis of samples	2,300	2.4	0	0
2498	Unassigned	D008B D012 D039 F002 F003	Sump Liquor	560	0.6	0	0
10004	FM-W127	D007 D018 D019 D021 D029 D039 D040 F001	Contaminated solvent	3,479	4.4	0	0
10006	FM-W129	D008B D009E D039 F001	Contaminated oil - insoluble	122	0.2	0	0
10027	FM-W146	D039 D040 F001	Contaminated oil, insoluble	2,502	2.8	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
10029	FM-W148	D006 D007 D008 D019 D029 D040 F001	Used oil	1,387	1.6	0	0
10030	FM-W149	D001A F003	Contaminated solvent (methanol)	82	0.6	0	0
10032	FM-W51	F001	Contaminated oil, insoluble	303	0.4	0	0
10034	FM-W152	D001A D018 U019	Benzene (labpacked)	3	0.2	0	0
10035	FM-W153	D019 U211	Carbon tetrachloride (labpacked)	20	0.2	0	0
20003	FM-W154	D001A D019 D022 D028 D029 D035 D039 D040 F001 F003 F005A	Degreasing solvent from National Electric Coil	56,832	56.0	0	0
20021	FM-W158	D019 D029 D039 D040 F001	Contaminated insoluble oil from drum baler	2,637	3.0	0	0
20028	FM-W161	D039 D040 F001	Insoluble quench oil used in Pilot Plant casting operation	1,245	2.0	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20031	FM-W162	D008B D018 D028 D029 D039 D040 F002	Contaminated oil, insoluble gear oil, lubricating oil from Plant 1	1,263	1.8	0	0
20038	FM-W167	D006B D008B D018 D019 D028 D029 D039 D040 F002 F005A	Contaminated oil - insoluble from Pilot Plant processing equipment	288	0.4	0	0
20054	FM-W172	D019 D022 D028 D029 D039 F001 F005A	Contaminated solvent - trichlor, perchlor, etc. from Plant 5 casting area	171	0.2	0	0
20055	FM-W173	D029 D039 F002	Contaminated oil - insoluble from processing equipment at the Pilot Plant	196	0.2	0	0
30033	FM-W191	D001A D039 F003 F005A	Contaminated solvent from maintenance	2,544	3.4	0	0
30034	FM-W192	D018 F001	Oil contaminated with solvents (from Tank #5)	12,466	17.0	0	0
50022	FM-W218	D001A F003	Contaminated water or sump liquor, non-chloride from Plant 1 sampling area	11	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50072	FM-W227	D001A D008 D019 D039 D040 F002 F003 F005A	Contaminated sump water and hydraulic oil from drum baler in Plant 1 Drum Reconditioning Area	671	0.6	0	0
50095	FM-W233	D007	Contaminated insoluble oil from Plant 9 General	168	0.2	0	0
50096	FM-W234	D001A D007 F003	Contaminated solvents from water treatment	153	0.2	0	0
60055	Unassigned	D001A D008B D018	Leaded Gasoline from Tank #12	2374	4.0	0	0
60056	Unassigned	D001A D007 D008B D009C D039 F002	Used chlorinated solvent mixture	4,591.3	4.0	0	0
60059	Unassigned	D001A D008B F002	Used 1.1.1 Trichloroethane mix	190.2	0.2	0	0
60062	Unassigned	D001A D008B D009C F002	Contaminated insoluble oil	1,152.3	1.6	0	0
60067	Unassigned	D008B F002	Used oil with 1.1.1 Trichloroethane	154.8	0.2	0	0
60068	FM-W277	D008B F001	Contaminated insoluble oil from Plant 5 Oil Storage Area	510	0.8	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
60069	FM-W278	D008B F001	Contaminated, insoluble oil from Metal Reduction Area	1,883	2.6	0	0
60072	Unassigned	D008B F002	Solvent Contaminated Waste Oil	582.5	0.8	0	0
60083	Unassigned	D001A D008B D019 F002	Contaminated insoluble oil from Boiler Plant	674.7	0.8	0	0
60085	Unassigned	D001A D005 D006B D007 D008B D010 F002	Waste oil from Plant 8 maintenance	7,785.2	10.6	0	0
60087	Unassigned	D001A D008B D039 F002	Used oil with solvents	1,984.4	2.4	0	0
60331	FM-W283	D001B D018	Water/diesel fuel from UST #9	3,941	4.2	0	0
1229	FM-W101	D001C D008B D018 D019 D039 D040 F002 F003	Contaminated sump water	6,019	6.6	15,280	13.4
1363		D005 D006B D007 D008B D009C	Oily Sludges from the WWTS Area	556	0.4	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,565	6.4	13,191	8.9
20007	FM-W156	D011	Oil contaminated wet sump or filter cake	31,735	62.2	0	0
20037	FM-W166	D029	Process residues, trailer cakes, waste slurries, etc. from Plant 8	362	0.6	0	0
20145	FM-W182	D002B D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30045	FM-W197	D001A	Oily sludges, high free metal from Plant 6 Water Treatment Area	423	0.6	0	0
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40122	FM-W208	D002A D005 D009C	Thorium waste slurries	183	0.2	0	0
40185	FM-W212	D001F D007 D008B	Impure thorium nitrate (solid)	838	0.2	0	0
40186	FM-W213	D001F D007 D008B	Impure thorium nitrate (solid)	2,000	0.6	0	0
50008	FM-W215	D001A	Copper contaminated sump cake from the General Sump	36,831	31.0	0	0
50068	FM-W225	D001A	Non-oily sludge for roasting from General Sump	13,990	11.4	0	0
50071	Unassigned	D001A D007	Solvent sludges from water treatment plant	194	0.2	0	0

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50177	FM-W251	D001A D004 D008B	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0
50178	FM-W339	D001A	Furnace salt, non-chloride	76	0.2	0	0
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0
50202	FM-W257	D001A D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001A D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0
50346	Unassigned	D001A	Oily sludge from oxidation	292	0.4	0	0
50347	FM-W264	D001A	Discard process residues from Boiler Plant	179	0.2	0	0
50355	FM-W267	D001A	Discard process residues from General Sump	3,675	3.2	0	0
1709	FM-W117	D001A D002A	Lab generated waste, flammable organic extracts	295	0.4	7,150	6.3

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TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
TSCA INCINERATOR

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
2006	FM-W346	D001A	Curing compound	173	0.4	0	0
2224	FM-W327	D001A	Floor coating base	356	0.8	0	0
50358	Unassigned	D001A	Contaminated non-burnables	1,445	0.8	0	0
50407	FM-W275	D001A	Non-Recoverable Trash	96	0.2	0	0
Treatment of MEF #'s 1229 through 50407 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1229 through 50407.							
			ESTIMATED TOTALS:	227,992.4	331.9	63,066.5	59.3

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3.1.7 Waste Streams for Which Technology Exists - Preferred Option: Envirocare

Project Name: Non-LDR/< TSC Disposal Project

Table #7, beginning on page 52, represents the FEMP mixed waste streams where the preferred option is identified as Envirocare. This project consists of bulking activities and waste processing for the purpose of disposal. Detailed information on the management of these waste streams is located in Section 3.1.7 of the *Background Volume*.

The FEMP and DOE have contracts in place for the disposal of mixed waste at the Envirocare of Utah Facility.

The FEMP is a CERCLA site and will be dispositioning this material to Envirocare through CERCLA Removal Action #9.

MIXED WASTE FOR WHICH TECHNOLOGY EXISTS

Project Start Date: On-going

Schedule for submitting all applicable permit application: Performed under CERCLA Removal Action #9.

Schedule for entering into contracts: National DOE contract administered by DOE - Oak Ridge will be utilized. This contract is already in place.

Schedule for initiating construction: N/A - No construction is required for this project.

Schedule for conducting systems testing: N/A - No systems testing is required for this project.

Schedule for commencing operations: Next shipment scheduled for September 21, 1994.

Schedule for processing backlogged and currently generated mixed wastes: Next shipment scheduled for September 21, 1994.

Project Completion Date: May 31, 1995

TABLE #7

3.1.7 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: ENVIROCARE

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
1438	Unassigned	D039	Non-oily clean-out sludges from roasting	1,204	1.0	0	0
1532	FM-W109	D018 D039	Biodenitrification surge lagoon sludge	387,126	408.0	0	0
2048	Unassigned	F001 F002 F005A	Solidified lab waste	46,579.5	33	0	0
60017	Unassigned	D039	Oily rags and clothing	63.6	0.4	0	0
1709	FM-W117	D001A D002A	Lab generated waste, flammable organic extracts	295	0.4	7,150	6.3
2006	FM-W346	D001A	Curing compound	173	0.4	0	0
2224	FM-W327	D001A	Floor coating base	356	0.8	0	0
50358	Unassigned	D001A	Contaminated non-burnables	1,445	0.8	0	0
50407	FM-W275	D001A	Non-Recoverable Trash	96	0.2	0	0
Treatment of MEF #'s 1709 through 50407 are split between two preferred options based on the physical state (liquid and solid) of the waste. Estimated totals for this preferred option reflect 50% of the totals shown in the table for MEF #'s 1709 through 50407.							
			ESTIMATED TOTALS:	436,155.6	443.7	3,575.0	3.15

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3.2 Mixed Waste Streams for which Technology Exists But Needs Adaptation or for which No Technology Exists

The FEMP has not identified any mixed waste streams for which significant adaptation and technology development is required before the waste could be treated. After final characterization, which will occur as a part of the project management process, certain variances may be requested. Specifically, there may some constituents for which the LDR treatment standard is incineration. The FEMP may request a variance to allow chemical destruction or stabilization. Also, certain debris may require a technology which is not practical, therefore, a variance may be requested for these wastes.

4.0 TRU MIXED WASTE STREAMS

This section is not applicable as the FEMP does not generate or store mixed transuranic wastes.

5.0 HIGH-LEVEL MIXED WASTE STREAMS

This section is not applicable as the FEMP does not generate or store mixed high-level wastes.