6797 G-000-105 .61

PROPOSED SITE TREATMENT PLAN - BACKGROUND VOLUME - PLAN VOLUME

03/29/95

OH-1242-95
DOE-OFO OEPA
625
REPORT

6797

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

BACKGROUND VOLUME
PLAN VOLUME

000001

6797

Department of Energy

Ohio Field Office
P.O. Box 3020
Miamisburg, Ohio 45343-3020

OH-1242-95

MAR 29 1995

OH:HODGE

Mr. Michael Savage, Assistant Chief
Hazardous Waste Division
Ohio Environmental Protection Agency
1800 Watermark Drive
Columbus, Ohio 43215

Dear Mr. Savage:

PROPOSED SITE TREATMENT PLAN FOR THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

In accordance with the requirement of the Federal Facility Compliance Act (FFCAct), enclosed is the Proposed Site Treatment Plan (PSTP) for the Fernald Environmental Management Project (FEMP). This Plan identifies the FEMP preferred options for the treatment of mixed wastes and provides the basis for the selection of those options. In addition, the PSTP contains copies of all stakeholder comments on the Draft Site Treatment Plan and responses to those comments.

We look forward to working with the Ohio Environmental Protection Agency (OEPA) in developing a Consent Order as required by the FFCAct. In the near future the Department of Energy (DOE) will submit to the OEPA a proposal in order to initiate discussions on the Consent Order language.

Please address any comments or questions you may have to John Sattler at (513) 648-3145.

Sincerely,

J. Phil Hamric
Manager

Enclosure

cc w/enc:

D. Schregardus, OEPA-Columbus
T. Crepeau, OEPA-Dayton
P. Pardi, OEPA-Dayton
T. Schneider, OEPA-Dayton
J. Saric, USEPA-Region V
S. Smiley, DOE-OH
L. Radcliff (2), DOE-OR
M. Osborne, BDM Federal
R. Rothman, DOE-MB
T. Ballieuel, DOE-BCLDP
W. Best, DOE-RMI
M. Rafferty, DOE-PORTS
AR Coordinator, FERMCO

cc w/o enc.:

M. McDermontt, DOJ
J. Van Kley, Ohio AGO
T. Winston, OEPA-Dayton
J. Craig, DOE-FN
D. Ofte, FERMCO/1
J. Theising, FERMCO/2
M. Yates, FERMCO/2

6797

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

EXECUTIVE SUMMARY

000004

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

EXECUTIVE SUMMARY

The U.S. 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, to prepare Site Treatment Plans describing the development of treatment capacities and technologies for treating mixed waste. Mixed waste is defined by the Federal Facilities Compliance 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.*).

On April 6, 1993, DOE published a Federal Register notice (58 FR 17875) describing the proposed process for developing the Site Treatment Plan in three phases, including a Conceptual Site Treatment Plan, a Draft Site Treatment Plan and a Site Treatment Plan. The Fernald Environmental Management Project (FEMP) Conceptual Site Treatment Plan was submitted to the Ohio Environmental Protection Agency (OEPA) in October 1993. The FEMP Draft Site Treatment Plan was submitted to the OEPA in August 1994. The FEMP Proposed Site Treatment Plan (PSTP) is now being provided to the OEPA, the public, the U.S. Environmental Protection Agency (USEPA), and others for review and comment. Upon approval by the OEPA, this PSTP will be the FEMP Site Treatment Plan to be implemented by DOE.

The PSTP is comprised of two parts: the Background Volume and the Plan Volume. The Background Volume identifies the Preferred Options for mixed waste treatment and provides information supporting the selection of those options, while the Plan Volume shows the schedules for activities necessary to implement the Preferred Options.

The FEMP's PSTP focuses on treatment of mixed low level waste currently in storage (2146 m^3) and similar waste expected to be generated over the next five years (1227 m^3). These quantities are presented by FEMP Preferred Option on the following page. Wastes generated at the FEMP 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 PSTP 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 DOE has a Preferred Option for each mixed low level waste stream identified in the FEMP inventory. All of these FEMP mixed low level waste streams can be treated using an existing technology. The Preferred 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 disposal facility.

Any wastes characterized as mixed low level waste in the future will be subject to the management process established in the Proposed Site Treatment Plan. Management options for remediation wastes to be generated will be incorporated into the Plan Volume after they have been finalized through the CERCLA process and are not reflected in this version of the Proposed Site Treatment Plan. Updates to the Site Treatment Plan will reflect remediation wastes as they are generated.

In addition to FEMP mixed wastes, one other DOE facility, Battelle Columbus Laboratory, has identified a small volume of mixed waste to be treated at the FEMP, using a FEMP Preferred Option.

The Proposed Site Treatment Plan reflects the site-specific preferred options developed with stakeholder input and is based on existing available information. As reflected in the Plan Volume, treatment of mixed wastes streams currently in inventory is scheduled to be completed in 2001. However, DOE faces increasingly tight budgets throughout the DOE complex and anticipates that funding will continue to be constrained. DOE has asked regulatory agencies to work with DOE and other interested parties at the site and National level to assist DOE in prioritizing its activities. Through this process, DOE expects that some schedules will be revised before the Site Treatment Plans are approved and orders issued.

Emerging technologies or new facilities that provide opportunities to manage waste more safely, effectively, and at lower cost will be evaluated as they are identified. Working closely with stakeholders during the implementation of the Plan, DOE will continue to evaluate technologies that offer potential advantages in the areas of public acceptance, risk abatement, performance and life cycle cost. Should better technology options be identified, DOE may request a plan modification in accordance with provisions of the implementing Federal Facilities Compliance Act.

FEMP PREFERRED OPTIONS	CURRENT QUANTITY OF WASTE IN m^3	5 YEAR RATE OF WASTE IN m^3
HF Neutralization System	20	0
UNH Treatment System	761	0
Thorium Nitrate Treatment System	22	0
Wastewater Treatment	20	6
Ohio Mobile Stabilization System	391	288
Ohio Mobile Chemical Treatment System	494	72
TSCA Incinerator	394	327
Envirocare*	44	534

* The quantity of mixed low level waste specified for Envirocare does not require treatment prior to disposal. The waste will be shipped from the FEMP to Envirocare for final disposition.

6797

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

ABSTRACT

000007

Background Volume

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT PROPOSED SITE TREATMENT PLAN

ABSTRACT

This Proposed Site Treatment Plan consists of the Background Volume, Appendices A through E and the Plan Volume.

Background Volume

The Background Volume provides a detailed discussion of the preferred option(s), the methodologies for determining the preferred options, waste stream information, and information to supplement the Plan Volume. The Background Volume identifies additional information referenced in the PSTP such as Site History and Mission, Framework for Developing DOE's Site Treatment Plans, Proposed Site Treatment Plan Organization, and related activities (e.g., Mixed Waste Inventory Report, The Programmatic Environmental Impact Statement for Waste Management, NEPA Compliance, and Compliance Agreements).

Appendix A, PSTP Development Framework Applications

Appendix A presents an evaluation of treatment options for the FEMP mixed waste streams. Viable options were further evaluated to develop Preferred Options (POs) for all FEMP mixed waste streams.

Appendix B, Ohio Mixed Waste Treatment Option

Appendix B describes efforts by the DOE to develop and evaluate the treatment options available for DOE mixed waste within Ohio. An Ohio Work Group, consisting of representatives from the Ohio DOE mixed waste sites, was formed to research and evaluate these treatment options. The Ohio Work Group's summary of treatment options is identified within this appendix.

Appendix C
FEMP Mixed Waste Streams/Treatability Groups

Appendix C presents information on the FEMP mixed low level waste streams in tables sorted by treatability groups. The treatability groups were developed by DOE-HQ to have a uniform method of tracking mixed low level waste streams throughout the DOE complex.

Appendix C, Treatment Trains
Treatment Descriptions and Treatment Trains

Appendix C, Treatment Trains provides detailed discussion on the development of treatment trains assembled for treatment of FEMP mixed low level waste streams for compliance with Land Disposal Restrictions. The mixed low level waste streams have been re-grouped in tables by treatment train and located behind a diagram of each associated treatment train.

Appendix D, Stakeholder Involvement

Appendix D provides an overview of information disseminated and input received on the development of the documents on the Federal Facility Compliance Act (FFCAct) at the FEMP.

Appendix D consists of information which sequentially documents: Regulatory Agency comment and FEMP responses, public comment and the FEMP responses, as well as public meetings, presentations, fact sheets, notifications, news articles and briefings associated with the FFCAct.

Appendix E, Definitions

Appendix E identifies terms, abbreviations, and definitions that have been referenced in the Proposed Site Treatment Plan. Definitions have been derived from regulatory documents, DOE documents, environmental journals, and technical resources.

Plan Volume

The Plan Volume identifies schedules, including assumptions on which individual schedules are dependent, for the treatment of FEMP mixed low level wastes as required by the FFCAct.

6797

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

BACKGROUND VOLUME

000010

Background Volume Summary

The Background Volume is one of two volumes that comprise the Proposed Site Treatment Plan (PSTP). The Background Volume provides: a detailed discussion of the preferred treatment option(s), the methodologies for determining the preferred options, waste stream information, and supplemental information for the Plan Volume. The Background Volume identifies additional information referenced in the Proposed Site Treatment Plan such as: Site History and Mission, Framework for Developing DOE's Site Treatment Plans, Proposed Site Treatment Plan Organization, and Related Activities (e.g., Mixed Waste Inventory Report, The Programmatic Environmental Impact Statement for Waste Management, NEPA Compliance, and Compliance Agreements).

PROPOSED SITE TREATMENT PLAN
BACKGROUND VOLUME
TABLE OF CONTENTS

PAGE #

1.0 INTRODUCTION 1

1.1 Purpose and Scope 1

1.2 Site History and Mission 4

1.3 Framework For Developing DOE's Proposed Site Treatment Plans 6

1.4 Proposed Site Treatment Plan Organization 8

1.5 Related Activities 10

2.0 METHODOLOGY 13

2.1 Assumptions 13

2.2 Preferred Option Selection Process 15

2.2.1 Treatment Options Selection Process - FEMP 15

2.2.2 Treatment Options Selection Process - Options Analysis Team 17

2.3 Coordination with Regulatory Agencies and Other Stakeholders 19

2.3.1 Regulator - FEMP Interactions 19

2.3.2 DOE Public Participation/Stakeholder Involvement . . . 21

2.4 Characterization of Mixed Wastes 24

2.4.1 Mixed Waste Management Process for Evaluation and Treatment 26

Figure 2.4.1 - Mixed Waste Management Flow Diagram 27

2.5 Waste Minimization 30

2.5.1 Waste Minimization Program Overview 30

2.5.2 Waste Minimization Activities Involving Mixed Waste . . 31

PROPOSED SITE TREATMENT PLAN
BACKGROUND VOLUME
TABLE OF CONTENTS

PAGE #

3.0 MIXED LOW LEVEL WASTE STREAMS 33

3.1 Mixed Waste Streams for which Technology Exists 34

3.1.1 Waste Stream for which Technology Exists - Preferred Option: Hydrofluoric Acid (HF) Neutralization System . 35

Figure 3.1.1 - HF RCRA Closure Project Schedule 36

3.1.2 Waste Stream for which Technology Exists - Preferred Option: Uranyl Nitrate Hexahydrate (UNH) Treatment System 38

Figure 3.1.2 - UNH Neutralization System Project Schedule . . 40

3.1.3 Waste Stream for which Technology Exists - Preferred Option: Thorium Nitrate Treatment System 42

Figure 3.1.3 - Thorium Nitrate RCRA Closure Project Schedule 44

3.1.4 Waste Streams for which Technology Exists - Preferred Option: Wastewater Treatment 46

Figure 3.1.4 - Liquid Mixed Waste Project Schedule 47

3.1.5 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Stabilization System 50

Figure 3.1.5 - Stabilization Project Schedule 52

3.1.6 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Chemical Treatment System 59

3.1.6.1 Secondary Waste from the Chemical Treatment Project 61

Figure 3.1.6A - Secondary Waste Generation Rates 62

Figure 3.1.6B - Chemical Treatment Project Schedule 63

3.1.7 Waste Streams for which Technology Exist - Preferred Option: TSCA Incinerator 80

Figure 3.1.7 - Liquid Mixed Waste Project Schedule 81

3.1.8 Waste Streams for which Technology Exists - Preferred Option: Envirocare 96

PROPOSED SITE TREATMENT PLAN
BACKGROUND VOLUME
TABLE OF CONTENTS

PAGE #

3.2 Mixed Waste Streams for which Technology Exists but Needs Adaptation or for which No Technology Exists 98

3.3 Mixed Wastes Streams Requiring Further Characterization or for which a Treatment Option Assessment Has Not Been Done . . 98

3.3.1 FEMP Legacy Group A/B - "Suspect" and "NFA" 99

Figure 3.3.1 - FEMP Legacy Group A/B Schedule 100

3.3.2 FEMP Legacy Group E2/G/H - "Unassigned Waste" 101

Figure 3.3.2 - Legacy Group E2/G/H Schedule 103

3.3.3 FEMP Legacy Group I - "Backlogged Boxes" 104

Figure 3.3.3 Legacy Group I Schedule 105

4.0 TRU MIXED WASTE STREAMS 106

5.0 HIGH LEVEL MIXED WASTE STREAMS 106

6.0 FUTURE GENERATION OF MIXED WASTE STREAMS 106

6.1 Routine Operations/Closure/D&D Wastes 106

6.2 CERCLA Remediation Wastes 108

6.2.1 Description of Technology and Capacity Needs 111

6.2.2 Anticipated Schedule for Incorporating in Plan 111

7.0 STORAGE REPORT 112

7.1 Current Storage Capacity 112

7.2 Future Storage Requirements 114

PROPOSED SITE TREATMENT PLAN
BACKGROUND VOLUME
TABLE OF CONTENTS

PAGE #

8.0 PROCESS FOR EVALUATING DISPOSAL ISSUES IN SUPPORT OF THE SITE TREATMENT PLAN DISCUSSIONS 115

8.1 Background 115

8.2 Disposal Planning Process 116

8.2.1 Activities to Date 116

Figure 8.2 - Disposal Planning Process 117

Figure 8.2.1 - Initial Site Screening 119

8.2.2 Next Steps in the Evaluation Process 122

8.3 Integration with the STP Process 124

8.4 FEMP Disposal Factors 124

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
BAT	Best Available Technology
BCL	Battelle Columbus Laboratories
BDAT	Best Demonstrated Available Technology
BIODG	Biodegradation
BLDG.	Building
°C	Centigrade (degrees)
CAA	Clean Air Act
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
CH	Contact-Handled
CHAR	Characterization
CHOXD	Chemical or Electrolytic Oxidation
CHRED	Chemical Reduction
Ci	Curie
CPID	Closure Plan Information and Data
CRU	CERCLA/RCRA Unit
CSTP	Conceptual Site Treatment Plan
CWA	Clean Water Act
CY	Calendar Year
D&D	Decontamination and Decommissioning
DEACT	Deactivation
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOE-FN	U.S. Department of Energy - Fernald
DOE-HQ	U.S. Department of Energy - Headquarters
DOE-OR	U.S. Department of Energy - Oak Ridge
DOT	U.S. Department of Transportation
DP	DOE Defense Programs
DQO	Data Quality Objectives
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
EPA	U.S. Environmental Protection Agency

ACRONYMS AND ABBREVIATIONS (Continued)

ES&H	Environmental Safety and Health
F	Fluorine
°F	Fahrenheit (degrees)
FCTF	Fernald Citizens Task Force
FEMP	Fernald Environmental Management Project
FERMCO	Fernald Environmental Restoration Management Corporation
FFCA	Federal Facility Compliance Agreement
FFCAct	Federal Facility Compliance Act
FRESH	Fernald Residents for Environmental Safety and Health
FS	Feasibility Study
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
g	Gram
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 Restrictions
LLEXT	Liquid-liquid Extraction
LLMW	Low Level Radioactive Mixed Waste
LLRW	Low Level Radioactive Waste
LLW	Low Level Waste
m^3	Cubic meter
MACRO	Macroencapsulation
MAWS	Minimum Additive Waste Stabilization
MC&A	Materials Control and Accountability
MEF	Material Evaluation Form
MGF2	Magnesium Fluoride
MLLW	Mixed Low Level Waste
mm	Millimeter
MMES	Martin Marietta Energy Systems, Inc.
MREM	Millirem
MW	Mixed Waste
MWIR	Mixed Waste Inventory Report
nCi/g	Nano curies per gram
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NEUTR	Neutralization

ACRONYMS AND ABBREVIATIONS (Continued)

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
OAC	Ohio Administrative Code
OAT	Option Analysis Team
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
POHC	Principal Organic Hazardous Constituent
PORTS	Portsmouth
PP	Proposed Plan
ppb	Parts per billion
PPE	Personal Protective Equipment
ppm	Parts per million
PPOA	Pollution Prevention Opportunity Assessments
PRECP	Chemical Precipitation
PSD	Prevention of Significant Deterioration
PSTP	Proposed Site Treatment Plan
QA	Quality Assurance
QC	Quality Control
QTY	Quantity
RA	Removal Action
RACM	Regulated Asbestos Containing Materials
RAD	Radiation
RCGAS	Recovery or Reuse of Compressed Gases
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RH	Remote Handled
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

ACRONYMS AND ABBREVIATIONS (Continued)

SACD	Stipulated Amendment to the Consent Decree
SARA	Superfund Amendments and Reauthorization Act of 1986
SCQ	Sitewide CERCLA Quality Assurance Project Plan
SDWA	Safe Drinking Water Act
SR	Savannah River
S/ST	Stabilization/Solidification Techniques
SSAB	Site Specific Advisory Board
STABL	Stabilization
STP	Site Treatment Plan
SWIFT	Sitewide Information, Forecasting, and Tracking System
TBP	Tributyl Phosphate
TC	Toxicity Characteristic
TCA	Trichloroethane
TCLP	Toxicity Characteristic Leaching Procedure
T&D	Treatment and Disposal
Th	Thorium
ThO2	Thorium Oxide
TN	Tennessee
TOC	Total Organic Carbon
TRU	Transuranic
TSC	Treatment Standard Concentration
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
TSDF	Treatment, Storage, and Disposal Facility
U	Uranium
UNH	Uranyl Nitrate Hexahydrate
URAN.	Uranium
USEPA	U.S. Environmental Protection Agency
UTS	Universal Treatment Standard
UV	Ultraviolet Light
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WC	Waste Characterization
WETOX	Wet Air Oxidation
WIPP	Waste Isolation Pilot Plant
WMP	Waste Minimization Program
WM PEIS	Waste Management Programmatic Environmental Impact Statement
WM/PP	Waste Minimization/Pollution Prevention
WPM	Waste Programs Management Division
WWT	Wastewater Treatment
WWTS	Wastewater Treatment System
YR	Year

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
PROPOSED SITE TREATMENT PLAN
BACKGROUND VOLUME

1.0 INTRODUCTION

1.1 Purpose and Scope

The United States 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 Proposed Site Treatment Plans (PSTPs) describing the development of treatment capacities and technologies for treating mixed waste: defined by the FFCAct 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 Fernald Environmental Management Project (FEMP) PSTP is being provided to the Ohio Environmental Protection Agency (OEPA) for approval in accordance with the FFCAct.

The FEMP PSTP is the result of a "bottom up" process described in an April 6, 1993, Federal Register notice (58 FR 17875). Subsequently, the DOE instructed all Site Treatment Plans (STPs) be submitted as PSTPs. Upon approval, the PSTP will be implemented as the Site Treatment Plan under the FFCAct Order issued by the OEPA. The DOE has followed an iterative process in developing the PSTPs, working closely with State regulatory agencies and USEPA at the site and national level throughout the process. The FEMP PSTP follows two interim versions: a Conceptual Site Treatment Plan submitted in October 1993 and a Draft Site Treatment Plan submitted in August 1994, which were provided to regulatory agencies and made publicly available. The Conceptual Site Treatment Plan identified a range of preliminary options for treating the mixed waste at the FEMP. The Draft Site Treatment Plan identified site-specific preferred treatment options which had not yet been evaluated for impacts to other DOE sites or to the overall DOE program. The DOE initially planned to submit the PSTPs at the end of February 1995. However, the DOE revised its submittal date with the support of the States and USEPA to allow for additional discussions (60 FR 10840, February 28, 1995). The FEMP Conceptual Site Treatment Plan, Draft Site Treatment Plan and other related information are available at the Public Environmental Information Center (PEIC), 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45050.

The treatment options presented in the FEMP Draft Site Treatment Plan were compared with treatment options developed throughout the DOE complex to present the DOE preferred options for the treatment of FEMP mixed low level waste. When not possible, schedules for alternative activities such as waste characterization are provided as appropriate. The process DOE followed was coordinated with State and USEPA regulators and is described in Section 2.2, Preferred Option Selection Process. The DOE believes the treatment options contained in the PSTPs represent a sensible national configuration for mixed waste treatment systems that balances DOE's interests and concerns and the input DOE received on the Draft Site Treatment Plans from the regulatory agencies and others.

The FEMP PSTP also contains schedules for planning, or modifying existing equipment, implementing and obtaining mobile treatment systems for the treatment of FEMP mixed low level waste. However, the schedules in the FEMP PSTP have not yet been integrated with those of other DOE sites from a technical, complex wide perspective. DOE faces increasingly tight budgets throughout the DOE complex and anticipates that funding will continue to be constrained. The schedules in this and other PSTPs reflect these anticipated funding constraints.

The schedules contained in this and the PSTPs for other sites are based on funds currently budgeted for and projected to be available for waste management activities. As a result, schedules in the PSTPs for some facilities, particularly the largest and most costly facilities, may be protracted. Schedules for small sites that are relying on the treatment capacity at larger sites may also be affected. DOE anticipates that, at some sites, funds will be shifted from other environmental management activities to support more sensible and integrated schedules for mixed waste treatment.

The DOE has discussed with the States and the USEPA the difficulty the DOE faces in providing timely schedules for some of the proposed treatment facilities given its current budgetary constraints, and the need to consider whether funds from other activities should be shifted to support more timely schedules. The States and USEPA recommended that the PSTPs be submitted with schedules consistent with current budget and priorities. As part of its efforts to develop its budget request for Fiscal Year 1997, the DOE has asked regulatory agencies to work with the DOE and other interested parties at the site and National levels to assist in prioritizing activities (including mixed waste treatment) and in assessing activities under way and that need to be accomplished at the site. The DOE and the regulatory agencies expect that some schedules in the PSTPs will be revised before the PSTPs are approved and FFCAct Orders issued.

Even after the PSTPs are approved, the DOE anticipates that modifications and adjustments to the STPs will be necessary as a result of the technical and funding uncertainties that naturally exist with long term activities like those covered in the PSTP. For example, emerging or new technologies not considered in the PSTP that provide opportunities to manage waste more safely, effectively, and at lower cost than current technologies may be identified in the future. Working closely with regulators and other interested parties during the implementation of the Site Treatment 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 more promising technologies be identified, DOE may request a modification of its treatment plan in accordance with provisions of the implementing FFCAct Order.

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 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 DOE 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 and the environment 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 FEMP Waste Management Program, are the two main FEMP activities geared towards site cleanup.

The FEMP Waste Management Program prevents the release of pollutants into the environment by eliminating the source term. 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 and mixed wastes 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 of hazardous waste.

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 (OUs) to facilitate cleanup. 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 Proposed Site Treatment Plans

RCRA Land Disposal Restrictions (LDR) 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 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. The 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 FFCAct postpones the waiver for three years for LDR storage prohibition violations for DOE's mixed wastes and requires the 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 of public comment. A FFCAct Order will then be issued by the regulatory agency requiring compliance with the STP. The FFCAct 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 in compliance with an approved STP and an implementing FFCAct Order.

The FFCAct requires the STPs to contain schedules for developing capacity for mixed waste for which identified treatment technologies exist. For mixed waste without an identified existing treatment technology, the STP must include a schedule for identifying and developing technologies. The FFCAct also requires that the plan provide certain information where radionuclide separation is proposed. The FFCAct 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.

The "Schedule for Submitting Plans for Treatment of Mixed Waste Generated or Stored at Each Site", was published April 6, 1993, as a notice in the Federal Register (58 FR 17875). In the Notice, DOE committed to providing the STPs in three phases: a Conceptual Site Treatment Plan completed by October 1993, a Draft Site Treatment Plan completed by August 1994, and a PSTP completed by February 1995 (later revised to March 1995). This process provides opportunity for early involvement by the States and other stakeholders to discuss technical and equity issues associated with each phase of the plans.

The FEMP Conceptual Site Treatment Plan, submitted in October 1993, focused on identifying treatment needs, capabilities, and options for treating the FEMP's mixed waste. The FEMP Draft Site Treatment Plan, submitted in August 1994, focused on identifying site-specific preferred options for treating the FEMPs mixed wastes, wherever possible, as well as proposed schedules for constructing capacity. The options presented the site's best judgement of the available information and the State's preferences, and served as a starting point for discussion leading to the development of the FEMP PSTP.

The FEMP PSTP is being submitted to the regulatory agency for review and approval, approval with modification, or disapproval, as required by the FFCAct. Each version of the STP reflects the statewide, as well as site-specific, input from the individual regulatory agencies and other interested parties on previous submittals. It is DOE's intent that this iterative process, with ample opportunity for input and discussion, will facilitate approval of the PSTP and issuance of the FFCAct Order required by the FFCAct. DOE's goal is to have all STPs and implementing FFCAct Orders in place by October 1995.

1.4 Proposed Site Treatment Plan Organization

The FEMP's PSTP follows the same format as the Proposed Site Treatment Plans of the other DOE sites to facilitate comparisons among sites. The PSTP is organized in two separate, but integrated volumes.

The Background Volume contains information on the waste streams and the preferred option or options, describes uncertainties associated with that option, budget status of the option, and any regulator and stakeholder input.

The Plan Volume is a focused document containing the Preferred Options (POs) and schedules for implementing the options. The Plan Volume also addresses the implementation of the PSTP.

Both volumes contain relevant introductory material in Sections 1 and 2. The Background Volume contains general information on the PSTP and the site in Section 1.0 and provides top-level assumptions and a description of the framework used to determine the preferred options in Section 2.0.

Section 2.0 of the Plan Volume presents certain funding and scheduling administrative issues relevant to the implementation of the PSTP.

Sections 3.0 through 5.0 of both volumes discuss the POs for mixed low level waste, mixed transuranic waste, and mixed high level waste. Of these three, only mixed low level waste is present at the FEMP. Each volume discusses the waste streams and POs within Section 3.0. The Background Volume discusses the waste streams, technology needs, uncertainties and other details on the POs. In the Plan Volume these sections include proposed schedules as required under the FFCAct.

The Background Volume includes three additional sections (6.0 to 8.0) that are not included in the Plan Volume. These sections are not required by the FFCAct and are provided for informational purposes.

Section 6.0 discusses mixed low level wastes expected to be generated in the next five years to assist in anticipating treatment needs. As wastes are generated, the waste streams, treatment technologies 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 low level wastes, pending treatment.

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

Appendix A of the PSTP discusses the process for selecting the Preferred Options and describes the results of applying the "Draft Site Treatment Plan Development Framework". For each PO, this appendix describes how options from the Conceptual Site Treatment Plan and Draft Site Treatment Plan were evaluated and why each PO was selected. Appendix A also contains cost information developed to support the options analysis.

Appendix B provides information on the Ohio Work Group. The Ohio DOE sites met throughout the development of the PSTP to compare common Treatability Groups/Waste Streams and to identify treatment options.

Appendix C provides detailed information on each FEMP waste stream by Treatability Group. Appendix C also contains a full description and diagram of each treatment train identified for each FEMP waste stream.

Appendix D provides examples of information provided to the public during development of the PSTP and stakeholder and regulatory agency comments on the FEMP's Draft Site Treatment Plan and the FEMP responses.

Appendix E provides definitions for terminology used in the PSTP.

1.5 Related Activities

Other DOE documents are closely linked to PSTP 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.

Mixed Waste Inventory Report

The Mixed Waste Inventory Report (MWIR), required by the FFCAct, 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. The Interim Mixed Waste Inventory Report, published by the DOE in April 1993, provided information on a waste stream-by-waste stream basis for each DOE site that generates or stores mixed waste. The DOE made updated waste stream and capacity data available to the States and USEPA in May 1994. The May 1994 MWIR data represents the best record of the DOE's mixed waste inventory at the beginning of 1994. However, because data is constantly being refined, waste stream information in the FEMP's Proposed Site Treatment Plan may differ somewhat from the May 1994 MWIR data. Any changes in waste stream information are explained in the Appendix C.

The DOE is in the process of preparing an update to the MWIR data. The MWIR update is being closely coordinated with preparation of the PSTPs to ensure maximum consistency in waste stream information between the PSTPs and the MWIR. The updated MWIR data will be available by June 1995.

The Programmatic Environmental Impact Statement for Waste Management

The DOE is preparing a Programmatic Environmental Impact Statement (PEIS) which will be used to formulate and implement a waste management program in a safe and environmentally sound manner and in compliance with applicable laws, regulations and standards. The PEIS is intended to present to the public, States, EPA 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 the following waste types and activities: high level, transuranic, mixed low level, low level, and hazardous waste. The analysis for the Waste Management (WM) PEIS will evaluate decentralized, regional, and centralized approaches for storage of high level waste; treatment and storage of transuranic waste; treatment and disposal of low level and mixed low level waste; and treatment of hazardous waste.

Development of the WM PEIS is being coordinated with the preparation of the Proposed Site Treatment Plans under the FFCAct. Information being generated to support the WM PEIS (e.g., hypothetical configurations, preliminary risk analyses and cost studies) is shared with states to support PSTP discussions. The Draft WM 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 EPA through the PSTP process. However, the WM 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, EPA and DOE discuss using existing facilities and constructing new mixed waste facilities to treat mixed waste.

The Draft WM PEIS is scheduled to be published in May 1995. The Final PEIS will be issued after a public comment period, at or near the time of issuance of the FFCAct Orders by the appropriate regulatory agency. To remain flexible and accommodate potential changes, the WM PEIS Record of Decision for mixed waste will be issued after the appropriate regulatory agency has issued the FFCAct Orders.

NEPA Compliance

In June 1994, DOE issued a revised policy on compliance with the National Environmental Policy Act (NEPA). One of the major provisions of this policy is that DOE may, after consultation with Stakeholders, rely on the CERCLA process to meet the procedural requirements of NEPA. DOE consulted Fernald Site Stakeholders regarding implementing this provision of the policy and received no objections.

The activities to be implemented under the PSTP are proposed to be incorporated into CERCLA Removal Actions and RCRA Closure actions. Formal NEPA documentation will not be required. However, consistent with the provisions of the policy, a NEPA evaluation will be conducted for all activities proposed under the PSTP. Any specific measures that must be employed to meet the substantive requirements of NEPA will likely be incorporated into the Project Specific Work Plans.

It is unlikely that implementation of the PSTP will result in significant environmental impacts. However, if significant impacts are identified, it may be necessary to solicit additional stakeholder input during the planning of the project to fully meet the substantive values of NEPA.

Compliance Agreements

Additional requirements for mixed waste management which will impact the FEMP's PSTP are contained 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. 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 PSTP.

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 substances 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).

The implementation of related compliance agreements and CERCLA/RCRA regulations at the FEMP is discussed with each Preferred Option in Section 3.0 and in Section 6.0 of the Background Volume.

Other Documents

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

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 PSTPs. The assumptions were developed as part of the "Draft Site Treatment Plan Development Framework" and reflect review and comment from the state agencies 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 PSTPs will not change management strategies for HLW.

   The FEMP does not manage or store any HLW.

2. Regarding defense related transuranic (TRU) waste, the PSTPs will reflect DOE's current strategy that the Waste Isolation Pilot Plant (WIPP) will open and receive a No Migration Variance. The PSTPs 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 LDR standards should not be included in the PSTPs at this time.

   However, the PSTPs will recognize that DOE's policy regarding WIPP is under review and may change in the future. As such, the PSTPs 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 PSTPs should reflect treatment of non-defense mixed TRU waste to meet LDRs.

   The FEMP does not manage or store any TRU waste.

3. DOE recognizes some states' preferences 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.

5. Mixed waste generated during 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 PSTPs are being considered for managing ER and D&D waste.

6. The PSTP addresses all wastes in the updated Mixed Waste Inventory Report (MWIR). Changes to the MWIR waste stream and treatment facility information are explained in the Appendix C of the PSTP.

7. On a volume basis, the 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 waste requiring remote-handling. 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 PEIS is being performed in parallel with the development of the STPs. The STP process will provide information to the PEIS. In general, no additional NEPA documentation will be needed to support development and submittal of the PSTPs. However, each site will prepare the necessary specific NEPA documentation before proceeding with a given project or facility identified in the PSTP.

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

2.2.1 Treatment Options Selection Process - FEMP

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". The Draft Site Treatment Plan Framework established common terminology, objectives and values, planning assumptions, and recommended methodology for narrowing the alternatives presented in the Conceptual Site Treatment Plan. Detailed information pertaining to the selection of the Preferred Options is provided in Appendix A.

The following are guidance documents used in the Preferred Option selection process:

The "Treatment Selection Guides" provides information on selecting 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 PSTP treatment options was as follows:

1. The process began by identifying the on-site, existing, and planned treatment facilities which are potential treatment options for mixed waste. Initially these options were listed without regard to regulatory/permit concerns or modifications required to treat mixed waste.

2. Viable treatment options identified in the Conceptual Site Treatment Plan were considered for further evaluation.

3. The FEMP mixed waste treatment activities either in progress or planned were also considered viable treatment options. These activities included RCRA Closure of Hazardous Waste Management Units and CERCLA Removal Actions.

An initial screening was performed on the potential treatment options. The screen was based on the ability of a treatment option to comply with the threshold criteria: regulatory compliance and protection of human health and the environment. A technology did not proceed further in the evaluation process if it could not meet a threshold criteria. Treatment options failing the threshold criteria were eliminated from further evaluation.

The remaining treatment options were considered viable and then evaluated using the "Treatment Selection Guides" prepared by the DOE FFCAct Task Force. Cost estimates have been developed to the extent possible with available information concerning a given treatment option. The cost estimates are conservative estimates based on limited information and are intended to be order of magnitude estimates for the purpose of comparison between options. The cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low Level Waste," actual FEMP project cost estimates, and information directly obtained from other DOE sites.

2.2.2 Treatment Options Selection Process - Options Analysis Team

The Draft Site Treatment Plans were prepared by the sites using a "bottom up" approach. The resulting treatment configuration, when viewed from a national level, contained many redundancies and inefficiencies. In developing the PSTPs, an assessment was performed to determine what accommodations are necessary to blend the "bottom up" Draft Site Treatment Plans into a more sensible national configuration of treatment systems. To facilitate this assessment, DOE established the Options Analysis Team (OAT) comprised of site representatives and members of the Headquarters' FFCAct Task Force. The OAT coordinated their efforts with the States, through the National Governors' Association, to ensure the national mixed waste configuration reflects both the States' and DOE's concerns. As part of this evaluation, the impacts of implementing the emerging Draft Site Treatment Plan configuration, as well as alternative configurations, were evaluated.

The focus of the OAT's efforts has been on mixed low level waste (MLLW). While high level waste (HLW) and mixed transuranic waste (TRU) are also covered by the FFCAct, the strategies for managing these wastes have already been established. However, DOE recognizes that modifications of these strategies may be needed as the programs evolve and new information becomes available.

In combination, the Draft Site Treatment Plans form a mixed waste treatment configuration which was the baseline for the OAT analyses. Changes to the Draft Site Treatment Plan configuration proposed by the OAT are based on the following analyses:

1. Review of the Draft Site Treatment Plan baseline configuration to identify redundant and technically inefficient proposed treatment options.

2. Identification of alternative treatment configurations that emphasize key State and DOE concerns.

3. Evaluation of the Draft Site Treatment Plan baseline and alternate configurations against key evaluation areas to determine what combination of treatment options results in configuration that best meets DOE's, the States', EPA's and other stakeholders' concerns.

The results of the initial OAT analysis were shared with each of the sites and the State regulators, as well as DOE management. The OAT worked for several more months responding to State requests for additional analysis, incorporating ongoing site analysis, and responding to comments. The resulting configuration, as presented in the PSTPs, is DOE's best attempt to balance competing DOE and stakeholder interests.

2.3 Coordination with Regulatory Agencies and Other Stakeholders

The FFCAct offers an opportunity for the DOE and the State and USEPA regulators who will be approving the PSTPs to work cooperatively toward defining mixed waste treatment plans. As requested by the States, the DOE signed a cooperative agreement in August 1993 with the National Governors' Association (NGA) to facilitate the DOE-to-State interactions. The NGA has sponsored national meetings on a routine basis with DOE, the States, USEPA, and the Indian Nations throughout the development of the PSTPs.

The FFCAct requires the States and USEPA to provide for public involvement after the PSTPs are submitted. The DOE has provided additional opportunities for public input into the development of Conceptual and Draft Site Treatment Plans through existing public involvement mechanisms at the site.

At the National level, the DOE has presented information on the development of the PSTPs to the Environmental Management Advisory Board and held an open house in Washington, D.C., when the Draft Site Treatment Plans were released. The DOE also met informally with representatives of Indian Tribes and separately with representatives of other groups that may have interest in Site Treatment Plan development. The purpose of the meetings was to determine if there are national issues that may not be identified through site-specific activities. Additional opportunities to obtain input at the National level may be offered in coordination with the States and USEPA. The Center for Environmental Management provides information on FFCAct activities at the National level (1-800-736-3282; 202-836-5084 in Washington, D.C.).

2.3.1 Regulator - FEMP Interactions

Since the submittal of the Conceptual Site Treatment Plan in October 1993, the representatives of the FEMP, in conjunction with the four other Ohio DOE sites met with OEPA on seven occasions: November 1993, February 1994, April 1994, June 1994, October 1994, December 1994, and January 1995 to discuss the development of the PSTP. Additionally, the FEMP had monthly phone conversations with the OEPA. Issues discussed and presentations included:

- Update by Ohio DOE sites of "Ohio Options"
- Progress Reports from each site on PSTP development
- Discussion of the site treatment planning outline
- Relationship of compliance orders/issues to the outline
- Incorporation of POs into PSTP

- Disposal issues related to residue volumes and interim handling
- Evaluation process or selecting preferred options
- Contractual issues associated with receiving off-site waste.
- PSTP Format and Content:
  - Addressing storage of residuals while awaiting disposal
  - Need to identify process for addressing disposal in PSTPs
- Discussion of the FEMP's "Waste Management Strategy"
- Meeting with OEPA staff to preview Draft Site Treatment Plan prior to review (September 1994)
- Discussion of OEPA general comments on Ohio DOE Draft Site Treatment Plans
- Discussion of OEPA comments on FEMP Draft Site Treatment Plan
- Funding and scheduling issues and impacts
- Regulatory mechanism for implementation of POs
- Equity issues between shipping and treatment and/or disposal states
- Incorporation of DOE OAT configuration recommendations
- Draft "Ohio Option" white paper detailing coordination efforts by Ohio sites.

All stakeholder comments and FEMP responses have been forwarded to the OEPA.

2.3.2 DOE Public Participation/Stakeholder Involvement

The DOE at Fernald has a public participation program that commits to providing the public opportunities to participate in decision making at the 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 laws and regulations which apply to the FEMP. However, DOE has committed to going beyond these requirements 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 forums are 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 - The 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 public reading room at the PEIC.

- Telephone and Personal Contacts - The 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 - The DOE will continue to provide briefings about Fernald activities to government officials, FRESH and any other interested groups.

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

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

- Public Reading Room at the PEIC - This area contains information related to the FEMP and other DOE sites, including cleanup technologies and historical information.

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

- Responsiveness Summaries - Summary of comments received during public comment periods and DOE's responses.

- The Fernald Project Cleanup Report - The CERCLA newsletter that provides information about the remedial investigation, feasibility study, and remedial 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 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 FEMP for documenting waste characterizations. The MEF is completed by the generator or project supervisor responsible for generating the waste. The completed form, along with any other identified information/documentation, is evaluated by FEMP personnel. Additional sources of information 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
- Vendor specification information

The use of process knowledge for waste characterization must be justifiable and include supporting documentation. Process knowledge is most appropriate when one or more of the following conditions exist, as identified by draft guidance issued by the DOE and the USEPA, for the characterization of mixed waste:

- Collection of representative samples from a waste stream is difficult due to its physical nature. (e.g., solid materials such as metals, glass, or wood)
- Waste collection and analysis of material would result in unacceptable risk of radiation exposure. DOE policy requires that exposure to radioactive material must be maintained as low as reasonably achievable (ALARA).
- Waste is heterogenous in composition and collecting a representative sample is difficult.

When process knowledge is insufficient to characterize a waste stream, analytical methods are used to supplement the existing process knowledge. Each waste stream is analyzed for those parameters most likely to yield the maximum amount of chemical and physical information. In addition, specific analyses are selected based on knowledge of the waste generation process, and the constituents suspected to be in the waste. Specific sampling and analysis also may be required to demonstrate compliance with LDR treatment standards, classify waste for transportation under Department of Transportation (DOT) requirements, or to meet receiving TSD facility Waste Acceptance Criteria (WAC).

Data Quality Objectives (DQO) are utilized to establish the quality and quantity of data required to satisfy decision-making needs. The Sitewide CERCLA Quality Assurance Project Plan (SCQ) establishes the framework for ensuring that DQO and quality assurance requirements are met for individual projects and that quality assurance requirements are implemented on a consistent basis throughout data gathering activities at the FEMP.

2.4.1 Mixed Waste Management Process for Evaluation and Treatment

The administrative project management process utilized by the FEMP is a progressive and functional-based process. This process allows for near term treatment and disposal of the FEMP mixed waste. The treatment and disposal of the mixed waste reduces the mixed waste inventory, which results in the reduction of potential long term exposure to workers and the environment and reduces storage space requirements.

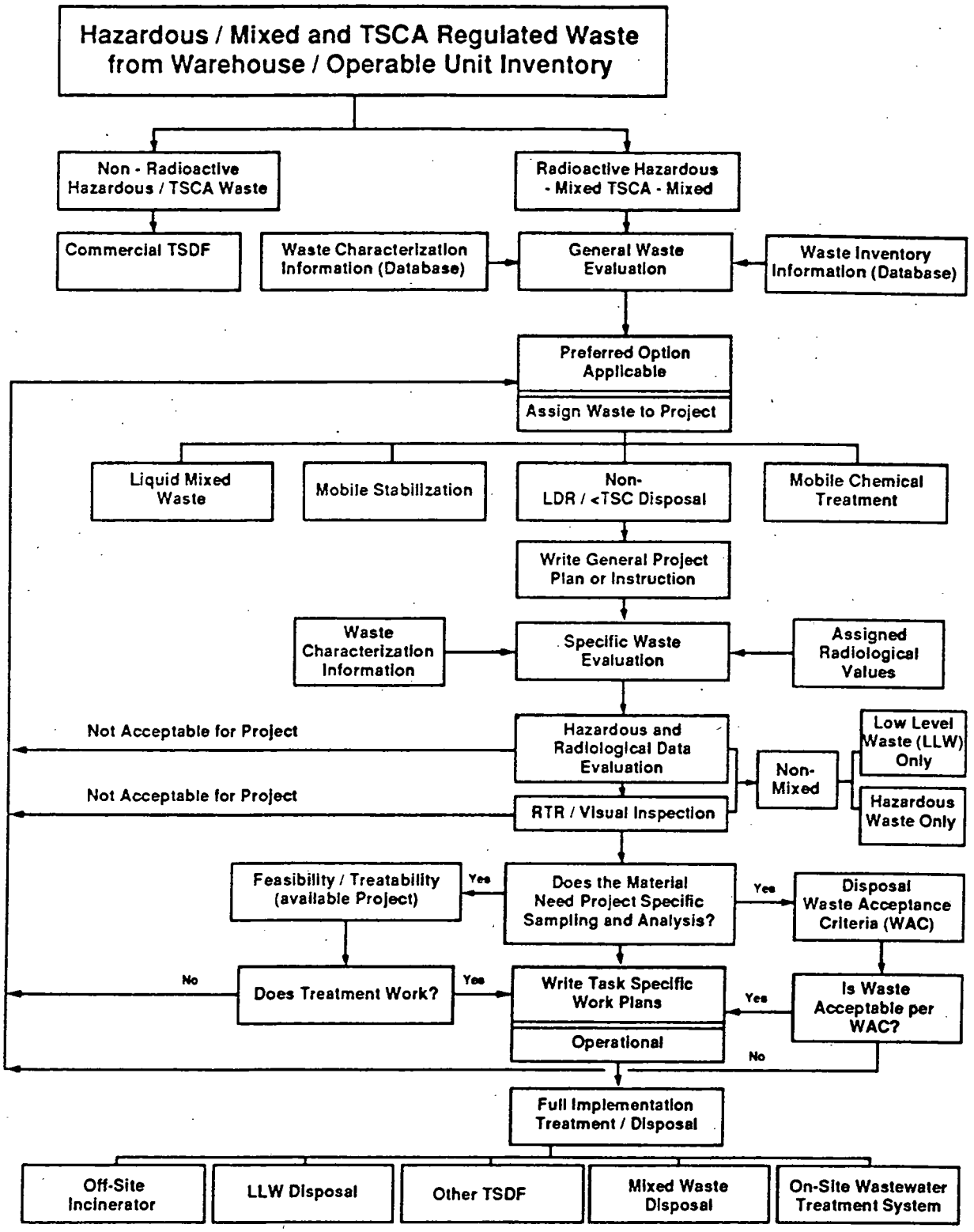
Figure 2.4.1 provides a flow diagram of the steps involved in the administrative project management process. The initial step in the process is to segregate the waste into groups that will then be assigned to specific projects. At the FEMP, projects are the management tool for planning, budgeting, and scheduling implementation of a PO. A project may contain one or more preferred options. First, the RCRA hazardous and TSCA wastes are separated based on the presence of radioactive contamination. If the waste contains no radioactive contamination, it will be shipped directly off-site for treatment to a licensed commercial treatment, storage, and disposal facility. Radioactively contaminated waste continues through the process.

Next, a general evaluation of the mixed waste is performed by utilizing two existing FEMP databases. Each of the databases contain information beneficial to the management of the mixed waste. A description of each database is provided below:

- The Waste Characterization Information Database provides general waste characterization information on each waste stream including EPA waste codes, general material description, and MEF numbers. The MEF numbers are used to reference detailed information on each waste stream available in the Waste Characterization data files.

- The Waste Inventory Information Database provides inventory numbers, waste quantities, storage locations, and waste generation locations. This database is cross-referenced to the Waste Characterization database by MEF number.

Figure 2.4.1



Graphics # 2734.2a 1/95

Based on the general evaluation, the mixed waste is assigned to one of several projects. These projects provide mechanisms for managing groups of similar wastes to meet EPA LDR treatment standards. The steps or treatment processes needed to treat a group of waste are linked together and diagrammed in treatment trains. The following table provides the projects which manage the mixed waste and the corresponding Preferred Options and Treatment Trains.

Project	Preferred Option	Treatment Trains
HF RCRA Closure	HF Neutralization System	O
UNH Neutralization System	UNH Treatment System	N
(1) Liquid Mixed Waste Project	Wastewater Treatment	A
	TSCA Incinerator	C, E, K
(2) Stabilization Project	Ohio Mobile Stabilization System	D
(3) Chemical Treatment Project	Ohio Mobile Chemical Treatment System	F, G, H, I, J, L, M
(4) Non-LDR/<TSC Disposal Project	Envirocare	B
Thorium Nitrate RCRA Closure	Thorium Nitrate Treatment System	P

General project work plans will be written for projects **(1)**, **(2)**, **(3)**, and **(4)**. General project work plans describe the specific technology(ies) used, the testing required to validate the assigned technology(ies), and the parameters for the waste entering the treatment systems. Treatment system capacity and effectiveness will depend on the volume of waste to be treated and the waste matrix. The work plans will define the scope of the primary treatment process, including any pretreatment steps required to complete the treatment train. The work plans will also provide qualifiers (i.e., waste acceptance criteria) for the waste to be processed through the system.

After being assigned to a project, the waste stream will go through a detailed evaluation to determine if supplemental information is required. Sources of this information include:

- Waste Characterization MEF files
- Radiological concentration data
- Available visual inspections from previous characterization efforts. (If no visual inspections are available, or if existing inspections require supplemental information, the drums may be examined through the Real Time Radiography unit. This keeps potential exposure to workers as low as reasonably achievable by minimizing direct contact with the waste)
- Sampling and analysis

As additional information is obtained on the waste, it may be determined that the currently assigned project is not appropriate. The waste can then be reassigned through the management system to a different project without losing the information obtained during the initial evaluations.

After appropriate information is obtained and available treatment units have been identified, task specific work plans will be developed for operation of the treatment systems and for the performance of supporting operations. Upon completion of these plans, full implementation of the operations can begin.

Some waste streams will require a multi-step treatment approach (i.e., chemical treatment followed by stabilization). This management system allows for easy transfer of treated waste residues to other projects. Treatment of some waste may generate secondary waste requiring additional treatment through these processes.

The UNH Neutralization System is being implemented under Removal Action #20 and specific information is provided in the Removal Action Work Plan. The HF RCRA Closure Project is being performed as a RCRA Closure and specific information is provided in the RCRA Closure Plan Information and Data (CPID). The Thorium Nitrate RCRA Closure Project will also be performed as a RCRA Closure. A schedule for completing the Thorium Nitrate CPID has been provided in the PSTP.

2.5 Waste Minimization

2.5.1 Waste Minimization Program Overview

The purpose of the Waste Minimization Program is to actively seek out and implement opportunities to reduce waste management responsibilities and costs.

The FEMP Waste Minimization Program is responsible for:

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

2.5.2 Waste Minimization Activities Involving Mixed Waste

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

The overall objective of the Waste Minimization Program is to reduce the amount and toxicity of wastes generated at the FEMP. Waste minimization is and will be accomplished by eliminating or minimizing the generation of 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.

Waste minimization efforts will be incorporated into the planning and engineering stages of a project. These efforts could include minimizing generation of mixed waste through cross contamination, and using one FEMP mixed waste as a reactant to treat another FEMP mixed waste, thus reducing the need to purchase new chemicals. A tracking mechanism will be developed to account for waste reduction as a result of the minimization efforts. The following are brief explanations of ongoing or planned Waste Minimization Program activities on-site:

Ongoing 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, by using a chemical tracking data base
- Compiling mixed waste generation data and rates from routine activities in years past and making 5 year generation projections. This identifies and prioritizes mixed waste for PPOAs
- Performing PPOAs on Wastewater Treatment System and the laboratory processes focusing on the elimination or reduction of the toxic chemical methanol
- Segregating excess chemicals in the laboratories. The chemicals are lab-packed before being dispositioned as hazardous waste instead of mixed waste

Planned Activities:

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

- Develop procedures to recycle silver-zinc and nickel-cadmium rechargeable batteries

3.0 MIXED LOW LEVEL WASTE STREAMS

Mixed wastes at the FEMP can be divided into two general categories: containerized waste currently in storage (which includes legacy and routine operations waste) 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 in October 1994. The FEMP currently has identified 44 mixed waste treatability groups which represent 324 waste streams. All inventoried mixed waste identified by the FEMP can be treated using existing technologies.

The FEMP waste streams are organized by treatability groups in tables located in Appendix C. These tables present the following information: Mixed Waste Inventory Report (MWIR) identification number, EPA waste codes, waste description, current and five year rate quantities, radiological concentrations, basis of characterization, LDR treatment standard, treatment train/project name, and Preferred Option/disposal option.

Waste streams are organized in tables behind their respective treatment train in Appendix C, Treatment Trains.

In addition to the FEMP mixed waste inventory, a mixed waste stream from Battelle Columbus Laboratory has been identified for treatment at the FEMP. Additional information on the Battelle Columbus Laboratory waste stream identified for treatment at the FEMP is provided in Section 3.1.5 which describes the Ohio Mobile Stabilization System.

The States will continue discussion of mixed waste being treated at off-site locations. These discussions may involve equity issues to establish a fair and just distribution of mixed waste treatment at DOE sites. These equity discussions may result in additional DOE sites identifying the FEMP for treatment of their mixed wastes in the future.

Acceptance of waste from off-site may impact current treatment schedules by requiring issuance of a RCRA permit for mixed waste treatment. In addition, the FEMP has not established waste acceptance criteria for receipt of off-site waste streams. The FEMP will continue to discuss these issues with stakeholders.

Additional FEMP mixed waste streams may be identified through on-going characterization efforts. Waste streams which are determined to be mixed waste will be assigned to projects as described in Section 2.4.1. It is anticipated that new mixed waste streams identified in these efforts will be compatible with current Preferred Options.

The FEMP is proposing to treat mixed waste generated from HWMU RCRA Closures, Interim Remedial Actions, and Safe Shutdown activities through Preferred Options identified in the PSTP. These mixed wastes may include residual process materials, associated equipment and debris. Information on future generated waste is also provided in Section 6.0.

3.1 Mixed Waste Streams for which Technology Exists

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

The FEMP's mixed waste streams are organized by Preferred Option in this section of the Background Volume. Each description of the Preferred Option is followed by a table which lists the waste streams that can be treated to LDR treatment standards using the technology(ies) specified by the Preferred Option.

The tables provide information on each waste stream as described below:

Column #1 MEF#

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

Column #2 MWIR ID#

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

Column #3 EPA CODES

Identifies EPA Waste Codes associated with each waste stream.

Column #4 WASTE DESCRIPTION

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

Column #5 CURRENT QTY

Quantities in kilograms (kgs) are taken from the Materials Control and Accountability (MC&A) database. Inventory is current as of October 21, 1994.

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

Column #6 5 YEAR RATE

The total quantity of mixed waste projected to be generated over the next five years (FY 1995 - FY 1999) from routine operations. These projections do not include remediation waste.

3.1.1 Waste Stream for which Technology Exists - Preferred Option: Hydrofluoric Acid (HF) Neutralization System

Table 1 represents the FEMP mixed waste stream for which the Preferred Option is identified as the HF Neutralization System. This system will be implemented through the HF RCRA Closure Project which is being performed as a RCRA Closure of a Hazardous Waste Management Unit (HWMU). Project schedules will be subject to the FFCAct Order. The Closure Plan and Information Data (CPID) which describes the HF RCRA Closure Project was approved by the OEPA in February 1995.

The LDR treatment standard for this waste is deactivation and treatment can be accomplished through the use of on-site existing facilities. 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 wastes will be filtered through the existing Wastewater Treatment System (WWTS) (Plant 8 Filter Press). The filtrate will be discharged through the FEMP WWTS under the existing National Pollutant Discharge Elimination System (NPDES) Permit. The filter solids will be managed as low level radioactive waste.

The HF RCRA Closure schedule is driven by the approval of the CPID. The schedule requires completion of field activities for closure within 180 days from the OEPA approval of the CPID and submittal of the Closure Certification within 240 days of approval, consistent with the requirements of Ohio Administrative Code (OAC) 3754-66-13(B). The OEPA approved the CPID in February 1995. Based on the schedule in the CPID, field work is to be completed by August 1995. The closure will be completed in September 1995.

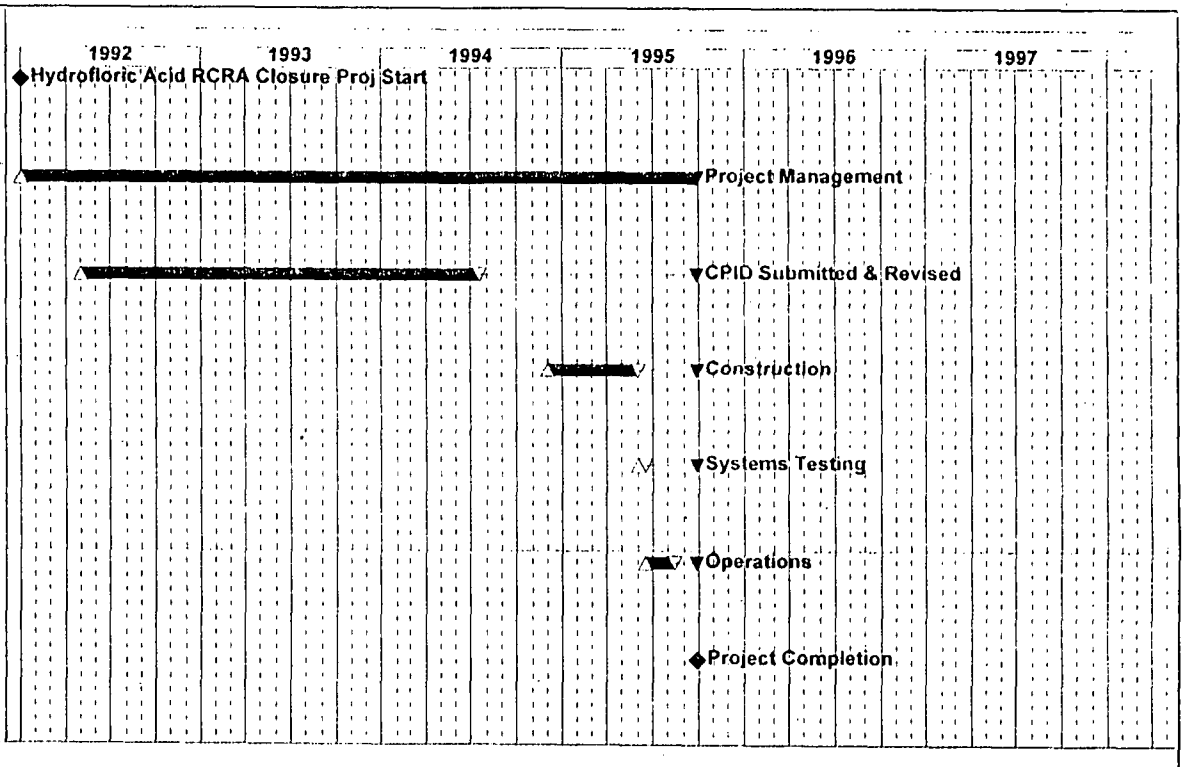
A budget, including funding for fiscal year 1995, has been prepared for this project. This budget includes funding for disposal. The cost estimate for completing this option is available in Appendix A, Section 2.1. An engineering schedule for the HF RCRA Closure Project is provided as Figure 3.1.1.

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.

Figure 3.1.1

HF RCRA Closure Project Schedule

Activit ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0010	Hydrofloric Acid RCRA Closure Proj Start	0	0	02JAN92*	
0020	Project Management	977*	977*	02JAN92*	29SEP95
0030	CPID Submitted & Revised	577*	577*	01MAY92*	18JUL94
0040	Construction	129*	129*	01DEC94*	30MAY95
0050	Systems Testing	11*	11*	01JUN95*	15JUN95
0060	Operations	43*	43*	15JUN95*	14AUG95
0070	Project Completion	0	0		29SEP95*



Project Start 02JAN92
Project Finish 29SEP95
Data Date 02JAN92
Plot Date 29MAR95

Early Bar
Float Bar
Progress Bar
Critical Activity

(c) Primavera Systems, Inc.

HARC

Sheet 1 of 1

FERMCO/FEMP

Hydrofluoric Acid RCRA Closure

000055

2629

TABLE #1

3.1.1 MIXED WASTE STREAM 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	D002	Dilute hydrofluoric acid HF Tank Car	19,710	19.7	0	0
			ESTIMATED TOTALS:	19,710	19.7	0	0

000056

2629

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

Table 2 represents the FEMP mixed waste stream for which the Preferred Option is identified as the UNH Treatment System. This system is being implemented through the UNH Neutralization System Project. 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. Project schedules will be subject to the FFCAct Order.

The LDR treatment standards for this waste stream is concentration based and deactivation. The FEMP plans to meet these treatment standards using on-site facilities.

In place, or in situ, neutralization of the contents of six of the eighteen UNH tanks with magnesium oxide powder will commence at the end of March 1995. The neutralized contents of these tanks will be pumped to the Plant 2 neutralization tanks for inclusion in the scheduled neutralization operations for the remaining 12 UNH tanks (after July 1995) for subsequent transfer to Plant 8 for filtration.

The UNH solutions in the remaining 12 UNH tanks will be neutralized, precipitated and filtered. The UNH will be pumped in batches to a neutralization tank in Plant 2 where it will be mixed with water to develop a solution containing $\leq$ 1 normal free acid and $\leq$ 100 grams per liter of uranium. Each batch will then be neutralized 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 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. The liquid filtrate will be treated in existing wastewater treatment facilities to allow discharge under the present FEMP NPDES permit. The high nitrate filtrate will be discharged for treatment in the Biodenitrification facility. The solid filter cake is expected to be non-hazardous and meet waste acceptance criteria for shipment to the Nevada Test Site (NTS) for disposal as low level radioactive waste.

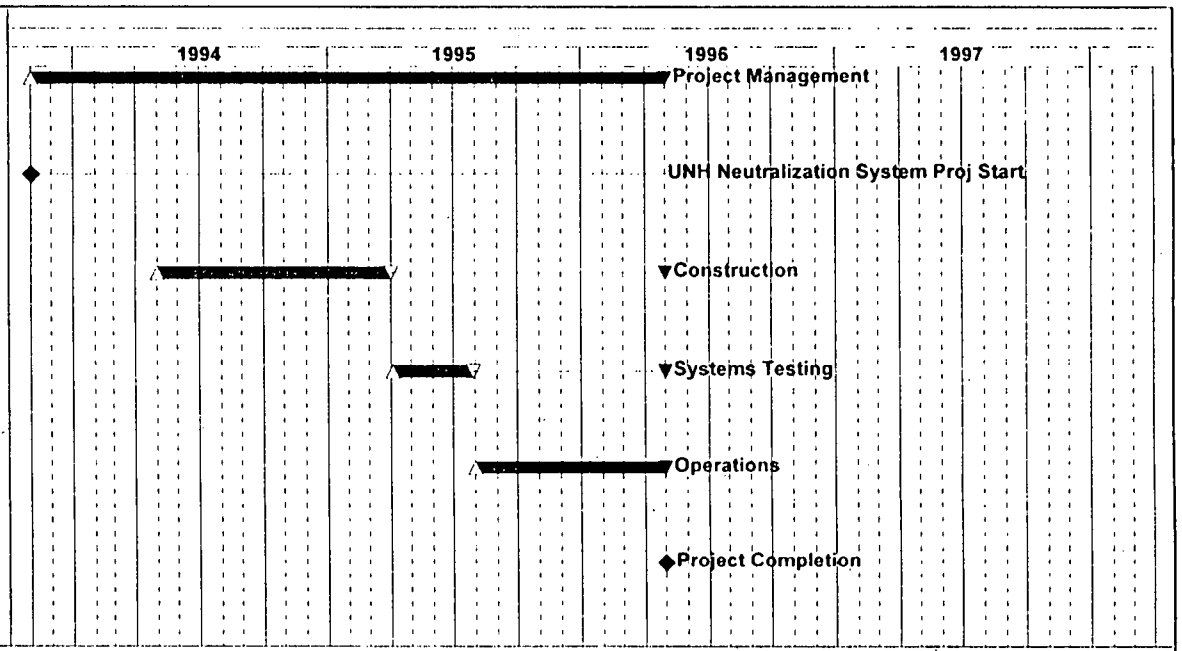
A revised schedule and the budget for the UNH project was submitted by the DOE to the USEPA and the OEPA in February 1995. Revised schedule information has been incorporated. The estimated cost of the UNH Neutralization System Project, based on current project planning efforts, funding considerations, and OEPA approval, is $14,400,000. An engineering schedule for the UNH Neutralization System Project is provided as Figure 3.1.2.

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.

Figure 3.1.2

UNH Neutralization System Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0020	Project Management	652*	652*	01NOV93*	30APR96
0010	UNH Neutralization System Proj Start	0	0	01NOV93*	
0030	Construction	240*	240*	02MAY94*	31MAR95
0040	Systems Testing	85*	85*	03APR95*	28JUL95
0050	Operations	197*	197*	31JUL95*	30APR96
0060	Project Completion	0	0		30APR96*



Project Start 01NOV93
Project Finish 30APR96
Data Date 01NOV93
Plot Date 29MAR95
(c) Primavera Systems, Inc.

Early Bar
Float Bar
Progress Bar
Critical Activity

UNHN

Sheet 1 of 1

FERMCO/FEMP

UNH Neutralization System

000059

2629

TABLE #2

3.1.2 MIXED WASTE STREAM 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	D002 D005 D007	UNH Solution in tanks	840,000	761	0	0
			ESTIMATED TOTALS:	840,000	761	0	0

060060

2629

3.1.3 Waste Stream for which Technology Exists - Preferred Option: Thorium Nitrate Treatment System

Table 3 represents the FEMP mixed waste stream for which the Thorium Nitrate Treatment System was chosen as the Preferred Option. The LDR treatment standards for this waste stream are deactivation and concentration based. This system will be implemented through the Thorium Nitrate RCRA Closure Project which is being performed as a RCRA Closure of a HWMU. Project schedules will be subject to the FFCAct Order. The CPID is scheduled to be submitted to OEPA in November 1995. A treatability study is currently underway to select an appropriate treatment process for the thorium nitrate. The study is evaluating two neutralization processes. These processes are Neutralization/Stabilization and Neutralization/Filtration.

Neutralization/Stabilization would blend the thorium nitrate solution with a neutralizing agent. The neutralized product would then be combined with an appropriate stabilizing agent to achieve a dry, non-reactive product. The product would be managed as low level radioactive waste. Implementation of this process would require the construction of a treatment system. The primary elements of the system would include: 1) agitated neutralization tank, 2) thorium nitrate transfer piping and equipment, 3) neutralization agent introduction equipment, 4) neutralized product transfer equipment, 5) stabilization agent/blending equipment and 6) containers and handling equipment for shipment and disposal of the stabilized product.

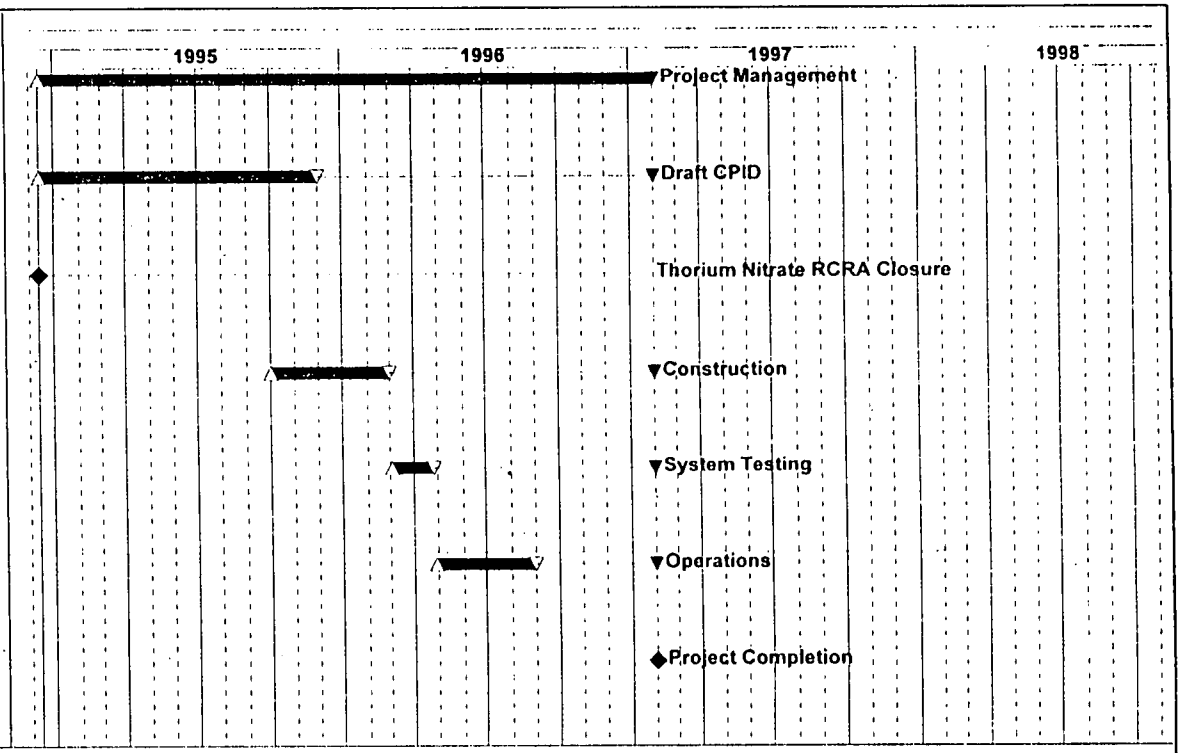
Neutralization/Filtration would transfer the thorium nitrate solution to the neutralization tank in Plant 2/3. There the solution would be blended with a neutralizing agent to achieve a neutralized product. The product would then be pumped to Plant 8 for filtration. The resulting filter cake would be collected in drums for disposal and the wastewater would be processed through the FEMP Wastewater Treatment System for discharge under the existing NPDES permit. The primary elements of this treatment system would encompass: 1) transfer piping and transport equipment, 2) agitated neutralization tank, 3) neutralized product transfer piping and equipment, 4) staging and holding tanks, 5) filtration equipment, 6) container and handling equipment for shipment and disposal of stabilized product, and 7) wastewater discharge system.

Funding for this project for fiscal year 1995 has currently been provided for completion of the treatability study and the CPID. An engineering schedule for the Thorium Nitrate RCRA Closure Project is provided as Figure 3.1.3. The current schedule may need to be revised based on the results of the treatability study and the RCRA Closure process.

Figure 3.1.3

Thorium Nitrate RCRA Closure Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0020	Project Management	560*	560*	12DEC94*	31JAN97
0030	Draft CPID	254*	254*	12DEC94*	30NOV95
0010	Thorium Nitrate RCRA Closure	0	0	12DEC94*	
0040	Construction	110*	110*	02OCT95*	01MAR96
0050	System Testing	40*	40*	04MAR96*	26APR96
0060	Operations	90*	90*	29APR96*	30AUG96
0070	Project Completion	0	0		31JAN97*



Project Start	12DEC94	Early Bar	
Project Finish	31JAN97	Float Bar	
Data Date	12DEC94	Progress Bar	
Plot Date	29MAR95	Critical Activity	

(c) Primavera Systems, Inc.

TNRC

Sheet 1 of 1

FERMCO/FEMP

Thorium Nitrate RCRA Closure

000063

2629

TABLE #3

3.1.3 MIXED WASTE STREAM FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: THORIUM NITRATE 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)
2594	FM-N359	D002 D006 D007	Thorium Nitrate Solution in Tank T-2	8,892.0	22.0	0	0
			ESTIMATED TOTALS:	8,892.0	22.0	0	0

000084

2629

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

Table 4 represents the FEMP mixed waste streams for which the Preferred Option is identified as Wastewater Treatment. Wastewater Treatment will be implemented as part of the Liquid Mixed Waste Project. The Liquid Mixed Waste Project is designed to address treatment and disposal of all liquid mixed waste currently in storage through the Wastewater Treatment Preferred Option or the TSCA Incinerator Preferred Option. The LDR treatment standards for these waste streams are concentration based and/or deactivation. The FEMP plans to meet these treatment standards using on-site facilities.

The FEMP proposes to initiate this project under the regulatory authority of CERCLA Removal Action #9. Project schedules will be subject to the FFCAct Order.

Liquids will be bulked (i.e., consolidated into a tank or other large container), tested, and a determination will be made whether they are acceptable for treatment by the FEMP Wastewater Treatment System (WWTS).

The FEMP WWTS is currently operating and capable of treating aqueous waste streams to meet requirements of the NPDES permit. The FEMP is currently working on consolidation and replacement of the FEMP WWTS. The newly constructed FEMP Advanced Wastewater Treatment (AWWT), initiated startup activities in January 1995. Mixed wastewaters entering this system may require pre-treatment such as pH adjustment. The WWTS will only accept liquids that can be effectively treated to meet the existing NPDES permit discharge levels.

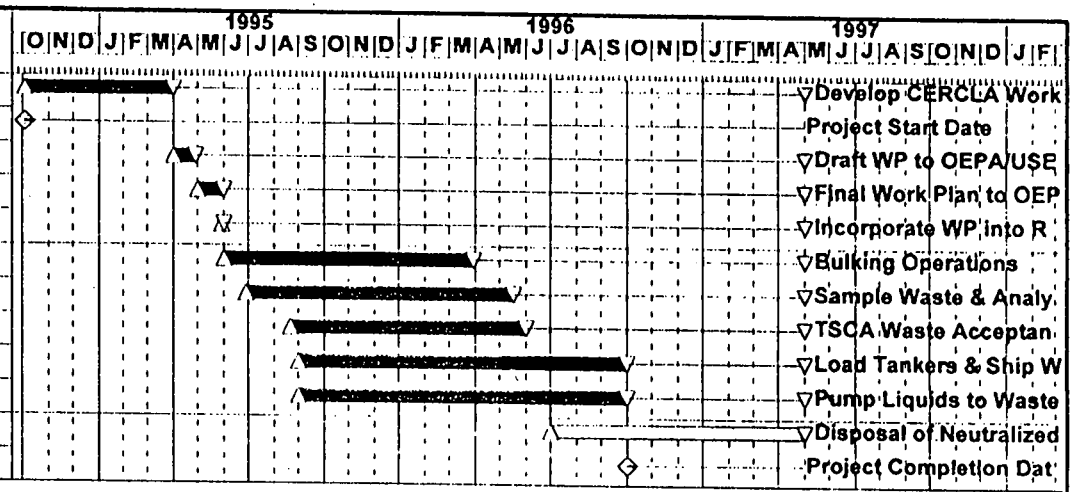
The information on budgets and schedules for bulking and testing liquids destined for WWTS are included in the budget and schedules for the Liquid Mixed Waste Project. The budget, including funding for fiscal year 1995, is prepared and has been incorporated into the baseline. The budget includes all life-cycle costs for treatment and mixed waste disposal associated with this project, but excludes cost for low level waste disposal. The cost estimate is available in Appendix A, Section 2.4. An engineering schedule for the Liquid Mixed Waste Project, which includes the Wastewater Treatment Preferred Option, is provided as Figure 3.1.4. The project schedule will be subject to the FFCAct Order.

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

Figure 3.1.4

Liquid Mixed Waste Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0030	Develop CERCLA Work Plan	123*	123*	03OCT94*	31MAR95
0010	Project Start Date	0	0	03OCT94*	
0040	Draft WP to OEPA/USEPA &	19*	19*	03APR95*	28APR95
0050	Final Work Plan to OEPA	22*	22*	01MAY95*	31MAY95
0020	Incorporate WP into RA9	1*	1*	31MAY95*	31MAY95
0060	Bulking Operations	208*	208*	01JUN95*	29MAR96
0070	Sample Waste & Analyze per	221*	221*	30JUN95*	17MAY96
0080	TSCA Waste Acceptance	195*	195*	21AUG95*	31MAY96
0090	Load Tankers & Ship Waste	270*	270*	01SEP95*	30SEP96
0100	Pump Liquids to Waste Water	270*	270*	01SEP95*	30SEP96
0110	Disposal of Neutralized Waste	208*	208*	01JUL96*	30APR97
0120	Project Completion Date	0	0		30SEP96



Project Start	27SEP93
Project Finish	30APR97
Data Date	01OCT94
Plot Date	21MAR95

(c) Primavera Systems, Inc.

Early Bar
Float Bar
Progress Bar
Critical Activity

LMWP

FERMCO/FEMP
LIQUID MIXED WASTE PROJECT
Classic Schedule Layout

Sheet 1 of 1

000066

2629

TABLE #4

3.1.4 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	D002 D019	Caustic solution (NaOH) from Plant 8 raffinate processing	292	0.4	0	0
1178	FM-W096	D007 F002	Groundwater from Well #2649	752	1.2	1,537	1.3
1462	FM-N360	D002	Contaminated water from Chemical Pit #2 surface cap	397	0.6	0	0
1692	FM-W113	D002 D007	Nitric Acid	31	0.2	0	0
1938	FM-W319	D007 D008 D010	Non-chloride, contaminated water or sump liquor from Plant 1 Drum Painting Booth.	170	0.2	0	0
2210	FM-W325	D001	Hydrogen peroxide solution	908	0.8	4,763	4.1
2257	FM-W329	D002	TCLP extracts lab generated waste	155	0.2	811	0.7
2362	FM-N393	D002 D007 D008 D018 D035 D039 D040	Radioactive Acidic Lab Waste	10,544	9.4	0	0
2402	FM-N394	F001 F002 F005	Rinseate water	161	0.4	0	0

000067

2629

TABLE #4

3.1.4 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)
2554	FM-N395	D002	Acid waste	3,189	4.0	0	0
10014	FM-W136	D039	U-contaminated water	2,641	2.8	0	0
			ESTIMATED TOTALS:	19,240	20.2	7,111	6.1

000068

2629

3.1.5 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Stabilization System

Table 5 represents the FEMP mixed waste streams for which the Preferred Option is identified as the Ohio Mobile Stabilization System. Implementation of the Ohio Mobile Stabilization System as an option for the Ohio DOE sites is discussed in Appendices A and B.

Battelle Columbus Laboratory has identified one mixed waste stream to be treated at the FEMP, using the Ohio Mobile Stabilization System Preferred Option.

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
BATTELLE WASTE STREAM	BC-W001	D001	Flammable Metal Powders	77	0.042	130	0.0208

This system will be implemented at the FEMP through the Stabilization Project. Treatment of these waste streams will occur on-site using a vendor provided service. The LDR treatment standard for these waste streams is deactivation and/or is concentration based. The Ohio Mobile Stabilization System will treat characteristic and listed wastes requiring physical stability.

One example of a stabilization technology is low strength cement stabilization. This process uses a fine non-crystalline silica in fly ash and the calcium in lime to produce low strength cement. Physical trapping of the contaminant in the cured pozzolan-concrete matrix is the primary containment mechanism. Water is removed by hydrating the lime-pozzolan cement. Appendix C, Treatment Trains, discusses other stabilization techniques that may be utilized at the FEMP.

As a result of stabilizing mixed waste, the original waste volume is anticipated to double. This estimate is the high end of the anticipated waste volume increase range. Technology evaluation and treatability testing are expected to demonstrate higher processing efficiency.

The FEMP has initiated this project under the regulatory authority of CERCLA Removal Action #9. Project schedules will be subject to the FFCAct Order.

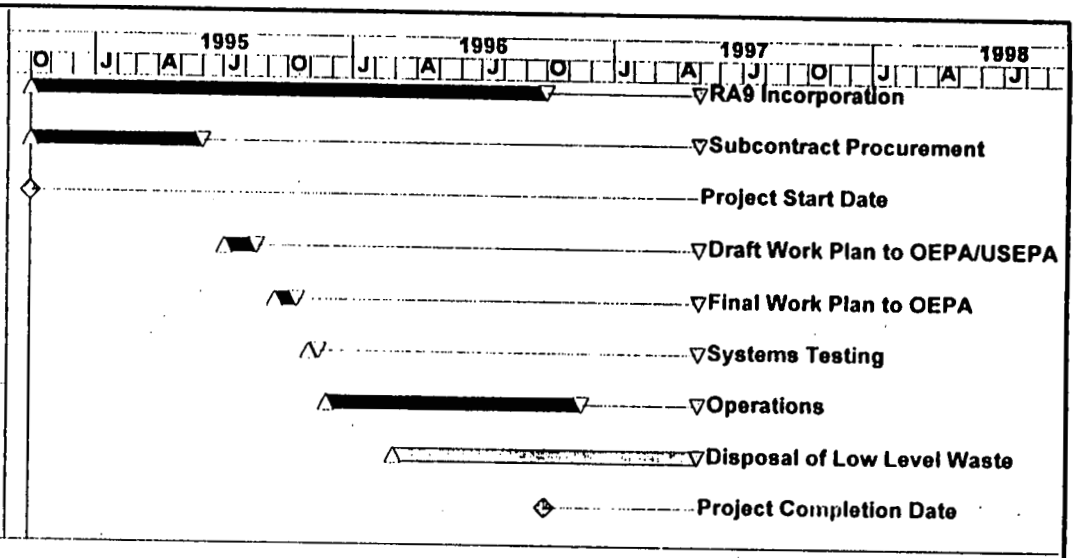
The level of confidence in characterization for treatment of these waste streams is medium. Characterization for these waste streams was completed to address storage requirements. A Treatability Study Work Plan has been prepared with the study beginning in August 1994.

A budget has been prepared for this project. Funding has been provided for fiscal year 1995. The budget includes all life-cycle costs for treatment associated with this project. Cost for low level waste disposal is excluded. Cost estimates for completing this option are available in Appendix A, Section 2.5. An engineering schedule for the Stabilization Project is provided as Figure 3.1.5.

Figure 3.1.5

Stabilization Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0020	RA9 Incorporation	499*	499*	03OCT94*	30SEP96
0030	Subcontract Procurement	164*	164*	03OCT94*	31MAY95
0010	Project Start Date	0	0	03OCT94*	
0040	Draft Work Plan to OEPA/USEPA	32*	32*	03JUL95*	16AUG95
0050	Final Work Plan to OEPA	23*	23*	13SEP95*	13OCT95
0080	Systems Testing	10*	10*	01NOV95*	15NOV95
0090	Operations	248*	248*	27NOV95*	19NOV96
0110	Disposal of Low Level Waste	292*	292*	01MAR96*	30APR97
0120	Project Completion Date	0	0		30SEP96*



Project Start	27SEP93
Project Finish	30APR97
Data Date	01OCT94
Plot Date	21MAR95

(c) Primavera Systems, Inc.

Early Bar
Float Bar
Progress Bar
Critical Activity

MSP1

FERMCO/FEMP
STABILIZATION PROJECT
Classic Schedule Layout

Sheet 1 of 1

000071

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
517	FM-W056	D007 D008	Oil dry contaminated with oil from baler	460	0.6	0	0
538	FM-W059	D006 D007 D008	Soil Boring #1508 from Fire Training grounds	2,754	1.8	0	0
700	FM-W083	D003	Magnesium flake and oily rags	75	0.2	0	0
757	FM-N392	D004 D007 D008 D010 D011	Brown particulate solid (dirt & rubble)	100	0.4	0	0
817	FM-W090	D008	Paint chips from sand filters at Water Plant	531	1.8	1,525	1.6
1380	FM-N415	D007 D008	Non-oily cleanout sludges from Plant 8	841	0.6	0	0
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	D008	Grit Blast	284,614	173.0	0	0
20015	FM-N396	D007	Scrap salts, low fluoride and floor sweepings from Plant 6 Nu-Sal Furnace Area	2,725	4.6	0	0

000072

2629

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
20024	FM-W159	D007 D008	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
20033	FM-W163	D008	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 D008	Scrap salts and floor sweepings - low fluoride from Plant 6 Rolling Area	230	0.4	0	0
20058	FM-W174	D006 D008	Dust collector residues - high fluoride	3	0.2	0	0
20120	FM-N349	D007	Dust collector bags	17.0	0.2	0	0
30027	FM-W190	D004 D005	Contaminated soil, rocks, sand from Plant 2/3 North Side Digester Area	2,867	1.8	0	0
30036	FM-W193	D006 D008	Dust collector residues - high fluoride from Plant 6 inspection Area	551	1.0	0	0

000073

2629

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
30060	FM-W202	D005	Wet sump or filter cake non-oily, non-halide from Pilot Plant	246	0.4	0	0
40137	FM-W209	D001	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	D008	ThO_2 Powder Refinery Feed	30	0.2	0	0
50063	FM-W224	D004 D008	Roasted MgF2 and other material from Plant 8 Rotary Kiln	2,349	1.4	0	0
50089	FM-N361	D001 D003	Contaminated magnesium	438	1.2	657	0.7
50090	FM-N419	D001 D003	Contaminated magnesium	964	2.2	0	0
50102	FM-W238	D006 D008	Process residues, trailer cakes, slurries, raffinates, etc. from Plant 6 Rolling Area	54	0.4	0	0
50148	FM-W242	D004	Scrap U3O8, 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

000074

2629

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50173	FM-W248	D007	Salt sludge, chloride from Plant 6 Salt-Oil Furnace	4,799	3.2	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 D008 D010	Furnace salt, non-chloride from Plant 6 Machining	10,942	7.6	0	0
50293	FM-W259	D004	U3O8 for re-oxidation from UNC Inc.	3,560	4.8	0	0
60107	FM-N416	D008	Asbestos abatement debris	30	0.2	0	0
60140	FM-W344	D010	Steel shot from Plant 1 Drum Reconditioning Wheelabrator Shot Blast Unit	4,088	3.2	0	0
60450	FM-N414	D007	Metal oxide powders, plasma spray powders	62	0.2	0	0
1229	FM-W101	D001 D008 D018 D019 D039 D040 F002 F003	Contaminated sump water	6,019	6.6	15,280	13.4
1306	FM-N418	D001 D008	Spill Cleanup from K-65 area	195	0.2	0	0

000075

2629

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1363	FM-N363	D005 D006 D007 D008 D009	Oily Sludges from the WWTS Area	556	0.4	0	0
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,632	6.6	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	D002 D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40185	FM-W212	D001 D007 D008	Impure thorium nitrate (solid)	838	0.2	0	0
50058	FM-W077	D007	Dust Collector Bags	12	0.2	0	0
50071	FM-N364	D001 D007	Solvent sludges from water treatment plant	194	0.2	0	0
50177	FM-W251	D001 D004 D008	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0

000076

2629

TABLE #5

3.1.5 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE STABILIZATION SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m^3)	5 YEAR RATE (kg)	5 YEAR RATE (m^3)
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0
50202	FM-W257	D001 D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001 D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0
Treatment of MEF #'s 1229 through 50204 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 50204.							
			ESTIMATED TOTALS:	488,155	391.4	20,390.5	22.1

000077

2629

3.1.6 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Chemical Treatment System

Table 6 represents the FEMP mixed waste streams for which the Preferred Option is identified as the Ohio Mobile Chemical Treatment System. Implementation of the Ohio Mobile Chemical Treatment System as an option for the Ohio DOE sites is discussed in Appendices A and B.

This system will be implemented at the FEMP through the Chemical Treatment Project. Treatment of these waste streams will occur on-site using vendor provided mobile services. The LDR treatment standards for these waste streams include technology and concentration based standards.

The FEMP proposes to initiate this project under the regulatory authority of CERCLA Removal Action #9. Project schedules will be subject to the FFCAct Order.

The Ohio Mobile Chemical Treatment System requires the utilization of a series of mobile components and technologies to treat the wastes. The mobile equipment may consist of the bulk waste handlers, dissolver trays and tanks, shredders, separation tables, 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. The mobile technologies will include treatment water recycle systems so the wash waters can be reused minimizing the quantity of wastewaters generated at the FEMP during this operation. The mobile technologies also will include, to the extent practicable, treatment systems for the reuse of chemicals and acids that are utilized in the treatment technologies. The following are the primary treatment technologies being proposed for use on the FEMP site:

- **Deactivation** - used to treat reactive characteristics of waste, thereby creating a non-hazardous waste
- **Pressurized Container Puncture Unit** - used to puncture aerosol cans and gas containers to facilitate removal of liquid contents
- **Chemical Oxidation/Wet Air Oxidation** - used to destroy organics in solid waste streams
- **Neutralization/Precipitation** - used to treat acidic, caustic and metals laden waste

- **Macroencapsulation** - utilized as a means of immobilization, primarily of metals waste

- **Amalgamation** - used to treat mercury contaminated waste

Detailed explanations of the above treatment technologies as well as other technologies being considered with this option are available in Appendix C, Treatment Trains.

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

The budget including life-cycle costs for treatment and mixed waste disposal has been prepared for this project, but excludes costs for low level radioactive waste disposal. This budget includes funding for fiscal year 1995. Cost estimates are provided in Appendix A, Section 2.6. An engineering schedule for the Chemical Treatment Project is provided as Figure 3.1.6B. This project schedule continues through 2001 and captures FEMP waste volumes estimated to be generated over the next five years. The schedule does not reflect treatment of secondary waste.

3.1.6.1 Secondary Waste from the Chemical Treatment Project

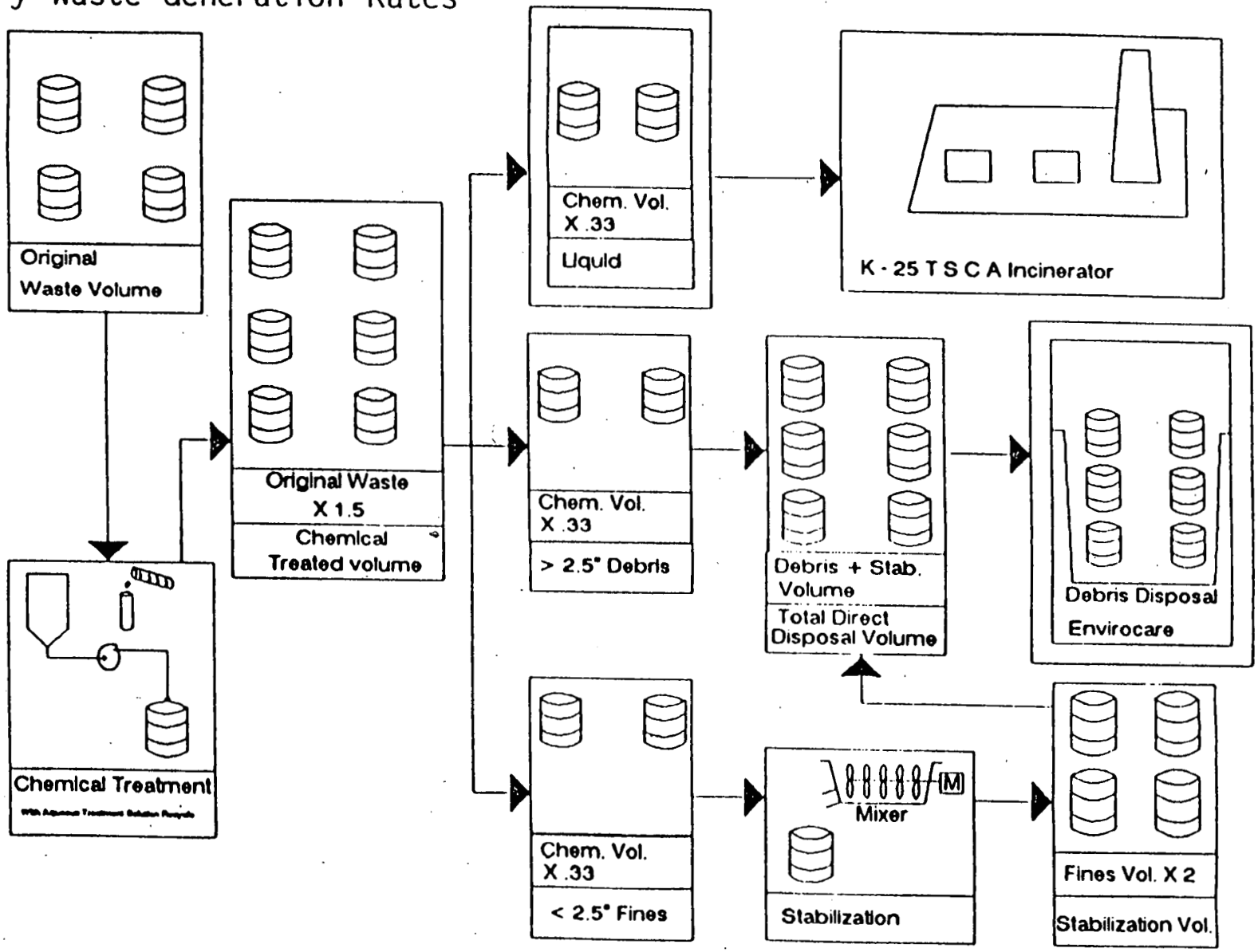
As a result of chemical treatment of mixed waste, the waste volume is anticipated to double. This estimate represents the high end of the anticipated waste volume increase range. Technology evaluation and treatability testing are expected to demonstrate higher processing efficiency. The treated waste form is anticipated to have a volume one and a half times greater than the untreated waste form. The remaining 50% volume increase will result from generation of secondary mixed wastes. These secondary mixed wastes will be treated by treatment options identified in the PSTP. Figure 3.1.6A provides a graphic depiction of the anticipated waste volume increases and the calculation factors for estimating the quantity of secondary waste generation.

Note that other secondary low level waste, such as personal protective equipment, generated from activities associated with bulking, packaging, shipping, and treatment of mixed waste on-site is assumed to be equal to five percent of the total waste volume to be processed.

The secondary waste streams to be generated are liquid waste, debris, and fines. Liquid waste is currently designated to be managed through the FEMP WWTS or the TSCA Incinerator. Debris will be shipped directly for disposal at Envirocare. Fines will be sent to Portsmouth for stabilization as part of the Ohio Mobile Stabilization System. Secondary waste streams and volumes generated are listed in Table 6.

Secondary Waste Generation Rates

Figure 3.1.6A



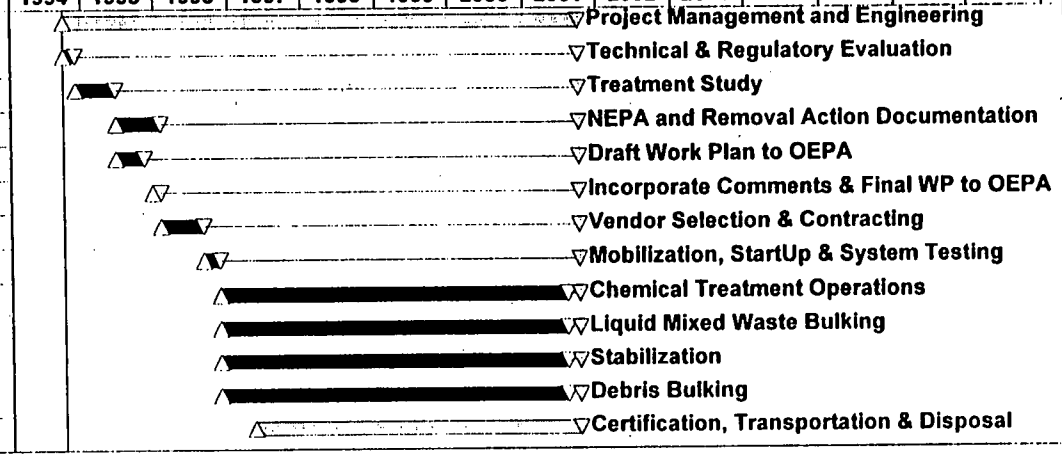
000081

2629

Figure 3.1.6B

Chemical Treatment Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0010	Project Management and	748*	748*	03OCT94*	28SEP01
0020	Technical & Regulatory	40*	40*	03OCT94*	30NOV94
0030	Treatment Study	141*	141*	01DEC94*	23JUN95
0040	NEPA and Removal Action	148*	148*	26JUN95*	29JAN96
0060	Draft Work Plan to OEPA	94*	94*	26JUN95*	06NOV95
0070	Incorporate Comments & Final	28*	28*	18DEC95*	29JAN96
0080	Vendor Selection & Contracting	145*	145*	30JAN96*	23AUG96
0090	Mobilization, StartUp & System	58*	58*	26AUG96*	15NOV96
0100	Chemical Treatment	172*	172*	18NOV96*	27JUL01
0102	Liquid Mixed Waste Bulking	172*	172*	18NOV96*	27JUL01
0105	Stabilization	172*	172*	18NOV96*	27JUL01
0108	Debris Bulking	172*	172*	18NOV96*	27JUL01
0110	Certification, Transportation &	108*	108*	28APR97*	28SEP01



Project Start	27SEP93	Early Bar	
Project Finish	28SEP01	Float Bar	
Data Date	01OCT94	Progress Bar	
Plot Date	21MAR95	Critical Activity	

(c) Primavera Systems, Inc.

MCTP

FERMCO/FEMP
CHEMICAL TREATMENT PROJECT
Classic.Schedule Layout

Sheet 1 of 1

280082

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL 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)
DEACTIVATION							
1550	FM-W302	D003	Uranium Hexafluoride	7	0.2	0	0
			DEACTIVATION SUBTOTALS	7	0.2	0	0
PRESSURIZED CONTAINER PUNCTURE UNIT							
1969	FM-N376	D001 D007 D008 D018 D019 D035 D039	Flammable aerosols	11	<0.2	262	0.3
			PRESSURIZED CONTAINER PUNCTURE UNIT SUBTOTALS	11	<0.2	262	0.3
CHEMICAL OXIDATION/WET AIR OXIDATION							
89	FM-W284	F002	Soil Boring #1412	234	0.2	0	0
180	FM-W002	F002	Rags, solvent	25	0.2	0	0
376	FM-W004	F002	Solvent contaminated rags	103	0.4	14	<0.1
383	FM-W008	D011	X-ray fixer & developer, clear liquid	123	0.2	0	0
386	FM-W288	D019 D039 F001 F002	Floor sump clean-out sludge	633	0.4	0	0
387	FM-W010	D010 D018 F002	Oil soaked rags	268	1.2	0	0

000083

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
390	FM-W013	D005 D008 F001 F002	Oily sludges from water treatment process	469	0.8	0	0
396	FM-W015	F002 F003 F005	Paint thinner rags	74	0.4	12	<0.1
398	FM-W017	D008 D009 F001	Non-recoverable trash contaminated absorbent pads	19	0.2	0	0
399	FM-W018	D008 D039 F001	Solvent contaminated rags, pads, and plastic from boiler plant oil storage area	49	0.2	178	0.2
404	FM-W021	D008 D018 F002	Oily rags	59	0.4	0	0
410	FM-W024	F001 F002	Oily rags	129	0.4	0	0
415	FM-W028	D008 D018 F002	Oily rags and absorbents, WD-40 and various oils	35	0.2	0	0
434	FM-W040	D004 D005 D006 D007 D008 D022 F002 F003	Laboratory contaminated waste	614	2.4	13,122	10.9

000084

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
456	FM-W044	D007 D039 D040 F001 F002	Solvent wastes	508	0.4	0	0
460	FM-W047	D004 D005 D006 D007 D008 D010 D018 F002	PCB Materials, ballast, PCB-contaminated rags	11	0.2	0	0
514	FM-W055	D001 D007 D008 F002 F003 F005	Bad paint from paint booth	572	1.2	0	0
526	FM-N368	F001 F002	Contaminated soil from Pit #5 HWMU area	192	0.2	0	0
584	FM-W068	D018	Kerosene (Diesel Fuel)/ sludge	1,028	1.4	0	0
588	FM-W070	F002	Merco and oily Merco dry from the baler	1,983	2.0	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

000085

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

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
743	FM-W086	F001	Container of pump oil and rags	18	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
870	FM-W093	D001	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	D001	Flammable paint and paint-related products	711	0.6	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 F005	Contaminated protective clothing	69	1.2	0	0

980000

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1705	FM-W306	D001 D004 D006 D008 D010	Laboratory generated waste, waste oil from TCLP extracts	51	0.2	269	0.2
1706	FM-W114	D018 D021 D035 D038 D039 D040 D043 F002 F005	Lab waste, TCLP extract	2,035	2.2	3,059	3.0
1716	FM-W118	F001 F002 F005	Lab generated waste, contact waste solid	621	3.8	0	0
1841	FM-W121	F001 F002	Soil	1,512	1.2	0	0
1842	FM-W122	F001 F002	Grass and soil	19	0.2	0	0
2016	FM-W324	D001 D018 D026	Paint bitumastic 300 M A and B coal tar coating	33	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	D009 F001 F002	TCLP leachate	191	0.2	999	0.9

000087

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
2401	FM-N373	F001 F002 F005	Contact Waste from PACD Sampling	130	1.0	0	0
2500	FM-N374	D012 F002 F003	Metal Tank Abandoned Pilot Plant Sump	294	0.4	0	0
10003	FM-W126	D001 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	D001 D008 D035 F005	Sludges - solvent (trichlor. perchlor)	133	0.4	0	0
10010	FM-W132	D029 D039 D040 F001	Sludges, oily	77,665	105.8	0	0
10012	FM-W134	D029 D039 D040 F001	Contaminated burnables	777	1.8	0	0
10016	FM-W137	D010 D039 F002	Oily sludge for oxidation	1,352	1.2	0	0
10021	FM-W140	D008 D039 D040 F001	Sludges, oily	311	0.4	0	0

000088

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
10023	FM-W142	D008 F001	Non-recoverable trash	3,043	3.8	0	0
10024	FM-W143	D018 F001	Contaminated burnables	99	0.4	0	0
10026	FM-W145	D001 F001	1,1,1-trichloroethane still bottoms from National Electric Coil	6,990	7.8	0	0
10028	FM-W147	D008 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
20036	FM-W165	F001	Scrap salts and floor sweepings	387	0.8	0	0
20045	FM-W168	D019 D022 D039 F002	Contaminated TBP and/or kerosene mixtures and sludges from lab	50	0.4	0	0
20048	FM-W171	F005	Discard process residues from Lab	9	0.2	0	0
20094	FM-W175	D008 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

000089

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
20142	FM-W181	D001 D019 D022 D039 F002 F003	Contaminated TBP and kerosene mixtures from Analytical Lab	15	0.2	0	0
30005	FM-W185	D001 D019 D039 D040 F001 F003 F005	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
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

000090

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
30053	FM-W201	D006 D007 D008 D018 D040 F002 F005	Discard process residues - gloves, paint, misc. debris	78	0.2	0	0
30074	FM-W204	F002	Contaminated non-burnables: filter cartridges, gravel, rocks, soil	1,135	0.8	0	0
30075	FM-W205	F002	Contaminated non-burnables: Metallic filter elements and cartridges	14	0.2	0	0
50002	FM-W214	D001 F003 F005	Non-recoverable trash from lab	35	0.4	0	0
50010	FM-W216	F002 F005	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
50025	FM-W219	F001 F002	Contaminated graphite	413	0.4	0	0
50036	FM-W221	D007 F002	Contaminated burnables from Plant 8 Box Furnace	531	1.8	0	0
50070	FM-W226	D008 F001 F002	Non-oily sludge for roasting from Plant 8 Box Furnace	332	0.4	0	0

000091

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
50085	FM-W229	D001 F002 F003 F005	Wet sump or filter cake, non-oily/non-halide from Plant 1	56	0.2	0	0
50113	FM-N369	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
50170	FM-W247	D004 D019 D039 F002	Salt sludge from Plant 4	602	0.8	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	FM-N370	D001 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

000092

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL 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)
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
60100	FM-N397	D039 U210	Contaminated burnables	56	0.2	0	0
60119	FM-W279	D001 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
			CHEMICAL OXIDATION/WET AIR OXIDATION SUBTOTALS	516,309	430.6	29,403	26.9
			NEUTRALIZATION/PRECIPITATION				
644	FM-W077	D008B D010	Trash, Pads, Rags and Water	107	0.2	0	0
873	FM-W094	D011	Spent fixer	612	1.2	0	0
1421	FM-W298	D008	Non-recoverable trash: Oily rags, pads, gloves and plastic with grease	64	0.2	0	0
1430	FM-N371	D010	Plastic sheeting, gloves, floor sweepings	1,377	1.6	0	0

000093

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1707	FM-W115	D002 D007 D008 D019 D028 D039 F001 F002	Lab-generated waste, acid digestates	2,972	3.0	8,329	8.0
1773	FM-W315	D011	Concentrate fixer	98	0.4	0	0
1906	FM-W318	U134	HF Tank car clean-out material	3,877	0.8	0	0
1999	FM-N366	D002 D007 D009 D011	Nessler Reagent, COD digestion solution, Rochelle Salt	4	<0.2	38	<0.1
2021	FM-W322	D005	Barium carbonate from Plant 2/3 Processing	1,870	3.0	0	0
2425	FM-W332	D002 F001 F002 F005	CTC corrosive waste	198	0.2	1,040	1.0
2443	FM-N417	D008	Non recoverable trash	157	1.0	0	0
10002	FM-W125	D005 D008	Scrap salts, Low fluoride from RMI, Inc.	6,217	4.8	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

000094

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
30039	FM-W195	D011	Contaminated rocks, soil, bricks and ceramics from Pilot Plant	449	0.6	0	0
30080	FM-W206	D002 D004 D007 D008 D011	Contaminated soil, rocks, debris (contains liquids only)	228	0.2	0	0
30081	FM-W207	D002	Discard process residues, trailer cakes from Hot Raffinate Building in Plant 2/3	387	0.2	0	0
40122	FM-W208	D002 D005 D009	Thorium waste slurries	183	0.2	0	0
40181	FM-W211	D002 D007 D008	Thorium nitrate solution	2,280	0.6	0	0
40186	FM-W123	D001 D007 D008	Impure thorium nitrate (solid)	2,000	0.6	0	0
50031	FM-W220	D008 D010	Contaminated metallic filter elements	244	0.4	0	0
50349	FM-W265	D008	Dust collector residues - high fluoride from Plant 8	87	0.2	0	0
50351	FM-W266	D004 D008	Dust collector residues - high fluoride from green salt production in Pilot Plant	267	0.2	0	0
50367	FM-W271	D008	Non-recoverable trash	194	0.2	0	0
50387	FM-W272	D005	Salt sludge, chloride from Lab	324	0.4	0	0

000095

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL 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)
50405	FM-W273	D006 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	D008 D010	Furnace salt, non-chloride from Pilot Plant Rockwell Furnace	2,036	2.2	0	0
60306	FM-N398	D005	Hardened salt bath sludge from RMI	2,327	1.4	0	0
60307	FM-N367	D005 D008	Barium chloride salts	16,267	13.2	0	0
			NEUTRALIZATION/PRECIPITATION SUBTOTALS	53,659	48.4	9,407	9.1
			MACROENCAPSULATION				
547	FM-W290	D008	Misc. lead tools, piping, etc.	679	1.2	2,317	5.1
854	FM-W293	D006	Nickel-cadmium batteries	134	0.2	481	0.7
874	FM-N375	D008	Lead bricks, lead window sashings, babbitt hammer	260	0.4	0	0
1271	FM-W102	D008	Lead solder joints	128	0.2	0	0
1281	FM-W295	D008	Lead bricks	336	0.6	0	0
1585	FM-W303	D002 D008	Lead acid battery (split)	3,566	4.2	15,768	13.3
1731	FM-W314	D008	Lead	76	0.2	0	0
1987	FM-W123	D008	Lead/lead seals	13,202	2.8	18,244	15.4
			MACROENCAPSULATION SUBTOTALS	18,381	9.8	36,810	34.5

000096

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS
PREFERRED OPTION:
OHIO MOBILE CHEMICAL 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)
AMALGAMATION							
423	FM-W034	D009	Used mercury (elemental) from Lab	20	0.2	0	0
432	FM-W038	D006 D008 D009	Mercury thermometer spill clean-up materials from lab	119	1.0	307	0.2
635	FM-W291	D009	Mercury spill residue and spent mercury-containing batteries	143	0.4	0	0
855	FM-W294	D009	Mercury batteries	667	0.6	2	<0.1
1199	FM-W100	D009	Mercury contaminated floor tile & pipe insulation	909	1.6	0	0
1272	FM-N377	D007 D008 D009	Mercury Contaminated Materials from sink traps in Lab.	32	0.2	0	0
2211	FM-W326	D009	Elemental mercury in equipment - switches, thermometers, etc.	202	0.4	961	1.1
2418	FM-N399	D009	Trash old fluorescent light bulbs	118	0.2	0	0
50185	FM-W254	D009	Scrap salt, high F from MMES, Inc.	5	0.2	0	0
			AMALGAMATION SUBTOTALS	2,215	4.8	1,270	1.4
			MOBILE CHEMICAL TREATMENT ESTIMATED TOTALS:	590,582	494	77,152	72.2

000097

2629

TABLE #6

3.1.6 MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT SYSTEM

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE		MIXED SECONDARY WASTE WILL BE GENERATED	FEASIBLE PREFERRED OPTION
				(kg)	(m^3)	(kg)	(m^3)		
MIXED SECONDARY WASTE THAT WILL BE GENERATED FROM OHIO MOBILE CHEMICAL TREATMENT SYSTEM									
Unassigned	Unassigned	Multiple	Secondary waste liquids from chemical treatment project	292,408.9	241.3	27085.4	24.6	NO	TSCA
Unassigned	Unassigned	Multiple	Secondary waste fines equal to or < 2.5 inches from chemical treatment project	584,817.7	482.5	54,170.8	49.2	NO	ENVIROCARE
Unassigned	Unassigned	Multiple	Secondary waste debris > 2.5 inches from chemical treatment project	292,408.9	241.3	27085.4	24.6	NO	STABILIZATION

000098

2629

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

Table 7 represents the FEMP mixed waste streams (liquid portion only) for which the Preferred Option is identified as TSCA Incinerator. The TSCA Incinerator Preferred Option will be implemented as part of the Liquid Mixed Waste Project. Treatment of these waste streams will occur at the DOE K-25 Site in Oak Ridge, Tennessee. The LDR treatment standards for these waste streams are concentration based and the technology based standards are incineration and/or deactivation.

The FEMP proposes to initiate this project under the regulatory authority of CERCLA Removal Action #9. Project schedules will be subject to the FFCAct Order.

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 693,000 pounds or approximately 318,780 kilograms of low level mixed waste per year to be treated at the TSCA Incinerator. The FEMP plans to bulk liquid mixed waste for shipments to the TSCA Incinerator. Discussions with TSCA Incinerator personnel indicate liquid mixed waste from the FEMP is required to maintain the operation and economic efficiency of the TSCA Incinerator on an annual basis.

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 stabilization of the residues at Envirocare as their Preferred Option or use of another commercial vendor as a secondary option.

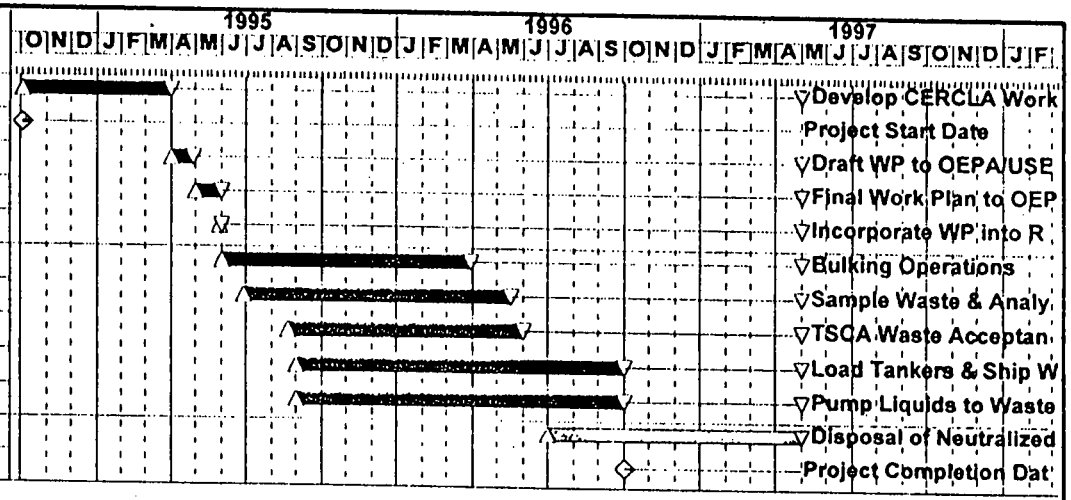
The budget is prepared for this project and has been incorporated into the baseline. The budget includes funding for fiscal year 1995. Disposal costs for the ash are not included. The cost estimates are available in Appendix A, Section 2.7. An engineering schedule for the Liquid Mixed Waste Project, which includes the TSCA Incinerator Preferred Option, is provided as Figure 3.1.7. Disposal of ash waste from the TSCA Incinerator as indicated on the project schedule extends past the official project end date. This activity will be performed by the TSCA Operations Group in Oak Ridge.

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.

Figure 3.1.7

Liquid Mixed Waste Project Schedule

Activity ID	Activity Description	Orig Dur	Rem Dur	Early Start	Early Finish
0030	Develop CERCLA Work Plan	123*	123*	03OCT94*	31MAR95
0010	Project Start Date	0	0	03OCT94*	
0040	Draft WP to OEPA/USEPA &	19*	19*	03APR95*	28APR95
0050	Final Work Plan to OEPA	22*	22*	01MAY95*	31MAY95
0020	Incorporate WP into RA9	1*	1*	31MAY95*	31MAY95
0060	Bulking Operations	208*	208*	01JUN95*	29MAR96
0070	Sample Waste & Analyze per	221*	221*	30JUN95*	17MAY96
0080	TSCA Waste Acceptance	195*	195*	21AUG95*	31MAY96
0090	Load Tankers & Ship Waste	270*	270*	01SEP95*	30SEP96
0100	Pump Liquids to Waste Water	270*	270*	01SEP95*	30SEP96
0110	Disposal of Neutralized Waste	208*	208*	01JUL96*	30APR97
0120	Project Completion Date	0	0		30SEP96



Project Start	27SEP93	Early Bar
Project Finish	30APR97	Float Bar
Data Date	01OCT94	Progress Bar
Plot Date	21MAR95	Critical Activity

(c) Primavera Systems, Inc.

LMWP

FERMCO/FEMP
LIQUID MIXED WASTE PROJECT
Classic Schedule Layout

Sheet 1 of 1

000100

2629

TABLE #7

3.1.7 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	D001 D018 D035	Water/gas mixture from Tank #8	1,990	2.4	0	0
345	FM-N400	D001 D018	Contaminated kerosene	14,095	17.0	0	0
379	FM-W005	D008 D018 F001 F002	Spent 1,1,1-trichloroethane	77	0.2	0	0
385	FM-W009	D018 F001 F002	Spent solvent (1,1,1, -trichloroethane)	108	0.2	0	0
393	FM-W014	D008	Lubricating oil from reduction remelt	330	0.6	0	0
395	FM-N378	D001 F002 F003 F005	Paint thinners and paint residues	179	0.2	752	0.6
400	FM-W019	D001 D008 F001	Used oil from Maintenance	105	0.2	0	0
402	FM-W020	D008 D018 F001 F002	Used oil	404	0.8	0	0
408	FM-W023	D005 D006 D008 F001	Used oil	146	0.2	0	0

000101

2629

TABLE #7

3.1.7 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)
412	FM-W025	D001 D006 F001 F002	1,1,1-Trichloroethane	10	0.2	0	0
414	FM-W027	D001 D006 D008 D009 D039 F001 F002	Used oil	198	0.4	0	0
418	FM-W030	D001 F003	Spent acetone	975	12.0	1,061	1.0
419	FM-W031	D001 F003	Spent xylene	121	1.8	255	0.2
421	FM-W032	D001 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	D001 D002	Laboratory acids (Nitric acid and cyclohexane)	519	8.2	885	0.9
426	FM-W036	D001	Spent methylene chloride	3,260	44.4	3,252	3.2
428	FM-W037	D001	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	D001 F001	Unlabeled drum containing 1,1,1 - trichloroethane	111	0.2	0	0

000102

2629

TABLE #7

3.1.7 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)
459	FM-W046	D001 F001 F002	Paint	204	0.2	0	0
479	FM-W050	D001 D008 D009 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	D001	Kerosene	92	0.2	0	0
507	FM-N401	D001 D018	Gasoline	113	0.2	0	0
508	FM-W054	D001 D035	Paint thinner	220	0.2	0	0
533	FM-W058	D001 D006	Paint: Grey Epoxy	130	0.2	0	0
587	FM-W069	D001	Grease and water	113	0.2	0	0
633	FM-W075	D007 D008 D009	Oil - unknown generation	1,514	2.6	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	D001 D008 F001 F002	Used Agitene	268	0.4	533	0.5

000103

2629

TABLE #7

3.1.7 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)
818	FM-N402	D001 D008	Contaminated oil	473	0.6	0	0
1337	FM-W104	D001	Contaminated water, non-chloride	169	0.2	0	0
1411	FM-N363	D001 D005 D007 D008 D009 D010 D011 D019 F002 F003	Contaminated solvent from paint shop	217	0.2	0	0
1412	FM-W105	D001 D006 D008 F001 F002	Used solvent: 1,1,1-trichloroethane	188	0.2	0	0
1414	FM-W297	D001 D008	Oil and fuel from Garage area	355	0.4	0	0
1423	FM-N380	D008 D009 D039 D040 F001 F002 F003 F005	Contaminated insoluble oil	170	0.2	0	0
1432	FM-W107	D001	Non-chloride contaminated water or sump liquor (kerosene)	869	1.2	0	0

000104

2629

TABLE #7

3.1.7 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)
1447	FM-W301	D001 D008	Nonchloride contaminated water or sump liquor from Plant 1 Drum Painting Booth.	56	0.2	0	0
1536	FM-W110	F001 F002	Rainwater from waste pit area	30,076	31.2	0	0
1711	FM-W308	D002 D008 D009 D010 F001 F002 F005	Metals extracts, digests and leachates	2,017	2.4	19,068	16.8
1713	FM-W309	D040 F001 F002 F005	Oil from TCLP extracts	32	0.4	169	0.2
1725	FM-W119	D018	Lubricating oil from garage	2,814	3.4	6,968	7.5
1728	FM-W312	D018	Crankcase oil	1,199	1.8	4,499	4.8
1729	FM-W313	D001 D008 D018	Gasoline	1,084	1.8	5,548	6.9
1815	FM-W316	D018 D001	Spent fuels	317	0.4	773	0.9
1949	FM-N381	D001	Draw Temp 275	92	0.2	0	0
1998	FM-W124	D001 F003	Methanol and cyclohexane	104	1.2	333	0.3

000105

2629

TABLE #7

3.1.7 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)
2014	FM-W323	D001 D035	Epoxy - prime coat LDC - 1,000	74	0.4	0	0
2363	FM-N382	D001 D002 D006 D008 D009 D018 D035 D038 D039 D040	Caustic lab waste from analysis of samples	1,517	1.6	0	0
2364	FM-N383	D001 D006 D007 D008 D018 D035 D039 D040	Neutral lab waste from the analysis of samples	2,300	2.4	0	0
2403	FM-N403	D001	Dirt, rocks, and wood with liquid unknown source	111	0.2	0	0
2465	FM-N404	D001 D007 D008 D010	Contaminated liquid	193	0.4	0	0

000106

2629

TABLE #7

3.1.7 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)
2498	FM-N384	D008 D012 D039 F002 F003	Sump liquor	560	0.6	0	0
2556	FM-N405	D001	Ethyl acetate	436	0.8	0	0
2559	FM-N406	D001	Used heptane mixture	278	0.8	0	0
10004	FM-W127	D007 D018 D019 D021 D029 D039 D040 F001	Contaminated solvent	3,479	4.4	0	0
10006	FM-W129	D008 D009 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
10029	FM-W148	D006 D007 D008 D019 D029 D040 F001	Used oil	1,387	1.6	0	0
10030	FM-W149	D001 F003	Contaminated solvent (methanol)	82	0.6	0	0

000107

2629

TABLE #7

3.1.7 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)
10032	FM-W151	F001	Contaminated oil, insoluble	303	0.4	0	0
10034	FM-W152	D001 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	D001 D019 D022 D028 D029 D035 D039 D040 F001 F003 F005	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
20031	FM-W162	D008 D018 D028 D029 D039 D040 F002	Contaminated oil, insoluble gear oil, lubricating oil from Plant 1	1,263	1.8	0	0

000108

2629

TABLE #7

3.1.7 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)
20038	FM-W167	D006 D008 D018 D019 D028 D029 D039 D040 F002 F005	Contaminated oil - insoluble from Pilot Plant processing equipment	288	0.4	0	0
20054	FM-W172	D019 D022 D028 D029 D039 F001 F005	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	D001 D039 F003 F005	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	D001 F003	Contaminated water or sump liquor, non-chloride from Plant 1 sampling area	11	0.2	0	0

000109

2629

TABLE #7

3.1.7 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	D001 D008 D019 D039 D040 F002 F003 F005	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	D001 D007 F003	Contaminated solvents from water treatment	153	0.2	0	0
60039	FM-N407	D001 D018	Contaminated solvents	423	0.4	0	0
60042	FM-N408	D001 D006 D008 D009 D019 F002	Contaminated solvents	182	0.2	0	0
60055	FM-N385	D001 D008 D018	Leaded Gasoline from Tank #12	2,374	4.0	0	0
60056	FM-N351	D001 D007 D008 D009 D039 F002	Used chlorinated solvent mixture	4,591.3	4.0	0	0
60059	FM-N352	D001 D008 F002	Used 1,1,1 trichloroethane mix	481	0.6	0	0

000110

2629

TABLE #7

3.1.7 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)
60062	FM-N353	D001 D008 D009 F002	Contaminated insoluble oil	1,152.3	1.6	0	0
60065	FM-N409	D001 D008 D019 F002	Contaminated insoluble oil	183	0.2	0	0
60067	FM-N354	D008 F002	Used oil with 1,1,1 Trichloroethane	154.8	0.2	0	0
60068	FM-W277	D008 F001	Contaminated insoluble oil from Plant 5 Oil Storage Area	497	0.6	0	0
60069	FM-W278	D008 F001	Contaminated, insoluble oil from Metal Reduction Area	1,883	2.6	0	0
60070	FM-N410	D001 D018 D039	Contaminated insoluble oil	8,962	12.0	0	0
60072	FM-N355	D008 F002	Solvent contaminated waste oil	582.5	0.8	0	0
60073	FM-N411	D006	Contaminated insoluble oil	97	0.2	0	0
60078	FM-N412	D001 D006 D008 F002 F005	Used oil and solvents from garage	8,262	10.4	0	0
60083	FM-N356	D001 D008 D019 F002	Contaminated insoluble oil from Boiler Plant	674.7	0.8	0	0

000111

2629

TABLE #7

3.1.7 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)
60085	FM-N357	D001 D005 D006 D007 D008 D010 F002	Waste oil from Plant 8 maintenance	7,785.2	10.6	0	0
60087	FM-N358	D001 D008 D039 F002	Used oil with solvents	1,984.4	2.4	0	0
60331	FM-W283	D001 D018	Water/diesel fuel from UTS #9	3,941	4.2	0	0
1229	FM-W101	D001 D008 D018 D019 D039 D040 F002 F003	Contaminated sump water	6,019	6.6	15,280	13.4
1306	FM-N418	D001 D008	Spill cleanup from K-65 area	195	0.2	0	0
1363	FM-N363	D005 D006 D007 D008 D009	Oily sludges from the WWTS Area	556	0.4	0	0
1501	FM-W108	D018	Spill clean-ups of oil and gas	2,632	6.6	13,191	8.9

000112

2629

TABLE #7

3.1.7 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)
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	D002 D007	Wet sump or filter cake, oil-contaminated produced during co-extrusion operations at UNC Corp.	271	0.4	0	0
30047	FM-W199	D007 D011	Solvent sludge - trichlor, perchlor from Analytical Lab	36	0.2	0	0
40185	FM-W212	D001 D007 D008	Impure thorium nitrate (solid)	838	0.2	0	0
50071	FM-N364	D001 D007	Solvent sludges from water treatment plant	194	0.2	0	0
50177	FM-W251	D001 D004 D008	Furnace salt, non-chloride, from Plant 9 Rockwell Furnace Breakout Station	834	0.8	0	0
50197	FM-W340	D007	Sludges for blending from Plant 9 N-R Furnace	207	0.4	0	0
50202	FM-W257	D001 D010	Oily sludge for oxidation with high free metal from Plant 9 Casting	88	0.2	0	0
50204	FM-W258	D001 D010	Oily sludge for oxidation with high free metal from LeBlond Rapid Borer in Plant 9 Machining Area	153	0.2	0	0

000113

2629

TABLE #7

3.1.7 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)
30045	FM-W197	D001	Oily sludges, high free metal from Plant 6 Water Treatment Area	423	0.6	0	0
50008	FM-W215	D001	Copper contaminated sump cake from the General Sump	36,831	31.0	0	0
50068	FM-W225	D001	Non-oily sludge for roasting from General Sump	13,990	13.4	0	0
50178	FM-W339	D001	Furnace salt, non-chloride	76	0.2	0	0
50346	FM-N365	D001	Oily sludge from oxidation	292	0.4	0	0
50347	FM-W264	D001	Discard process residues from Boiler Plant	179	0.2	0	0
50355	FM-W267	D001	Discard process residues from General Sump	3,675	3.2	0	0
1709	FM-W117	D001 D002	Lab generated waste, flammable organic extracts	295	0.4	7,150	6.3
2006	FM-W346	D001	Curing compound	173	0.4	0	0
2224	FM-W327	D001	Floor coating base	356	0.8	0	0
50358	FM-N388	D001	Contaminated non-burnables	1,445	0.8	0	0
50407	FM-W275	D001	Non-Recoverable Trash	96	0.2	0	0
Treatment of MEF #'s 1229 through 50204 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 50204.							
			ESTIMATED TOTALS:	283,751.2	393.8	65,647.5	61.5

000114

2629

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

Table 8 represents the FEMP mixed waste streams for which the Preferred Option is identified as disposal at Envirocare of Utah, Inc. in Clive, Utah. The FEMP and DOE have contracts in place for the disposal of mixed waste at the Envirocare. The Envirocare Preferred Option is being implemented through the Non-LDR/<TSC Disposal Project. These waste streams either currently have variances to LDR treatment standards in effect or the concentration of constituents is below the specified treatment standard. This project consists of bulking and packaging for the purpose of shipment and disposal. Free liquids will be eliminated from the containers prior to shipment.

No mixed waste streams at the FEMP have been identified as having a radioactive content greater than the Waste Acceptance Criteria (WAC) of Envirocare. A future disposal option may need to be developed by DOE to address waste with elevated radioactive content.

The FEMP is a CERCLA site and is 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 to address storage requirements. Additional testing is being conducted to ensure the WAC for Envirocare are met.

The budget is prepared for this project and has been incorporated into the baseline. Funding for this project is provided for fiscal year 1995. The cost estimate is available in Appendix A, Section 2.8.

No detailed schedule is provided for this project.

Information on these waste streams is being provided to account for all FEMP mixed waste streams in inventory and to assist in state-to-state discussion on final disposition.

TABLE #8

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

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY		5 YEAR RATE	
				(kg)	(m^3)	(kg)	(m^3)
1438	FM-N391	D039	Non-oily clean-out sludges from roasting	2,825	2.6	2,325	2.0
2048	FM-N348	F001 F002 F005	Solidified lab waste	47,390	33.4	0	0
2581	FM-N413	D039	Contaminated wood pallets	1,768	7.8	0	0
60017	FM-N350	D039	Oily rags and clothing	63.6	0.4	0	0
			ESTIMATED TOTALS:	52,046.6	44.2	2,325	2.0

000116

2629

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 be some constituents for which the LDR Technology Based 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 to utilize an alternative technology for these wastes.

3.3 Mixed Wastes Streams Requiring Further Characterization or for which a Treatment Option Assessment Has Not Been Done

The FEMP has approximately 22,100 containers of waste which require further characterization. These wastes are part of the "legacy waste", most of which are the result of operations during the production era. An initial characterization has already been conducted for these waste streams. These wastes are currently not classified as mixed wastes. The FEMP anticipates the management process established in Section 2.4.1 will identify the proper treatment option and project for any mixed waste identified from these populations as a result of additional characterization activities.

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

Population Description: Legacy Group A/B is comprised of a population of approximately 9,500 drums of waste comprising 239 waste streams. This group falls into two general categories. 1) "Suspect" waste that were conservatively identified as hazardous prior to the establishment of the Consent Decree drummed waste characterization schedules in 1990. These characterizations are based on limited process knowledge and sampling and analysis. 2) "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). All containers in each waste stream are currently identified by MEF on the FEMP waste inventory. The scope of this project is to complete characterization to support ultimate treatment and/or disposal (i.e., to meet LDR requirements). This work upgrades the 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 streams require sampling and analysis (module 3). The work to date is approximately 45% complete.

Cost and Schedule: Approximately 180 of the 239 waste streams remain to be characterized in fiscal year 1995 (FY 95). The schedule runs through September of 1996. A copy of the summary schedule which is part of the FEMP baseline is in Figure 3.3.1. 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 - FY 96 is $2,300,000 to characterize approximately 7,125 drums. This yields an average cost of about $325/drum. FY 95 funding for this project is $1,077,362, leaving approximately $1,200,000 of work to complete in FY 96.

Figure 3.3.1
FEMP Legacy Group A/B Schedule

ID	NAME	DURATION
1	1 PK Collection, Stream ID & Re	380d
2	2 Visual Inspections	460d
3	3 Drum Sampling	460d
4	4 Characterization & Document	480d

94: J A S O N D | 95: J F M A M J J A S O N D | 96: J F M A M J J A S

ID	NAME	DURATION
1	1 PK Collection, Stream ID & Re	380d
2	2 Visual Inspections	460d
3	3 Drum Sampling	460d
4	4 Characterization & Document	480d

96: J F M A M J J A S O N D | 97: J F M A M J J A S O N D | 98: J F M

Project: Legacy A/B-"Suspect/NFA" | Date: 07/21/94 | Duration

000119

2629

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

Population Description: Legacy Group E2/G/H is comprised of a population of approximately 10,500 drums of waste representing 101 waste streams, of which 6,000 drums are drummed trash from 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.

The scope of this project is to complete characterization to support ultimate waste disposition. The drummed trash will be sorted to identify and remove any prohibited items and will be managed as low level waste. The drummed waste will be verified for addition to existing, similar waste streams.

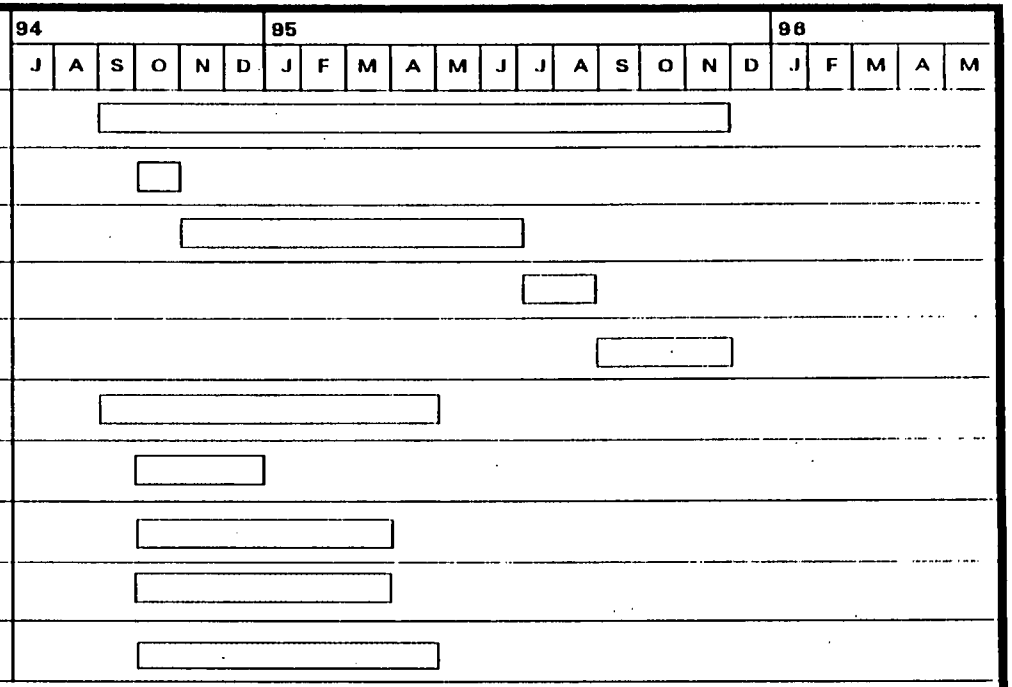
Work Scope: This project is divided into two groups for characterization: drummed trash and drummed waste. There are three basic steps required to support the drummed trash disposition project. The first step is development of a sorting criteria plan to identify all non-trash materials (e.g., waste residues) or any prohibited trash items (e.g., unpunctured aerosol cans) that must be segregated for further characterization. The second step is the field oversight of the sorting operation to provide characterization support. The third step is characterization of all segregated materials. With the exception of prohibited items such as aerosol cans or compressed gas cylinders, very little of the drummed trash is expected to be identified as mixed waste.

There are four summary activities or "modules" in the characterization step 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 streams require sampling and analysis (module 3). To date, about 25% of the waste drums have been characterized (1250 drums) with only 18 being identified as mixed waste.

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 characterization of the segregated materials finishing in November 1995. The schedule for characterizing waste drums runs through May 1995. A copy of the summary schedule which is part of the FEMP baseline is in Figure 3.3.2. 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 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 $692,125. This yields an average cost of about $150/drum. Combined, the estimated characterization cost for FY 95 for the 10,500 drums is about $792,125 or about $75/drum. There remains an estimated $200,000 of work to complete in the first half of FY 96, which includes characterization of segregated materials from the drummed trash population.

Figure 3.3.2
FEMP Legacy Group E2/G/H Schedule

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



Project: Legacy Unassigned Waste | Date: 07/21/94 | Duration

000122

2629

3.3.3 FEMP Legacy Group I - "Backlogged Boxes"

Population Description: Legacy Group I is comprised of a population of approximately 2,100 boxes (4'x4'x 7' white metal boxes) of construction waste which require 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 cannot 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 site waste inventory but are not included in this plan because they have not been characterized as mixed waste.

Work Scope: There are four summary characterization activities or "modules" that may apply to a 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) 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. This project is on schedule to be completed in FY 95. To date none of the legacy box waste has been characterized as mixed waste. This project is fully funded at $227,547 for completion in FY 95.

Cost and Schedule: Approximately 1,000 boxes remain to be characterized during FY 95. The schedule runs through September 1995. A copy of the summary schedule which is part of the FEMP FY 95 baseline is on Figure 3.3.3. 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. This yields an average cost of $260/box.

Figure 3.3.3
Legacy Group I Schedule

ID	NAME	DURATION
1	1 PK Collection, Stream ID & Re	230d
2	2 Visual Inspections	238d
3	3 Drum Sampling	238d
4	4 Characterization & Document	238d

ID	NAME	DURATION
1	1 PK Collection, Stream ID & Re	165d
2	2 Visual Inspections	280d
3	3 Drum Sampling	280d
4	4 Characterization & Document	270d

Project: Legacy Box Characterization | Date: 07/21/94 | Duration

000124

6797

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 section addresses mixed wastes expected to be generated within the next five years (to FY 99) including routine operations wastes, HWMU Closure wastes to be generated from D&D activities and remediation wastes.

6.1 Routine Operations/Closure/D&D Wastes

Five-year projections for mixed wastes routinely generated from maintenance activities, sampling, and laboratory analysis are included in the waste stream tables in Appendix C. These wastes and associated volumes will be incorporated into the updates of the STP as they are generated. In addition, Operable Unit 3 (OU3) is in the process of closing, or plans closure of several HWMUs in FY 95 and FY 96. These closure activities are expected to generate mixed waste (primarily debris) as described below.

HWMU#	HWMU Name	Projected Mixed Waste in m^3
3	Waste Oil Storage (Garage)	0.8
13	Wheelabrator Dust Collector	38.0
21	Hilco Oil Recovery	1.0
1	Fire Training Facility	11.4
10	NAR System Components	95.0
	TOTAL	146.2

The remaining HWMUs in OU3 will be closed under the Remedial Design/Remedial Action (RD/RA) Work Plan for the Interim Remedial Action. This action allows for the early remediation of existing structures within the former production area. The plan addresses decontamination and dismantling of buildings and support facilities in advance of the final Record of Decision (ROD) to be issued by USEPA in 1997 for the final remediation of OU3.

The RD/RA Work Plan for the OU3 Interim Remedial Action, approved by USEPA on February 17, 1995, identified the Plant 4 Complex as the first package to undergo remediation under the interim action. The schedule for this package has been accelerated and waste from the initial package will be generated in FY 95 and FY 96. The schedule for subsequent remediation work packages is currently being prioritized in the OU3 Draft Remedial Design Prioritization and Sequencing Report (PSR) to be submitted to USEPA and OEPA in March 1995. The estimated remediation waste generation rates for FY 97 through FY 99 are based on schedules from an internal draft of the PSR. The total estimated volumes of remediation waste to be generated, and the subset of that waste that is projected mixed waste (estimated at 2%), are provided below. These estimates, which are primarily debris wastes, include mixed wastes projected to be generated from HWMU closures implemented under the interim action.

FY	Total Estimated Volume of Waste in m^3	Estimated Volume of Mixed Waste in m^3
1995	934	19
1996	2,612	52
1997	1,483	30
1998	1,973	39
1999	1,885	38

Future generated remediation waste will include residual process materials and associated equipment and debris. The FEMP is currently proposing to treat all future generated mixed waste from OU3 which is similar in composition to legacy mixed waste through the treatment systems identified in the PSTP. Decisions on treatment of new waste types, generated by OU3 remedial activities, will be made through the CERCLA process and will be reflected in future updates to the STP.

6.2 CERCLA Remediation Wastes

There are five operable units (OUs) at the FEMP expected to generate remediation wastes. Three of the operable units are currently undergoing the Remedial Investigation/Feasibility Study (RI/FS) process. A Record of Decision has been signed for Operable Unit 4 and Operable Unit 3 has been issued a Record of Decision for Interim Remedial Action. 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: February 4, 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, 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/FS Report/Comprehensive Response Action Risk Evaluation (CRARE): September 11, 1995
Proposed Plan Report: September 11, 1995
Proposed Draft Record of Decision: July 25, 1996

Operable Unit 4 - four silos, a decant sump system, concrete structures and debris, 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 never been used and remains empty.

Initial Screening of Alternatives: October 31, 1990
RI Report/Baseline Risk Assessment: November 1993
FS Report/Comprehensive Response Action Risk Evaluation: February 1994
Proposed Plan Report: February 1994
Record of Decision: December 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

Potential sources of mixed wastes for which cleanup is scheduled within the next five years (for which RCRA LDR identified as ARARs) are provided below for informational purposes only. The final remedy for these waste streams will be identified in the ROD and Remedial Action process for the Operable Unit responsible for that waste stream.

Operable Unit 1

FY	HWMU#	HWMU Name	Total Projected Volume of CERCLA Remediation Waste in m^3
1998	27	Waste Pit 4	42,130
1998	42	Waste Pit 5	74,854

The quantity for Waste Pits 4 and 5 represents the total volume of waste projected to be generated beginning in FY 98. These wastes will be characterized as removed and therefore the volume of mixed waste projected to be generated is currently unknown. Decisions on the treatment, if necessary, of any mixed waste from Operable Unit 1 will be made through the CERCLA process and will be reflected in updates to the STP.

Operable Unit 2

Operable Unit 2 is currently projecting to generate approximately 250 m^3 of low level radioactive fill/debris contaminated with lead from the Southfield Firing Range. It is anticipated that remediation activities at the firing range will begin in 1998 and will be completed within four years. Final decisions on the management of these wastes will be addressed through the Operable Unit 2 Record of Decision and Remedial Action process.

Operable Unit 3, Operable Unit 5

At this time, the cleanup and disposition of affected environmental media associated with FEMP HWMUs is anticipated to be addressed through the remedy selection, design, and implementation process for OU5.

Treatment of any additional waste streams generated through OU3 remediation/closure activities will be handled as described in Section 6.1.

Operable Unit 4

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

6.2.1 Description of Technology and Capacity Needs

The FEMP is in the process of developing and evaluating treatment technologies for these remediation waste streams as part of the CERCLA remediation process. The final remedy for these waste streams will be identified in the ROD for the operable unit responsible for that waste stream. The RODs and the RD/RA work plans 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.

6.2.2 Anticipated Schedule for Incorporating in Plan

Schedules in updates to the STP for developing treatment capacity for mixed remediation wastes will be based on the CERCLA schedule associated with implementing the selected remedy. Only those CERCLA schedule items that directly relate to the FFCAct requirements will be incorporated into updates of the STP as specified in the Plan Volume and implementing FFCAct Order. Due to the uncertainty of how these environmental restoration wastes will be managed, inclusion into the STP will not occur until a final remedy (i.e., CERCLA ROD or equivalent document) has been negotiated. This final decision will be made in compliance with applicable statutory/regulatory requirements and established schedules in existing compliance agreements/orders.

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 STPs.

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.

7.1 Current Storage Capacity

The FEMP is currently seeking to permit seven waste storage facilities with a total maximum storage capacity of 45,450 cubic meters (m^3). A RCRA Part B Permit Application for these units was submitted to OEPA in October 1991 and was subsequently revised, updated, and resubmitted in September 1994. Information on these seven storage units, including their location, maximum capacity, and types of wastes stored is summarized below.

STORAGE UNIT	LOCATION	MAXIMUM CAPACITY (m^3)	WASTE TYPES
Plant 6 Warehouse/ Bldg. 79	E Street between 1st and 2nd Street	873	Combustible and flammable liquids, solids, trash
Plant 9 Warehouse/ Bldg. 81	D Street - North of 3rd Street	326	Combustible liquids and solids, corrosives
KC-2 Warehouse/ Bldg. 63	B Street - North of 2nd Street	759	Combustible and flammable liquids
Pilot Plant Warehouse/ Bldg. 68	Southwest corner of production area	50	Ignitable dry wastes, metals, metal salts and oxides
Plant 8 Warehouse/ Bldg. 80	Corner of A Street and 1st Street	527	Combustible solids
Plant 1 Pad	North of 2nd Street; West of B Street	42,476	Various hazard classes
CP Storage Warehouse/ Bldg. 56	B Street - North of 2nd Street	439	Various hazard classes except ignitables

It should be noted that discussions have been initiated with OEPA to integrate the RCRA 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.

The FEMP is currently utilizing less than 10% of available mixed waste storage capacity for mixed waste storage. However, approximately 90% of the remaining capacity is currently being utilized for storage of low level wastes and is not available for mixed waste storage. 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 weekly 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.

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 until selection and implementation of the final remedial alternatives through the CERCLA Records of Decision.

7.2 Future Storage Requirements

Six mobile storage tanks, each having a capacity of approximately 21,000 gallons, will be used for consolidation and sampling of liquid mixed wastes prior to transport to the FEMP WWTS or to the TSCA Incinerator as part of the Liquid Mixed Waste Project. These tanks are located south of the 4A Warehouse. The tanks will be inspected daily, while in use, and will comply with 40 CFR 265 container standards.

In addition, the FEMP may be identified to treat mixed waste from other DOE facilities. These wastes will be segregated from other hazardous waste stored at the FEMP.

Long-term FEMP mixed waste storage needs are being assessed by Operable Unit 3, as part of the Draft Remedial Design Prioritization and Sequencing Report to be submitted to the USEPA in March 1995. This report will present the base schedule for the decontamination and dismantlement of all Operable Unit 3 components (including the RCRA storage areas) and will evaluate the impacts of these schedules on future on-site storage needs. The report will incorporate waste generation projections from the other operable units and from routine operations balanced against projected material disposition rates to ensure the continued availability of on-site storage through completion of the OU3 interim remedial action. Preliminary results from this evaluation indicate that there is sufficient existing storage capacity available to meet future storage needs without requiring the construction of additional storage units.

8.0 PROCESS FOR EVALUATING DISPOSAL ISSUES IN SUPPORT OF THE SITE TREATMENT PLAN DISCUSSIONS

This section discusses the overall Department of Energy (DOE) process for evaluating issues related to the disposal of residuals from the treatment of mixed low level waste (MLLW) subject to the FFCAct. The FEMP is among the sites being analyzed further for potential development as a disposal site for residuals from the treatment of MLLW subject to the FFCAct. This section outlines the disposal planning process developed by DOE, in consultation with the states, for evaluating potential options for the disposal of residuals from the treatment of MLLW. With the exception of the Hanford Site, MLLW disposal sites are not currently being developed by DOE. Final destinations for disposal of treatment MLLW residuals are not known at this time. The results of this process are intended to be considered during subsequent planning activities and discussions between DOE and the regulatory agencies.

8.1 Background

The FFCAct requires the DOE to develop a plan for the treatment of mixed wastes. The FFCAct does not impose any similar requirement for the disposal of mixed wastes after they have been treated; however, the DOE recognizes the need to address this final phase of mixed waste management. The following process reflects the DOE's current strategy for evaluating the potential options for disposal; the evaluation will increase understanding of the strengths and weaknesses of a site's potential for disposal but is not a site selection process. Ultimately the identification of sites that may receive mixed waste for disposal will follow state and federal regulations for siting and permitting, and will include appropriate public involvement.

High level and mixed transuranic wastes are among the mixed waste subject to the FFCAct. Options for disposal of these mixed wastes are not identified by this process because there are established processes for studying, designing, constructing, and operating disposal facilities for these wastes.

The DOE has historically planned to develop MLLW disposal facilities at the six DOE sites currently disposing of low level waste. These sites are Hanford, Savannah River, Oak Ridge Reservation, Idaho National Engineering Laboratory, Nevada Test Site, and Los Alamos National Laboratory. Currently, the Hanford Site has the only active permitted facility operated by DOE for the disposal of residuals from the treatment of MLLW. This plan has been re-directed in conjunction with the planning efforts of the FFCAct to include the results of the disposal planning process (Figure 8.1) and the Waste Management Programmatic Environmental Impact Statement (WM PEIS). The sites subject to evaluation under this process are the 49 sites reported to Congress by the DOE in the Mixed Waste Inventory Report (MWIR), April 1993, that are currently storing or expected to generate mixed waste.

8.2 Disposal Planning Process

Although the FFCAct does not specifically address disposal of treated mixed wastes, both the 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 to the potential disposal of MLLW residuals subject to the FFCAct, shown in Figure 8.2. The focus of this process has been to identify, from among the 49 sites that currently store or are expected to generate mixed waste, sites that are suitable for further evaluation of their potential as disposal sites. Sites determined to have marginal or no potential for disposal will be removed or deferred from further evaluation under this process. The remaining sites will be evaluated more extensively. Ultimately, a number of sites are expected to be identified that are technically acceptable for disposal of treated residuals.

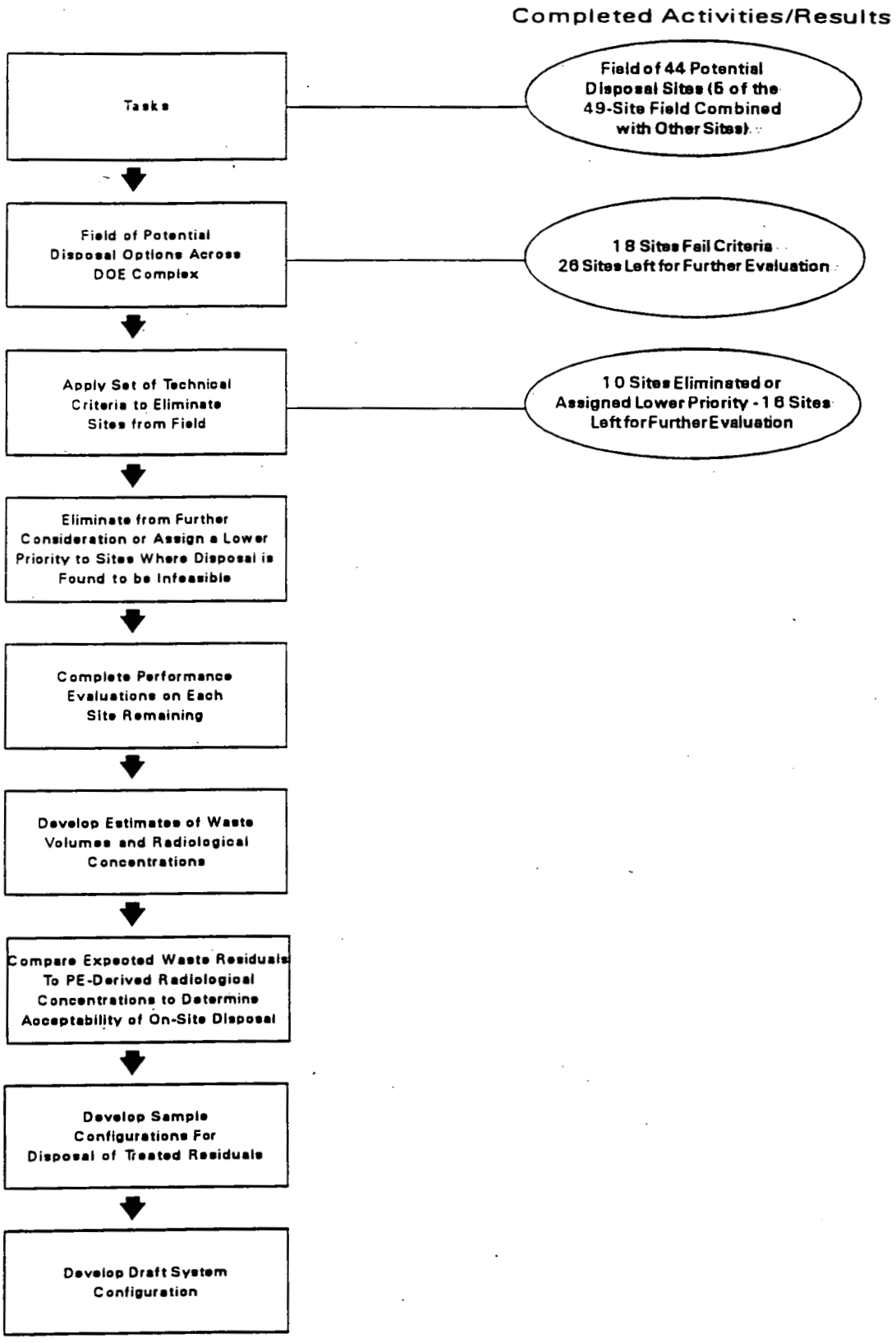
8.2.1 Activities to Date

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 MWIR, 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:

- Idaho National Engineering Laboratory and Argonne National Laboratory (West) are located on a single Federally-owned reservation near Idaho Falls, Idaho;
- The Sandia National Laboratories, California, and Lawrence Livermore National Laboratory are located on adjoining, Federally-owned properties near Livermore, California;
- The Inhalation Toxicology Research Institute and Sandia National Laboratories, New Mexico, are located on the same Federally-owned reservation, 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, near Oak Ridge, Tennessee.

Figure 8.2
Disposal Planning Process



Initial Site Screening

At a joint meeting on March 3-4, 1994, the DOE and the States agreed on three exclusionary criteria for further screening the 44 remaining sites. These criteria were developed by reviewing Federal and State requirements regarding the siting of waste treatment, storage, and disposal facilities. In order to be evaluated further, 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.

The first criterion (100-year floodplain) is derived from both National Regulatory Commission (NRC) and RCRA requirements. The second criterion (active fault) was selected from requirements found in RCRA which restrict the location of waste treatment, storage, and disposal facilities. The third criterion (sufficient area for 100-meter buffer) is derived from guidance from the USEPA, NRC, and DOE for the proper operation of waste facilities.

Evaluation of the 44 sites resulted in identification of 26 sites meeting the above criteria. The 18 sites which did not meet the criteria are identified in Figure 8.2.1. At a joint meeting on March 30-31, 1994, the DOE and the States agreed to remove from further evaluation those sites not meeting the screening criteria. Also at that meeting, DOE agreed to collect additional, more detailed information on the remaining 26 sites to identify additional strengths and weaknesses of the sites. It was agreed that the DOE or any affected state may propose further elimination of sites from consideration following the site-specific evaluation.

Figure 8.2.1
Initial Site 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			
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

Evaluation of the Remaining 26 Sites

The DOE and the States met on July 26-27, 1994 to discuss the site-specific data on the remaining 26 sites, and to consider proposals for eliminating additional sites from further evaluation. The focus of these discussions was to identify sites suitable for further evaluation under this process.

The criteria that the DOE and the States used to eliminate sites from further evaluation at this stage were derived from three main groupings of considerations: Technical Considerations, Potential Receptor Considerations, and Practical Considerations. Each of the remaining 26 sites were evaluated against criteria in these groupings that included; soil stability and topography, precipitation and evapotranspiration, population, proximity to sensitive environment, land acquisition, government presence at the site, and regulatory constraints.

Sites with marginal or no potential for disposal, based on these criteria, were recommended for removal or postponement from further evaluation. As a result of this meeting, the DOE and the States agreed to eliminate five sites from further evaluation due to their limited potential for disposal. These are:

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, the DOE and the States agreed to merge the evaluation of Knolls Atomic Power Laboratory at Niskayuna, New York, and Knolls Atomic Power Laboratory at Kesselring, New York, due to their close geographic proximity.

While not eliminated from further evaluation, it was agreed to lower the evaluation priority of an additional four sites. Issues such as the technical capabilities of the site, the volume of mixed waste that may be generated by the sites, and the acceptability of off-site waste contributed to a conclusion that further evaluation of some sites should not be a high priority. The DOE and the States agreed to evaluate these sites in terms of their capability to dispose of their own mixed waste on-site if no other off-site disposal options could be identified. These sites will not be considered for disposal of wastes from other sites, and may be eliminated from further analysis if sufficient evidence suggests the potential for disposal is too limited. The sites in this category are:

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

Performance Evaluation

The performance evaluation being conducted for the 16 sites identified for further evaluation entails the collection of more detailed site-specific data related to the site characteristics. The performance evaluation methodology is based on the principles of radiological performance assessments and was developed by DOE performance assessment experts. Additionally, the evaluation will be based on RCRA compliant engineered facilities. This information will be used to evaluate the sites and estimate the radionuclide concentration limits of waste that may be disposed at a given site. The performance evaluations were initiated in August 1994. The 16 sites for which performance evaluations are being prepared are:

Site	State
Lawrence Livermore National Laboratory, Site 300	California
Rocky Flats Environmental Technology Site	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 Laboratories	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	S. Carolina
Oak Ridge Reservation	Tennessee
Pantex Plant	Texas
Hanford Site	Washington

* Because the West Valley Demonstration Project Act does not authorize the site to accept off-site wastes, the site will only be evaluated for disposal of on-site wastes.

8.2.2 Next Steps in the Evaluation Process

As illustrated in Figure 8.2, progress has been made in the planning of the disposal process. The following steps outline future activities that are either ongoing or are to be completed to facilitate an informed decision about the disposal of DOE MLLW. Coordination with the States will continue to ensure stakeholder input and to resolve concerns at the earliest possible stage.

Complete Remaining Performance Evaluations

To date, performance evaluations have been completed for the following 10 sites: Savannah River Site, Oak Ridge Reservation, Idaho National Laboratory, Hanford Site, Sandia National Laboratories, Rocky Flats Environmental Technology Site, Los Alamos National Laboratory, Pantex Plant, Nevada Test Site, and Lawrence Livermore Laboratory. Performance evaluations for the remaining six sites are scheduled to be completed by June 1995. A progress report for the performance evaluation activities has been issued approximately the same timeframe as the PSTPs in order to keep the States and other interested parties informed of the progress.

Develop Estimates of Waste Volumes and Radionuclide Concentrations in Treated Residuals

Once treatment methods for the mixed low level waste streams are finalized through the FFCAct process, estimates of treated residual volumes and radionuclide concentrations of the treated residuals will be developed for all waste streams. This analysis will take place after the PSTPs have been negotiated with the appropriate regulatory agencies. These estimates are needed to compare to the performance evaluation-derived radionuclide concentration guides.

Compare Estimates of Radionuclide Concentration in Treated Residuals to Performance Evaluation-Derived Radionuclide Concentration Guides

Radionuclide concentrations for each treated residual will be compared to those disposal values derived in the performance evaluation in this step. Comparing radionuclide concentrations in treated residuals with performance evaluation concentration guides will compare MLLW stream characteristics to potential disposal sites' capabilities. This evaluation will include off-site DOE and commercial disposal site candidates for those treated waste streams which do not have on-site capabilities. Confirmation of the candidate streams and sites will be attained through detailed performance assessment efforts.

Develop Sample Configurations for Disposal of Treated Residuals

An Options Analysis Team (OAT) approach will be employed to develop sample complex-wide configurations for the disposal of treated MLLW residuals. These configurations will take into account such technical issues as compatibility of radionuclides (both handled at the site and those considered acceptable by the performance evaluation), capacity to handle projected residual volumes, etc. Under the OAT approach, other types of issues will be weighed during the configuration discussions such as transportation costs and distances.

Develop a Draft Disposal System Configuration

Using the sample configurations as a starting point, the DOE will develop with State and stakeholder input, a draft disposal system configuration. This configuration will be the basis for determining future funding and schedules for proposed disposal facilities. The Final WM PEIS will provide bounding analysis of potential environmental impacts for the range of sample configurations considered. It will identify preferred sites for further development as disposal facilities. Following the issuance of the ROD for the WM PEIS, DOE sites may initiate site-specific National Environmental Policy Act evaluations for the proposed disposal facilities; initiate performance assessment analysis for compliance with DOE Order 5820.2A; and, initiate processes for permitting disposal facilities.

8.3 Integration with the STP Process

The FFCAct does not require disposal to be included in the STPs; however, given the complex issues involved, the DOE recognizes the importance of state input to facilitate resolution of issues related to disposal. Section 8.0 information is provided in the PSTP to continue to involve the states and make them aware of the DOE's continued work on the disposal issue. For more detailed information on the ongoing performance evaluation process, refer to the "*Progress Report on Performance Evaluation of DOE Sites' Capabilities for Mixed Low Level Waste Disposal.*" As the disposal planning process moves forward, further information will be provided and coordination with the states will continue.

8.4 FEMP Disposal Factors

The FEMP has included the option for disposal of mixed waste residuals or low level waste for each waste stream in Appendix C tables. 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 NTS for disposal of low level waste from the FEMP and at Envirocare for mixed low level waste disposal.

The FEMP considers, as a necessary part of the PSTP, 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 residuals resulting from the decontamination process will still be considered hazardous until further processing.

A future disposal option may need to be developed by DOE to address waste that has radionuclide content above the waste acceptance criteria at Envirocare.

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 facility.

Appendix A

APPENDIX A

PSTP DEVELOPMENT FRAMEWORK APPLICATIONS

Appendix A, PSTP Development Framework Applications

Appendix A presents an evaluation of treatment options considered viable for the FEMP mixed waste streams. Viable options were further evaluated to develop Preferred Options (POs) for all FEMP mixed waste streams.

The Treatment Selection Guides, prepared by the DOE FFCAct Task Force, provided a list of general selection guides for use by all sites to add uniformity to the evaluation of treatment options and the selection of preferred options. The Treatment Selection Guides were divided into sub-elements to ensure that evaluations of treatment effectiveness and other criteria were assessed in a comparable manner between sites. Sub-elements included the following: Regulatory Compliance, Environmental Health and Safety, Treatment Effectiveness, Implementability, Stakeholder Concerns, Life-Cycle Cost, and Technology Development.

APPENDIX A
PSTP DEVELOPMENT FRAMEWORK APPLICATIONS
TABLE OF CONTENTS

PAGE #

1.0 Evaluation Process and Methodology A-1

1.1 Treatment Selection Guides A-3

1.1.1 Regulatory Compliance A-3

1.1.2 Environmental Health and Safety A-4

1.1.3 Treatment Effectiveness A-5

1.1.4 Implementability A-7

1.1.5 Stakeholder Concerns A-8

1.1.6 Life-Cycle Cost A-8

1.1.7 Technology Development A-8

Table A-1 Treatment Selection Guides A-9

2.0 Alternatives Identification and Evaluation A-13

2.1 PO - Hydrofluoric Acid (HF) Neutralization System A-13

2.2 PO - Uranyl Nitrate Hexahydrate (UNH) Treatment System . . . A-15

2.3 PO - Thorium Nitrate Treatment System A-17

2.4 PO - Wastewater Treatment A-19

Figure A-4 Comparison of Options for Wastewater Treatment Preferred Option A-23

2.5 PO - Ohio Mobile Stabilization System A-25

Figure A-5 Comparison of Options for Ohio Mobile Stabilization System Preferred Option A-28

2.6 PO - Ohio Mobile Chemical Treatment System A-30

Figure A-6.1 Comparison of Options for the Treatment of Solids with Organics A-39

Figure A-6.2 Comparison of Options for the Treatment of Reactive Metals A-40

APPENDIX A
PSTP DEVELOPMENT FRAMEWORK APPLICATIONS
TABLE OF CONTENTS

PAGE #

Figure A-6.3 Comparison of Options for the Treatment of Elemental Lead, Batteries & Debris with Lead A-41

Figure A-6.4 Comparison of Options for the Treatment of Solids/Liquids w/Metals A-42

2.7 PO - TSCA Incinerator A-47

Figure A-7 Comparison of Options for the TSCA Incinerator Preferred Option A-52

2.8 PO - Envirocare A-55

3.0 Supplemental Information A-56

3.1 FEMP MAWS Facility A-56

3.2 Incineration of FEMP Mixed Wastes A-57

Table 3.2.1 FEMP Mixed Wastes Considered for Treatment at the TSCA Incinerator A-58

Table 3.2.2 FEMP Preferred Options for Potential TSCA Incinerator Mixed Waste A-59

Figure 3.2.1 Mixed Waste Disposition A-63

Figure 3.2.2 Waste Disposition Per Preferred Option A-64

Figure 3.2.3 Incinerable Waste Disposition A-65

Reference List A-66

APPENDIX A

PSTP DEVELOPMENT FRAMEWORK APPLICATIONS

1.0 Evaluation Process and Methodology

The FEMP PSTP includes 324 waste streams categorized in 44 treatability groups. The treatment needed to meet regulatory requirements and safely handle the radionuclide content of these mixed low level waste streams is varied and in many cases multiple treatment options are possible.

The FEMP grouped these waste streams with like treatment needs and evaluated the waste with currently planned treatment. The management process for assigning waste streams to current projects is described in Section 2.4.1 of the Background Volume. The steps or treatment processes needed to treat a group of waste streams were linked together and diagramed in treatment trains to illustrate how these wastes can be treated. Treatment train illustrations are located in Appendix C.

Appendix A provides detailed evaluations of the treatment options identified in the series of FFCAct documents, Conceptual Site Treatment Plan, Draft Site Treatment Plan, and those developed from the meetings and work group activities of all the Ohio sites.

Each Ohio site evaluated the treatment options for mixed waste from two perspectives. The first was from a statewide perspective and is discussed in Appendix B. The second was from a site specific perspective. The FEMP site specific evaluation process included the following:

A. The process began by identifying the on-site, existing, and planned treatment facilities which are potential treatment options for mixed waste. Initially these options were listed without regard to regulatory/permit concerns or modifications required to actually treat mixed waste.

B. Viable treatment options identified in the Conceptual Site Treatment Plan were considered for further evaluation.

C. The FEMP mixed waste treatment activities, either in progress or planned, were also considered viable treatment options. These activities include RCRA Closure of Hazardous Waste Management Units and CERCLA Removal Actions.

Viable treatment options were then evaluated using the "Treatment Selection Guides" prepared by the DOE FFCAct Task Force, March 1, 1994, Revision 0 (Table A-1). Regulatory Compliance and Environmental Health and Safety (EH&S) criteria were established as threshold criteria. The threshold criteria were evaluated on the basis of being met or not being met. A technology did not proceed further in the evaluation process if it could not meet the threshold criteria. Additionally, criteria which cause a treatment technology/facility to be seriously deficient in treatment capability or capacity were utilized to eliminate an option on a case-by-case basis.

Regulatory Compliance criteria include issues such as compliance with ARARs under CERCLA, especially Land Disposal Restrictions, and appropriate permit requirements under RCRA, CWA and CAA. The EH&S 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. Other criteria which may eliminate options from further consideration include, at a minimum, facility capacity, capability, availability, and approval to treat CERCLA waste.

Ratings given to each treatment option were derived from the "Treatment Selection Guides" illustrated in Table A-1. A more detailed explanation of the rating for each viable option is given in the Options Evaluation for the respective Preferred Option (PO) in Section 2.0.

Cost estimates have been developed, to the extent possible, with available information concerning a given treatment option. The cost estimates are conservative estimates based on limited information and are intended to be order-of-magnitude estimates for the purpose of comparison between options. Cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low Level Waste," INEL, March 1994, actual FEMP project cost estimates, and information obtained from other DOE sites, and the "Mixed Waste Treatment Feasibility Study," Westinghouse Materials Company of Ohio, March 1991.

1.1 Treatment Selection Guides

The Treatment Selection Guides were prepared by the DOE FFCAct Task Force (March 1, 1994, Revision 0). They provide a list of criteria for all sites thus adding uniformity to the manner treatment options were evaluated and Preferred Options were selected. The seven criteria which are used for this comparison are:

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

Regulatory Compliance and Environmental Health and Safety were identified by the FEMP as threshold criteria. Options failing these criteria did not proceed further in the evaluation process.

Each criteria was further divided into sub-elements which are identified to ensure that evaluations of treatment effectiveness and other guides are assessed in a comparable manner from site to site. The sub-elements are rated high (H), medium (M), and low (L) in accordance with the specific criteria in each sub-element definition. These relative ratings permit direct comparison within the various sub-elements. A summary of treatment selection guides, sub-elements, and ratings is provided in Table A-1.

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 OEPA). The definitions of the primary guides and their sub-elements are identified below.

1.1.1 Regulatory Compliance

The regulatory compliance 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, USEPA and U.S. Department of Transportation (DOT) laws, and other laws that specify requirements. Treatment options under consideration should be developed to ensure that at a minimum the treated waste meets LDR standards. (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 ratings to treatment options that have been previously permitted and are relatively straightforward, and lower ratings to 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 ratings to options 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, mechanical and electrical hazard issues, and 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 treatment option. 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 treatment option. 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 treatment option 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 a result of an accident.

1.1.3 Treatment Effectiveness

The treatment effectiveness guide assesses how well the proposed treatment option performs technically and what the anticipated advantages are compared to alternative treatment options.

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 be accounted 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 or rendering the hazardous constituents immobilized.

Flexibility: This sub-element assesses the system's ability to process a range of inputs with minimal effect on system operations. This includes accommodating the expected waste 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 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 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 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 ratings to existing or proven treatment technologies and options and lower ratings 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 ratings 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 assessed by the ratio 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 target dates. 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. The cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low Level Waste", INEL, March 1994, actual FEMP project cost estimates, information obtained from other DOE sites and the "Mixed Waste Treatment Feasibility", Westinghouse Materials Company of Ohio, March 1994.

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.

TABLE A-1

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
REGULATORY COMPLIANCE			
Regulatory Compliance	All process related regulations are met	Most regulations are met with the balance possibly being met through request for variance	Majority of regulations cannot be met
ENVIRONMENTAL HEALTH AND SAFETY			
Environmental/Public Health	Little or no facility emissions for routine operations or under all but the most catastrophic accidents	Little or no facility emissions for routine operations but significant releases under most accident scenarios	Marginally acceptable releases under routine operations and/or extensive releases under most accident scenarios
Non-Operational Worker Health and Safety	Significantly less number of workers required to construct and decommission a facility with the proposed process; as compared to other technologies, plus lower than average non-routine maintenance required	Average number of workers and non-routine maintenance required	More complex than average facility construction, non-routine maintenance and decommissioning
Operational Worker Health and Safety	Significantly fewer workers potentially exposed or potential exposure much lower than average	Average number of workers and potential exposure levels	Greater than average number of workers required or greater than average potential exposure to the work force

000156

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
ENVIRONMENTAL HEALTH AND SAFETY			
Transportation Risk	No transportation of treated or untreated waste required	Limited additional characterization required to support transportation, no new packaging/certification facilities required and limited number of waste transports required	Significant additional waste characterization required for transportation, new packaging/certification facilities required, large number of waste transports needed or large number of miles required for each waste shipment
TREATMENT EFFECTIVENESS			
Volume Reduction	Factor of 5 reduction in volume of waste	Volume is maintained at 1:1 after processing	Volume is increased by a factor of 2 or greater
Secondary Waste Generation	Secondary waste that is generated is easily treated using existing technologies	Secondary waste that is generated has existing technologies but that technology requires modification	Secondary waste that is generated has no known technology for treatment
Destruction, Removal & Demobilization Efficiency	All of the applicable LDR standards are met	Additional LDR treatment is required for some of the constituents and technology exists	Additional treatment is required to meet requirements & technology does not exist or requires modification
Flexibility	Minimal system inefficiencies are experienced for off-design input	Off-design inputs are acceptable with inefficient operations	Special precautions must be taken to avoid off-design input

000157

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
TREATMENT EFFECTIVENESS			
Final Waste Form	Meets the expected disposal WAC	Residues require additional treatment to meet disposal WAC and technologies exist	Significant additional treatment is required prior to disposal and/or technology does not exist
Ability to be Shipped	Treatment residuals meet shipping requirements without any additional treatment	Treatment residuals only require simple physical treatment to meet shipping requirements	Treatment residuals require extensive treatment to meet shipping requirements
IMPLEMENTABILITY			
System Implementability	Most of the elements and process previously demonstrated	50% or less of the elements have been previously demonstrated	Elements have not been demonstrated
Availability	Facility of system exhibits superior reliability to be available with minimal downtime	Process is expected to be available approximately 50% of the time	Process is expected to be available less than 20% of the time
Scalability	Process can be easily expanded for economies of scale	Process can accept a range of input but has limitations for expansion	Process is limited and cannot be expanded for economies of scale
Schedule for Waste Treatment	Waste can be processed within short time frame, schedule allowing for some slippage	Waste can be processed within required time frame allowing for no slippage	Critical path approaches or exceeds milestones for designated waste
STAKEHOLDER CONCERNS			
Public Acceptance	Stakeholders accept the process and risks	Some stakeholder concerns that could affect the successful utilization of the technology	Significant stakeholder concerns about process

000158

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
LIFE-CYCLE COST			
Life-cycle Cost	Life-cycle costs can be supported within target budget	Life-cycle costs can be supported with greater than 10% increase in target funding level	Line item funding required at high levels
TECHNOLOGY DEVELOPMENT			
Market for Technology	Numerous markets are identified within and outside DOE	More than one market is identified within and outside DOE	No markets or needs are identified
Private Sector Involvement	Private sector technology company is identified with experience and interest. The company has experience in permitting activities.	A private sector party has expressed and interest, however has little or no experience in this type of activity or permitting processes.	No private sector companies have expressed an interest or a need for the technology.

000159

2629

2.0 Alternatives Identification and Evaluation

Detailed evaluations of the eight DOE Preferred Options (POs) for the FEMP waste streams are presented in Sections 2.1 through 2.8. At the FEMP, projects will be used to implement POs. Projects are the management tool for planning, budgeting, and scheduling implementation of a Preferred Option. A project may contain one or more preferred option(s). Cost estimates and scheduling information for FEMP waste streams were developed using project costs. The Preferred Options are presented with the FEMP projects which implement each of the Preferred Options.

2.1 PO - Hydrofluoric Acid (HF) Neutralization System

Option Description

The Hydrofluoric Acid (HF) Neutralization System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 1. This system will be implemented through the HF RCRA Closure Project which is being conducted as a RCRA Closure of a Hazardous Waste Management Unit (HWMU). The Closure Plan and Information Data (CPID) which describes the HF Neutralization System was approved by the OEPA in February 1995.

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, dried, and managed as low level waste. The filtrate will be processed through the FEMP Wastewater Treatment System (WWTS) for discharge under the existing NPDES permit.

The treatment process(es) necessary to treat the waste stream and meet the LDR treatment standard is illustrated in:

1. Treatment Train 0

This treatment train and the LDR treatment standard are identified in Appendix C.

Option Evaluation Summary

The HF Neutralization System is an active RCRA Closure and therefore was chosen as the PO for this waste stream. Equipment necessary for this project exists on-site and is available for the processing of this waste stream. Implementation of this option will meet the LDR treatment standard for this waste stream.

The evaluation of the HF Neutralization System against other options was completed in the Closure Plan process. The CPID for this project is available in the Public Reading Room at the PEIC, 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

HF RCRA Closure *	Cost in Dollars
RCRA Closure Planning	206,330
Bench-Scale Testing	39,558
Engineering Design	383,193
Construction and Testing	363,691
System Operation	228,310
Closure Certification	7,850
Risk Budget	35,000
Total Cost	1,263,932

* The HF RCRA Closure is scheduled to be completed in FY 95. As of the end of FY 94, $584,600 of the total estimated cost has been spent.

Basis of Cost Estimate

The cost estimate was prepared by the FEMP based on the scheduled project completion in FY 95. The cost estimate includes procurement, construction, treatment, waste handling and disposal, and final closure of the HWMU.

2.2 PO - Uranyl Nitrate Hexahydrate (UNH) Treatment System

Option Description

The Uranyl Nitrate Hexahydrate (UNH) Treatment System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 2. This system is being implemented through the UNH Neutralization System Project which is being conducted under CERCLA Removal Action #20. Facilities for treatment exist at the FEMP and are currently being upgraded prior to treating the UNH. Treatment will consist of neutralization and precipitation followed by filtration to remove the solids. Treatment of the aqueous portion will be completed through the FEMP WWTS and solids will be managed as low level radioactive waste.

The treatment process necessary to treat the waste stream and meet the LDR treatment standards is illustrated in:

1. Treatment Train N

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

The UNH Treatment System was chosen as the Preferred Option for this waste stream to reflect the on-going CERCLA Removal Action #20. Implementation of this Preferred Option will meet the LDR treatment standards for the waste stream. Alternate options were evaluated during the selection of a Preferred Option under the UNH Removal Action process.

A revised schedule for the UNH project was submitted by the DOE to the USEPA and the OEPA in February 1995. Revised schedule information has been incorporated into the Plan Volume. The estimated cost of the UNH Neutralization System Project, based on current project planning efforts, funding considerations, and OEPA approval, is $14,400,000.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

UNH Neutralization System	Cost in Dollars
Capital	8,200,000
Operations	5,000,000
Disposal	1,200,000
Total Cost	14,400,000

Basis of Cost Estimate

These costs represent estimates based on current project planning. Cost estimates are being revised to align with new schedules. No annualized cost has been prepared, pending schedule and cost revisions.

2.3 PO - Thorium Nitrate Treatment System

Option Description

The Thorium Nitrate Treatment System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 3. This system will be implemented through the Thorium Nitrate RCRA Closure Project which is being conducted as part of a RCRA Closure of a HWMU. A CPID is currently being developed for this project.

A treatability study is underway to support selection of an appropriate treatment process for the thorium nitrate. The study is evaluating two processes: Neutralization/Stabilization and Neutralization/Filtration.

Neutralization/Stabilization would blend the thorium nitrate solution with a neutralizing agent. The neutralized product would then be combined with an appropriate stabilizing agent to achieve a dry non-reactive product. The product would be managed as low level radioactive waste. Implementation of this process would require the construction of a treatment system. The primary elements of the system would include: 1) agitated neutralization tank, 2) thorium nitrate transfer piping and equipment, 3) neutralization agent introduction equipment, 4) neutralized product transfer equipment, 5) stabilization agent/blending equipment and 6) containers and handling equipment for shipment and disposal of the stabilized product.

Neutralization/Filtration would transfer the thorium nitrate solution to the neutralization tank in Plant 2/3. There the solution would be blended with a neutralizing agent to achieve a neutralized product. The product would then be pumped to Plant 8 for filtration. The resulting filter cake would be collected in drums for disposal. The wastewater is processed through the FEMP Wastewater Treatment System for discharge under the existing NPDES permit. The primary elements of this treatment system would encompass: 1) transfer piping and support equipment, 2) agitated neutralization tank, 3) neutralized product transfer piping and equipment, 4) staging and holding tanks, 5) filtration equipment, 6) container and handling equipment for shipment and disposal of stabilized product; and 7) wastewater discharge system.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train P

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

The Thorium Nitrate Treatment System is an active RCRA closure and therefore was chosen as the PO for this waste stream. The evaluation of treatment processes to be used to complete this project is occurring through the closure process.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

Thorium Nitrate RCRA Closure	Cost in Dollars
Treatability	390,800
Project Management	161,000
Design	607,000
RCRA Closure/NEPA	115,000
Construction	1,460,000
Operations	692,000
Decontamination/Certification	438,000
Waste Management	667,000
Total Cost	4,030,800

Basis of Cost Estimate

These costs represent preliminary estimates. Funds have not been allocated for this work. This estimate is subject to change after bench scale testing has been completed and a specific treatment alternative selected.

2.4 PO - Wastewater Treatment

Option Description

Wastewater Treatment was chosen as the Preferred Option to treat the various waste streams listed in the Background Volume, Table 4. The Preferred Option will only be used to treat aqueous waste streams. The Option will be implemented as part of the Liquid Mixed Waste Project through utilization of the FEMP WWTS.

Some aqueous wastes may be directly introduced into the FEMP WWTS. Others may require pretreatment prior to introduction to the system. Treatment of these waste streams will occur in an existing on-site facility. Liquids will be bulked, tested, and a determination made whether they are acceptable for the FEMP WWTS. The FEMP WWTS will receive only aqueous liquids that can effectively be treated to meet the discharge limits of the existing NPDES permit.

The treatment process necessary to treat the waste streams and achieve the LDR treatment standards is illustrated in:

1. Treatment Train A

This treatment train and the LDR treatment standards are identified in Appendix C.

The FEMP WWTS is currently operating and capable of treating aqueous waste streams to meet requirements of the NPDES permit. The FEMP is currently working on consolidation and replacement of the FEMP WWTS. The newly constructed wastewater treatment system, the FEMP Advanced Wastewater Treatment (AWWT), initiated start-up activities in January 1995.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 4 of the Background Volume include the following:

FEMP Wastewater Treatment System (Preferred Option)
Ohio Mobile Incinerator (Viable Option)
Portsmouth Wastewater Treatment System (Viable Option)
Ohio Mobile Chemical Treatment System (Viable Option)
Portsmouth Evaporation
FEMP UNH Treatment System
Portsmouth Metal Removal/Stabilization
TSCA Incinerator
FEMP Hydrofluoric Acid Neutralization System

The FEMP WWTS was chosen as the Preferred Option because it is currently operating and capable of treating aqueous waste streams to meet requirements of the NPDES permit. It is the most cost effective treatment option for the FEMP waste. The mixed waste will not require transportation to an off-site facility. Supplemental information on the basis for selection of the FEMP WWTS is provided in Section 3.2.

The Ohio Mobile Incinerator was not chosen because it is the least cost effective option considered. The option is not readily available, lengthy delays are expected in implementation, and public acceptance is expected to be negative.

The Portsmouth Wastewater Treatment System was not chosen because it would incur additional risks due to transportation to an off-site location, equity issues would need to be addressed and it could have lengthy delays in implementation.

The Ohio Mobile Chemical Treatment System was not chosen because the technology would not significantly reduce the volume of mixed waste, waste from the system would require additional treatment and it would be more expensive than the current FEMP WWTS.

Evaluation of Viable Options

The following viable options were evaluated against the FEMP WWTS:

Ohio Mobile Incinerator
Portsmouth Wastewater Treatment System
Ohio Mobile Chemical Treatment System

A comparison of these evaluations is summarized in Figure A-4. The differences in ratings are summarized below:

<u>Ohio Mobile Incinerator</u> - The Ohio Mobile Incinerator is a concept developed by the Ohio Work Group and consists of a vendor supplied thermal destruction unit to be located at one or more of the Ohio sites for the incineration of mixed waste. No specific site(s) or vendor(s) has been considered.

The following criteria rated lower than the Preferred Option:

Public Acceptance - The local public is expected to react negatively to the establishment of an incinerator at the FEMP or elsewhere in Ohio.

Availability - Establishment of a mobile incinerator would require addressing permitting issues, contracts, and mobilization of the equipment.

Schedule for Waste Treatment - The establishment of a mobile incinerator is estimated to take no less than three years for permitting, procurement, and construction. The FEMP WWTS is currently available and would support the schedule of the current project.

Life-Cycle Cost - A mobile incinerator would incur significantly higher cost due to procurement and mobilization.

Portsmouth Wastewater Treatment System - The Portsmouth Wastewater Treatment System (WWTS) consists of a new (to be constructed) facility located at the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio.

The Portsmouth WWTS rated lower than the Preferred Option in the following criteria.

Transportation Risks - Additional risks would be incurred due to off-site transportation of the waste.

Public Acceptance - Portsmouth stakeholders would likely have a negative reaction to receiving waste from another site when treatment is readily available at the generator's site.

Equity Issues - Sending the waste to another facility raises potential regional equity issues.

Schedule for Waste Treatment - Availability of the unit to treat FEMP waste would negatively impact current project scheduling. Permitting of the unit to accept off-site wastes would severely impact scheduling.

Ohio Mobile Chemical Treatment System - The Ohio Mobile Chemical Treatment System is a concept developed by the Ohio Work Group consisting of various units described in Section 2.6. The units would be located at one or more of the Ohio sites. No specific site(s) or vendor(s) has been considered.

The following criteria rated lower than the Preferred Option:

Volume Reduction - The volume of waste for disposal would not be significantly reduced.

Secondary Waste Generation - Secondary waste requiring additional treatment would be generated.

Life-Cycle Cost - Chemical Treatment would incur higher cost to establish on-site.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were removed from consideration due to the inability to meet LDR treatment standards for the waste streams:

Portsmouth Evaporation
FEMP UNH Treatment System
Portsmouth Metal Removal/Stabilization
FEMP Hydrofluoric Acid Neutralization System

The TSCA Incinerator was not evaluated further due to equity issues. The use of the TSCA Incinerator creates the potential for state-to-state equity issues between Ohio and Tennessee. Therefore, only on-site and in state options were evaluated for the identified waste streams. Supplemental information supporting this option evaluation is provided in Section 3.2.

Figure A-4

Comparison of Options for Wastewater Treatment
Preferred Option

CRITERIA	FEMP WWTS	OHIO MOBILE INCINERATOR	PORTS WWTS	OHIO MOBILE CHEMICAL TREATMENT SYSTEM
REGULATORY COMPLIANCE	H	H	H	H
ENVIRONMENTAL/ PUBLIC HEALTH	H	H	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M	M	M
TRANSPORTATION RISK	H	H	M	H
PUBLIC ACCEPTANCE	H	L	M	H
EQUITY ISSUES	H	H	M	H
VOLUME REDUCTION	H	H	H	M
SECONDARY WASTE GENERATION	H	H	H	M
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H	H
FLEXIBILITY	M	H	M	H
FINAL WASTE FORM	H	H	H	H
ABILITY TO BE SHIPPED	H	H	H	H
SYSTEM IMPLEMENTABILITY	H	H	H	H
AVAILABILITY	H	M	H	H
SCALABILITY	H	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	M	M	H
LIFE-CYCLE COST	H	L	H	M
MARKET FOR TECHNOLOGY	H	H	H	H
PRIVATE SECTOR INVOLVEMENT	L	H	L	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates *

Cost estimates were prepared for the Preferred Option and viable options.

FEMP WWTS	Cost in Dollars
Treatment cost ($3/m^3)	100
Total Cost	100

Note: Cost estimate based on actual treatment costs.

OHIO MOBILE INCINERATOR	Cost in Dollars
Treatment cost ($69,000/m^3)	1,393,800
Total Cost	1,393,800

Note: Cost estimate based on INEL Interim Report data. The cost used is estimated cost for a small generator.

PORTS WWTS	Cost in Dollars
Treatment cost ($475/m^3)	10,000
Transportation	2,000
Total Cost	12,000

Note: Cost estimate is based on cost data from Portsmouth PSTP (per Radian Corporation).

OHIO MOBILE CHEMICAL TREATMENT	Cost in Dollars
Treatment cost ($27,500/m^3)	555,500
Total Cost	555,500

Note: Cost is based on estimated project cost to treat per unit volume.

* All costs represent the total cost for treatment. The treatment is assumed to be completed in one year, therefore, the total cost is equal to an annualized cost.

2.5 PO - Ohio Mobile Stabilization System

Option Description

The Ohio Mobile Stabilization System was chosen as the Preferred Option to treat the waste streams listed in the Background Volume, Table 5. The Ohio Mobile Stabilization System is the FEMP implementation of the Ohio Option and will primarily use cementation to meet LDR treatment standards.

The FEMP, Portsmouth, RMI and USEC have wastes for which stabilization has been identified as the Preferred Option. Engineering and treatability study information for mobile stabilization will be shared with the other sites as an alternative to transportation of wastes to those sites for treatment. As procurement specifications are developed, that language will be shared with other Ohio sites.

In addition to FEMP mixed wastes, Battelle has identified a small volume of mixed waste to be treated at the FEMP, using the Ohio Mobile Stabilization System Preferred Option.

The treatment processes necessary to treat the waste streams and meet LDR treatment standards are illustrated in:

1. Treatment Train D
2. Treatment Train E - (Solids portion only)

These treatment trains and the LDR treatment standards are identified in Appendix C.

Options Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 5 of the Background Volume include the following:

Ohio Mobile Stabilization System (Preferred Option)
Ohio Mobile Chemical Treatment System (Viable Option)
FEMP UNH Treatment System
FEMP Wastewater Treatment System
Portsmouth Evaporation
Mercury Treatment
Ohio Mobile Incinerator
Mound Packed Bed Reactor
Portsmouth Biological Treatment
TSCA Incinerator
FEMP MAWS

The Ohio Mobile Stabilization System was chosen as the Preferred Option because LDR requirements can be met for these mixed waste streams using available, proven technology and existing mobile vendors. Additionally, it is the most timely and cost effective treatment of all the options identified and evaluated. The Stabilization Project is currently in the treatability study phase with treatment planned for 1995.

The Ohio Mobile Chemical Treatment System was not chosen because it will require an additional treatment step, is less cost-effective, and may require additional delays in implementation relative to the Ohio Mobile Stabilization System.

Evaluation of Viable Options

The following viable option was evaluated against the Ohio Mobile Stabilization System:

Ohio Mobile Chemical Treatment System

A comparison of this evaluation is summarized in Figure A-5. The differences in rating are summarized below:

<u>Ohio Mobile Chemical Treatment System</u> - The Ohio Mobile Chemical Treatment System is a concept developed by the Ohio Work Group consisting of various units described in Section 2.6. The units would be located at one or more of the Ohio sites. No specific site(s) or vendor(s) has been considered.

This system rated lower than the Preferred Option in the following criteria.

Destruction, Removal, and Demobilization - These waste streams would require stabilization as a secondary treatment to meet disposal facility waste acceptance criteria if treated through the Ohio Mobile Chemical Treatment System.

Schedule for Waste Treatment - Adding the additional step of chemical treatment would unnecessarily extend the schedule for these waste streams to be treated.

Life-Cycle Cost - The chemical treatment process is an order of magnitude less cost effective than the Preferred Option of stabilization.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to the inability to meet the LDR treatment standards:

FEMP UNH Treatment System
FEMP Wastewater Treatment System
Portsmouth Evaporation
Mercury Treatment
Ohio Mobile Incinerator
Mound Packed Bed Reactor
Portsmouth Biological Treatment
TSCA Incinerator

The MAWS option was not evaluated due to limitations in the process rate. The volume of FEMP wastes would require approximately 10 years to treat through the MAWS unit. The current project schedule is for treatment to be accomplished in one year. Supplemental information on MAWS is provided in Section 3.1.

Figure A-5

Comparison of Options for Ohio Mobile Stabilization System
Preferred Option

CRITERIA	OHIO MOBILE STABILIZATION SYSTEM	OHIO MOBILE CHEMICAL TREATMENT SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	L	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	H
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	L
LIFE-CYCLE COST	H	L
MARKET FOR TECHNOLOGY	H	H
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates

Cost estimates were prepared for the Ohio Mobile Stabilization System and Ohio Mobile Chemical Treatment System and are based on actual project cost estimates. Annualized costs were developed based on the respective project schedule presented in the Background Volume. LLW disposal costs were not included in either estimate.

Ohio Mobile Stabilization System	Cost in Dollars
Studies & Bench Scale	750,000
Demonstration	160,000
Production Facility	810,000
O&M	1,330,000
Total Cost	3,050,000

Ohio Mobile Stabilization System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		910,000
2		2,140,000

Ohio Mobile Chemical Treatment System	Cost in Dollars
Treatment cost ($27,500/m^3)	10,752,500
Total Cost	10,752,500

Note: Treatment cost per unit volume based on actual project cost estimate.

Ohio Mobile Chemical Treatment System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		2,688,125
2		2,688,125
3		2,688,125
4		2,688,125

Note: Treatment cost based on calculated treatment cost per unit volume.

2.6 PO - Ohio Mobile Chemical Treatment System

6797

Option Description

The Ohio Mobile Chemical Treatment System was chosen as the Preferred Option to treat the waste streams listed in the Background Volume, Table 6. These waste streams are scheduled for treatment under the Chemical Treatment Project using currently available technologies and existing mobile vendors augmented by existing on-site facilities. Utilization of the mobile vendor option at the FEMP allows for timely input in managing the diverse wastes involved in this project and limits transportation risks. The Ohio Mobile Chemical Treatment System is the FEMP implementation of the Ohio Option. The FEMP will share engineering and other information with other Ohio DOE sites.

The Ohio Mobile Chemical Treatment System requires the utilization of one or more technologies to adequately treat the wastes to meet LDR treatment standards. The technologies require similar equipment. The treatment technologies may include, but are not limited to, the following:

Chemical/Wet Air Oxidation - used to destroy organics in solid waste streams

Deactivation - used to treat reactive characteristics of waste, thereby creating a non-hazardous waste

Macroencapsulation - utilized as a means of immobilization, primarily of metals waste

Pressurized Container Puncture Unit - used to puncture aerosol cans and gas containers to facilitate removal of liquid contents

Neutralization/Precipitation - used to treat acidic, caustic and metals laden waste

Amalgamation - used to treat elemental mercury and mercury contaminated waste

Ohio Mobile Chemical Treatment Sub-System Description

The Ohio Mobile Chemical Treatment System has been divided into six sub-systems each of which implement one of the six treatment technologies. The waste streams have been categorized into the six sub-systems based on LDR treatment standards. The six sub-systems along with the waste category assigned to each are discussed below.

Chemical/Wet Air Oxidation Unit - The general waste category assigned to this sub-system is **Solids with Organics**. Processes for treatment will be established following treatability studies of various representative samples of wastes.

The treatment processes necessary to treat the waste streams and meet LDR treatment standards are illustrated in:

1. Treatment Train G
2. Treatment Train I

These treatment trains and the LDR treatment standards are identified in Appendix C.

Deactivation Unit - The general waste category assigned to this sub-system is **Reactive Metals**. Deactivation is the LDR treatment standard for these waste streams.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train F

This treatment train and the LDR treatment standards are identified in Appendix C.

Ohio Mobile Macroencapsulation Unit - The general waste category assigned to this sub-system is **Elemental Lead, Batteries & Debris with Lead**. Macroencapsulation will be utilized as a means of immobilization for disposal of a limited number of waste streams. Several of these waste streams (such as lead-acid and nickel-cadmium batteries) have been identified to be recycled if radiological decontamination can be accomplished. The Ohio Mobile Macroencapsulation Unit is the FEMP implementation of the Ohio Option. Waste streams requiring macroencapsulation exist at the FEMP, Battelle and Mound.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train J

This treatment train and the LDR treatment standards are identified in Appendix C.

Pressurized Container Puncture Unit - The general waste category assigned to this sub-system is **Compressed Gas**. There is a single waste stream of pressurized containers (i.e., aerosol cans) to be treated. The volume is currently a single drum. Five year volume is calculated to be an additional 1 1/2 drums. No Ohio Option exists for this sub-system. The unit is currently at the FEMP and is operational.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train L

This treatment train and the LDR treatment standards are identified in Appendix C.

Neutralization/Precipitation Unit - The general waste category assigned to this sub-system is **Solids/Liquids with Metals**. This general waste category consists of several waste streams. Neutralization is the LDR treatment standard for one waste stream, the others are concentration based.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train H

This treatment train and the LDR treatment standards are identified in Appendix C.

Ohio Mobile Amalgamation Unit - The general waste category assigned to this sub-system is **Elemental Mercury & Debris with Mercury**. Amalgamation is the LDR treatment standard and will be utilized to immobilize a number of waste streams. The Ohio Mobile Amalgamation Unit is the FEMP implementation of the Ohio Option. Waste streams requiring amalgamation exist at the FEMP, Battelle, Mound, Portsmouth and USEC.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train M

This treatment train and the LDR treatment standards are identified in further detail in Appendix C.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 6 of the Background Volume include the following:

- Ohio Mobile Chemical Treatment System (Preferred Option)
- Ohio Mobile Incinerator (Viable Option)
- TSCA Incinerator (Viable Option)
- Ohio Mobile Stabilization System (Viable Option)
- Portsmouth Wastewater Treatment System
- FEMP UNH Treatment System
- FEMP Hydrofluoric Acid Neutralization System
- Portsmouth Evaporation
- Mound Packed Bed Reactor
- FEMP Wastewater Treatment System
- LANL Mobile Amalgamation Unit
- LANL Mobile Decontamination Trailer

The Ohio Mobile Chemical Treatment System was chosen as the Preferred Option because this option allows for the treatment of the designated waste to meet LDR treatment standards on-site with medium cost effectiveness relative to other options. The use of the Ohio Mobile Chemical Treatment System also provides an equitable solution for Ohio and other states when comparing this option with out-of-state treatment options. The Ohio Mobile Chemical Treatment System will treat debris and solid waste which could potentially use incineration technologies. Supplemental information supporting this option evaluation is provided in Section 3.2. This option was chosen to expedite the FEMP treatment schedule. The FEMP has started the process for identifying vendors to provide chemical treatment services.

The Ohio Mobile Incinerator Option was not chosen for those waste streams identified for the Chemical/Wet Air Oxidation sub-system. This option is the least cost effective and is expected to lack public acceptance.

The TSCA Incinerator option was not chosen because of potential state-to-state equity issues. The TSCA Incinerator is limited to the incineration of liquid waste streams. Modifications to the TSCA Incinerator in order to incinerate soft solids have been estimated at $15,000,000. The modifications are not funded. Incineration of those wastes identified for the Chemical/Wet Air Oxidation sub-system to treat the hazardous component would receive less benefit in terms of volume reduction and treatment residue relative to the incineration of organic liquids which have been identified for treatment at the TSCA Incinerator. Ash and residue management at the TSCA Incinerator is reduced significantly by reducing the solids content sent to the TSCA Incinerator. Supplemental information on the decision-making process utilized in determining the FEMP mixed wastes to be sent to the TSCA Incinerator is provided in Section 3.2.

Ohio Mobile Stabilization System was not chosen to treat waste identified in the Ohio Mobile Chemical Treatment System because the technology does meet the LDR treatment standards for all identified waste. The option was only compared to three applicable sub-systems within the Ohio Mobile Chemical Treatment System. This option was not chosen for treating elemental lead, batteries, and debris with lead, reactive metals, or solid/liquids with metals because of the volume increase, the requirement of additional treatment steps, and inflexibility of the system.

Evaluation of Viable Options

The viable options evaluated for each sub-system are listed below.

Chemical/Wet Air Oxidation Unit Waste Matrix - Solids with Organics
Viable Option: A. Ohio Mobile Chemical Treatment System (Chemical/Wet Air Oxidation Unit) B. Ohio Mobile Incinerator C. TSCA Incinerator

Deactivation Unit Waste Matrix - Reactive Metals
Viable Option: A. Ohio Mobile Chemical Treatment System (Deactivation Unit) B. Ohio Mobile Stabilization System

Ohio Mobile Macroencapsulation Unit Waste Matrix - Elemental Lead, Batteries & Debris with Lead
Viable Option: A. Ohio Mobile Chemical Treatment System (Mobile Macroencapsulation Unit) B. Ohio Mobile Stabilization System

Pressurized Container Puncture Unit * Waste Matrix - Compressed Gas
Viable Option: A. FEMP Compressed Gas Puncture Unit

Neutralization/Precipitation Unit Waste Matrix - Solids/Liquids w/ Metals
Viable Option: A. Ohio Mobile Chemical Treatment System (Neutralization/ Precipitation Unit) B. Ohio Mobile Stabilization System

Ohio Mobile Amalgamation Unit * Waste Matrix - Elemental Mercury & Debris with Mercury
Viable Option: A. Ohio Mobile Chemical Treatment System (Mobile Amalgamation Unit)

* Only one viable option was identified. No comparison evaluation was performed.

A comparison of these evaluations is summarized in Figures A-6.1 through A-6.4. The differences in ratings are discussed below.

Ohio Mobile Incinerator (Solids with Organics) - This option rated lower for treatment of solids with organics in the following criteria.

Public Acceptance - The general public within the vicinity of the site is expected to react negatively to the establishment of an incinerator at the FEMP.

Life-Cycle Cost - A mobile incinerator would incur higher cost to establish on-site.

TSCA Incinerator (Solids with Organics) - This option rated lower for the treatment of solids with organics in the following criteria.

Equity Issues - This option would create potential state-to-state equity issues due to the treatment of waste at an out-of-state DOE facility.

Ohio Mobile Stabilization System (Reactive Metals) - This option rated lower for treatment of reactive metals in the following criteria.

Volume reduction - This option will increase the volume for disposal.

Flexibility - Input criteria for this option is not diverse enough to manage the variety of waste in this category.

Ohio Mobile Stabilization System (Elemental Lead, Batteries, and Debris) and (Solids/Liquids w/Metals) - This option rated lower for treatment of elemental lead, batteries, debris with lead, and solids/liquids w/metals than the Preferred Option in the following criteria.

Volume reduction - This option will significantly increase the volume for disposal relative to the Preferred Option.

Destruction, Removal, and Demobilization - It is uncertain that this option will effectively immobilize the toxic constituents. Additional treatment would be required to treat this waste relative to the Preferred Option.

Flexibility - Input criteria for the option will require significant physical treatment of the waste prior to acceptance for stabilization.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to their inability to meet LDR treatment standards for the waste streams:

Portsmouth Wastewater Treatment System
FEMP UNH Treatment System
FEMP Hydrofluoric Acid Neutralization System
Portsmouth Evaporation
Mound Packed Bed Reactor
FEMP Wastewater Treatment System

The LANL Mobile Amalgamation Unit was not evaluated based on lack of availability for FEMP use. This unit will be dedicated for use by DOE sites within the Albuquerque Field Office until the year 2005.

The LANL Mobile Decontamination Trailer was not evaluated based on lack of availability for FEMP use. The unit has been deployed within the Albuquerque Field Office DOE sites. There is no scheduled use of the unit outside of these sites.

Figure A-6.1

Comparison of Options for the Treatment of Solids with Organics

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (CHEMICAL/WET AIR OXIDATION)	OHIO MOBILE INCINERATOR	TSCA INCINERATOR
REGULATORY COMPLIANCE	H	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M	M
TRANSPORTATION RISK	M	M	M
PUBLIC ACCEPTANCE	H	L	H
EQUITY ISSUES	H	H	M
VOLUME REDUCTION	M	H	H
SECONDARY WASTE GENERATION	M	M	M
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H
FLEXIBILITY	H	H	H
FINAL WASTE FORM	M	M	M
ABILITY TO BE SHIPPED	M	M	M
SYSTEM IMPLEMENTABILITY	H	H	H
AVAILABILITY	H	H	H
SCALABILITY	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	H	H
LIFE-CYCLE COST	H	M	H
MARKET FOR TECHNOLOGY	M	M	M
PRIVATE SECTOR INVOLVEMENT	H	H	H

Treatment Selection Guide (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.2

Comparison of Options for the Treatment of Reactive Metals

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (DEACTIVATION UNIT)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.3

Comparison of Options for the Treatment of
Elemental Lead, Batteries & Debris with Lead

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (MACROENCAPSULATION)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.4

Comparison of Options for the Treatment of Solids/Liquids w/Metals

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (NEUTRALIZATION/ PRECIPITATION)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Secondary Waste Streams

As a result of chemical treatment of mixed waste, the original waste volume is anticipated to double. This estimate represents the high end of the anticipated waste volume increase range. Technology evaluation and treatability testing are expected to demonstrate higher processing efficiency. The treated waste form is anticipated to have a volume one and a half times greater than the untreated waste form. The remaining 50% volume increase will result from generation of secondary mixed waste. These secondary mixed wastes will be treated by other treatment identified in the PSTP. Figure 3.1.6A in the Background Volume provides a graphic of the anticipated waste volume increases and the calculation factors for estimating the quantity of secondary waste generation.

Note that secondary low level waste, such as personal protective equipment generated from activities associated with bulking, packaging, shipping and treatment of mixed waste on-site, is assumed to be equal to five percent of the total waste to be processed.

Secondary waste streams from this project will be managed under the Chemical Treatment Project as follows:

- Liquid waste is designated to be treated at the TSCA Incinerator.
- Debris will be shipped directly for disposal at Envirocare or NTS.
- Fines will be managed in the Ohio Mobile Stabilization System (Portsmouth).

Cost Estimates

Cost estimates were prepared for the PO, Ohio Mobile Chemical Treatment System, and for each sub-system including management of secondary waste. 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 any estimate.

Ohio Mobile Chemical Treatment System	Cost in Dollars
Pre-operations	2,445,000
Construction	415,000
O&M ($905,000/yr X 2yr)	1,810,000
D&D	210,000
Contracted services	7,880,000
Off-site treatment	210,000
Transportation	580,000
Total Cost	13,550,000

Ohio Mobile Chemical Treatment System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	415,000	4,195,000
2		1,750,000
3		1,750,000
4		1,750,000
5		1,750,000
6		1,940,000

Note: The annualized costs are based on the actual project cost estimate and the project schedule (6 years) as prepared for the PSTP.

Cost Estimates (Continued)

The individual cost estimates for each of the six sub-systems were prepared for the Ohio Mobile Chemical Treatment System using an average of the total cost per cubic meter of waste to be treated. These cost estimates are rounded upward to the next one hundred dollar increment. Cost estimates for Ohio Mobile Stabilization System and Ohio Mobile Incinerator are based on cost to treat per unit volume.

Chemical/Wet Air Oxidation Unit Waste Matrix - Solids with Organics		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Chemical/Wet Air Oxidation Unit)	$11,841,500
B.	Ohio Mobile Incinerator	$13,750,000
C.	TSCA Incinerator	$ 750,000*

* This cost estimate does not include the FEMP share of the TSCA Incinerator modification to incinerate soft solids. The cost of these modifications is estimated at $15,000,000.

Deactivation Unit Waste Matrix - Reactive Metals		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Deactivation Unit)	$ 5,500
B.	Ohio Mobile Stabilization System	$ 7,800

Ohio Mobile Macroencapsulation Unit Waste Matrix - Elemental Lead, Batteries & Debris with Lead		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Mobile Macroencapsulation Unit)	$ 269,500
B.	Ohio Mobile Stabilization System	$ 76,500

Pressurized Container Puncture Unit Waste Matrix - Compressed Gas		
Viable Option:		
A.	FEMP Compressed Gas Puncture Unit	$ 5,500

Cost Estimates (Continued)

Neutralization/Precipitation Unit Waste Matrix - Solids/Liquids w/ Metals		
	Viable Option:	
	A. Ohio Mobile Chemical Treatment System (Neutralization/ Precipitation Unit)	$ 1,320,000
	B. Ohio Mobile Stabilization System	$ 374,400

Ohio Mobile Amalgamation Unit Waste Matrix - Elemental Mercury & Debris with Mercury		
	Viable Option:	
	A. Ohio Mobile Chemical Treatment System (Mobile Amalgamation Unit)	$ 132,000

Basis of Cost Estimates

The cost estimate for the Preferred Option was prepared by the FEMP based on the actual project schedule. The cost of the sub-systems and the comparison costs were developed using an average cost to treat per unit volume for the project. No annualized costs were developed for the individual sub-systems due to uncertainties in the scheduling sequence which will actually be used. The sequence will be determined following treatment studies for waste categories.

2.7 PO - TSCA Incinerator

Option Description

The TSCA Incinerator in Oak Ridge, Tennessee was chosen as the Preferred Option for the FEMP liquid waste streams listed in the Background Volume, Table 7. The TSCA Incinerator Preferred Option will be implemented as part of the Liquid Mixed Waste Project.

The treatment processes necessary to treat the waste streams and meet the LDR treatment standards are illustrated in:

1. Treatment Train C
2. Treatment Train E
3. Treatment Train K

These treatment trains and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 7 of the Background Volume include the following:

TSCA Incinerator (Preferred Option)
Ohio Mobile Incinerator (Viable Option)
FEMP Rotary Kiln (Viable Option)
Savannah River Consolidated Incinerator Facility (Viable Option)
Mound Glass Melter
Mound Packed Bed Reactor
INEL WERF Incinerator

The TSCA Incinerator was chosen as the Preferred Option for treatment of organic liquid waste to meet LDR treatment standards. Use of the TSCA Incinerator allows for timely, cost effective treatment. As part of an ongoing project, treatment capacity at the TSCA Incinerator has been negotiated by the FEMP. Supplemental information on the use of the TSCA Incinerator is provided in Section 3.2.

The TSCA Incinerator is currently the only such facility approved by the USEPA to accept CERCLA wastes (per 40 CFR 300.440). Wastes generated during removal or remedial actions at the FEMP must be managed in a facility approved for the acceptance of CERCLA wastes.

The identified waste streams are compatible with the Waste Acceptance Criteria established for the TSCA Incinerator. The incinerator's design criteria were developed to accept FEMP mixed waste streams, including these identified waste streams. These wastes are necessary to maintain maximum utilization and efficiency of the facility. The incineration of these liquid waste streams will result in a significant reduction in volume. The small volume of ash produced will require further treatment (i.e., stabilization).

The results of a computer modeling effort utilizing a validated multicriteria analysis model indicate that incineration should be the preferred technology and the use of the TSCA Incinerator should be the Preferred Option for these waste streams.

The Ohio Mobile Incinerator was not chosen because it was the least cost effective option evaluated. This option is not readily available and would have lengthy delays in implementation and negative public acceptance. Transportation Risk and Equity Issues for a mobile incinerator ranked higher than the Preferred Option, but the overall ranking was significantly lower. Implementation of this option for the relatively small volume of wastes would push the current project schedule into early 2000. Additionally, the cost of mobilization, operation and decommissioning would far exceed current budget to complete treatment using the PO.

The FEMP Rotary Kiln was not chosen because the facility has the same deficiencies as the Ohio Mobile Incinerator. Considerable modifications would be needed to retrofit the Rotary Kiln and would impact current budget and schedules. Life-cycle cost analysis concluded that the cost of retrofitting, start-up and D&D would be prohibitive.

The Savannah River Consolidated Incinerator Facility (CIF) was not chosen because the facility does not have a RCRA permit to treat mixed waste and is currently not operational.

Evaluation of Viable Options

The following viable options were evaluated against the TSCA Incinerator:

Ohio Mobile Incinerator
Savannah River CIF
FEMP Rotary Kiln

A comparison of these evaluations is summarized in Figure A-7. The differences in ratings are discussed in the following paragraphs:

Ohio Mobile Incinerator - The Ohio Mobile Incinerator, a concept developed by the Ohio Work Group, consists of a vendor supplied thermal destruction unit located at one or more of the Ohio sites for the incineration of liquid organic mixed waste. No specific site(s) or vendor(s) has been considered.

The Mobile Incinerator rated lower than the Preferred Option in the following criteria:

Public Acceptance - The local public is expected to react negatively to the establishment of an incinerator at the FEMP.

Availability - An Ohio Mobile Incinerator for mixed waste is not readily available. Procuring, permitting, and scheduling of a mobile incinerator is neither time nor cost effective. The TSCA Incinerator is readily available and is being implemented through an ongoing project at the FEMP.

Schedule for Waste Treatment - The TSCA Incinerator is already a scheduled, ongoing project at the FEMP. Scheduling of a mobile incinerator would greatly delay the timely completion of this project.

Life-Cycle Cost - The TSCA Incinerator is currently a funded, ongoing project. A mobile incinerator would increase project costs due to delays in schedule, permitting, transportation, and storage, in addition to the procurement and engineering costs.

Savannah River CIF - The Savannah River CIF is a fixed thermal destruction facility (rotary kiln) located on the Savannah River Site in Aiken, South Carolina.

This option rated lower than the Preferred Option in the following criteria.

Availability - The unit is not yet permitted to receive waste.

Schedule - A schedule cannot be established for use of this unit until a permit is obtained for unit operation and acceptance of off-site wastes. The permitting process is estimated to take at least two years. The FEMP Liquid Mixed Waste Project is scheduled to complete treatment of current waste inventories by the end of FY 96.

Life-Cycle Cost - The TSCA Incinerator is currently a funded, on-going project. The Savannah River CIF would increase project costs due to lack of permitting and absence of schedules, in addition to transportation and storage costs.

FEMP Rotary Kiln - The FEMP Rotary Kiln is an existing unit located at the FEMP. The FEMP Rotary Kiln was designed for the drying of low level waste. Significant modifications would be necessary to treat mixed waste.

The Rotary Kiln rated lower than the Preferred Option in the following criteria:

Public Acceptance - The local public is expected to react negatively to the establishment of a thermal destruction unit at the FEMP.

Availability - The Rotary Kiln has never been operational and was not designed for the destruction of mixed LLW containing toxic organics. The facility would require extensive modification to meet regulatory requirements, including LDR treatment standards

Schedule for Waste Treatment - A schedule cannot be established for the use of this unit until engineering design and construction of the retrofitting necessary for the handling of liquids and off-gases, startup, treatability studies, and regulatory approval are completed. Completion of these items is estimated to take at least three years, greatly delaying the schedule of the FEMP Liquid Mixed Waste Project.

Life-Cycle Cost - The Rotary Kiln would increase project costs due to delays in the schedule, permitting, transportation, storage, engineering, and construction of necessary modifications to treat mixed waste and final D&D of the unit. The FEMP is an Environmental Restoration site, and is in the process of final restoration. The costs associated with the retrofitting, startup and D&D of the Rotary Kiln are not a cost-effective investment of capital.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to the reasons detailed below.

The Mound Glass Melter was not considered a viable treatment option due to the severe feed rate limitation of the equipment. Processing of the waste would take a minimum of 3 years if a 24 hour operation could be maintained. The earliest the system would be available for processing would be FY99.

The Mound Packed Bed Reactor was not considered a viable treatment option due the severe feed rate limitations of the equipment (40 cc/minute).

The INEL WERF Incinerator was not considered a viable treatment option due to the limitations of the site's off-site acceptance of wastes for the facility (5 m^3/year).

Figure A-7

Comparison of Options for the TSCA Incinerator
Preferred Option

CRITERIA	TSCA INCINERATOR	OHIO MOBILE INCINERATOR	SAVANNAH RIVER CIF	FEMP ROTARY KILN
REGULATORY COMPLIANCE	H	H	H	H
ENVIRONMENTAL / PUBLIC HEALTH	H	H	H	H
NON-OPERATIONAL WORKER HEALTH & SAFETY	H	H	H	H
OPERATIONAL WORKER HEALTH & SAFETY	M	M	M	M
TRANSPORTATION RISK	M	H	M	H
PUBLIC ACCEPTANCE	M	L	M	L
EQUITY ISSUES	M	H	M	H
VOLUME REDUCTION	H	H	H	H
SECONDARY WASTE GENERATION	H	H	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H	H
FLEXIBILITY	H	H	H	H
FINAL WASTE FORM	H	H	H	H
ABILITY TO BE SHIPPED	H	H	H	H
SYSTEM IMPLEMENTABILITY	H	H	H	H
AVAILABILITY	H	M	M	M
SCALABILITY	H	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	L	L	L
LIFE-CYCLE COST	H	M	M	M
MARKET FOR TECHNOLOGY	H	H	H	H
PRIVATE SECTOR INVOLVEMENT	L	H	L	L

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates

6797

A cost estimate was prepared only for the PO. TSCA Incinerator and the other viable options.

TSCA Incinerator PO	Cost in Dollars
Studies & Bench Scale	260,000
Production Facility	452,000
D&D	40,000
Total Cost	752,000

NOTE: Preliminary revision of project cost estimate.

TSCA Incinerator PO	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		580,000
2		172,000
TOTAL		752,000

NOTE: Project is assumed to treat current inventory only.

Ohio Mobile Incinerator	Cost in Dollars
All costs excluding O&M	23,000,000
O&M/yr X 2.5yr	2,500,000
Total Cost	25,500,000

NOTE: Cost estimate used on INEL Interim Report Data.

Ohio Mobile Incinerator	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	23,000,000	500,000
2		1,000,000
3		1,000,000
TOTAL	23,000,000	2,500,000

NOTE: Project is assumed to treat current inventory only.

Cost Estimates (Cont'd)

Rotary Kiln	Cost in Dollars
Start-up	850,000
Off-gas system	2,000,000
O&M/yr	2,500,000
D&D	9,000,000
Total Cost	14,350,000

NOTE: Cost estimate based on information provided by the FEMP.

Rotary Kiln	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	2,000,000	850,000
2		1,250,000
3		1,250,000
4		9,000,000
TOTAL	2,000,000	12,350,000

NOTE: Project is assumed to treat current inventory only.

Savannah River Consolidated Incinerator Facility	Cost in Dollars
All costs excluding transportation ($30/kg)	7,700,000
Transportation	85,000
Total Cost	7,785,000

NOTE: Cost estimate based on data from Oak Ridge PSTP. No annualized cost estimate was prepared due to associated uncertainties.

2.8 PO - Envirocare

Option Description

The Envirocare Option was chosen as the Preferred Option for the waste streams listed in the Background Volume, Table 8. This option consists of direct disposal of these waste streams at Envirocare in Clive, Utah under the Non-LDR/< TSC Project. The waste streams in this project either meet LDR treatment standards or have variances to LDR treatment standards currently in effect.

Simple segregation, shredding and screening, and bulking activities will occur on-site to prepare the wastes for shipment and disposal. Free liquids will be eliminated from the containers prior to shipment.

The treatment process necessary to complete the project and ship for disposal is illustrated in:

1. Treatment Train B

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

This project consists of bulking activities and waste processing for the purpose of disposal; therefore, an evaluation of alternative treatment options was not prepared.

Cost Estimates

A cost estimate was prepared only for the PO (Envirocare).

Envirocare P.O.	Cost in Dollars
Studies & Bench Scale	435,000
Production Facility	340,000
O&M	840,000
Transportation	145,000
Total Cost	1,760,000

Basis for Cost Estimate

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

3.0 Supplemental Information

Section 3.1 provides more information on the FEMP Minimum Additive Waste Stabilization (MAWS) Facility. The MAWS Facility was previously reviewed as an Ohio Option and had been identified by other DOE sites as a potential preferred option during Ohio Work Group activities. Currently the MAWS Facility has not been identified as a Preferred Option by any DOE site.

Section 3.2 provides the decision-making process utilized in determining the FEMP mixed waste streams to be sent to the TSCA Incinerator. The TSCA Incinerator has been chosen by the DOE as the Preferred Option for the treatment of certain FEMP mixed waste streams. Other mixed waste streams, which could utilize incineration as a treatment technology, have been directed toward alternate on-site treatment.

3.1 FEMP MAWS Facility

The MAWS process is a unique concept to minimize waste volume by blending different waste streams with minimum amounts of additives without producing additional wastes as a by-product. The result is a cost-effective waste treatment and disposal plan for low level radioactive and mixed wastes.

The MAWS Facility consists of a pilot-scale 300 kilogram per day vitrification unit, a one quarter cubic yard per hour soil washing unit, and a 70 gallon per minute wastewater treatment system. The vitrification unit uses electric current to reach a melter temperature of about 1150°C. At this temperature, silica containing materials start to form glass.

The FEMP is investigating future options for the use of the MAWS Facility including:

- FEMP operation for the treatment of off-site mixed wastes;
- Relocation of the facility to another DOE site for treatment of mixed wastes; and,
- Permanent closure of the MAWS Facility.

Issues/items which need to be resolved prior to treating mixed waste in this process include, but are not limited to;

Development of Waste Acceptance Criteria
Acceptance of off-site wastes for treatment
Stakeholder concerns
Permitting
Modifications of off-gas system
Training required to operate the facility
Space limitations
Plant 9 Decontamination and Decommissioning (D&D) plans

3.2 Incineration of FEMP Mixed Wastes

The FEMP has identified three groups of mixed waste streams which may be treated by the incineration technology. These groups include organic liquids (including liquid secondary wastes generated from the Chemical Treatment Project), aqueous liquids and solids/liquids with metals and organics. The FEMP has chosen the TSCA Incinerator as the Preferred Option for the treatment of only organic liquids and liquid secondary mixed wastes. Alternative treatment methods were chosen for aqueous liquids and solid/liquid with metals and organics in order to address equity issues.

There are several benefits in addressing equity issues by sending only the organic liquids to the TSCA Incinerator:

- Sending only organic liquids limits the quantity of waste shipped out of state for treatment and disposal.
- Incineration of organic liquids results in significant volume reduction and generates a limited quantity of ash requiring further disposition.

The quantity of ash generated as a result of incinerating solids is greater and the volume reduction achieved is significantly less compared to liquid waste. The aqueous liquids will be treated by the FEMP WWTS. These liquids will be acceptable at the FEMP WWTS and the treated liquids will be discharged under the existing NPDES permit.

Table 3.2.1 lists the FEMP mixed wastes which were considered for treatment at the TSCA Incinerator. The waste streams are organized in the table by treatment trains as illustrated in Appendix C. Volumes include current volume and 5-year generation rate projections.

Table 3.2.1

FEMP Mixed Wastes Considered for Treatment at the TSCA Incinerator (Incincerable Waste)

Treatment Trains	Volume (m^3)	Preferred Option
A	26.3	Wastewater Treatment
C	346	TSCA Incinerator
E*	51	TSCA Incinerator
G	375	Ohio Mobile Chemical Treatment System
I	85.7	Ohio Mobile Chemical Treatment System
K	57.9	TSCA Incinerator
L	0.5	Ohio Mobile Chemical Treatment System
Secondary Waste **	266	TSCA Incinerator

* The quantity represented for Treatment E accounts for only the liquid protion of the wastes. will be sent to the TSCA Incinerator. For purposes of this discussion, volume represented is the liquid volume.

** Secondary waste will be generated as a result of Chemical Treatment operations.

It should be noted that the other treatment trains did not consider the TSCA Incinerator to be a viable option because the incineration process provided little benefit either through volume reduction or hazardous constituent destruction.

The total quantity of mixed waste, including 5-year generation and secondary waste projections considered for the TSCA Incinerator, was 1208 m^3. By limiting the waste for the TSCA Incinerator to organic liquids and secondary liquid waste streams, the quantity of waste designated for the TSCA Incinerator was reduced to 721 m^3 or 60% of the original volume considered. These numbers do not include 2106 drums of waste considered for disposition to the TSCA Incinerator which were eliminated since the submittal of the DSTP. These drums were eliminated through project management efforts, including recharacterization and shipment to permitted land disposal facilities prior to expiration of variances. These efforts will continue throughout the life of all the mixed waste projects.

Table 3.2.2 lists the treatment options evaluated for the three groups of FEMP mixed wastes considered for treatment at the TSCA Incinerator. The preferred option for each group of mixed waste is indicated by the volume of waste to be treated. The basis for selection and elimination of treatment, provided in detail in Appendix A, is summarized following Table 3.2.2.

Table 3.2.2

Treatment Options for
Potential TSCA Incinerator Mixed Waste

List of options considered treatment of FEMP mixed waste	Organic Liquids	Aqueous Liquids	Solids/Liquids w/ Metals and Organics
Ohio Mobile Incinerator	X	X	X
Mound Packed Bed Reactor	X		X
FEMP Rotary Kiln	X		
FEMP UNH or HF Neutralization / Precipitation		X	X
TSCA Incinerator	721 m^3	X	X
INEL WERF Incinerator	X		
Savannah River CIF	X		
Evaporation (PORTS)		X	X
Ohio Mobile Chemical Treatment System *		X	461 m^3
Ohio Mobile Stabilization System			X
Portsmouth WWTS (includes Physical/Chemical Treatment: Carbon Treatment)		X	X
FEMP WWTS (includes Plant 8 VOC, FEMP AWWT)		26.3 m^3	X
Mound Glass Melter	X		

X - Indicates options evaluated for these wastes.
m^3 - Indicates volume of waste to be treated by the Preferred Option for each FEMP waste stream group.

* Chemical Treatment consists of six primary treatment technologies
- Chemical Oxidation/Wet Air Oxidation
- Deactivation
- Macroencapsulation
- Pressurized Container Puncture Unit
- Neutralization/Precipitation
- Amalgamation

ORGANIC LIQUIDS AND LIQUID SECONDARY WASTES - PREFERRED OPTION: TSCA INCINERATOR

Basis for Preferred Option selection:

- Incineration of these waste streams meets the LDR treatment standards.
- The TSCA Incinerator is currently approved by the U.S.EPA to accept CERCLA wastes (per 40 CFR 300.440). Wastes from the FEMP removal and remedial actions must be managed in a facility approved for the acceptance of CERCLA wastes.
- The identified waste streams are compatible with the Waste Acceptance Criteria established for the TSCA Incinerator. The TSCA Incinerator design criteria were developed to accept FEMP mixed waste streams, including these identified waste streams.
- The results of a computer modeling effort utilizing a validated multicriteria analysis model designed by Martin Marietta Energy Systems Inc., Oak Ridge National Laboratory, indicate that incineration is the preferred technology option compared to other options and the use of the TSCA Incinerator is the Preferred Option.
- Incineration of these liquid waste streams will result in a significant reduction in volume with only a small volume of ash produced requiring further treatment (i.e., stabilization).
- The TSCA Incinerator currently has included these wastes in the FY 95 burn schedule. These wastes are necessary to maintain maximum utilization and efficiency of the facility.

Basis for eliminating other options:

- Some alternative options to the TSCA Incinerator that were considered did not meet the LDR treatment standards for the identified waste streams.
- No other off-site incinerators that were investigated were approved by U.S. EPA to accept CERCLA waste.
- The cost of establishing and operating an on-site incinerator would be prohibitive when compared to the use of the TSCA Incinerator.
- No other options were compatible with the current mixed waste treatment schedules.

AQUEOUS LIQUIDS - PREFERRED OPTION: FEMP WWTS

Basis for Preferred Option selection:

- The use of the FEMP WWTS will meet the LDR treatment standards for the identified waste streams.
- The identified waste streams will require little or no pre-treatment to meet the FEMP WWTS waste acceptance criteria.
- The FEMP WWTS is an existing, operating facility which will allow for the timely and cost effective treatment of the identified waste streams.

Basis for eliminating other options:

- Some of the treatment options considered would not completely eliminate the need to use the WWTS for the final treatment and disposal of the waste streams.
- Other alternative treatment options were unable to meet the LDR treatment standards for the identified waste streams.

SOLIDS/LIQUIDS W/ METALS AND ORGANICS - PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT (CHEMICAL/WET AIR OXIDATION)

Basis for Preferred Option selection:

- The Preferred Option meets LDR treatment standards for the identified waste streams.
- There are vendor supplied, mobile units available for this treatment option.
- Secondary waste streams that are produced by the Preferred Option treatment technology are easily managed for treatment and disposal.

Basis for eliminating other options:

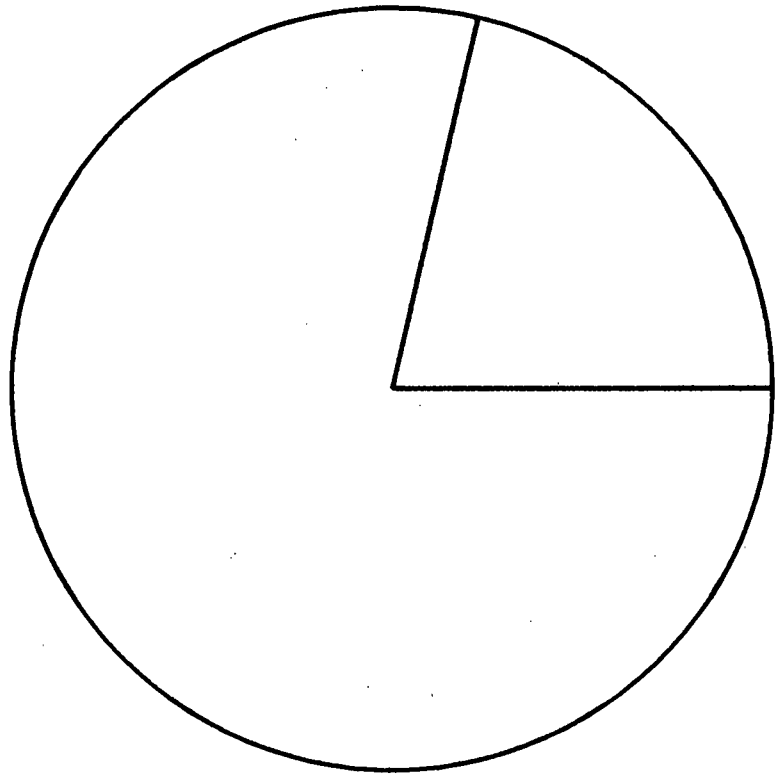
- Other alternative treatment options considered were unable to meet the LDR treatment standards for the identified waste streams.
- Incineration of the identified waste streams would generate larger volumes of ash relative to the incineration of organic liquids which would require treatment and disposal.

The following provides a graphic demonstration of the disposition of all FEMP mixed wastes, including those considered for the TSCA Incinerator.

- Figure 3.2.1, Mixed Waste Disposition, exhibits the portions of FEMP mixed wastes designated for the TSCA Incinerator and all other treatment options.
- Figure 3.2.2, Waste Disposition Per Preferred Option, exhibits the relative volumes of FEMP mixed wastes designated for each treatment option.
- Figure 3.2.3, Incinerable Waste Disposition, exhibits all those FEMP mixed wastes which could be incinerated at the TSCA Incinerator and those portions of that total volume which are designated for treatment by alternative Preferred Options.

Figure 3.2.1

MIXED WASTE DISPOSITION



FEMP MIXED WASTE

☐ TSCA INCINERATOR (721 m3) ☐ OTHER PREFERRED OPTIONS (2653 m3)

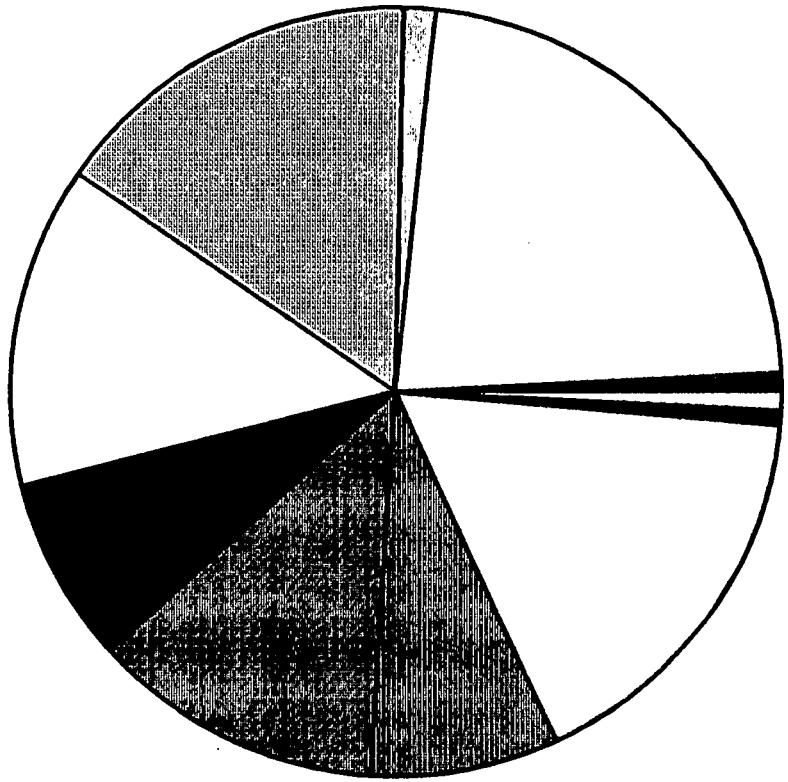
000210

6729

Figure 3.2.2

WASTE DISPOSTION PER PREFERRED OPTION

- WASTEWATER TREATMENT (26 m3)
- UNH TREATMENT SYSTEM (761 m3)
- ENVIROCARE (46 m3)
- ENVIROCARE/SECONDARY (532 m3)
- TSCA INCINERATOR (455 m3)
- TSCA INCINERATOR/SECONDARY (266 m3)
- OHIO MOBILE STABILIZATION SYSTEM (414 m3)
- OHIO MOBILE STABILIZATION SYSTEM/SECONDARY (266 m3)
- OHIO MOBILE CHEMICAL TREATMENT SYSTEM (566 m3)
- HF NEUTRALIZATION SYSTEM (20 m3)
- THORIUM NITRATE TREATMENT SYSTEM (22 m3)



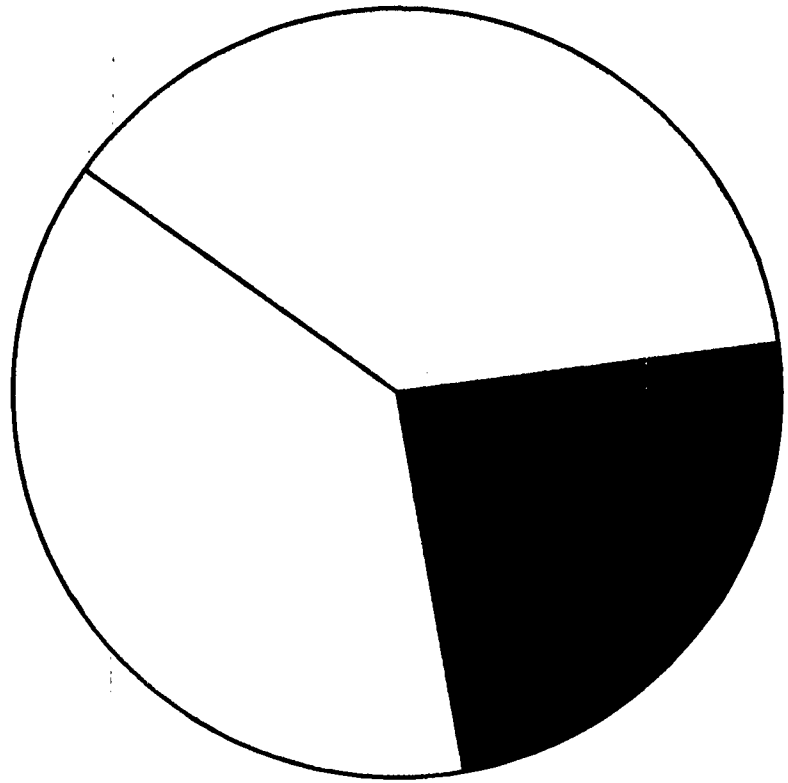
FEMP MIXED WASTE

000211

2629

Figure 3.2.3

INCINERABLE WASTE DISPOSITION



INCINERABLE WASTE

- ■ WASTEWATER TREATMENT (26 m3)
- □ OHIO MOBILE CHEMICAL TREATMENT SYSTEM (461 m3)
- □ TSCA INCINERATOR (455 m3)
- ■ TSCA INCINERATOR/SECONDARY (266 m3)

000212

2629

APPENDIX A

PSTP DEVELOPMENT FRAMEWORK APPLICATIONS

Appendix A, PSTP Development Framework Applications

Appendix A presents an evaluation of treatment options considered viable for the FEMP mixed waste streams. Viable options were further evaluated to develop Preferred Options (POs) for all FEMP mixed waste streams.

The Treatment Selection Guides, prepared by the DOE FFCAct Task Force, provided a list of general selection guides for use by all sites to add uniformity to the evaluation of treatment options and the selection of preferred options. The Treatment Selection Guides were divided into sub-elements to ensure that evaluations of treatment effectiveness and other criteria were assessed in a comparable manner between sites. Sub-elements included the following: Regulatory Compliance, Environmental Health and Safety, Treatment Effectiveness, Implementability, Stakeholder Concerns, Life-Cycle Cost, and Technology Development.

APPENDIX A
PSTP DEVELOPMENT FRAMEWORK APPLICATIONS
TABLE OF CONTENTS

PAGE #

1.0 Evaluation Process and Methodology A-1

1.1 Treatment Selection Guides A-3

1.1.1 Regulatory Compliance A-3

1.1.2 Environmental Health and Safety A-4

1.1.3 Treatment Effectiveness A-5

1.1.4 Implementability A-6

1.1.5 Stakeholder Concerns A-7

1.1.6 Life-Cycle Cost A-7

1.1.7 Technology Development A-7

Table A-1 Treatment Selection Guides A-9

2.0 Alternatives Identification and Evaluation A-13

2.1 PO - Hydrofluoric Acid (HF) Neutralization System A-13

2.2 PO - Uranyl Nitrate Hexahydrate (UNH) Treatment System . . . A-15

2.3 PO - Thorium Nitrate Treatment System A-16

2.4 PO - Wastewater Treatment A-18

Figure A-4 Comparison of Options for Wastewater Treatment Preferred Option A-22

2.5 PO - Ohio Mobile Stabilization System A-24

Figure A-5 Comparison of Options for Ohio Mobile Stabilization System Preferred Option A-27

2.6 PO - Ohio Mobile Chemical Treatment System A-29

Figure A-6.1 Comparison of Options for the Treatment of Solids with Organics A-38

Figure A-6.2 Comparison of Options for the Treatment of Reactive Metals A-39

Figure A-6.3 Comparison of Options for the Treatment of Elemental Lead, Batteries & Debris with Lead A-40

APPENDIX A
PSTP DEVELOPMENT FRAMEWORK APPLICATIONS
TABLE OF CONTENTS

PAGE #

Figure A-6.4 Comparison of Options for the Treatment of Solids/Liquids w/Metals A-41

2.7 PO - TSCA Incinerator A-46

Figure A-7 Comparison of Options for the TSCA Incinerator Preferred Option A-51

2.8 PO - Envirocare A-54

3.0 Supplemental Information A-55

3.1 FEMP MAWS Facility A-55

3.2 Incineration of FEMP Mixed Wastes A-56

Table 3.2.1 FEMP Mixed Wastes Considered for Treatment at the TSCA Incinerator A-57

Table 3.2.2 FEMP Preferred Options for Potential TSCA Incinerator Mixed Waste A-58

Figure 3.2.1 Mixed Waste Disposition A-62

Figure 3.2.2 Waste Disposition Per Preferred Option A-63

Figure 3.2.3 Incinerable Waste Disposition A-64

Reference List A-65

APPENDIX A

PSTP DEVELOPMENT FRAMEWORK APPLICATIONS

1.0 Evaluation Process and Methodology

The FEMP PSTP includes 324 waste streams categorized in 44 treatability groups. The treatment needed to meet regulatory requirements and safely handle the radionuclide content of these mixed low level waste streams is varied and in many cases multiple treatment options are possible.

The FEMP grouped these waste streams with like treatment needs and evaluated the waste with currently planned treatment. The management process for assigning waste streams to current projects is described in Section 2.4.1 of the Background Volume. The steps or treatment processes needed to treat a group of waste streams were linked together and diagramed in treatment trains to illustrate how these wastes can be treated. Treatment train illustrations are located in Appendix C.

Appendix A provides detailed evaluations of the treatment options identified in the series of FFCAct documents, Conceptual Site Treatment Plan, Draft Site Treatment Plan, and those developed from the meetings and work group activities of all the Ohio sites.

Each Ohio site evaluated the treatment options for mixed waste from two perspectives. The first was from a statewide perspective and is discussed in Appendix B. The second was from a site specific perspective. The FEMP site specific evaluation process included the following:

A. The process began by identifying the on-site, existing, and planned treatment facilities which are potential treatment options for mixed waste. Initially these options were listed without regard to regulatory/permit concerns or modifications required to actually treat mixed waste.

B. Viable treatment options identified in the Conceptual Site Treatment Plan were considered for further evaluation.

C. The FEMP mixed waste treatment activities, either in progress or planned, were also considered viable treatment options. These activities include RCRA Closure of Hazardous Waste Management Units and CERCLA Removal Actions.

Viable treatment options were then evaluated using the "Treatment Selection Guides" prepared by the DOE FFCAct Task Force, March 1, 1994, Revision 0 (Table A-1). Regulatory Compliance and Environmental Health and Safety (EH&S) criteria were established as threshold criteria. The threshold criteria were evaluated on the basis of being met or not being met. A technology did not proceed further in the evaluation process if it could not meet the threshold criteria. Additionally, criteria which cause a treatment technology/facility to be seriously deficient in treatment capability or capacity were utilized to eliminate an option on a case-by-case basis.

Regulatory Compliance criteria include issues such as compliance with ARARs under CERCLA, especially Land Disposal Restrictions, and appropriate permit requirements under RCRA, CWA and CAA. The EH&S 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. Other criteria which may eliminate options from further consideration include, at a minimum, facility capacity, capability, availability, and approval to treat CERCLA waste.

Ratings given to each treatment option were derived from the "Treatment Selection Guides" illustrated in Table A-1. A more detailed explanation of the rating for each viable option is given in the Options Evaluation for the respective Preferred Option (PO) in Section 2.0.

Cost estimates have been developed, to the extent possible, with available information concerning a given treatment option. The cost estimates are conservative estimates based on limited information and are intended to be order-of-magnitude estimates for the purpose of comparison between options. Cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low Level Waste," INEL, March 1994, actual FEMP project cost estimates, and information obtained from other DOE sites, and the "Mixed Waste Treatment Feasibility Study," Westinghouse Materials Company of Ohio, March 1991.

1.1 Treatment Selection Guides

The Treatment Selection Guides were prepared by the DOE FFCAct Task Force (March 1, 1994, Revision 0). They provide a list of criteria for all sites thus adding uniformity to the manner treatment options were evaluated and Preferred Options were selected. The seven criteria which are used for this comparison are:

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

Regulatory Compliance and Environmental Health and Safety were identified by the FEMP as threshold criteria. Options failing these criteria did not proceed further in the evaluation process.

Each criteria was further divided into sub-elements which are identified to ensure that evaluations of treatment effectiveness and other guides are assessed in a comparable manner from site to site. The sub-elements are rated high (H), medium (M), and low (L) in accordance with the specific criteria in each sub-element definition. These relative ratings permit direct comparison within the various sub-elements. A summary of treatment selection guides, sub-elements, and ratings is provided in Table A-1.

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 OEPA). The definitions of the primary guides and their sub-elements are identified below.

1.1.1 Regulatory Compliance

The regulatory compliance 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, USEPA and U.S. Department of Transportation (DOT) laws, and other laws that specify requirements. Treatment options under consideration should be developed to ensure that at a minimum the treated waste meets LDR standards. (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 ratings to treatment options that have been previously permitted and are relatively straightforward, and lower ratings to 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 ratings to options 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, mechanical and electrical hazard issues, and 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 treatment option. 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 treatment option. 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 treatment option 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 a result of an accident.

1.1.3 Treatment Effectiveness

The treatment effectiveness guide assesses how well the proposed treatment option performs technically and what the anticipated advantages are compared to alternative treatment options.

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 be accounted 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 or rendering the hazardous constituents immobilized.

Flexibility: This sub-element assesses the system's ability to process a range of inputs with minimal effect on system operations. This includes accommodating the expected waste 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 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 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 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 ratings to existing or proven treatment technologies and options and lower ratings 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 ratings 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 assessed by the ratio 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 target dates. 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. The cost estimates are based on "Interim Report: Waste Management Facilities Cost Information for Mixed Low Level Waste", INEL, March 1994, actual FEMP project cost estimates, information obtained from other DOE sites and the "Mixed Waste Treatment Feasibility", Westinghouse Materials Company of Ohio, March 1994.

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.

TABLE A-1

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
REGULATORY COMPLIANCE			
Regulatory Compliance	All process related regulations are met	Most regulations are met with the balance possibly being met through request for variance	Majority of regulations cannot be met
ENVIRONMENTAL HEALTH AND SAFETY			
Environmental/Public Health	Little or no facility emissions for routine operations or under all but the most catastrophic accidents	Little or no facility emissions for routine operations but significant releases under most accident scenarios	Marginally acceptable releases under routine operations and/or extensive releases under most accident scenarios
Non-Operational Worker Health and Safety	Significantly less number of workers required to construct and decommission a facility with the proposed process, as compared to other technologies, plus lower than average non-routine maintenance required	Average number of workers and non-routine maintenance required	More complex than average facility construction, non-routine maintenance and decommissioning
Operational Worker Health and Safety	Significantly fewer workers potentially exposed or potential exposure much lower than average	Average number of workers and potential exposure levels	Greater than average number of workers required or greater than average potential exposure to the work force

000225

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
ENVIRONMENTAL HEALTH AND SAFETY			
Transportation Risk	No transportation of treated or untreated waste required	Limited additional characterization required to support transportation, no new packaging/certification facilities required and limited number of waste transports required	Significant additional waste characterization required for transportation, new packaging/certification facilities required, large number of waste transports needed or large number of miles required for each waste shipment
TREATMENT EFFECTIVENESS			
Volume Reduction	Factor of 5 reduction in volume of waste	Volume is maintained at 1:1 after processing	Volume is increased by a factor of 2 or greater
Secondary Waste Generation	Secondary waste that is generated is easily treated using existing technologies	Secondary waste that is generated has existing technologies but that technology requires modification	Secondary waste that is generated has no known technology for treatment
Destruction, Removal & Demobilization Efficiency	All of the applicable LDR standards are met	Additional LDR treatment is required for some of the constituents and technology exists	Additional treatment is required to meet requirements & technology does not exist or requires modification
Flexibility	Minimal system inefficiencies are experienced for off-design input	Off-design inputs are acceptable with inefficient operations	Special precautions must be taken to avoid off-design input

000226

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
TREATMENT EFFECTIVENESS			
Final Waste Form	Meets the expected disposal WAC	Residues require additional treatment to meet disposal WAC and technologies exist	Significant additional treatment is required prior to disposal and/or technology does not exist
Ability to be Shipped	Treatment residuals meet shipping requirements without any additional treatment	Treatment residuals only require simple physical treatment to meet shipping requirements	Treatment residuals require extensive treatment to meet shipping requirements
IMPLEMENTABILITY			
System Implementability	Most of the elements and process previously demonstrated	50% or less of the elements have been previously demonstrated	Elements have not been demonstrated
Availability	Facility of system exhibits superior reliability to be available with minimal downtime	Process is expected to be available approximately 50% of the time	Process is expected to be available less than 20% of the time
Scalability	Process can be easily expanded for economies of scale	Process can accept a range of input but has limitations for expansion	Process is limited and cannot be expanded for economies of scale
Schedule for Waste Treatment	Waste can be processed within short time frame, schedule allowing for some slippage	Waste can be processed within required time frame allowing for no slippage	Critical path approaches or exceeds milestones for designated waste
STAKEHOLDER CONCERNS			
Public Acceptance	Stakeholders accept the process and risks	Some stakeholder concerns that could affect the successful utilization of the technology	Significant stakeholder concerns about process

000227

2629

TABLE A-1 (Cont'd)

TREATMENT SELECTION GUIDES

Ratings	High	Medium	Low
LIFE-CYCLE COST			
Life-cycle Cost	Life-cycle costs can be supported within target budget	Life-cycle costs can be supported with greater than 10% increase in target funding level	Line item funding required at high levels
TECHNOLOGY DEVELOPMENT			
Market for Technology	Numerous markets are identified within and outside DOE	More than one market is identified within and outside DOE	No markets or needs are identified
Private Sector Involvement	Private sector technology company is identified with experience and interest. The company has experience in permitting activities.	A private sector party has expressed and interest, however has little or no experience in this type of activity or permitting processes.	No private sector companies have expressed an interest or a need for the technology.

000228

2629

2.0 Alternatives Identification and Evaluation

Detailed evaluations of the eight DOE Preferred Options (POs) for the FEMP waste streams are presented in Sections 2.1 through 2.8. At the FEMP, projects will be used to implement POs. Projects are the management tool for planning, budgeting, and scheduling implementation of a Preferred Option. A project may contain one or more preferred option(s). Cost estimates and scheduling information for FEMP waste streams were developed using project costs. The Preferred Options are presented with the FEMP projects which implement each of the Preferred Options.

2.1 PO - Hydrofluoric Acid (HF) Neutralization System

Option Description

The Hydrofluoric Acid (HF) Neutralization System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 1. This system will be implemented through the HF RCRA Closure Project which is being conducted as a RCRA Closure of a Hazardous Waste Management Unit (HWMU). The Closure Plan and Information Data (CPID) which describes the HF Neutralization System was approved by the OEPA in February 1995.

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, dried, and managed as low level waste. The filtrate will be processed through the FEMP Wastewater Treatment System (WWTS) for discharge under the existing NPDES permit.

The treatment process(es) necessary to treat the waste stream and meet the LDR treatment standard is illustrated in:

1. Treatment Train 0

This treatment train and the LDR treatment standard are identified in Appendix C.

Option Evaluation Summary

The HF Neutralization System is an active RCRA Closure and therefore was chosen as the PO for this waste stream. Equipment necessary for this project exists on-site and is available for the processing of this waste stream. Implementation of this option will meet the LDR treatment standard for this waste stream.

The evaluation of the HF Neutralization System against other options was completed in the Closure Plan process. The CPID for this project is available in the Public Reading Room at the PEIC, 10845 Hamilton-Cleves Highway, Harrison, Ohio, 45030.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

HF RCRA Closure *	Cost in Dollars
RCRA Closure Planning	206,330
Bench-Scale Testing	39,558
Engineering Design	383,193
Construction and Testing	363,691
System Operation	228,310
Closure Certification	7,850
Risk Budget	35,000
Total Cost	1,263,932

* The HF RCRA Closure is scheduled to be completed in FY 95. As of the end of FY 94, $584,600 of the total estimated cost has been spent.

Basis of Cost Estimate

The cost estimate was prepared by the FEMP based on the scheduled project completion in FY 95. The cost estimate includes procurement, construction, treatment, waste handling and disposal, and final closure of the HWMU.

2.2 PO - Uranyl Nitrate Hexahydrate (UNH) Treatment System

Option Description

The Uranyl Nitrate Hexahydrate (UNH) Treatment System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 2. This system is being implemented through the UNH Neutralization System Project which is being conducted under CERCLA Removal Action #20. Facilities for treatment exist at the FEMP and are currently being upgraded prior to treating the UNH. Treatment will consist of neutralization and precipitation followed by filtration to remove the solids. Treatment of the aqueous portion will be completed through the FEMP WWTS and solids will be managed as low level radioactive waste.

The treatment process necessary to treat the waste stream and meet the LDR treatment standards is illustrated in:

1. Treatment Train N

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

The UNH Treatment System was chosen as the Preferred Option for this waste stream to reflect the on-going CERCLA Removal Action #20. Implementation of this Preferred Option will meet the LDR treatment standards for the waste stream. Alternate options were evaluated during the selection of a Preferred Option under the UNH Removal Action process.

A revised schedule for the UNH project was submitted by the DOE to the USEPA and the OEPA in February 1995. Revised schedule information has been incorporated into the Plan Volume. The estimated cost of the UNH Neutralization System Project, based on current project planning efforts, funding considerations, and OEPA approval, is $14,400,000.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

UNH Neutralization System	Cost in Dollars
Capital	8,200,000
Operations	5,000,000
Disposal	1,200,000
Total Cost	14,400,000

Basis of Cost Estimate

These costs represent estimates based on current project planning. Cost estimates are being revised to align with new schedules. No annualized cost has been prepared, pending schedule and cost revisions.

2.3 PO - Thorium Nitrate Treatment System

Option Description

The Thorium Nitrate Treatment System was chosen as the Preferred Option to treat the waste stream listed in the Background Volume, Table 3. This system will be implemented through the Thorium Nitrate RCRA Closure Project which is being conducted as part of a RCRA Closure of a HWMU. A CPID is currently being developed for this project.

A treatability study is underway to support selection of an appropriate treatment process for the thorium nitrate. The study is evaluating two processes: Neutralization/Stabilization and Neutralization/Filtration.

Neutralization/Stabilization would blend the thorium nitrate solution with a neutralizing agent. The neutralized product would then be combined with an appropriate stabilizing agent to achieve a dry non-reactive product. The product would be managed as low level radioactive waste. Implementation of this process would require the construction of a treatment system. The primary elements of the system would include: 1) agitated neutralization tank, 2) thorium nitrate transfer piping and equipment, 3) neutralization agent introduction equipment, 4) neutralized product transfer equipment, 5) stabilization agent/blending equipment and 6) containers and handling equipment for shipment and disposal of the stabilized product.

Neutralization/Filtration would transfer the thorium nitrate solution to the neutralization tank in Plant 2/3. There the solution would be blended with a neutralizing agent to achieve a neutralized product. The product would then be pumped to Plant 8 for filtration. The resulting filter cake would be collected in drums for disposal. The wastewater is processed through the FEMP Wastewater Treatment System for discharge under the existing NPDES permit. The primary elements of this treatment system would encompass: 1) transfer piping and support equipment, 2) agitated neutralization tank, 3) neutralized product transfer piping and equipment, 4) staging and holding tanks, 5) filtration equipment, 6) container and handling equipment for shipment and disposal of stabilized product; and 7) wastewater discharge system.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train P

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

The Thorium Nitrate Treatment System is an active RCRA closure and therefore was chosen as the PO for this waste stream. The evaluation of treatment processes to be used to complete this project is occurring through the closure process.

Cost Estimate

A cost estimate was prepared for the Preferred Option.

Thorium Nitrate RCRA Closure	Cost in Dollars
Treatability	390,800
Project Management	161,000
Design	607,000
RCRA Closure/NEPA	115,000
Construction	1,460,000
Operations	692,000
Decontamination/Certification	438,000
Waste Management	667,000
Total Cost	4,030,800

Basis of Cost Estimate

These costs represent preliminary estimates. Funds have not been allocated for this work. This estimate is subject to change after bench scale testing has been completed and a specific treatment alternative selected.

2.4 PO - Wastewater Treatment

Option Description

Wastewater Treatment was chosen as the Preferred Option to treat the various waste streams listed in the Background Volume, Table 4. The Preferred Option will only be used to treat aqueous waste streams. The Option will be implemented as part of the Liquid Mixed Waste Project through utilization of the FEMP WWTS.

Some aqueous wastes may be directly introduced into the FEMP WWTS. Others may require pretreatment prior to introduction to the system. Treatment of these waste streams will occur in an existing on-site facility. Liquids will be bulked, tested, and a determination made whether they are acceptable for the FEMP WWTS. The FEMP WWTS will receive only aqueous liquids that can effectively be treated to meet the discharge limits of the existing NPDES permit.

The treatment process necessary to treat the waste streams and achieve the LDR treatment standards is illustrated in:

1. Treatment Train A

This treatment train and the LDR treatment standards are identified in Appendix C.

The FEMP WWTS is currently operating and capable of treating aqueous waste streams to meet requirements of the NPDES permit. The FEMP is currently working on consolidation and replacement of the FEMP WWTS. The newly constructed wastewater treatment system, the FEMP Advanced Wastewater Treatment (AWWT), initiated start-up activities in January 1995.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 4 of the Background Volume include the following:

FEMP Wastewater Treatment System (Preferred Option)
Ohio Mobile Incinerator (Viable Option)
Portsmouth Wastewater Treatment System (Viable Option)
Ohio Mobile Chemical Treatment System (Viable Option)
Portsmouth Evaporation
FEMP UNH Treatment System
Portsmouth Metal Removal/Stabilization
TSCA Incinerator
FEMP Hydrofluoric Acid Neutralization System

The FEMP WWTS was chosen as the Preferred Option because it is currently operating and capable of treating aqueous waste streams to meet requirements of the NPDES permit. It is the most cost effective treatment option for the FEMP waste. The mixed waste will not require transportation to an off-site facility. Supplemental information on the basis for selection of the FEMP WWTS is provided in Section 3.2.

The Ohio Mobile Incinerator was not chosen because it is the least cost effective option considered. The option is not readily available, lengthy delays are expected in implementation, and public acceptance is expected to be negative.

The Portsmouth Wastewater Treatment System was not chosen because it would incur additional risks due to transportation to an off-site location, equity issues would need to be addressed and it could have lengthy delays in implementation.

The Ohio Mobile Chemical Treatment System was not chosen because the technology would not significantly reduce the volume of mixed waste, waste from the system would require additional treatment and it would be more expensive than the current FEMP WWTS.

Evaluation of Viable Options

The following viable options were evaluated against the FEMP WWTS:

Ohio Mobile Incinerator
Portsmouth Wastewater Treatment System
Ohio Mobile Chemical Treatment System

A comparison of these evaluations is summarized in Figure A-4. The differences in ratings are summarized below:

<u>Ohio Mobile Incinerator</u> - The Ohio Mobile Incinerator is a concept developed by the Ohio Work Group and consists of a vendor supplied thermal destruction unit to be located at one or more of the Ohio sites for the incineration of mixed waste. No specific site(s) or vendor(s) has been considered.

The following criteria rated lower than the Preferred Option:

Public Acceptance - The local public is expected to react negatively to the establishment of an incinerator at the FEMP or elsewhere in Ohio.

Availability - Establishment of a mobile incinerator would require addressing permitting issues, contracts, and mobilization of the equipment.

Schedule for Waste Treatment - The establishment of a mobile incinerator is estimated to take no less than three years for permitting, procurement, and construction. The FEMP WWTS is currently available and would support the schedule of the current project.

Life-Cycle Cost - A mobile incinerator would incur significantly higher cost due to procurement and mobilization.

Portsmouth Wastewater Treatment System - The Portsmouth Wastewater Treatment System (WWTS) consists of a new (to be constructed) facility located at the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio.

The Portsmouth WWTS rated lower than the Preferred Option in the following criteria.

Transportation Risks - Additional risks would be incurred due to off-site transportation of the waste.

Public Acceptance - Portsmouth stakeholders would likely have a negative reaction to receiving waste from another site when treatment is readily available at the generator's site.

Equity Issues - Sending the waste to another facility raises potential regional equity issues.

Schedule for Waste Treatment - Availability of the unit to treat FEMP waste would negatively impact current project scheduling. Permitting of the unit to accept off-site wastes would severely impact scheduling.

Ohio Mobile Chemical Treatment System - The Ohio Mobile Chemical Treatment System is a concept developed by the Ohio Work Group consisting of various units described in Section 2.6. The units would be located at one or more of the Ohio sites. No specific site(s) or vendor(s) has been considered.

The following criteria rated lower than the Preferred Option:

Volume Reduction - The volume of waste for disposal would not be significantly reduced.

Secondary Waste Generation - Secondary waste requiring additional treatment would be generated.

Life-Cycle Cost - Chemical Treatment would incur higher cost to establish on-site.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were removed from consideration due to the inability to meet LDR treatment standards for the waste streams:

Portsmouth Evaporation
FEMP UNH Treatment System
Portsmouth Metal Removal/Stabilization
FEMP Hydrofluoric Acid Neutralization System

The TSCA Incinerator was not evaluated further due to equity issues. The use of the TSCA Incinerator creates the potential for state-to-state equity issues between Ohio and Tennessee. Therefore, only on-site and in state options were evaluated for the identified waste streams. Supplemental information supporting this option evaluation is provided in Section 3.2.

Figure A-4

Comparison of Options for Wastewater Treatment
Preferred Option

CRITERIA	FEMP WWTS	OHIO MOBILE INCINERATOR	PORTS WWTS	OHIO MOBILE CHEMICAL TREATMENT SYSTEM
REGULATORY COMPLIANCE	H	H	H	H
ENVIRONMENTAL/ PUBLIC HEALTH	H	H	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M	M	M
TRANSPORTATION RISK	H	H	M	H
PUBLIC ACCEPTANCE	H	L	M	H
EQUITY ISSUES	H	H	M	H
VOLUME REDUCTION	H	H	H	M
SECONDARY WASTE GENERATION	H	H	H	M
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H	H
FLEXIBILITY	M	H	M	H
FINAL WASTE FORM	H	H	H	H
ABILITY TO BE SHIPPED	H	H	H	H
SYSTEM IMPLEMENTABILITY	H	H	H	H
AVAILABILITY	H	M	H	H
SCALABILITY	H	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	M	M	H
LIFE-CYCLE COST	H	L	H	M
MARKET FOR TECHNOLOGY	H	H	H	H
PRIVATE SECTOR INVOLVEMENT	L	H	L	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates *

Cost estimates were prepared for the Preferred Option and viable options.

FEMP WWTS	Cost in Dollars
Treatment cost ($3/m^3)	100
Total Cost	100

Note: Cost estimate based on actual treatment costs.

OHIO MOBILE INCINERATOR	Cost in Dollars
Treatment cost ($69,000/m^3)	1,393,800
Total Cost	1,393,800

Note: Cost estimate based on INEL Interim Report data. The cost used is estimated cost for a small generator.

PORTS WWTS	Cost in Dollars
Treatment cost ($475/m^3)	10,000
Transportation	2,000
Total Cost	12,000

Note: Cost estimate is based on cost data from Portsmouth PSTP (per Radian Corporation).

OHIO MOBILE CHEMICAL TREATMENT	Cost in Dollars
Treatment cost ($27,500/m^3)	555,500
Total Cost	555,500

Note: Cost is based on estimated project cost to treat per unit volume.

* All costs represent the total cost for treatment. The treatment is assumed to be completed in one year. therefore, the total cost is equal to an annualized cost.

2.5 PO - Ohio Mobile Stabilization System

Option Description

The Ohio Mobile Stabilization System was chosen as the Preferred Option to treat the waste streams listed in the Background Volume, Table 5. The Ohio Mobile Stabilization System is the FEMP implementation of the Ohio Option and will primarily use cementation to meet LDR treatment standards.

The FEMP, Portsmouth, RMI and USEC have wastes for which stabilization has been identified as the Preferred Option. Engineering and treatability study information for mobile stabilization will be shared with the other sites as an alternative to transportation of wastes to those sites for treatment. As procurement specifications are developed, that language will be shared with other Ohio sites.

In addition to FEMP mixed wastes, Battelle has identified a small volume of mixed waste to be treated at the FEMP, using the Ohio Mobile Stabilization System Preferred Option.

The treatment processes necessary to treat the waste streams and meet LDR treatment standards are illustrated in:

1. Treatment Train D
2. Treatment Train E - (Solids portion only)

These treatment trains and the LDR treatment standards are identified in Appendix C.

Options Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 5 of the Background Volume include the following:

Ohio Mobile Stabilization System (Preferred Option)
Ohio Mobile Chemical Treatment System (Viable Option)
FEMP UNH Treatment System
FEMP Wastewater Treatment System
Portsmouth Evaporation
Mercury Treatment
Ohio Mobile Incinerator
Mound Packed Bed Reactor
Portsmouth Biological Treatment
TSCA Incinerator
FEMP MAWS

The Ohio Mobile Stabilization System was chosen as the Preferred Option because LDR requirements can be met for these mixed waste streams using available, proven technology and existing mobile vendors. Additionally, it is the most timely and cost effective treatment of all the options identified and evaluated. The Stabilization Project is currently in the treatability study phase with treatment planned for 1995.

The Ohio Mobile Chemical Treatment System was not chosen because it will require an additional treatment step, is less cost-effective, and may require additional delays in implementation relative to the Ohio Mobile Stabilization System.

Evaluation of Viable Options

The following viable option was evaluated against the Ohio Mobile Stabilization System:

Ohio Mobile Chemical Treatment System

A comparison of this evaluation is summarized in Figure A-5. The differences in rating are summarized below:

<u>Ohio Mobile Chemical Treatment System</u> - The Ohio Mobile Chemical Treatment System is a concept developed by the Ohio Work Group consisting of various units described in Section 2.6. The units would be located at one or more of the Ohio sites. No specific site(s) or vendor(s) has been considered.

This system rated lower than the Preferred Option in the following criteria.

Destruction, Removal, and Demobilization - These waste streams would require stabilization as a secondary treatment to meet disposal facility waste acceptance criteria if treated through the Ohio Mobile Chemical Treatment System.

Schedule for Waste Treatment - Adding the additional step of chemical treatment would unnecessarily extend the schedule for these waste streams to be treated.

Life-Cycle Cost - The chemical treatment process is an order of magnitude less cost effective than the Preferred Option of stabilization.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to the inability to meet the LDR treatment standards:

FEMP UNH Treatment System
FEMP Wastewater Treatment System
Portsmouth Evaporation
Mercury Treatment
Ohio Mobile Incinerator
Mound Packed Bed Reactor
Portsmouth Biological Treatment
TSCA Incinerator

The MAWS option was not evaluated due to limitations in the process rate. The volume of FEMP wastes would require approximately 10 years to treat through the MAWS unit. The current project schedule is for treatment to be accomplished in one year. Supplemental information on MAWS is provided in Section 3.1.

Figure A-5

Comparison of Options for Ohio Mobile Stabilization System
Preferred Option

CRITERIA	OHIO MOBILE STABILIZATION SYSTEM	OHIO MOBILE CHEMICAL TREATMENT SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	L	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	H
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	L
LIFE-CYCLE COST	H	L
MARKET FOR TECHNOLOGY	H	H
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates

Cost estimates were prepared for the Ohio Mobile Stabilization System and Ohio Mobile Chemical Treatment System and are based on actual project cost estimates. Annualized costs were developed based on the respective project schedule presented in the Background Volume. LLW disposal costs were not included in either estimate.

Ohio Mobile Stabilization System	Cost in Dollars
Studies & Bench Scale	750,000
Demonstration	160,000
Production Facility	810,000
O&M	1,330,000
Total Cost	3,050,000

Ohio Mobile Stabilization System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		910,000
2		2,140,000

Ohio Mobile Chemical Treatment System	Cost in Dollars
Treatment cost ($27,500/m^3)	10,752,500
Total Cost	10,752,500

Note: Treatment cost per unit volume based on actual project cost estimate.

Ohio Mobile Chemical Treatment System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		2,688,125
2		2,688,125
3		2,688,125
4		2,688,125

Note: Treatment cost based on calculated treatment cost per unit volume.

2.6 PO - Ohio Mobile Chemical Treatment System

Option Description

The Ohio Mobile Chemical Treatment System was chosen as the Preferred Option to treat the waste streams listed in the Background Volume, Table 6. These waste streams are scheduled for treatment under the Chemical Treatment Project using currently available technologies and existing mobile vendors augmented by existing on-site facilities. Utilization of the mobile vendor option at the FEMP allows for timely input in managing the diverse wastes involved in this project and limits transportation risks. The Ohio Mobile Chemical Treatment System is the FEMP implementation of the Ohio Option. The FEMP will share engineering and other information with other Ohio DOE sites.

The Ohio Mobile Chemical Treatment System requires the utilization of one or more technologies to adequately treat the wastes to meet LDR treatment standards. The technologies require similar equipment. The treatment technologies may include, but are not limited to, the following:

Chemical/Wet Air Oxidation - used to destroy organics in solid waste streams

Deactivation - used to treat reactive characteristics of waste, thereby creating a non-hazardous waste

Macroencapsulation - utilized as a means of immobilization, primarily of metals waste

Pressurized Container Puncture Unit - used to puncture aerosol cans and gas containers to facilitate removal of liquid contents

Neutralization/Precipitation - used to treat acidic, caustic and metals laden waste

Amalgamation - used to treat elemental mercury and mercury contaminated waste

Ohio Mobile Chemical Treatment Sub-System Description

The Ohio Mobile Chemical Treatment System has been divided into six sub-systems each of which implement one of the six treatment technologies. The waste streams have been categorized into the six sub-systems based on LDR treatment standards. The six sub-systems along with the waste category assigned to each are discussed below.

Chemical/Wet Air Oxidation Unit - The general waste category assigned to this sub-system is **Solids with Organics**. Processes for treatment will be established following treatability studies of various representative samples of wastes.

The treatment processes necessary to treat the waste streams and meet LDR treatment standards are illustrated in:

1. Treatment Train G
2. Treatment Train I

These treatment trains and the LDR treatment standards are identified in Appendix C.

Deactivation Unit - The general waste category assigned to this sub-system is **Reactive Metals**. Deactivation is the LDR treatment standard for these waste streams.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train F

This treatment train and the LDR treatment standards are identified in Appendix C.

Ohio Mobile Macroencapsulation Unit - The general waste category assigned to this sub-system is **Elemental Lead, Batteries & Debris with Lead**. Macroencapsulation will be utilized as a means of immobilization for disposal of a limited number of waste streams. Several of these waste streams (such as lead-acid and nickel-cadmium batteries) have been identified to be recycled if radiological decontamination can be accomplished. The Ohio Mobile Macroencapsulation Unit is the FEMP implementation of the Ohio Option. Waste streams requiring macroencapsulation exist at the FEMP, Battelle and Mound.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train J

This treatment train and the LDR treatment standards are identified in Appendix C.

Pressurized Container Puncture Unit - The general waste category assigned to this sub-system is **Compressed Gas**. There is a single waste stream of pressurized containers (i.e., aerosol cans) to be treated. The volume is currently a single drum. Five year volume is calculated to be an additional 1 1/2 drums. No Ohio Option exists for this sub-system. The unit is currently at the FEMP and is operational.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train L

This treatment train and the LDR treatment standards are identified in Appendix C.

Neutralization/Precipitation Unit - The general waste category assigned to this sub-system is **Solids/Liquids with Metals**. This general waste category consists of several waste streams. Neutralization is the LDR treatment standard for one waste stream, the others are concentration based.

The treatment process necessary to treat the waste stream and meet LDR treatment standards is illustrated in:

1. Treatment Train H

This treatment train and the LDR treatment standards are identified in Appendix C.

Ohio Mobile Amalgamation Unit - The general waste category assigned to this sub-system is **Elemental Mercury & Debris with Mercury**. Amalgamation is the LDR treatment standard and will be utilized to immobilize a number of waste streams. The Ohio Mobile Amalgamation Unit is the FEMP implementation of the Ohio Option. Waste streams requiring amalgamation exist at the FEMP, Battelle, Mound, Portsmouth and USEC.

The treatment process necessary to treat the waste streams and meet LDR treatment standards is illustrated in:

1. Treatment Train M

This treatment train and the LDR treatment standards are identified in further detail in Appendix C.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 6 of the Background Volume include the following:

- Ohio Mobile Chemical Treatment System (Preferred Option)
- Ohio Mobile Incinerator (Viable Option)
- TSCA Incinerator (Viable Option)
- Ohio Mobile Stabilization System (Viable Option)
- Portsmouth Wastewater Treatment System
- FEMP UNH Treatment System
- FEMP Hydrofluoric Acid Neutralization System
- Portsmouth Evaporation
- Mound Packed Bed Reactor
- FEMP Wastewater Treatment System
- LANL Mobile Amalgamation Unit
- LANL Mobile Decontamination Trailer

The Ohio Mobile Chemical Treatment System was chosen as the Preferred Option because this option allows for the treatment of the designated waste to meet LDR treatment standards on-site with medium cost effectiveness relative to other options. The use of the Ohio Mobile Chemical Treatment System also provides an equitable solution for Ohio and other states when comparing this option with out-of-state treatment options. The Ohio Mobile Chemical Treatment System will treat debris and solid waste which could potentially use incineration technologies. Supplemental information supporting this option evaluation is provided in Section 3.2. This option was chosen to expedite the FEMP treatment schedule. The FEMP has started the process for identifying vendors to provide chemical treatment services.

The Ohio Mobile Incinerator Option was not chosen for those waste streams identified for the Chemical/Wet Air Oxidation sub-system. This option is the least cost effective and is expected to lack public acceptance.

The TSCA Incinerator option was not chosen because of potential state-to-state equity issues. The TSCA Incinerator is limited to the incineration of liquid waste streams. Modifications to the TSCA Incinerator in order to incinerate soft solids have been estimated at $15,000,000. The modifications are not funded. Incineration of those wastes identified for the Chemical/Wet Air Oxidation sub-system to treat the hazardous component would receive less benefit in terms of volume reduction and treatment residue relative to the incineration of organic liquids which have been identified for treatment at the TSCA Incinerator. Ash and residue management at the TSCA Incinerator is reduced significantly by reducing the solids content sent to the TSCA Incinerator. Supplemental information on the decision-making process utilized in determining the FEMP mixed wastes to be sent to the TSCA Incinerator is provided in Section 3.2.

Ohio Mobile Stabilization System was not chosen to treat waste identified in the Ohio Mobile Chemical Treatment System because the technology does meet the LDR treatment standards for all identified waste. The option was only compared to three applicable sub-systems within the Ohio Mobile Chemical Treatment System. This option was not chosen for treating elemental lead, batteries, and debris with lead, reactive metals, or solid/liquids with metals because of the volume increase, the requirement of additional treatment steps, and inflexibility of the system.

Evaluation of Viable Options

The viable options evaluated for each sub-system are listed below.

Chemical/Wet Air Oxidation Unit Waste Matrix - Solids with Organics
Viable Option: A. Ohio Mobile Chemical Treatment System (Chemical/Wet Air Oxidation Unit) B. Ohio Mobile Incinerator C. TSCA Incinerator

Deactivation Unit Waste Matrix - Reactive Metals
Viable Option: A. Ohio Mobile Chemical Treatment System (Deactivation Unit) B. Ohio Mobile Stabilization System

Ohio Mobile Macroencapsulation Unit Waste Matrix - Elemental Lead, Batteries & Debris with Lead
Viable Option: A. Ohio Mobile Chemical Treatment System (Mobile Macroencapsulation Unit) B. Ohio Mobile Stabilization System

Pressurized Container Puncture Unit * Waste Matrix - Compressed Gas
Viable Option: A. FEMP Compressed Gas Puncture Unit

Neutralization/Precipitation Unit Waste Matrix - Solids/Liquids w/ Metals
Viable Option: A. Ohio Mobile Chemical Treatment System (Neutralization/ Precipitation Unit) B. Ohio Mobile Stabilization System

Ohio Mobile Amalgamation Unit * Waste Matrix - Elemental Mercury & Debris with Mercury
Viable Option: A. Ohio Mobile Chemical Treatment System (Mobile Amalgamation Unit)

* Only one viable option was identified. No comparison evaluation was performed.

A comparison of these evaluations is summarized in Figures A-6.1 through A-6.4. The differences in ratings are discussed below.

Ohio Mobile Incinerator (Solids with Organics) - This option rated lower for treatment of solids with organics in the following criteria.

Public Acceptance - The general public within the vicinity of the site is expected to react negatively to the establishment of an incinerator at the FEMP.

Life-Cycle Cost - A mobile incinerator would incur higher cost to establish on-site.

TSCA Incinerator (Solids with Organics) - This option rated lower for the treatment of solids with organics in the following criteria.

Equity Issues - This option would create potential state-to-state equity issues due to the treatment of waste at an out-of-state DOE facility.

Ohio Mobile Stabilization System (Reactive Metals) - This option rated lower for treatment of reactive metals in the following criteria.

Volume reduction - This option will increase the volume for disposal.

Flexibility - Input criteria for this option is not diverse enough to manage the variety of waste in this category.

Ohio Mobile Stabilization System (Elemental Lead, Batteries, and Debris) and (Solids/Liquids w/Metals) - This option rated lower for treatment of elemental lead, batteries, debris with lead, and solids/liquids w/metals than the Preferred Option in the following criteria.

Volume reduction - This option will significantly increase the volume for disposal relative to the Preferred Option.

Destruction, Removal, and Demobilization - It is uncertain that this option will effectively immobilize the toxic constituents. Additional treatment would be required to treat this waste relative to the Preferred Option.

Flexibility - Input criteria for the option will require significant physical treatment of the waste prior to acceptance for stabilization.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to their inability to meet LDR treatment standards for the waste streams:

- Portsmouth Wastewater Treatment System
- FEMP UNH Treatment System
- FEMP Hydrofluoric Acid Neutralization System
- Portsmouth Evaporation
- Mound Packed Bed Reactor
- FEMP Wastewater Treatment System

The LANL Mobile Amalgamation Unit was not evaluated based on lack of availability for FEMP use. This unit will be dedicated for use by DOE sites within the Albuquerque Field Office until the year 2005.

The LANL Mobile Decontamination Trailer was not evaluated based on lack of availability for FEMP use. The unit has been deployed within the Albuquerque Field Office DOE sites. There is no scheduled use of the unit outside of these sites.

Figure A-6.1

Comparison of Options for the Treatment of Solids with Organics

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (CHEMICAL/WET AIR OXIDATION)	OHIO MOBILE INCINERATOR	TSCA INCINERATOR
REGULATORY COMPLIANCE	H	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M	M
TRANSPORTATION RISK	M	M	M
PUBLIC ACCEPTANCE	H	L	H
EQUITY ISSUES	H	H	M
VOLUME REDUCTION	M	H	H
SECONDARY WASTE GENERATION	M	M	M
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H
FLEXIBILITY	H	H	H
FINAL WASTE FORM	M	M	M
ABILITY TO BE SHIPPED	M	M	M
SYSTEM IMPLEMENTABILITY	H	H	H
AVAILABILITY	H	H	H
SCALABILITY	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	H	H
LIFE-CYCLE COST	H	M	H
MARKET FOR TECHNOLOGY	M	M	M
PRIVATE SECTOR INVOLVEMENT	H	H	H

Treatment Selection Guide (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.2

Comparison of Options for the Treatment of Reactive Metals

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (DEACTIVATION UNIT)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.3

Comparison of Options for the Treatment of
Elemental Lead, Batteries & Debris with Lead

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (MACROENCAPSULATION)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Figure A-6.4

Comparison of Options for the Treatment of Solids/Liquids w/Metals

CRITERIA	OHIO MOBILE CHEMICAL TREATMENT SYSTEM (NEUTRALIZATION/ PRECIPITATION)	OHIO MOBILE STABILIZATION SYSTEM
REGULATORY COMPLIANCE	H	H
ENVIRONMENTAL/PUBLIC HEALTH	H	H
NON-OPERATIONAL WORKER HEALTH AND SAFETY	H	H
OPERATIONAL WORKER HEALTH AND SAFETY	M	M
TRANSPORTATION RISK	M	M
PUBLIC ACCEPTANCE	H	H
EQUITY ISSUES	H	H
VOLUME REDUCTION	M	L
SECONDARY WASTE GENERATION	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	M
FLEXIBILITY	H	M
FINAL WASTE FORM	H	H
ABILITY TO BE SHIPPED	H	H
SYSTEM IMPLEMENTABILITY	H	H
AVAILABILITY	H	H
SCALABILITY	H	H
SCHEDULE FOR WASTE TREATMENT	H	H
LIFE-CYCLE COST	H	H
MARKET FOR TECHNOLOGY	M	M
PRIVATE SECTOR INVOLVEMENT	H	H

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Secondary Waste Streams

As a result of chemical treatment of mixed waste, the original waste volume is anticipated to double. This estimate represents the high end of the anticipated waste volume increase range. Technology evaluation and treatability testing are expected to demonstrate higher processing efficiency. The treated waste form is anticipated to have a volume one and a half times greater than the untreated waste form. The remaining 50% volume increase will result from generation of secondary mixed waste. These secondary mixed wastes will be treated by other treatment identified in the PSTP. Figure 3.1.6A in the Background Volume provides a graphic of the anticipated waste volume increases and the calculation factors for estimating the quantity of secondary waste generation.

Note that secondary low level waste, such as personal protective equipment generated from activities associated with bulking, packaging, shipping and treatment of mixed waste on-site, is assumed to be equal to five percent of the total waste to be processed.

Secondary waste streams from this project will be managed under the Chemical Treatment Project as follows:

- Liquid waste is designated to be treated at the TSCA Incinerator.
- Debris will be shipped directly for disposal at Envirocare or NTS.
- Fines will be managed in the Ohio Mobile Stabilization System (Portsmouth).

Cost Estimates

Cost estimates were prepared for the PO, Ohio Mobile Chemical Treatment System, and for each sub-system including management of secondary waste. 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 any estimate.

Ohio Mobile Chemical Treatment System	Cost in Dollars
Pre-operations	2,445,000
Construction	415,000
O&M ($905,000/yr X 2yr)	1,810,000
D&D	210,000
Contracted services	7,880,000
Off-site treatment	210,000
Transportation	580,000
Total Cost	13,550,000

Ohio Mobile Chemical Treatment System	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	415,000	4,195,000
2		1,750,000
3		1,750,000
4		1,750,000
5		1,750,000
6		1,940,000

Note: The annualized costs are based on the actual project cost estimate and the project schedule (6 years) as prepared for the PSTP.

Cost Estimates (Continued)

The individual cost estimates for each of the six sub-systems were prepared for the Ohio Mobile Chemical Treatment System using an average of the total cost per cubic meter of waste to be treated. These cost estimates are rounded upward to the next one hundred dollar increment. Cost estimates for Ohio Mobile Stabilization System and Ohio Mobile Incinerator are based on cost to treat per unit volume.

Chemical/Wet Air Oxidation Unit Waste Matrix - Solids with Organics		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Chemical/Wet Air Oxidation Unit)	$11,841,500
B.	Ohio Mobile Incinerator	$13,750,000
C.	TSCA Incinerator	$ 750,000*

* This cost estimate does not include the FEMP share of the TSCA Incinerator modification to incinerate soft solids. The cost of these modifications is estimated at $15,000,000.

Deactivation Unit Waste Matrix - Reactive Metals		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Deactivation Unit)	$ 5,500
B.	Ohio Mobile Stabilization System	$ 7,800

Ohio Mobile Macroencapsulation Unit Waste Matrix - Elemental Lead, Batteries & Debris with Lead		
Viable Option:		
A.	Ohio Mobile Chemical Treatment System (Mobile Macroencapsulation Unit)	$ 269,500
B.	Ohio Mobile Stabilization System	$ 76,500

Pressurized Container Puncture Unit Waste Matrix - Compressed Gas		
Viable Option:		
A.	FEMP Compressed Gas Puncture Unit	$ 5,500

Cost Estimates (Continued)

Neutralization/Precipitation Unit Waste Matrix - Solids/Liquids w/ Metals	
Viable Option:	
A. Ohio Mobile Chemical Treatment System (Neutralization/ Precipitation Unit)	$ 1,320,000
B. Ohio Mobile Stabilization System	$ 374,400

Ohio Mobile Amalgamation Unit Waste Matrix - Elemental Mercury & Debris with Mercury	
Viable Option:	
A. Ohio Mobile Chemical Treatment System (Mobile Amalgamation Unit)	$ 132,000

Basis of Cost Estimates

The cost estimate for the Preferred Option was prepared by the FEMP based on the actual project schedule. The cost of the sub-systems and the comparison costs were developed using an average cost to treat per unit volume for the project. No annualized costs were developed for the individual sub-systems due to uncertainties in the scheduling sequence which will actually be used. The sequence will be determined following treatment studies for waste categories.

2.7 PO - TSCA Incinerator

Option Description

The TSCA Incinerator in Oak Ridge, Tennessee was chosen as the Preferred Option for the FEMP liquid waste streams listed in the Background Volume, Table 7. The TSCA Incinerator Preferred Option will be implemented as part of the Liquid Mixed Waste Project.

The treatment processes necessary to treat the waste streams and meet the LDR treatment standards are illustrated in:

1. Treatment Train C
2. Treatment Train E
3. Treatment Train K

These treatment trains and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

Potential treatment options for FEMP mixed waste streams identified in Table 7 of the Background Volume include the following:

TSCA Incinerator (Preferred Option)
Ohio Mobile Incinerator (Viable Option)
FEMP Rotary Kiln (Viable Option)
Savannah River Consolidated Incinerator Facility (Viable Option)
Mound Glass Melter
Mound Packed Bed Reactor
INEL WERF Incinerator

The TSCA Incinerator was chosen as the Preferred Option for treatment of organic liquid waste to meet LDR treatment standards. Use of the TSCA Incinerator allows for timely, cost effective treatment. As part of an ongoing project, treatment capacity at the TSCA Incinerator has been negotiated by the FEMP. Supplemental information on the use of the TSCA Incinerator is provided in Section 3.2.

The TSCA Incinerator is currently the only such facility approved by the USEPA to accept CERCLA wastes (per 40 CFR 300.440). Wastes generated during removal or remedial actions at the FEMP must be managed in a facility approved for the acceptance of CERCLA wastes.

The identified waste streams are compatible with the Waste Acceptance Criteria established for the TSCA Incinerator. The incinerator's design criteria were developed to accept FEMP mixed waste streams, including these identified waste streams. These wastes are necessary to maintain maximum utilization and efficiency of the facility. The incineration of these liquid waste streams will result in a significant reduction in volume. The small volume of ash produced will require further treatment (i.e., stabilization).

The results of a computer modeling effort utilizing a validated multicriteria analysis model indicate that incineration should be the preferred technology and the use of the TSCA Incinerator should be the Preferred Option for these waste streams.

The Ohio Mobile Incinerator was not chosen because it was the least cost effective option evaluated. This option is not readily available and would have lengthy delays in implementation and negative public acceptance. Transportation Risk and Equity Issues for a mobile incinerator ranked higher than the Preferred Option, but the overall ranking was significantly lower. Implementation of this option for the relatively small volume of wastes would push the current project schedule into early 2000. Additionally, the cost of mobilization, operation and decommissioning would far exceed current budget to complete treatment using the PO.

The FEMP Rotary Kiln was not chosen because the facility has the same deficiencies as the Ohio Mobile Incinerator. Considerable modifications would be needed to retrofit the Rotary Kiln and would impact current budget and schedules. Life-cycle cost analysis concluded that the cost of retrofitting, start-up and D&D would be prohibitive.

The Savannah River Consolidated Incinerator Facility (CIF) was not chosen because the facility does not have a RCRA permit to treat mixed waste and is currently not operational.

Evaluation of Viable Options

The following viable options were evaluated against the TSCA Incinerator:

Ohio Mobile Incinerator
Savannah River CIF
FEMP Rotary Kiln

A comparison of these evaluations is summarized in Figure A-7. The differences in ratings are discussed in the following paragraphs:

Ohio Mobile Incinerator - The Ohio Mobile Incinerator, a concept developed by the Ohio Work Group, consists of a vendor supplied thermal destruction unit located at one or more of the Ohio sites for the incineration of liquid organic mixed waste. No specific site(s) or vendor(s) has been considered.

The Mobile Incinerator rated lower than the Preferred Option in the following criteria:

Public Acceptance - The local public is expected to react negatively to the establishment of an incinerator at the FEMP.

Availability - An Ohio Mobile Incinerator for mixed waste is not readily available. Procuring, permitting, and scheduling of a mobile incinerator is neither time nor cost effective. The TSCA Incinerator is readily available and is being implemented through an ongoing project at the FEMP.

Schedule for Waste Treatment - The TSCA Incinerator is already a scheduled, ongoing project at the FEMP. Scheduling of a mobile incinerator would greatly delay the timely completion of this project.

Life-Cycle Cost - The TSCA Incinerator is currently a funded, ongoing project. A mobile incinerator would increase project costs due to delays in schedule, permitting, transportation, and storage, in addition to the procurement and engineering costs.

Savannah River CIF - The Savannah River CIF is a fixed thermal destruction facility (rotary kiln) located on the Savannah River Site in Aiken, South Carolina.

This option rated lower than the Preferred Option in the following criteria.

Availability - The unit is not yet permitted to receive waste.

Schedule - A schedule cannot be established for use of this unit until a permit is obtained for unit operation and acceptance of off-site wastes. The permitting process is estimated to take at least two years. The FEMP Liquid Mixed Waste Project is scheduled to complete treatment of current waste inventories by the end of FY 96.

Life-Cycle Cost - The TSCA Incinerator is currently a funded, on-going project. The Savannah River CIF would increase project costs due to lack of permitting and absence of schedules, in addition to transportation and storage costs.

FEMP Rotary Kiln - The FEMP Rotary Kiln is an existing unit located at the FEMP. The FEMP Rotary Kiln was designed for the drying of low level waste. Significant modifications would be necessary to treat mixed waste.

The Rotary Kiln rated lower than the Preferred Option in the following criteria:

Public Acceptance - The local public is expected to react negatively to the establishment of a thermal destruction unit at the FEMP.

Availability - The Rotary Kiln has never been operational and was not designed for the destruction of mixed LLW containing toxic organics. The facility would require extensive modification to meet regulatory requirements, including LDR treatment standards

Schedule for Waste Treatment - A schedule cannot be established for the use of this unit until engineering design and construction of the retrofitting necessary for the handling of liquids and off-gases, startup, treatability studies, and regulatory approval are completed. Completion of these items is estimated to take at least three years, greatly delaying the schedule of the FEMP Liquid Mixed Waste Project.

Life-Cycle Cost - The Rotary Kiln would increase project costs due to delays in the schedule, permitting, transportation, storage, engineering, and construction of necessary modifications to treat mixed waste and final D&D of the unit. The FEMP is an Environmental Restoration site, and is in the process of final restoration. The costs associated with the retrofitting, startup and D&D of the Rotary Kiln are not a cost-effective investment of capital.

Other Option Evaluations

In addition to the options which were evaluated above, the following facilities were evaluated and removed from consideration due to the reasons detailed below.

The Mound Glass Melter was not considered a viable treatment option due to the severe feed rate limitation of the equipment. Processing of the waste would take a minimum of 3 years if a 24 hour operation could be maintained. The earliest the system would be available for processing would be FY99.

The Mound Packed Bed Reactor was not considered a viable treatment option due the severe feed rate limitations of the equipment (40 cc/minute).

The INEL WERF Incinerator was not considered a viable treatment option due to the limitations of the site's off-site acceptance of wastes for the facility (5 m^3/year).

Figure A-7

Comparison of Options for the TSCA Incinerator
Preferred Option

CRITERIA	TSCA INCINERATOR	OHIO MOBILE INCINERATOR	SAVANNAH RIVER CIF	FEMP ROTARY KILN
REGULATORY COMPLIANCE	H	H	H	H
ENVIRONMENTAL / PUBLIC HEALTH	H	H	H	H
NON-OPERATIONAL WORKER HEALTH & SAFETY	H	H	H	H
OPERATIONAL WORKER HEALTH & SAFETY	M	M	M	M
TRANSPORTATION RISK	M	H	M	H
PUBLIC ACCEPTANCE	M	L	M	L
EQUITY ISSUES	M	H	M	H
VOLUME REDUCTION	H	H	H	H
SECONDARY WASTE GENERATION	H	H	H	H
DESTRUCTION, REMOVAL & DEMOBILIZATION	H	H	H	H
FLEXIBILITY	H	H	H	H
FINAL WASTE FORM	H	H	H	H
ABILITY TO BE SHIPPED	H	H	H	H
SYSTEM IMPLEMENTABILITY	H	H	H	H
AVAILABILITY	H	M	M	M
SCALABILITY	H	H	H	H
SCHEDULE FOR WASTE TREATMENT	H	L	L	L
LIFE-CYCLE COST	H	M	M	M
MARKET FOR TECHNOLOGY	H	H	H	H
PRIVATE SECTOR INVOLVEMENT	L	H	L	L

Treatment Selection Guide Rating (Table A-1)

H - High
M - Medium
L - Low

Cost Estimates

A cost estimate was prepared only for the PO. TSCA Incinerator and the other viable options.

TSCA Incinerator PO	Cost in Dollars
Studies & Bench Scale	260,000
Production Facility	452,000
D&D	40,000
Total Cost	752,000

NOTE: Preliminary revision of project cost estimate.

TSCA Incinerator PO	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1		580,000
2		172,000
TOTAL		752,000

NOTE: Project is assumed to treat current inventory only.

Ohio Mobile Incinerator	Cost in Dollars
All costs excluding O&M	23,000,000
O&M/yr X 2.5yr	2,500,000
Total Cost	25,500,000

NOTE: Cost estimate used on INEL Interim Report Data.

Ohio Mobile Incinerator	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	23,000,000	500,000
2		1,000,000
3		1,000,000
TOTAL	23,000,000	2,500,000

NOTE: Project is assumed to treat current inventory only.

Cost Estimates (Cont'd)

Rotary Kiln	Cost in Dollars
Start-up	850,000
Off-gas system	2,000,000
O&M/yr	2,500,000
D&D	9,000,000
Total Cost	14,350,000

NOTE: Cost estimate based on information provided by the FEMP.

Rotary Kiln	Annual Budget in Dollars	Annual Budget in Dollars
YEAR	CAPITAL	OPERATING
1	2,000,000	850,000
2		1,250,000
3		1,250,000
4		9,000,000
TOTAL	2,000,000	12,350,000

NOTE: Project is assumed to treat current inventory only.

Savannah River Consolidated Incinerator Facility	Cost in Dollars
All costs excluding transportation ($30/kg)	7,700,000
Transportation	85,000
Total Cost	7,785,000

NOTE: Cost estimate based on data from Oak Ridge PSTP. No annualized cost estimate was prepared due to associated uncertainties.

2.8 PO - Envirocare

Option Description

The Envirocare Option was chosen as the Preferred Option for the waste streams listed in the Background Volume, Table 8. This option consists of direct disposal of these waste streams at Envirocare in Clive, Utah under the Non-LDR/< TSC Project. The waste streams in this project either meet LDR treatment standards or have variances to LDR treatment standards currently in effect.

Simple segregation, shredding and screening, and bulking activities will occur on-site to prepare the wastes for shipment and disposal. Free liquids will be eliminated from the containers prior to shipment.

The treatment process necessary to complete the project and ship for disposal is illustrated in:

1. Treatment Train B

This treatment train and the LDR treatment standards are identified in Appendix C.

Option Evaluation Summary

This project consists of bulking activities and waste processing for the purpose of disposal; therefore, an evaluation of alternative treatment options was not prepared.

Cost Estimates

A cost estimate was prepared only for the PO (Envirocare).

Envirocare P.O.	Cost in Dollars
Studies & Bench Scale	435,000
Production Facility	340,000
O&M	840,000
Transportation	145,000
Total Cost	1,760,000

Basis for Cost Estimate

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

3.0 Supplemental Information

Section 3.1 provides more information on the FEMP Minimum Additive Waste Stabilization (MAWS) Facility. The MAWS Facility was previously reviewed as an Ohio Option and had been identified by other DOE sites as a potential preferred option during Ohio Work Group activities. Currently the MAWS Facility has not been identified as a Preferred Option by any DOE site.

Section 3.2 provides the decision-making process utilized in determining the FEMP mixed waste streams to be sent to the TSCA Incinerator. The TSCA Incinerator has been chosen by the DOE as the Preferred Option for the treatment of certain FEMP mixed waste streams. Other mixed waste streams, which could utilize incineration as a treatment technology, have been directed toward alternate on-site treatment.

3.1 FEMP MAWS Facility

The MAWS process is a unique concept to minimize waste volume by blending different waste streams with minimum amounts of additives without producing additional wastes as a by-product. The result is a cost-effective waste treatment and disposal plan for low level radioactive and mixed wastes.

The MAWS Facility consists of a pilot-scale 300 kilogram per day vitrification unit, a one quarter cubic yard per hour soil washing unit, and a 70 gallon per minute wastewater treatment system. The vitrification unit uses electric current to reach a melter temperature of about 1150°C. At this temperature, silica containing materials start to form glass.

The FEMP is investigating future options for the use of the MAWS Facility including:

- FEMP operation for the treatment of off-site mixed wastes;
- Relocation of the facility to another DOE site for treatment of mixed wastes; and,
- Permanent closure of the MAWS Facility.

Issues/items which need to be resolved prior to treating mixed waste in this process include, but are not limited to:

Development of Waste Acceptance Criteria
Acceptance of off-site wastes for treatment
Stakeholder concerns
Permitting
Modifications of off-gas system
Training required to operate the facility
Space limitations
Plant 9 Decontamination and Decommissioning (D&D) plans

3.2 Incineration of FEMP Mixed Wastes

The FEMP has identified three groups of mixed waste streams which may be treated by the incineration technology. These groups include organic liquids (including liquid secondary wastes generated from the Chemical Treatment Project), aqueous liquids and solids/liquids with metals and organics. The FEMP has chosen the TSCA Incinerator as the Preferred Option for the treatment of only organic liquids and liquid secondary mixed wastes. Alternative treatment methods were chosen for aqueous liquids and solid/liquid with metals and organics in order to address equity issues.

There are several benefits in addressing equity issues by sending only the organic liquids to the TSCA Incinerator:

- Sending only organic liquids limits the quantity of waste shipped out of state for treatment and disposal.
- Incineration of organic liquids results in significant volume reduction and generates a limited quantity of ash requiring further disposition.

The quantity of ash generated as a result of incinerating solids is greater and the volume reduction achieved is significantly less compared to liquid waste. The aqueous liquids will be treated by the FEMP WWTS. These liquids will be acceptable at the FEMP WWTS and the treated liquids will be discharged under the existing NPDES permit.

Table 3.2.1 lists the FEMP mixed wastes which were considered for treatment at the TSCA Incinerator. The waste streams are organized in the table by treatment trains as illustrated in Appendix C. Volumes include current volume and 5-year generation rate projections.

Table 3.2.1

FEMP Mixed Wastes Considered for Treatment at the TSCA Incinerator (Incincerable Waste)

Treatment Trains	Volume (m^3)	Preferred Option
A	26.3	Wastewater Treatment
C	346	TSCA Incinerator
E*	51	TSCA Incinerator
G	375	Ohio Mobile Chemical Treatment System
I	85.7	Ohio Mobile Chemical Treatment System
K	57.9	TSCA Incinerator
L	0.5	Ohio Mobile Chemical Treatment System
Secondary Waste **	266	TSCA Incinerator

* The quantity represented for Treatment E accounts for only the liquid protion of the wastes. will be sent to the TSCA Incinerator. For purposes of this discussion, volume represented is the liquid volume.

** Secondary waste will be generated as a result of Chemical Treatment operations.

It should be noted that the other treatment trains did not consider the TSCA Incinerator to be a viable option because the incineration process provided little benefit either through volume reduction or hazardous constituent destruction.

The total quantity of mixed waste, including 5-year generation and secondary waste projections considered for the TSCA Incinerator, was 1208 m^3. By limiting the waste for the TSCA Incinerator to organic liquids and secondary liquid waste streams, the quantity of waste designated for the TSCA Incinerator was reduced to 721 m^3 or 60% of the original volume considered. These numbers do not include 2106 drums of waste considered for disposition to the TSCA Incinerator which were eliminated since the submittal of the DSTP. These drums were eliminated through project management efforts, including recharacterization and shipment to permitted land disposal facilities prior to expiration of variances. These efforts will continue throughout the life of all the mixed waste projects.

Table 3.2.2 lists the treatment options evaluated for the three groups of FEMP mixed wastes considered for treatment at the TSCA Incinerator. The preferred option for each group of mixed waste is indicated by the volume of waste to be treated. The basis for selection and elimination of treatment, provided in detail in Appendix A, is summarized following Table 3.2.2.

Table 3.2.2

Treatment Options for
Potential TSCA Incinerator Mixed Waste

List of options considered treatment of FEMP mixed waste	Organic Liquids	Aqueous Liquids	Solids/Liquids w/ Metals and Organics
Ohio Mobile Incinerator	X	X	X
Mound Packed Bed Reactor	X		X
FEMP Rotary Kiln	X		
FEMP UNH or HF Neutralization / Precipitation		X	X
TSCA Incinerator	721 m^3	X	X
INEL WERF Incinerator	X		
Savannah River CIF	X		
Evaporation (PORTS)		X	X
Ohio Mobile Chemical Treatment System *		X	461 m^3
Ohio Mobile Stabilization System			X
Portsmouth WWTS (includes Physical/Chemical Treatment: Carbon Treatment)		X	X
FEMP WWTS (includes Plant 8 VOC, FEMP AWWT)		26.3 m^3	X
Mound Glass Melter	X		

X - Indicates options evaluated for these wastes.
m^3 - Indicates volume of waste to be treated by the Preferred Option for each FEMP waste stream group.

* Chemical Treatment consists of six primary treatment technologies
- Chemical Oxidation/Wet Air Oxidation
- Deactivation
- Macroencapsulation
- Pressurized Container Puncture Unit
- Neutralization/Precipitation
- Amalgamation

ORGANIC LIQUIDS AND LIQUID SECONDARY WASTES - PREFERRED OPTION: TSCA INCINERATOR

Basis for Preferred Option selection:

- Incineration of these waste streams meets the LDR treatment standards.
- The TSCA Incinerator is currently approved by the U.S.EPA to accept CERCLA wastes (per 40 CFR 300.440). Wastes from the FEMP removal and remedial actions must be managed in a facility approved for the acceptance of CERCLA wastes.
- The identified waste streams are compatible with the Waste Acceptance Criteria established for the TSCA Incinerator. The TSCA Incinerator design criteria were developed to accept FEMP mixed waste streams, including these identified waste streams.
- The results of a computer modeling effort utilizing a validated multicriteria analysis model designed by Martin Marietta Energy Systems Inc., Oak Ridge National Laboratory, indicate that incineration is the preferred technology option compared to other options and the use of the TSCA Incinerator is the Preferred Option.
- Incineration of these liquid waste streams will result in a significant reduction in volume with only a small volume of ash produced requiring further treatment (i.e., stabilization).
- The TSCA Incinerator currently has included these wastes in the FY 95 burn schedule. These wastes are necessary to maintain maximum utilization and efficiency of the facility.

Basis for eliminating other options:

- Some alternative options to the TSCA Incinerator that were considered did not meet the LDR treatment standards for the identified waste streams.
- No other off-site incinerators that were investigated were approved by U.S. EPA to accept CERCLA waste.
- The cost of establishing and operating an on-site incinerator would be prohibitive when compared to the use of the TSCA Incinerator.
- No other options were compatible with the current mixed waste treatment schedules.

AQUEOUS LIQUIDS - PREFERRED OPTION: FEMP WWTS

Basis for Preferred Option selection:

- The use of the FEMP WWTS will meet the LDR treatment standards for the identified waste streams.
- The identified waste streams will require little or no pre-treatment to meet the FEMP WWTS waste acceptance criteria.
- The FEMP WWTS is an existing, operating facility which will allow for the timely and cost effective treatment of the identified waste streams.

Basis for eliminating other options:

- Some of the treatment options considered would not completely eliminate the need to use the WWTS for the final treatment and disposal of the waste streams.
- Other alternative treatment options were unable to meet the LDR treatment standards for the identified waste streams.

SOLIDS/LIQUIDS W/ METALS AND ORGANICS - PREFERRED OPTION: OHIO MOBILE CHEMICAL TREATMENT (CHEMICAL/WET AIR OXIDATION)

Basis for Preferred Option selection:

- The Preferred Option meets LDR treatment standards for the identified waste streams.
- There are vendor supplied, mobile units available for this treatment option.
- Secondary waste streams that are produced by the Preferred Option treatment technology are easily managed for treatment and disposal.

Basis for eliminating other options:

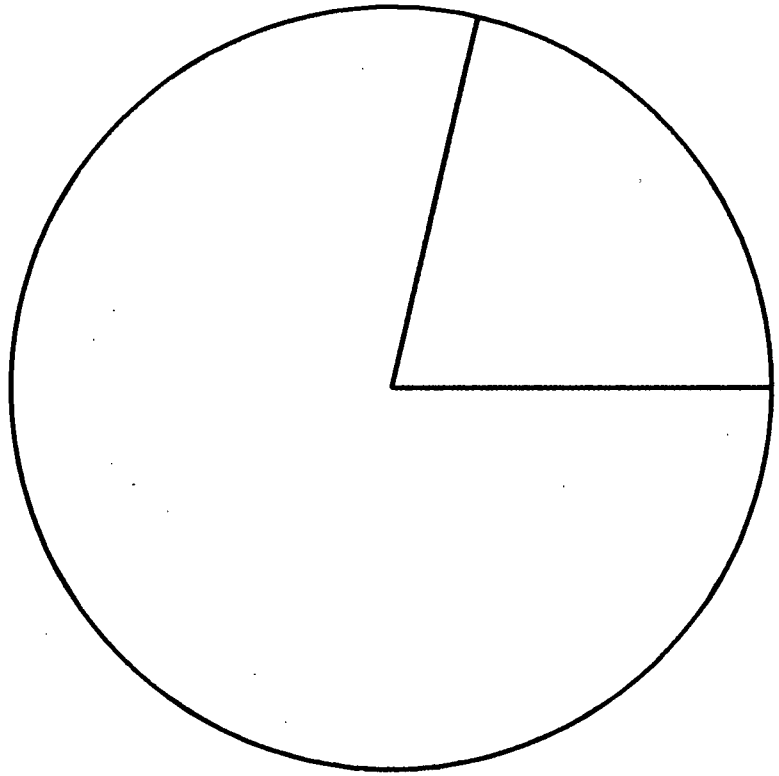
- Other alternative treatment options considered were unable to meet the LDR treatment standards for the identified waste streams.
- Incineration of the identified waste streams would generate larger volumes of ash relative to the incineration of organic liquids which would require treatment and disposal.

The following provides a graphic demonstration of the disposition of all FEMP mixed wastes, including those considered for the TSCA Incinerator.

- Figure 3.2.1, Mixed Waste Disposition, exhibits the portions of FEMP mixed wastes designated for the TSCA Incinerator and all other treatment options.
- Figure 3.2.2, Waste Disposition Per Preferred Option, exhibits the relative volumes of FEMP mixed wastes designated for each treatment option.
- Figure 3.2.3, Incinerable Waste Disposition, exhibits all those FEMP mixed wastes which could be incinerated at the TSCA Incinerator and those portions of that total volume which are designated for treatment by alternative Preferred Options.

Figure 3.2.1

MIXED WASTE DISPOSITION



FEMP MIXED WASTE

☐ TSCA INCINERATOR (721 m3) ☐ OTHER PREFERRED OPTIONS (2653 m3)

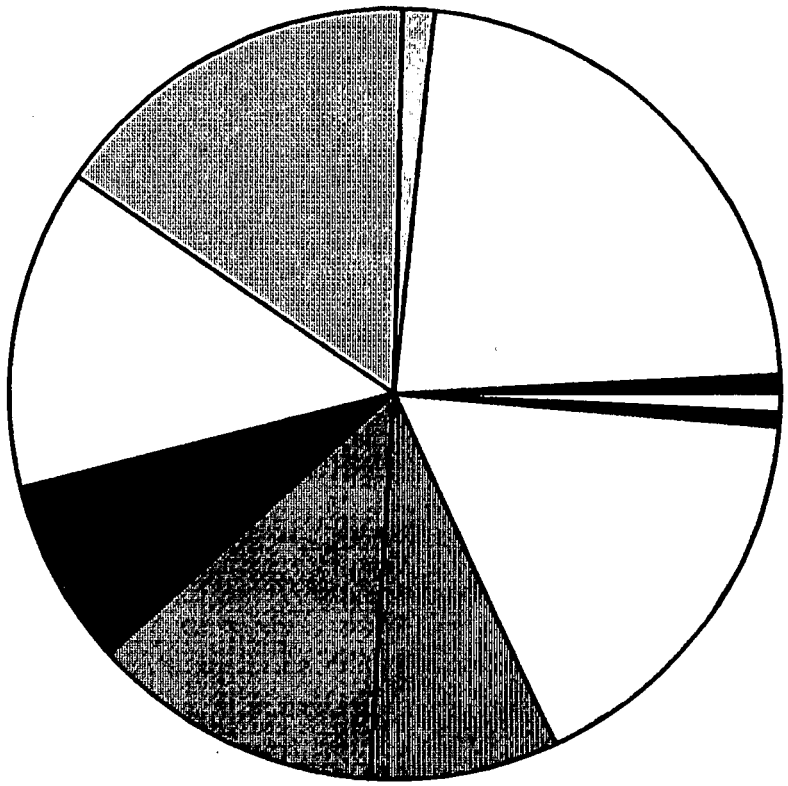
672000

2629

Figure 3.2.2

WASTE DISPOSTION PER PREFERRED OPTION

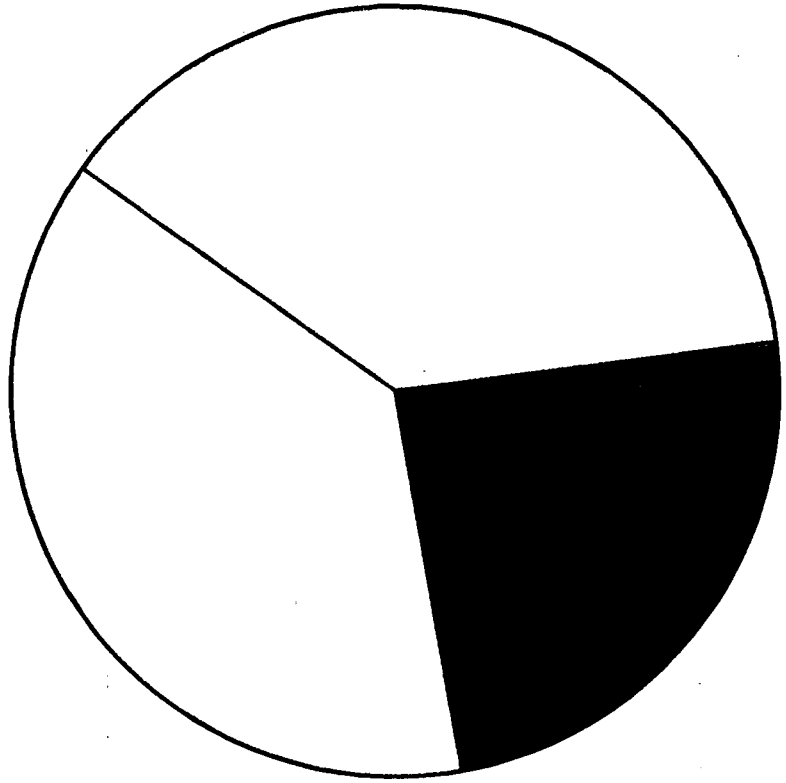
- WASTEWATER TREATMENT (26 m3)
- UNH TREATMENT SYSTEM (761 m3)
- ENVIROCARE (46 m3)
- ENVIROCARE/SECONDARY (532 m3)
- TSCA INCINERATOR (455 m3)
- TSCA INCINERATOR/SECONDARY (266 m3)
- OHIO MOBILE STABILIZATION SYSTEM (414 m3)
- OHIO MOBILE STABILIZATION SYSTEM/SECONDARY (266 m3)
- OHIO MOBILE CHEMICAL TREATMENT SYSTEM (566 m3)
- HF NEUTRALIZATION SYSTEM (20 m3)
- THORIUM NITRATE TREATMENT SYSTEM (22 m3)



FEMP MIXED WASTE

Figure 3.2.3

INCINERABLE WASTE DISPOSITION



INCINERABLE WASTE

- WASTEWATER TREATMENT (26 m3)
- OHIO MOBILE CHEMICAL TREATMENT SYSTEM (461 m3)
- TSCA INCINERATOR (455 m3)
- TSCA INCINERATOR/SECONDARY (266 m3)

000281

6629

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

Appendix B describes efforts by the DOE to develop and evaluate the treatment options available for DOE mixed waste within Ohio. An Ohio Work Group, consisting of representatives from the Ohio DOE mixed waste sites, was formed to research and evaluate these treatment options. The Ohio Work Group's summary of treatment options is identified in this appendix.

APPENDIX B
OHIO MIXED WASTE TREATMENT OPTION

TABLE OF CONTENTS

PAGE #

1.0 Introduction B-1

2.0 Evaluation Criteria B-1

Table B-1 Universe of Options Considered to Formulate the Ohio Options B-2

3.0 Viable Options B-6

Table B-2 Viable Options B-6

4.0 Common Technologies B-7

Table B-3 Ohio Waste Streams With Common Treatment Options B-8

5.0 Ohio Options B-11

1.0 Introduction

An Ohio Work Group was formed from the Ohio DOE sites, Fernald Environmental Management Project (FEMP), Portsmouth Gaseous Diffusion Plant (Portsmouth), Mound Plant (Mound), Battelle Columbus Laboratory (Battelle) and RMI Titanium (RMI), to formulate Ohio Options for DOE mixed waste treatment. This group began its work following a Technology Support Workshop conducted by the DOE Technical Support Team in March 1994.

The activities of the Ohio Work Group included the following:

- Identified on-site, existing, planned, and out of state technologies/facilities by generating a universe of options from multiple sources.
- Identified mixed waste streams amenable to common treatment technologies
- Formulated a common evaluation process
- Developed Ohio Options for those waste streams identified by the group

2.0 Evaluation Criteria

After the list was established identifying the universe of options (Table B-1), threshold criteria were established to determine if an option was viable and should be considered further.

These threshold criteria included:

- Does the option treat to Land Disposal Restriction standards?
- Does the option treat wastes which have been identified as being in common among the Ohio sites?
- Can the option treat the identified volumes of wastes economically and within a reasonable schedule?

Table B-1

Universe of Options Considered
to Formulate the Ohio Options

Site/Facility	Existing Facility	Planned Facility	Does Not Meet Threshold Criteria	Viable Alternative
FEMP				
Rotary Kiln	X		X	
Wastewater Treatment System	X		X	
UNH Treatment System	X		X	
Hydrofluoric Acid Neutralization System	X		X	
MAWS (Vitrification)	X			X
Plant 8 Soil Washing	X		X	
Aerosol Puncture Unit	X		X	
Mobile Stabilization		X		X

000287

Table B-1 (Cont'd)

Universe of Options Considered
to Formulate the Ohio Options

Site/Facility	Existing Facility	Planned Facility	Does Not Meet Threshold Criteria	Viable Alternative
Mobile Chemical Treatment				
Including:				
Mobile Amalgamation		X		X
Mobile Chemical/Wet Air Oxidation		X		X
Mobile Chemical Reduction		X	X	
Mobile Organics Recovery		X	X	
Mobile Macroencapsulation		X		X
Mobile Neutralization		X	X	
Mobile Deactivation		X		X
Mobile Steam Stripping		X	X	
Mobile Water Wash		X	X	
Mobile Biodegradation		X	X	
Mobile Chemical Precipitation		X	X	
Mobile Incinerator		X		X
CRU4 Melter		X	X	
Mercury Treatability Studies	X			X

000288

2629

Table B-1 (Cont'd)

Universe of Options Considered
to Formulate the Ohio Options

Site/Facility	Existing Facility	Planned Facility	Does Not Meet Threshold Criteria	Viable Alternative
Portsmouth				
Groundwater Treatment Systems	X		X	
Wastewater Treatment Systems	X		X	
Neutralization		X	X	
Filtration		X	X	
Amalgamation		X		X
Mobile Stabilization		X		X
Debris/Soil Washing		X	X	
Chemical Oxidation		X		X
Mobile Thermal Desorption		X	X	
Mobile Incinerator		X		X
Mound				
Glass Melter	X			X
Mobile Packed Bed Reactor		X	X	

000289

Table B-1 (Cont'd)

Universe of Options Considered
to Formulate the Ohio Options

Site/Facility	Existing Facility	Planned Facility	Does Not Meet Threshold Criteria	Viable Alternative
Mobile Lead Decontamination	X		X	
Amalgamation (Bench Scale)		X		X
Macroencapsulation (Bench Scale)		X		X
Thermal Desorption (Bench Scale)		X	X	
Stabilization (Bench Scale)		X		X
Out of State				
Oak Ridge Mixed Waste Treatment Facility (Mercury)		X		X
Oak Ridge Mixed Waste Treatment Facility (Stabilization)		X		X
TSCA Incinerator	X			X
INEL WERF Incinerator	X			X
Savannah River Consolidated Incineration Facility (CIF)	X			X
Envirocare (Stabilization)	X			X

000290

2629

3.0 Viable Options

From this initial comparison against the threshold criteria, the universe of options from Table B-1 was reduced to show the viable options on Table B-2 below.

Table B-2

Viable Options

Site/Facility	Existing Facility	Planned Facility
Ohio Mobile Chemical Treatment Including: Amalgamation Chemical Oxidation Deactivation Macroencapsulation		X
Oak Ridge Mixed Waste Treatment Facility (Mercury)		X
Mercury Treatability Studies	X	
Amalgamation (Bench Scale)		X
Ohio Mobile Stabilization		X
Envirocare (Stabilization)		X
Oak Ridge Mixed Waste Treatment Facility (Stabilization)		X
Portsmouth Stabilization Facility		X
FEMP MAWS (Vitrification)	X	
Mound Glass Melter	X	
TSCA Incinerator	X	
Ohio Mobile Incinerator		X
INEL WERF Incinerator	X	
Savannah River Consolidated Incineration Facility (CIF)	X	

4.0 Common Technologies

The Ohio DOE sites compiled a list of mixed waste streams amenable to common treatment technologies and performed a comparison. The results of this comparison identified the common technologies and initiated discussions of existing options which could meet the treatment needs.

- Amalgamation

  1) Use of a mobile treatment unit*

- Stabilization

  1) Use of a mobile treatment unit*

- Chemical Oxidation

  Wastes are not compatible
  FEMP - non-cyanide bearing waste
  Portsmouth - cyanide bearing waste

- Deactivation

  Wastes are not compatible
  Portsmouth - sodium metal in kerosene
  Battelle - titanium and other metals finely divided

- Macroencapsulation

  1) Use of a mobile treatment unit*

- Vitrification

  1) Use of MAWS facility at the FEMP

- Incineration

  1) Use of a mobile treatment unit*

* Mobile treatment is intended to represent two possible scenarios: 1) located at one site, the other facilities shipping waste to be treated; 2) share the unit or the contracting, pre-operational studies, and engineering.

Table B-3

Ohio Waste Streams
With Common Treatment Options

This table was developed to illustrate the number of common waste streams in the Ohio Options and to support discussions on how the Ohio Options might be implemented.

NOTE: United States Enrichment Corporation (USEC) located in Portsmouth, Ohio, was added to the list of Ohio sites. OEPA requested USEC to prepare a Site Treatment Plan. Also, Paducah Gaseous Diffusion Plant (Paducah, KY), located in Paducah, Kentucky, was added to the list of Ohio sites per an initial OAT recommendation to ship mercury waste to the FEMP for treatment.

Amalgamation

Ohio Site	# of Waste Streams
Battelle	1
FEMP	7
Mound	1
Portsmouth	1
RMI	0
USEC	1
Paducah, KY	4

Macroencapsulation

Ohio Site	# of Waste Streams
Battelle	1
FEMP	9
Mound	2
Portsmouth	0
RMI	0
USEC	0

Table B-3 (Cont'd)

Ohio Waste Streams
With Common Treatment Options

Stabilization

Ohio Site	# of Waste Streams
Battelle	0
FEMP	65
Mound	0
Portsmouth	22
RMI	7
USEC	8

Vitrification

Ohio Site	# of Waste Streams
Battelle	0
FEMP	0
Mound	2
Portsmouth	3
RMI	0
USEC	0

Chemical Oxidation

Ohio Site	# of Waste Streams
Battelle	0
FEMP	Waste Streams Incompatible
Mound	0
Portsmouth	Waste Streams Incompatible
RMI	0
USEC	N/A

Table B-3 (Cont'd)

Ohio Waste Streams
With Common Treatment Options

Deactivation

Ohio Site	# of Waste Streams
Battelle	Waste Streams Incompatible
FEMP	0
Mound	0
Portsmouth	Waste Streams Incompatible
RMI	0
USEC	NA

Incineration*

Ohio Site	# of Waste Streams
Battelle	0
FEMP	111
Mound	0
Portsmouth	19
RMI	8
USEC	NA

* The Ohio Option for incineration is the use of a mobile, vendor supplied incinerator. It should be noted that the individual sites chose to utilize the TSCA Incinerator at Oak Ridge. See respective PSTPs for evaluations.

5.0 Ohio Options

Ohio Options represent shared preferred options to treat waste streams amenable to common treatment. The wastes are to be treated within Ohio at one or more of the sites.

Of the seven common technologies, four were included in the Ohio Options. Chemical Oxidation, Deactivation and Vitrification were eliminated due to incompatible common waste streams. The Ohio Options use mobile, vendor supplied treatment equipment.

Ohio Option	Common Technology
Ohio Mobile Chemical Treatment System	Amalgamation Macroencapsulation
Ohio Mobile Stabilization System	Stabilization
Ohio Mobile Incinerator	Incineration

In order for an Ohio Option to be implemented, the following issues must be resolved:

- Permit issues for receipt and treatment of off-site waste
- Scheduling
- Funding
- Procurement
- Introduction of additional radionuclides to a site
- Return of treatment residuals to the site of origin
- Equity issues between the states
- Stakeholder concerns

The use of the Ohio Options was evaluated separately by each of the sites in the respective PSTPs. Battelle Columbus Laboratory developed the Ohio Mobile Stabilization System at the FEMP as the Preferred Option for treatment of one mixed waste stream.

The States will continue discussion of mixed waste being treated at off-site locations. These discussions may involve equity issues to establish a fair and just distribution of mixed waste treatment at DOE sites. These equity discussions may result in additional DOE sites identifying the FEMP for treatment of their mixed wastes in the future.

Appendix C

APPENDIX C

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

Appendix C
FEMP Mixed Waste Streams/Treatability Groups

Appendix C presents information on the FEMP mixed low level waste streams in tables by treatability groups. The treatability groups were developed by DOE-HQ to have a uniform method of tracking mixed low level waste streams throughout the DOE complex.

Extensive information on each FEMP waste stream has been incorporated into these tables. A key defining the column headers on the tables begins on page C - 1. The reader should review and become familiar with the entire key prior to interpreting the tables in Appendix C.

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS, TREATMENT DESCRIPTIONS AND TREATMENT TRAINS
TABLE OF CONTENTS

		PAGE #
KEY FOR WASTE STREAM TABLES		C-1
Group #1	Aqueous Liquid, Toxic Organics	C-4
Group #2	Aqueous Liquid, Toxic Metals w/o Mercury	C-6
Group #3	Aqueous Liquid, Toxic Metals w/ Mercury	C-8
Group #4	Aqueous Liquid, Toxic Organics, Toxic Metals w/o Mercury	C-9
Group #5	Aqueous Liquid, Toxic Organics, Toxic Metals w/ Mercury	C-11
Group #6	Aqueous Liquid, Ignitable, Reactive, or (Corrosive) Only	C-12
Group #7	Aqueous Liquid, (Ignitable), Reactive, or Corrosive Only	C-13
Group #8	Organic Liquid, Toxic Organics	C-14
Group #9	Organic Liquid, Toxic Metals w/o Mercury	C-22
Group #10	Organic Liquid, Toxic Metals w/ Mercury	C-25
Group #12	Organic Liquid, Toxic Organics, Toxic Metals w/o Mercury	C-26
Group #13	Organic Liquid, Toxic Organics, Toxic Metals w/ Mercury	C-33
Group #14	Organic Liquid, (Ignitable), Reactive, or Corrosive Only	C-36
Group #15	Organic Sludge/Particulates, Toxic Organics	C-40
Group #16	Organic Sludge/Particulates, Toxic Metals w/o Mercury	C-45
Group #16A	Organic Sludge/Particulates, Toxic Metals w/ Mercury	C-47
Group #17	Organic Sludge/Particulates, Toxic Organics, Toxic Metals w/o Mercury	C-48
Group #18	Organic Sludge/Particulates, (Ignitable), Reactive, or Corrosive Only	C-50
Group #19	Inorganic Sludge/Particulates, Ignitable, Reactive, or (Corrosive) Only	C-52
Group #20	Inorganic Sludge/Particulates, (Ignitable), Reactive, or Corrosive Only	C-53

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS,
TREATMENT DESCRIPTIONS AND TREATMENT TRAINS
TABLE OF CONTENTS (Continued)

		PAGE #
Group #21	Inorganic Sludge/Particulates, Toxic Organics	C-54
Group #22	Inorganic Sludge/Particulates, Toxic Metals w/o Mercury	C-57
Group #23	Inorganic Sludge/Particulates, Toxic Metals w/ Mercury	C-64
Group #24	Inorganic Sludge/Particulates, Toxic Organics, Toxic Metals w/o Mercury	C-65
Group #25	Organic Debris, Toxic Organics	C-66
Group #27	Organic Debris, Toxic Organics, Toxic Metals w/o Mercury	C-68
Group #27A	Organic Debris, Toxic Organics, Toxic Metals w/ Mercury	C-69
Group #29	Inorganic Debris, Toxic Organics	C-70
Group #30	Inorganic Debris, Toxic Metals w/o Mercury	C-71
Group #31	Inorganic Debris, Toxic Metals w/ Mercury	C-73
Group #32	Inorganic Debris, (Ignitable), Reactive, or Corrosive Only	C-74
Group #33	Heterogeneous Debris, Toxic Organics	C-75
Group #34	Heterogeneous Debris, Toxic Metals w/o Mercury	C-78
Group #36	Heterogeneous Debris, Toxic Organics, Toxic Metals w/o Mercury	C-79
Group #37	Soils, Toxic Organics	C-81
Group #38	Soils, Toxic Metals w/o Mercury	C-83
Group #39	Batteries (Lead Acid, Cadmium), Toxic Metals w/o Mercury	C-84
Group #40	Batteries (Lead Acid, Cadmium), Toxic Metals w/ Mercury	C-85
Group #41	Elemental Mercury	C-86
Group #42	Reactive Metals	C-87

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS,
TREATMENT DESCRIPTIONS AND TREATMENT TRAINS
TABLE OF CONTENTS (Continued)

PAGE #

Group #42A Elemental Lead (Activated and Non-Activated) C-88

Group #43 Lab Packs w/o Metals C-89

Group #44 Compressed Gas C-90

Group #45 Inorganic Cemented Solids, Toxic Organics C-91

1.0 Treatment Trains C-92

Figure C-1 Treatment Train Worksheet C-93

1.1 Treatment Trains Unit Operation C-94

1.2 Segregation C-94

1.3 Shredding C-94

1.4 Screening C-94

1.5 Chemical Treatment C-94
1.5.1 Biodegradation (BIODG) C-95
1.5.2 Chemical or Electrolytic Oxidation (CHOXD) C-95
1.5.3 Chemical Reduction (CHRED) C-95
1.5.4 Liquid-Liquid Extraction (LLEXT) C-95
1.5.5 Chemical Precipitation (PRECP) C-96
1.5.6 Recovery of Organics (RORGS) C-96
1.5.7 Steam Stripping (SSTRP) C-96
1.5.8 Water Wash/Separating C-96
1.5.9 Wet Air Oxidation (WETOX) C-96

1.6 Pretreatment C-97
1.6.1 Carbon Adsorption (CARBN) C-97
1.6.2 Deactivation (DEACT) C-97
1.6.3 Neutralization (NEUTR) C-97
1.6.4 Chemical Precipitation (PRECP) C-97

1.7 Stabilization C-97
1.7.1 Portland Cement Solidification C-98
1.7.2 Low Strength Cement Stabilization C-98
1.7.3 Vitrification C-98

1.8 Debris Bulking C-99

1.9 High Pressure Washing C-99

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS,
TREATMENT DESCRIPTIONS AND TREATMENT TRAINS
TABLE OF CONTENTS (Continued)

PAGE #

1.10 Macroencapsulation C-99

1.11 Amalgamation C-99

1.12 Pressurized Container Treatment C-99

1.13 Wastewater Treatment C-100

1.14 Incineration C-100

1.15 Other Treatment, Storage and Disposal Facility (TSDF) (Radiologically Decontaminated Material) C-100
1.15.1 Thermal Recovery of Lead (RLEAD) C-100
1.15.2 Recovery/reuse of Compressed Gases (RCGAS) C-100
1.15.3 Retorting or roasting in a thermal processing unit capable of volatilizing mercury (RMERC) C-100
1.15.4 Thermal Recovery (RTHRM) C-100
1.15.5 Recovery of Metals (RMETL) C-101
1.15.6 Recovery of Organics (RORGS) C-101

1.16 Management of Secondary Waste Streams C-101

2.0 Sample Treatment Train C-102

Figure C-2 Example of a FEMP Treatment Train Diagram C-103

Treatment Train A C-104

Mixed Low Level Waste Streams to be Treated by Treatment Train A . . . C-105

Treatment Train B C-108

Mixed Low Level Waste Streams to be Treated by Treatment Train B . . . C-109

Treatment Train C C-110

Mixed Low Level Waste Streams to be Treated by Treatment Train C . . . C-111

Treatment Train D C-135

Mixed Low Level Waste Streams to be Treated by Treatment Train D . . . C-136

Treatment Train E C-143

APPENDIX C
FEMP MIXED WASTE STREAMS/TREATABILITY GROUPS,
TREATMENT DESCRIPTIONS AND TREATMENT TRAINS
TABLE OF CONTENTS (Continued)

PAGE #

Mixed Low Level Waste Streams to be Treated by Treatment Train E . . . C-144

Treatment Train F C-148

Mixed Low Level Waste Streams to be Treated by Treatment Train F . . . C-149

Treatment Train G C-153

Mixed Low Level Waste Streams to be Treated by Treatment Train G . . . C-154

Treatment Train H C-164

Mixed Low Level Waste Streams to be Treated by Treatment Train H . . . C-165

Treatment Train I C-168

Mixed Low Level Waste Streams to be Treated by Treatment Train I . . . C-169

Treatment Train J C-179

Mixed Low Level Waste Streams to be Treated by Treatment Train J . . . C-180

Treatment Train K C-182

Mixed Low Level Waste Streams to be Treated by Treatment Train K . . . C-183

Treatment Train L C-186

Mixed Low Level Waste Stream to be Treated by Treatment Train L C-187

Treatment Train M C-188

Mixed Low Level Waste Streams to be Treated by Treatment Train M . . . C-189

Treatment Train N C-191

Mixed Low Level Waste Stream to be Treated by Treatment Train N C-192

Treatment Train O C-193

Mixed Low Level Waste Stream to be Treated by Treatment Train O C-194

Treatment Train P C-195

Mixed Low Level Waste Stream to be Treated by Treatment Train P C-196

KEY FOR WASTE STREAM TABLES

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

Column #1 MEF#

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

Column #2 MWIR ID #

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

Column #3 EPA CODES

Identifies EPA Waste Codes and LDR subcategories as follows:

KEY FOR WASTE STREAM TABLES	
Code	Description
D001A	Ignitable liquids, high TOC non-wastewater (≥ 10% TOC)
D001B	Ignitable liquids, low TOC non-wastewater (< 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
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)

KEY FOR WASTE STREAM TABLES (Continued)

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-wastewater (NWW) are identified in Column #3 for aqueous liquids only.

Column #4 WASTE DESCRIPTION

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

Column #5 CURRENT QTY

Quantities in kilograms (kgs) are taken from the Materials Control and Accountability (MC&A) database. Inventory is current as of October 21, 1994.

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

Column #6 5 YEAR RATE

The total quantity of mixed waste projected to be generated over the next five years (FY 1995 - 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 CHAR

PK: Process Knowledge
SA: Sampling and Analysis

Column #9 LDR TREATMENT STANDARD

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 to which that waste stream is assigned. Diagrams of each treatment train are in the back of Appendix C.

The project name identifies the specific project used to implement the preferred option.

KEY FOR WASTE STREAM TABLES (Continued)

Column #11 PREFERRED OPTION/DISPOSAL OPTION

Identifies the Preferred Option selected for the treatment of the waste stream.

The FEMP has provided the disposal option for each waste stream.

MLLW - Mixed Low Level Waste Disposal
LLW - Low Level Waste Disposal

Existing capacity is available at the Nevada Test Site (NTS) for disposal of LLW from the FEMP and at Envirocare of Utah for MLLW disposal.

DOE has identified a total of eight Preferred Options for management of MLLW at the FEMP. These eight Preferred Options are listed below.

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

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

- Re-characterization based upon sampling and analysis or re-examination of process knowledge.
- Re-characterization of the waste due to visual inspections and real time radiography.
- Combining waste streams of like characterization.
- Mixed waste debris shipped to Envirocare of Utah for disposal.

GROUP #1

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, 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 TRAIN/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1536	FM-W110	F001 F002 (WW)	RAINWATER FROM WASTE PIT AREA	30,076	31.2	0	0	Uran. 0.01 wt% U235 0.840 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 SYSTEM MLLW
2402	FM-N394	F001 F002 F005A (WW)	RINSEATE WATER	161	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT	WASTEWATER TREATMENT (ON-SITE) LLW

000007

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #1

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS

MEF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAIN/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
2425	FM-W332	D002A* F001 F002 F005A (WW)	CTC CORROSIVE WASTE	198	0.2	1,040	1.0	Uran. U235	24.5 ppm 0.14 wt%	--- ---	PK	DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10014	FM-W136	D039 (NWW)	U-CONTAMINATED WATER	2,641	2.8	0	0	Uran. U235	4.9 ppm 0.58 wt%	12.1 ppm 0.73 wt%	PK SA	TREATMENT STANDARDS EFFECTIVE 9/19/96	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000308

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #2

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

MEP#	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 OPTION(S)/ DISPOSAL OPTION
383	FM-W008	D011 (WW)	X-RAY FIXER & DEVELOPER, CLEAR LIQUID	123	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
844	FM-W092	D002A* D005 D007 (WW)	UNH SOLUTION IN TANKS	840,000	761	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 LLW
873	FM-W094	D011 (WW)	SPENT FIXER	612	1.2	0	0	Uran. 0.01 wt% U235 0.2 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1178	FM-W096	D007 F002 (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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site) LLW
1692	FM-W113	D002A* D007 (WW)	NITRIC ACID	31	0.2	0	0	NOT AVAILABLE		PK	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000309

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #2

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

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 OPTION(S)/ DISPOSAL OPTION
1773	FM-W315	D011 (WW)	CONCENTRATE FIXER	98	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2594	FM-N359	D002A* D006B D007 (NWW)	THORIUM NITRATE SOLUTION IN TANK T-2	8,892.0	22.0	0	0	Th-228 0.0021 pCi/ml Th-230 <0.0038 pCi/ml Th-232 <0.0027 pCi/ml	--- --- ---	PK SA	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	P THORIUM NITRATE RCRA CLOSURE	THORIUM NITRATE TREATMENT SYSTEM LLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000210

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #3

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, 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 TRAIN/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1999	FM-N366	D002A★ D007 D009C D011 (NWW)	NESSLER REAGENT, COD DIGESTION SOLUTION, ROCHELLE SALT	4	<0.1	38	<0.1	NOT AVAILABLE		PK	DEACTIVATION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000211

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #4

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS, 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 TRAIN/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
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 wt% Th 7.62 g/l	--- --- ---	PK SA	DEACTIVATION AND MEET UTS OR ORGANIC RECOVERY OR COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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 AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2362	FM-N393	D002A* D007 D008B D018 D035 D039 D040 (WW)	RADIOACTIVE ACIDIC LAB WASTE	10,544	9.4	0	0	Uran. 1.25 ppm U234 201 pCi/l U235 12 pCi/l U238 456 pCi/l	2.52 ppm 399 pCi/l 23 pCi/l 745 pCi/l	PK SA	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000212

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #4

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

MRF#	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 OPTION(S)/ DISPOSAL OPTION
2364	FM-N383	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 AND MEET UTS OR ORGANIC RECOVERY OR COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2498	FM-N384	D008B D012* D039 F002 F003 (WW)	SUMP LIQUOR	560	0.6	0	0	Uran. 3.3 ppm Th 910 ppm	410 ppm ---	PK SA	BIODEGRADATION OR INCINERATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000213

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #5

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, TOXIC ORGANICS, TOXIC METALS w/ 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 OPTIONS(S)/ DISPOSAL OPTION
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 2×10^{-6} uCi/g		PK SA	DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2363	FM-N382	D001C*[1] D002B*[2] 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	1) DEACTIVATION AND MEET UTS OR ORGANIC RECOVERY OR COMBUSTION* 2) DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000214

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #6

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
AQUEOUS LIQUID, 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 OPTIONS(S)/ DISPOSAL OPTION
1462	FM-N360	D002B★ (WW)	CONTAMINATED WATER FROM CHEMICAL PIT #2 SURFACE CAP	397	0.6	0	0	Uran. 0.1 ppm U235 0.201 wt%	0.1 ppm 0.579 wt%	PK SA	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1691	FM-W112	D002A★ (WW)	DILUTE HYDROFLUORIC ACID HF TANK CAR	19,710	19.7	0	0	Uran. 63 ppm Th <45 ppm	--- ---	PK	DEACTIVATION★	O HF RCRA CLOSURE	HF NEUTRALIZATION SYSTEM LLW
2257	FM-W329	D002A★ (WW)	TCLP EXTRACTS LAB GENERATED WASTE	155	0.2	811	0.7	NOT AVAILABLE		PK SA	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
2554	FM-N395	D002A★ (WW)	ACID WASTE	3,189	4.0	0	0	NOT AVAILABLE		PK	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000215

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #7

WASTE STREAM 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 TRAIN/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
				(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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000316

2629

WW = WASTEWATER
NWW = NONWASTEWATER

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, 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)/ DISPOSAL OPTION
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 AND MEET UTS OR ORGANIC RECOVERY OR COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
345	FM-N400	D001A★ D018	CONTAMINATED KEROSENE	14,095	17.0	0	0	Uran. 1 ppm U235 0.79 wt%	1 ppm 0.85 wt%	PK SA	ORGANIC RECOVERY OR COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
395	FM-N378	D001A★ F002 F003 F005A	PAINT THINNERS AND PAINT RESIDUES	179	0.2	752	0.6	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
418	FM-W030	D001A★ F003	SPENT ACETONE	975	12.0	1,061	1.0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000317

6297

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

MEP#	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
419	FM-W031	D001A* F003	SPENT XYLENE	121	1.8	255	0.2	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
421	FM-W032	D001A* F003	SPENT METHANOL	140	2.0	71	0.1	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
422	FM-W033	F002	SPENT METHYLENE CHLORIDE	15	0.2	95	0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	TREATMENT STANDARD EFFECTIVE 9/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000318

2629

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
459	FM-W046	D001A* F001 F002	PAINT	204	0.2	0	0	Uran. 22 ppm U235 0.67 wt%	86 ppm 0.71 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
480	FM-W333	D018 F002	USED OIL GENERATED DURING CONSTRUCTION PROJECTS	1,172	1.4	0	0	Uran. 24 ppm U235 0.69 wt%	51 ppm 0.84 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
507	FM-N401	D001A* D018	GASOLINE	113	0.2	0	0	NOT AVAILABLE		PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
508	FM-W054	D001A* D035	PAINT THINNER	220	0.2	0	0	Uran. 1 ppm U235 0.55 wt%	3 ppm 0.65 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000319

6797

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
638	FM-W076	D018	USED OIL	142	0.2	0	0	Uran. 0.01 wt% U235 0.50 wt%	--- ---	PK	TREATMENT STANDARD EFFECTIVE 9/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
658	FM-W078	D018	CODED AS OIL - STRONG SOLVENT ODOR	40	0.2	0	0	Uran. 0.01 wt% U235 1.0 wt%	--- ---	PK	TREATMENT STANDARD EFFECTIVE 9/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1713	FM-W309	D040 F001 F002 F005A	OIL FROM TCLP EXTRACTS	32	0.4	169	0.2	Uran. 0.01 wt% U235 0.5 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1725	FM-W119	D018	LUBRICATING OIL FROM GARAGE	2,814	3.4	6,968	7.5	Alpha <2.2 pCi/ml Beta <5.1 pCi/ml	--- ---	PK	TREATMENT STANDARD EFFECTIVE 9/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1728	FM-W312	D018	CRANKCASE OIL	1,199	1.8	4,499	4.8	NOT AVAILABLE		PK	TREATMENT STANDARD EFFECTIVE 9/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1815	FM-W316	D001A* D018	SPENT FUELS	317	0.4	773	0.9	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, 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)/ DISPOSAL OPTION
1998	FM-W124	D001A★ F003	METHANOL AND CYCLOHEXANE	104	1.2	333	0.3	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2014	FM-W323	D001A★ D035	EPOXY - PRIME COAT LDC -1,000	74	0.4	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2016	FM-W324	D001A★ D018 D026	PAINT BITUMASTIC 300M A AND B COAL TAR COATING	33	0.2	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10030	FM-W149	D001A★ F003	CONTAMINATED SOLVENT (METHANOL)	82	0.6	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

2629

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

MEP#	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)/ DISPOSAL OPTION
10032	FM-W151	F001	CONTAMINATED OIL, INSOLUBLE	303	0.4	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	260 ppm 0.33 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	1,430 ppm 0.42 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000322

2679

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, 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)/ DISPOSAL OPTION
20055	FM-W173	D029 D039 F002	CONTAMINATED OIL - INSOLUBLE FROM PROCESSING EQUIPMENT AT THE PILOT PLANT	196	0.2	0	0	Uran. 0.50 wt% U235 0.950 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
20142	FM-W181	D001A* D019 D022 D039 F002 F003	CONTAMINATED TBP AND KEROSENE MIXTURES FROM ANALYTICAL LAB	15	0.2	0	0	Uran. 13,000 ppm U235 0.93 wt%	29,000 ppm 1.12 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
50010	FM-W216	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

00323

6297

GROUP #8

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS

MEP#	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)/ DISPOSAL OPTION
50022	FM-W218	D001A* F003	CONTAMINATED WATER OR SUMP LIQUOR, NON-CHLORIDE FROM PLANT 1 SAMPLING AREA	11	0.2	0	0	Uran. U235	325 ppm 0.91 wt%	329 ppm 0.92 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60039	FM-N407	D001A* D018	CONTAMINATED SOLVENTS	423	0.4	0	0	Uran. U235	4.0 ppm 0.43 wt%	9.0 ppm 0.44 wt%	PK SA	ORGANIC RECOVERY OR COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60070	FM-N410	D001A* D018 D039	CONTAMINATED INSOLUBLE OIL	8,962	12.0	0	0	Uran. U235	16 ppm 0.5 wt%	29 ppm 0.6 wt%	PK SA	ORGANIC RECOVERY OR COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60331	FM-W283	D001B* D018	WATER/DIESEL FUEL FROM UST #9	3,941	4.2	0	0	Uran. U235	1 ppm 0.59 wt%	--- 0.99 wt%	SA —	DEACTIVATION AND MEET UTS OR ORGANIC RECOVERY OR COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000324

2629

GROUP #9

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
393	FM-W014	D008B*	LUBRICATING OIL FROM REDUCTION REMELT	330	0.6	0	0	Uran. U235	20 ppm 0.44 wt%	57 ppm 0.67 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
533	FM-W058	D001A* D006B	PAINT: GREY EPOXY	130	0.2	0	0	Uran. U235	13 ppm 0.70 wt%	35 ppm 0.87 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
818	FM-N402	D001A* D008B	CONTAMINATED OIL	473	0.6	0	0	Uran. U25	378 ppm 0.75 wt%	1030 ppm 0.91 wt%	PK SA	ORGANIC RECOVERY OR COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000325

2629

GROUP #9

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

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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1447	FM-W301	D001A* D008B	NON-CHLORIDE CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1 DRUM PAINTING BOOTH	56	0.2	0	0	Uran. 60 ppm U235 0.66 wt%	--- ---	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000326

2629

GROUP #9

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, 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)/ DISPOSAL OPTION
1938	FM-W319	D007 D008B D010	NONCHLORIDE, CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1 DRUM PAINTING BOOTH.	170	0.2	0	0	Uran. --- U235 ---	Uran. 401 ppm U235 0.65 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (On-site) LLW
2465	FM-N404	D001A* D007 D008B D010	CONTAMINATED LIQUID	193	0.4	0	0	Uran. 21 ppm U235 0.6 wt%	Uran. 46 ppm U235 0.7 wt%	PK SA	ORGANIC RECOVERY OR COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
50071	FM-N364	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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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 U235 ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60073	FM-N411	D006B	CONTAMINATED INSOLUBLE OIL	97	0.2	0	0	Uran. 118 ppm U235 0.30 wt%	Uran. 119 ppm U235 0.34 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

00027

2697

GROUP #10

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC METALS w/ 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)/ DISPOSAL OPTION
633	FM-W075	D007 D008B D009C	OIL - UNKNOWN GENERATION	1,514	2.6	0	0	Uran. 47 ppm U235 1.7 wt%	185 ppm 3.4 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
40122	FM-W208	D002A* D005 D009C	THORIUM WASTE SLURRIES	183	0.2	0	0	NOT AVAILABLE		SA	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000328

2697

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, 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)/ DISPOSAL OPTION
379	FM-W005	D008B D018 F001 F002	SPENT 1,1,1-TRICHLOROETHANE	77	0.2	0	0	Uran. 0.01 wt% U235 0.200 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
402	FM-W020	D008B D018 F001 F002	USED OIL	404	0.8	0	0	Uran. 0.01 wt% U235 0.99 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000329

2629

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

MSF#	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
412	FM-W025	D001A* D006B F001 F002	1,1,1-TRICHLOROETHANE	10	0.2	0	0	Uran. U235	1.0 ppm 0.51 wt%	--- 1.28 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
514	FM-W055	D001A* D007 D008B F002 F003 F005A	BAD PAINT FROM PAINT BOOTH	572	1.2	0	0	Uran. U235	3.0 ppm 0.33 wt%	--- 0.44 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
777	FM-W089	D001A* D008B F001 F002	USED AGITENE	268	0.4	533	0.5	Uran. U235	2.0 ppm 1.07 wt%	5.0 ppm ---	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000230

2629

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1729	FM-W313	D001A* D008B D018	GASOLINE	1,084	1.8	5,548	6.9	NOT AVAILABLE		SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2235	FM-W328	D010 F002	LAB GENERATED ORGANIC LIQUID WASTE	1,746	2.0	9,152	9.5	Alpha 76.0 pCi/ml Beta 113.0 pCi/ml	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000231

6797

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, 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)/ DISPOSAL OPTION
10029	FM-W148	D006B D007 D008B D019 D029 D040 F001	USED OIL	1,387	1.6	0	0	Uran. 48.4 ppm U235 0.76 wt%	59.7 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	575 ppm 2.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	113 ppm 0.90 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
50072	FM-W227	D001A* D008B 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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000332

2629

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60055	FM-N385	D001A* D008B D018	LEADED GASOLINE FROM TANK #12	2,374	4.0	0	0	Uran. 0.01 wt% U235 0.5 wt%	--- ---	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60059	FM-N352	D001A* D008B F002	USED 1,1,1 TRICHLOROETHANE MIX	481	0.6	0	0	Uran. 2 ppm U235 0.9 wt%	--- ---	SA PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000333

2629

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, 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)/ DISPOSAL OPTION
60065	FM-N409	D001A* D008B D019 F002	CONTAMINATED INSOLUBLE OIL	183	0.2	0	0	Uran. 116,000 ppm U235 0.72 wt%	473,000 ppm 0.73 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60067	FM-N354	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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60068	FM-W277	D008B F001	CONTAMINATED INSOLUBLE OIL FROM PLANT 5 OIL STORAGE AREA	497	0.6	0	0	Uran. 16 ppm U235 0.46 wt%	20 ppm 0.65 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	74 ppm 0.5 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60078	FM-N412	D001A* D006B D008B F002 F005A	USED OIL AND SOLVENTS FROM GARAGE	8,262	10.4	0	0	Uran. 7 ppm U235 0.63 wt%	16 ppm 0.97 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000234

2629

GROUP #12

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
60083	FM-N356	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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60085	FM-N357	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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60087	FM-N358	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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000235

2629

GROUP #13

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/ 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)/ DISPOSAL OPTION
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%	3.0 ppm 1.26 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
479	FM-W050	D001A* D008B D009C D035 F003 F005A	USED PAINT THINNER	436	0.4	0	0	Uran. 9.0 ppm U235 0.89 wt%	--- 1.16 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1411	FM-N379	D001A* D005 D007 D008B D009C D010 D011 D019 F002 F003	CONTAMINATED SOLVENT FROM PAINT SHOP	217	0.2	0	0	NOT AVAILABLE		PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000336

2629

GROUP #13

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/ MERCURY

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)/ DISPOSAL OPTION
1423	FM-N380	D008B D009E* D039 D040 F001 F002 F003 F005A	CONTAMINATED INSOLUBLE OIL	170	0.2	0	0	NOT AVAILABLE		PK SA	INCINERATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2259	FM-W330	D009C F001 F002	TCLP LEACHATE	191	0.2	999	0.9	Uran. 346 ppm U235 6,290 pCi/l	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60042	FM-N408	D001A* D006B D008B D009C D019 F002	CONTAMINATED SOLVENTS	182	0.2	0	0	Uran. 126 ppm U235 0.6 wt%	209 ppm ---	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000337

2629

GROUP #13

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, TOXIC ORGANICS, TOXIC METALS w/ 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.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
60056	FM-N351	D001A* D007 D008B D009C D039 F002	USED CHLORINATED SOLVENT MIXTURE	4,591.3	4.0	0	0	Uran. U235	183 ppm 0.5 wt%	--- ---	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60062	FM-N353	D001A* D008B D009C F002	CONTAMINATED INSOLUBLE OIL	1,152.3	1.6	0	0	Uran. U235	32 ppm 0.77 wt%	--- ---	SA PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000338

2629

GROUP #14

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (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)/ DISPOSAL OPTION
425	FM-W035	D001A*[1] D002A*[2]	LABORATORY ACIDS (NITRIC ACID AND CYCLOHEXANE)	519	8.2	885	0.9	NOT AVAILABLE		PK	1) ORGANIC RECOVERY or COMBUSTION*[1] 2) DEACTIVATION AND MEET UTS*[2]	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
426	FM-W036	D001A*	METHANOL AND CYCLOHEXANE MIXTURE	3,260	44.4	3,252	3.2	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
428	FM-W037	D001A*	ACETONITRILE IN WATER	2	0.2	0	0	Uran. <0.005 mg/l	---	PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
485	FM-W051	D001A*	KEROSENE	92	0.2	0	0	Uran. 0.5 ppm U235 0.739 wt%	--- 0.801 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
870	FM-W093	D001A*	VARNISH - UNUSED	89	0.2	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000033

2629

GROUP #14

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (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.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
1337	FM-W104	D001A★	CONTAMINATED WATER, NON-CHLORIDE	169	0.2	0	0	Uran. U235	16 ppm 0.7 wt%	54 ppm 0.8 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1432	FM-W107	D001A★	NON-CHLORIDE CONTAMINATED WATER OR SUMP LIQUOR (KEROSENE)	869	1.2	0	0	Uran. U235	3.0 ppm 0.50 wt%	8.0 ppm 1.1 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1504	FM-W335	D001A★	FLAMMABLE PAINT AND PAINT-RELATED PRODUCTS	495	0.4	2,598	2.0	NOT AVAILABLE			PK	ORGANIC RECOVERY or COMBUSTION★	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1709	FM-W117	D001A★[1] D002A★[2]	LAB GENERATED WASTE, FLAMMABLE ORGANIC EXTRACTS	295	0.4	7,150	6.3	Uran. U235	357 ppm 1.9 ppm	375 ppm 2.0 ppm	PK SA	1) ORGANIC RECOVERY or COMBUSTION★[1] 2) DEACTIVATION AND MEET UTS★[2]	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
2006	FM-W346	D001A★	CURING COMPOUND	173	0.4	0	0	NOT AVAILABLE			PK	ORGANIC RECOVERY or COMBUSTION★	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW

000340

GROUP #14

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC LIQUID, (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	PREFERRED OPTION(S)/ DISPOSAL OPTION
2224	FM-W327	D001A*	FLOOR COATING BASE	356	0.8	0	0	Uran. 0.01 wt% U235 0.5 wt%	--- ---	PK	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
2403	FM-N403	D001A*	DIRT, ROCKS, AND WOOD WITH LIQUID UNKNOWN SOURCE	111	0.2	0	0	Uran. 25,543 ppm U235 0.73 wt%	26,148 ppm 0.77 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2556	FM-N405	D001A*	ETHYL ACETATE	436	0.8	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2559	FM-N406	D001A*	USED HEPTANE MIXTURE	278	0.8	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000341

2629

GROUP #14

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50358	FM-N388	D001A*	CONTAMINATED NON-BURNABLES	1,445	0.8	0	0	Uran.	100 ppm	126 ppm	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
								U235	0.54 wt%	0.63 wt%				
50407	FM-W275	D001A*	NON-RECOVERABLE TRASH	96	0.2	0	0	Uran.	4,187 ppm	11,427 ppm	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
								U235	---	0.38 wt%				

000342

2629

GROUP #15

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, 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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)	Ave.	Max.				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
584	FM-W068	D018	KEROSENE (DIESEL FUEL)/ SLUDGE	1,028	1.4	0	0	NOT AVAILABLE		PK	TREATMENT STANDARD EFFECTIVE 9/19/96	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10010	FM-W132	D029 D039 D040 F001	SLUDGES, OILY	77,665	105.8	0	0	Uran. 841 ppm U235 0.30 wt%	1,091 ppm 0.41 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000343

2629

GROUP #15

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

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)/ DISPOSAL OPTION
10026	FM-W145	D001A* F001	1,1,1-TRICHLOROETHANE STILL BOTTOMS FROM NATIONAL ELECTRIC COIL	6,990	7.8	0	0	Uran. 133 ppm U235 0.65 wt%	247 ppm 0.74 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10031	FM-W150	D029 D030 F001	FLOOR SUMP CLEAN-OUT SLUDGE	594	0.6	0	0	Uran. 1,871 ppm U235 0.47 wt%	5,093 ppm 0.52 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20045	FM-W168	D019 D022 D039 F002	CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES FROM LAB	50	0.4	0	0	Uran. 1.3 wt% U235 0.93 wt%	2.9 wt% 1.12 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000344

2629

GROUP #15

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, 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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	11,000 ppm 0.48 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	32,400 ppm 0.96 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	59,000 ppm 1.29 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	17.7 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000345

2629

GROUP #15

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

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)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50200	FM-N370	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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000346

2629

GROUP #15

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, 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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)		Ave.	Max.				
60119	FM-W279	D001A★ F001 F002	OILY SLUDGES, HIGH FREE METAL FROM GARAGE	2,954	3.2	0	0	Uran. U235	190 ppm 0.56 wt%	390 ppm 0.61 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60123	FM-W280	D039 F002	SOLVENT SEMI-SOLID FROM THE SERVICE BLDG. AND ADMIN. BLDG. LAUNDRY	40	0.2	0	0	Uran. U235	1.0 ppm 0.791 wt%	--- 0.945 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000347

2629

GROUP #16

WASTE STREAM 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)/ DISPOSAL OPTION
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%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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%	19,000 ppm 0.73 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000348

2629

GROUP #16

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
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. U235	115,000 ppm 0.79 wt%	139,000 ppm 1.10 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000349

2629

GROUP #16A

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES TOXIC METALS w/ MERCURY

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1363	FM-N363	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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000250

2629

GROUP #17

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
390	FM-W013	D005 D008B F001 F002	OILY SLUDGES FROM WATER TREATMENT PROCESS	469	0.8	0	0	Uran. 266 ppm U235 0.43 wt%	Uran. 521 ppm U235 0.77 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
456	FM-W044	D007 D039 D040 F001 F002	SOLVENT WASTES	508	0.4	0	0	Uran. 6,261 ppm U235 0.53 wt%	Uran. 16,003 ppm U235 1.00 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10007	FM-W130	D007 F001	OILY SLUDGES	430	0.6	0	0	Uran. 2,767 ppm U235 0.85 wt%	Uran. 2,896 ppm U235 0.90 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10009	FM-W131	D001A* D008B D035 F005A	SLUDGES - SOLVENT (TRICHLOR, PERCHLOR)	133	0.4	0	0	Uran. 3.5 ppm U235 0.61 wt%	Uran. 14.3 ppm U235 0.78 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10016	FM-W137	D010 D039 F002	OILY SLUDGE FOR OXIDATION	1,352	1.2	0	0	Uran. 535 ppm U235 0.21 wt%	Uran. 886 ppm U235 0.30 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

GROUP #17

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
10021	FM-W140	D008B D039 D040 F001	SLUDGES, OILY	311	0.4	0	0	Uran. U235	872 ppm 0.46 wt%	3,468 ppm 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10028	FM-W147	D008B F001	SLUDGES, OILY	1,476	2.0	0	0	Uran. U235	1.60 wt% 0.950 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60072	FM-N355	D008B F002	SOLVENT CONTAMINATED WASTE OIL	582.5	0.8	0	0	Uran. U235	14 ppm 0.8 wt%	--- ---	SA PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000352

6297

GROUP #18

WASTE STREAM 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 (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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50008	FM-W215	D001A*	COPPER CONTAMINATED SUMP CAKE FROM THE GENERAL SUMP	36,831	31.0	0	0	Uran. 667 ppm U235 1.03 wt%	1,356 ppm 1.04 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50068	FM-W225	D001A*	NON-OILY SLUDGE FOR ROASTING FROM GENERAL SUMP	13,990	13.4	0	0	Uran. 1,080 ppm U235 0.84 wt%	1,390 ppm 0.98 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50178	FM-W339	D001A*	FURNACE SALT, NON-CHLORIDE	76	0.2	0	0	Uran. 250,000 ppm U235 0.92 wt%	--- ---	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50346	FM-N365	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	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW

000353

2629

GROUP #18

WASTE STREAM 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50347	FM-W264	D001A*	DISCARD PROCESS RESIDUES FROM BOILER PLANT	179	0.2	0	0	Uran. U235	94 ppm 0.53 wt%	232 ppm 0.62 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50355	FM-W267	D001A*	DISCARD PROCESS RESIDUES FROM GENERAL SUMP	3,675	3.2	0	0	Uran. U235	60 ppm 0.87 wt%	120 ppm 0.89 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW

000354

2629

GROUP #19

WASTE STREAM 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	PREFERRED OPTION(S)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m3)		Ave.	Max.				
1906	FM-W318	U134*	HF TANK CAR CLEAN-OUT MATERIAL	3,877	0.8	0	0	Uran. U235	0.01 wt% 0.95 wt%	--- ---	PK SA	NEUTRALIZATION*	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30081	FM-W207	D002A*	DISCARD PROCESS RESIDUES, TRAILER CAKES FROM HOT RAFFINATE BUILDING IN PLANT 2/3	387	0.2	0	0	Uran. U235	1,277 ppm 0.95 wt%	--- ---	SA	DEACTIVATION*	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000355

2629

GROUP #20

WASTE STREAM 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	PREFERRED OPTION(S)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
1949	FM-N381	D001F*	DRAW TEMP 275	92	0.2	0	0	Uran.	0.01 wt%	---	PK SA	DEACTIVATION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
								U235	0.50 wt%	---				

000356

2629

GROUP #21

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

MEP#	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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)		Ave.	Max.				
588	FM-W070	F002	MERCO AND OILY MERCO DRY FROM THE BALER	1,983	2.0	0	0	Uran. U235	412 ppm 0.5 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW.
1438	FM-N391	D039	NON-OILY CLEANOUT SLUDGES FROM ROASTING	2,825	2.6	2,325	2.0	Uran. U235	1,435 ppm 0.5 wt%	4,136 ppm 0.6 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 9/19/96	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
20037	FM-W166	D029	PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRIES, ETC. FROM PLANT 8	362	0.6	0	0	Uran. U235	77,000 ppm 0.57 wt%	139,000 ppm 0.72 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 9/19/96	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
20048	FM-W171	F005A	DISCARD PROCESS RESIDUES FROM LAB	9	0.2	0	0	Uran. U235	87,200 ppm 0.77 wt%	105,200 ppm 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50113	FM-N369	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000357

2629

GROUP #21

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS

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)/ DISPOSAL OPTION
50129	FM-W240	F001	SCRAP U3O8 - LOW F FROM OXIDATION FURNACE IN PLANT 8	6,151	7.6	0	0	Uran. 714,000 ppm U235 0.33 wt%	755,000 ppm 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50131	FM-W241	F002	SCRAP U3O8 - LOW F FROM PLANT 8 OXIDATION FURNACE	56	1.0	0	0	Uran. 83.85 wt% U235 0.766 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50152	FM-W243	F002	SCRAP U3O8, 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%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	38,100 ppm 0.9 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	72,470 ppm ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

GROUP #21

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
60149	FM-W281	F001 F002	U3O8 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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60152	FM-W282	F001	U3O8 ROTEXED PLANT 8 FURNACE PRODUCT	75,533	69.4	0	0	Uran. 770,000 ppm U235 ---	800,000 ppm 0.99 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000359

2629

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION			BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
									Ave.	Max.				
817	FM-W090	D008B	PAINT CHIPS FROM SAND FILTERS AT WATER PLANT	531	1.8	1,525	1.6	Th Th-228 Th-230 Th-232	6.0 pCi/g 2.0 pCi/g 2.6 pCi/g 1.5 pCi/g	--- --- --- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
1380	FM-N415	D007 D008B	NON-OILY CLEAN-OUT SLUDGES FROM PLANT 8	841	0.6	0	0	Uran. U234	6,066 ppm 0.653 wt%	7,735 ppm 0.751 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
10002	FM-W125	D005 D008B	SCRAP SALTS, LOW FLUORIDE FROM RMI, INC.	6,217	4.8	0	0	Uran. U235	26,567 ppm 0.82 wt%	40,119 ppm 1.10 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10013	FM-W135	D005 D007	SUMP CAKE-COPPER CONTAMINATED	6,548	4.8	0	0	Uran. U235	96.8 ppm 0.58 wt%	144.9 ppm 0.67 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
10022	FM-W141	D008B	GRIT BLAST	284,614	173.0	0	0	Uran. U235	123 ppm 0.85 ppm	--- ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20015	FM-N396	D007	SCRAP SALTS, LOW FLUORIDE AND FLOOR SWEEPINGS FROM PLANT 6 NU-SALT FURNACE AREA	2,725	4.6	0	0	Uran. U235	20,300 ppm 0.31 wt%	55,300 ppm 0.40 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000360

0707

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEP #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
20024	FM-W159	D007 D008B	HIGH FLUORIDE SCRAP SALTS AND FLOOR SWEEPINGS	1,014	1.8	0	0	Uran. U235	12.9 ppm 0.69 wt%	28.6 ppm 0.74 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20027	FM-W160	D004 D011	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM ANALYTICAL LAB	245	0.6	0	0	Uran. U235	58.2 ppm 1.64 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20033	FM-W163	D008B	PROCESS RESIDUES AND WASTE SLURRIES	70	0.2	0	0	Uran. U235	6.12 ppm 0.74 wt%	12.14 ppm 0.78 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20035	FM-W164	D007	DUST COLLECTOR RESIDUES, HIGH FLUORIDE FROM PILOT PLANT	559	0.8	0	0	Uran. U235	67,000 ppm 0.46 wt%	195,000 ppm 1.23 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20046	FM-W169	D007	NON-METALLIC MISCELLANEOUS SAMPLES FROM LAB	35	0.4	0	0	Uran. U235	18.2 wt% 0.56 wt%	35.7 wt% 1.56 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20047	FM-W170	D004 D008B	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE FROM PLANT 6 ROLLING AREA	230	0.4	0	0	Uran. U235	293,500 ppm 0.59 wt%	1,000,000 ppm 0.97 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20058	FM-W174	D006B D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE	3	0.2	0	0	Uran. U235	18,200 ppm 0.74 wt%	22,800 ppm 0.76 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000061

1629

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC 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.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
20139	FM-W180	D005	SAMPLES, NON-METALLIC FROM RMI	84	0.2	0	0	Uran. U235	53.1 ppm 0.51 wt%	103.4 ppm 0.80 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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. U235	242,100 ppm 0.96 wt%	268,200 ppm 1.02 wt%	PK SA	DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
30036	FM-W193	D006B D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM PLANT 6 INSPECTION AREA	551	1.0	0	0	Uran. U235	356,000 ppm 0.64 wt%	634,000 ppm 0.81 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
30060	FM-W202	D005	WET SUMP OR FILTER CAKE NON-OILY, NON-HALIDE FROM PILOT PLANT	246	0.4	0	0	Uran. U235	323,000 ppm 0.58 wt%	335,000 ppm 0.60 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000362

6797

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
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	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
40192	FM-W345	D008B	THO_2 POWDER REFINERY FEED	30	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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%	Uran. 475,000 ppm U235 0.94 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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 0.73 wt%	Uran. 118,000 ppm U235 0.74 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50148	FM-W242	D004	SCRAP U3O8, HIGH FLUORIDE, FROM CRUCIBLE BURNOUT IN PLANT 5 CASTING AREA	109,938	109.2	0	0	Uran. 740,000 ppm U235 0.43 wt%	Uran. 790,000 ppm U235 0.66 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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%	Uran. 561,266 ppm U235 0.95 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000363

6797

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

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)/ DISPOSAL OPTION
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%	336,000 ppm 1.04 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50173	FM-W248	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	4,799	3.2	0	0	Uran. 149,000 ppm U235 0.2 wt%	287,000 ppm ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50174	FM-W249	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 NU SALT FURNACE	9,099	10.2	0	0	Uran. 36,000 ppm U235 0.47 wt%	69,000 ppm 0.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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 0.59 ppm	568,000 ppm 0.99 ppm	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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 0.36 ppm	6,230 ppm 0.45 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50293	FM-W259	D004	U3O8 FOR RE-OXIDATION FROM UNC INC.	3,560	4.8	0	0	Uran. 80 ppm U235 1.25 wt%	82 ppm ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000364

679

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50349	FM-W265	D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM PLANT 8	87	0.2	0	0	Uran. U235	22,300 ppm 0.67 wt%	28,000 ppm 0.83 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50351	FM-W266	D004 D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM GREEN SALT PRODUCTION IN PILOT PLANT	267	0.2	0	0	Uran. U235	690,000 ppm 1.5 wt%	840,000 ppm 2.3 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50387	FM-W272	D005	SALT SLUDGE, CHLORIDE FROM LAB	324	0.4	0	0	Uran. U235	144 ppm 1.46 wt%	566 ppm 3.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50405	FM-W273	D006B D007	NON-RECOVERABLE TRASH FROM PLANT 6 - DARK GREY SOLIDS	298	0.8	0	0	Uran. U235	1,160 ppm 0.67 wt%	2,790 ppm 0.75 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50406	FM-W274	D004 D011	FURNACE SALT, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	2,945	5.4	0	0	Uran. U235	111,000 ppm 0.4 wt%	177,000 ppm 0.6 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50408	FM-W342	D008B D010	FURNACE SALT, NON-CHLORIDE FROM PILOT PLANT ROCKWELL FURNACE	2,036	2.2	0	0	Uran. U235	103,000 ppm 0.90 wt%	186,000 ppm ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000265

6797

GROUP #22

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC METALS w/o MERCURY

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
60306	FM-N398	D005	HARDENED SALT BATH SLUDGE FROM RMI	2,327	1.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60307	FM-N367	D005 D008B	FURNACE SALT, SOLIDIFIED CHLORIDE	25,052	13.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60140	FN-W344	D010	STEEL SHOT FROM PLANT 1 DRUM RECONDITIONING WHEELABRATOR SHOT BLAST UNIT	4.088	3.2	0	0	Uran. U235	858 ppm 0.59 wt%	2,025 ppm 0.67 wt	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
60450	FM-N414	D007	METAL OXIDE POWDERS, PLASMA SPRAY POWDERS	62	0.200	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000366

2629

GROUP #23

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC 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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)	Ave.	Max.				
1272	FM-N377	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

003367

2629

GROUP #24

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC SLUDGE/PARTICULATES, TOXIC ORGANICS, 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.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50036	FM-W221	D007 F002	CONTAMINATED BURNABLES FROM PLANT 8 BOX FURNACE	531	1.8	0	0	Uran. U235	102,000 ppm 1.16 wt%	191,000 ppm 1.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50070	FM-W226	D008B F001 F002	NON-OILY SLUDGE FOR ROASTING FROM PLANT 8 BOX FURNACE	332	0.4	0	0	Uran. U235	190,000 ppm 0.93 wt%	610,000 ppm 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50170	FM-W247	D004 D019 D039 F002	SALT SLUDGE FROM PLANT 4	602	0.8	0	0	Uran. U235	232,000 ppm 0.98 wt%	404,000 ppm 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50364	FM-W341	D007 F001 F002	U3O8, +8MESH, LOW F FROM PLANT 8 BOX FURNACE	640	0.4	0	0	Uran. U235	631,833 ppm 0.96 wt%	788,044 ppm 1.00 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000368

2629

GROUP #25

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)		Ave.	Max.				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
376	FM-W004	F002	SOLVENT CONTAMINATED RAGS	103	0.4	14	<0.1	Uran.	185 ppm	---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.44 wt%	---				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
410	FM-W024	F001 F002	OILY RAGS	129	0.4	0	0	Uran.	21 ppm	64 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.51 wt%	0.54 wt%				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1427	FM-W106	F002	NON-RECOVERABLE TRASH - MOP HEADS AND PADS CONTAMINATED WITH TCA	41	0.2	0	0	Uran.	8,700 ppm	10,900 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.26 wt%	---				

000269

2629

GROUP #25

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC 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)/ DISPOSAL OPTION
1501	FM-W108	D018	SPILL CLEANUPS OF OIL AND GAS	2,632	6.6	13,191	8.9	NOT AVAILABLE		PK	TREATMENT STANDARD EFFECTIVE 9/19/96	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
2581	FM-N413	D039	CONTAMINATED WOOD PALLETS	1,768	7.8	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50002	FM-W214	D001A* F003 F005A	NON-RECOVERABLE TRASH FROM LAB	35	0.4	0	0	NOT AVAILABLE		PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

GROUP #27

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ORGANIC DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000371

2629

GROUP #27A

WASTE STREAM 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)/ DISPOSAL OPTION
				(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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000372

2629

GROUP #29

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
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. U235	0.01 wt% 0.84 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1617	FM-W305	F001 F002 F005A	CONTAMINATED PROTECTIVE CLOTHING	69	1.2	0	0	Uran. U235	0.01 wt% 0.95 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2500	FM-N374	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50025	FM-W219	F001 F002	CONTAMINATED GRAPHITE	413	0.4	0	0	Uran. U235	30,000 ppm 0.947 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000373

2629

GROUP #30

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, 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)/ DISPOSAL OPTION
517	FM-W056	D007 D008B	OIL DRY CONTAMINATED WITH OIL FROM BALER	460	0.6	0	0	Uran. 6,269 ppm U235 0.619 wt%	17,524 ppm 0.711 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
874	FM-N375	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1271	FM-W102	D008B	LEAD SOLDER JOINTS	128	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1714	FM-W310	D010	VOLATILE SOLID WASTE FROM TCT-ST. LOUIS	75	0.2	3,973	8.6	Uran. 0.01 wt% U235 0.55 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
2021	FM-W322	D005	BARIUM CARBONATE FROM PLANT 2/3 PROCESSING	1,870	3.0	0	0	Uran. 0.01 wt% U235 0.95 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000374

2629

GROUP #30

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
20120	FM-N349	D007	DUST COLLECTOR BAGS	17.3	0.2	0	0	Uran. U235	29.5 wt% 1.39 wt%	--- ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
30039	FM-W195	D011	CONTAMINATED ROCKS, SOIL, BRICKS AND CERAMICS FROM PILOT PLANT	449	0.6	0	0	Uran. U235	128,000 ppm 0.82 wt%	--- ---	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50031	FM-W220	D008B D010	CONTAMINATED METALLIC FILTER ELEMENTS	244	0.4	0	0	Uran. U235	62,000 ppm 0.43 wt%	100,000 ppm 0.51 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50058	FM-W222	D007	DUST COLLECTOR BAGS	12	0.2	0	0	Uran. U235	83 ppm 0.81 wt%	228 ppm 1.62 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50367	FM-W271	D008B	NON-RECOVERABLE TRASH	194	0.2	0	0	Uran. U235	0.01 wt% 1.25 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000375

2629

GROUP #31

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
INORGANIC DEBRIS, 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)/ DISPOSAL OPTION
				(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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1199	FM-W100	D009C	MERCURY CONTAMINATED FLOOR TILE & PIPE INSULATION	909	1.6	0	0	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2418	FM-N399	D009C	FLUORESCENT LIGHT BULBS	118	0.2	0	0	NOT AVAILABLE			PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000376

2629

GROUP #32

WASTE STREAM 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)/ DISPOSAL OPTION
				(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	OHIO MOBILE STABILIZATION SYSTEM MLLW

000377

2629

GROUP #33

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS 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)/ DISPOSAL OPTION
627	FM-W072	F001	5-GAL. CAN w/ SPILL CLEAN-OUT MATERIAL	6	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
628	FM-W073	F001	SPILL CLEANUP MATERIAL	65	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1716	FM-W118	F001 F002 F005A	LAB GENERATED WASTE, CONTACT WASTE SOLID	621	3.8	0	0	Uran. 440 ppm U235 12 ppm	Uran. 816 ppm U235 26 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2401	FM-N373	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10012	FM-W134	D029 D039 D040 F001	CONTAMINATED BURNABLES	777	1.8	0	0	Uran. 2,875 ppm U235 0.61 wt%	Uran. --- U235 ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

00378

2629

GROUP #33

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20114	FM-W178	F001	CONTAMINATED BURNABLES: RAGS, PAPER, POLYETHYLENE	184	0.4	0	0	Uran. 35,200 ppm U235 0.31 ppm	109,700 ppm ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30074	FM-W204	F002	CONTAMINATED NON-BURNABLES: FILTER CARTRIDGES, GRAVEL, ROCKS, SOIL	1,135	0.8	0	0	Uran. 2,500 ppm U235 0.75 wt%	4,100 ppm 0.85 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000378

6297

GROUP #33

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
60017	FM-N350	D039	OILY RAGS AND CLOTHING	63.6	0.4	0	0	Uran. U235	--- ---	61 ppm 0.57 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 9/19/96	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
60100	FM-N397	D039 U210	CONTAMINATED BURNABLES	56	0.2	0	0	NOT AVAILABLE			PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000280

2629

GROUP #34

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC METALS w/o MERCURY

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION		BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
								Ave.	Max.				
644	FM-W077	D008B D010	TRASH, PADS RAGS AND WATER	107	0.2	0	0	Uran. 5,187 ppm U235 0.4 wt%	13,443 ppm 0.5 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	17,208 ppm 0.712 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1430	FM-N371	D010	PLASTIC SHEETING, GLOVES, FLOOR SWEEPINGS	1,377	1.6	0	0	Uran. 1,136 ppm U235 0.71 wt%	2,326 ppm 0.72 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2443	FM-N417	D008B	NON RECOVERABLE TRASH	157	1.0	0	0	Uran. 1,554 ppm U235 0.59 wt%	3,940 ppm 0.74 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60107	FM-N416	D008B	ASBESTOS ABATEMENT DEBRIS	30	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM MLLW

000281

2629

GROUP #36

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
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. U235	6.0 ppm 1.03 wt%	19 ppm 2.14 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
415	FM-W028	D008B D018 F002	OILY RAGS AND ABSORBENTS, WD-40 AND VARIOUS OILS	35	0.2	0	0	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
434	FM-W040	D004 D005 D006B D007 D008B D022 F002 F003	LABORATORY CONTAMINATED WASTE	614	2.4	13,122	10.9	NOT AVAILABLE			PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
* 460	FM-W047	D004 D005 D006B D007 D008B D010 D018 F002	PCB MATERIALS, BALLAST, PCB-CONTAMINATED RAGS	11	0.2	0	0	Uran. U235	1,920 ug/g 0.77 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW *

* An approval from the USEPA is required for this treatment train due to the PCB constituents. Further evaluation of this waste stream and future mixed waste streams that contain PCBs may be necessary to obtain the approriate treatment approvals.

GROUP #36

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
HETEROGENEOUS DEBRIS, TOXIC ORGANICS, TOXIC METALS w/o MERCURY

MRP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
1425	FM-W299	D005 F001	CONTAMINATED RAGS, PAPER, POLYETHYLENE FROM RMI	134	0.6	0	0	Uran. U235	3,844 ppm 0.72 wt%	13,732 ppm 1.33 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10023	FM-W142	D008B F001	NON-RECOVERABLE TRASH	3,043	3.8	0	0	Uran. U235	324 ppm 1.08 wt%	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20094	FM-W175	D008B D011 F001	CONTAMINATED BURNABLES, RAGS, FILTER CLOTH, PAPER, CARTRIDGES, RUBBER, WOOD, ETC.	359	1.4	0	0	Uran. U235	60,000 ppm 0.70 wt%	150,000 ppm 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30053	FM-W201	D006B D007 D008B D018 D040 F002 F005A	DISCARD PROCESS RESIDUES - GLOVES, PAINT, MISC. DEBRIS	78	0.2	0	0	Uran. U235	7,000 ppm 0.42 wt%	7307.8 ppm 0.77 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000383

2629

GROUP #37

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
SOILS, 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)/ DISPOSAL OPTION
89	FM-W284	F002	SOIL BORING #1412	234	0.2	0	0	Th 23.0 pCi/g Uran. 17.0 pCi/g	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
526	FM-N368	F001 F002	CONTAMINATED SOIL FROM PIT #5 HWMU AREA	192	0.2	0	0	Uran. 229 ppm U235 0.76 wt%	349 ppm 0.78 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
720	FM-W085	F001	SOIL BORING #1261	250	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
776	FM-W088	F001	SOIL BORING #1674, LOCATED INSIDE PILOT PLANT	154	0.2	0	0	Th 28 ppm Uran. 359 ppm	--- ---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
819	FM-W091	F001	SOIL BORING #1251	414	0.4	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000284

2629

GROUP #37

WASTE STREAM 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1841	FM-W121	F001 F002	SOIL	1,512	1.2	0	0	Uran. 330.0 ug/g	---	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000285

2629

GROUP #38

WASTE STREAM 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)/ DISPOSAL OPTION
538	FM-W059	D006B D007 D008B	SOIL BORING #1508 FROM FIRE TRAINING GROUNDS	2,754	1.8	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	OHIO MOBILE STABILIZATION SYSTEM LLW
757	FM-N392	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	OHIO MOBILE STABILIZATION SYSTEM LLW
1306	FM-N418	D001A* D008B	SPILL CLEAN-UP FROM K-65 AREA	195	0.2	0	0	Uran. 2 ppm U235 0.8 wt%	3 ppm 0.9 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW

000386

2629

GROUP #39

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
BATTERIES (LEAD ACID, CADMIUM), TOXIC METALS W/O 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1585	FM-W303	D002A*[1] D008A*[2]	LEAD ACID BATTERY (SPLIT)	3,566	4.2	15,768	13.3	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	1) DEACTIVATION*[1] 2) MACROENCAPSULATION*[2]	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE

000287

2629

GROUP #40

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
BATTERIES (LEAD ACID, CADMIUM), 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
855	FM-W294	D009C	MERCURY BATTERIES	667	0.6	2	<0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000288

2629

GROUP #41

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ELEMENTAL 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)/ DISPOSAL OPTION
				(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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000389

2629

GROUP #42

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
REACTIVE METALS

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
700	FM-W083	D003D*	MAGNESIUM FLAKE AND OILY RAGS	75	0.2	0	0	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM MLLW
1550	FM-W302	D003D*	URANIUM HEXAFLUORIDE	7	0.2	0	0	Uran. U235	0.5 wt% 1.25 wt%	--- ---	PK	DEACTIVATION*	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM LLW
50089	FM-N361	D001E* D003D*	CONTAMINATED MAGNESIUM	438	0.6	657	0.7	Uran. U235	10.0 wt% 1.10 wt%	--- ---	PK SA	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM MLLW
50090	FM-N419	D001E* D003D*	CONTAMINATED MAGNESIUM	964	2.2	0	0	Uran. U235	58.10 wt% 0.2 wt%	--- ---	PK SA	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM MLLW

000390

2629

GROUP #42A

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
ELEMENTAL LEAD (ACTIVATED and NON-ACTIVATED)

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)		Ave.	Max.				
547	FM-W290	D008C*	MISC. LEAD TOOLS, PIPING, ETC.	679	1.2	2,317	5.1	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1281	FM-W295	D008C*	LEAD BRICKS	336	0.6	0	0	NOT AVAILABLE			PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1731	FM-W314	D008C*	LEAD	76	0.2	0	0	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1987	FM-W123	D008C*	LEAD/LEAD SEALS	13,202	4.8	18,244	15.4	Uran. U235	0.01 wt% 0.5 wt%	--- ---	PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE

000391

2629

GROUP #43

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
LAB PACKS w/o METALS

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
10034	FM-W152	D001A D018 U019	Benzene (labpacked)	3	0.2	0	0	NOT AVAILABLE		PK	INCINERATION (ORGANIC LAB PACK)	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10035	FM-W153	D019 U211	Carbon tetrachloride (labpacked)	20	0.2	0	0	NOT AVAILABLE		PK	INCINERATION (ORGANIC LAB PACK)	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000392

2629

GROUP #44

WASTE STREAM TRACKING FORM
MWIR TREATABILITY GROUP
COMPRESSED GAS

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
1969	FM-N376	D001D* D007 D008B 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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000293

2629

GROUP #45

WASTE STREAM 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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
2048	FM-N348	F001 F002 F005A	SOLIDIFIED LAB WASTE	47,390	33.4	0	0	Uran. U235	0.01 wt% 0.50 wt%	--- ---	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW

000394

2629

Appendix C
Treatment Trains

Appendix C. Treatment Trains
Treatment Descriptions and Treatment Trains

Appendix C. Treatment Trains provides detailed discussion on the development of treatment trains assembled for treatment of FEMP mixed low level waste streams for compliance with Land Disposal Restrictions.

Mixed low level waste streams have been re-grouped in tables by treatment train and located behind a diagram of each associated treatment train.

Extensive information on each FEMP waste stream has been incorporated in these tables. A key defining the column headers on the tables begins on page C - 1. The reader should review and become familiar with the entire key prior to interpreting the tables in Appendix C. Treatment Trains.

1.0 Treatment Trains

In many instances when treating waste at the FEMP, no single technology is capable of removing all contaminants from the waste. It may be necessary to combine several technologies into one treatment system to effectively remove the contaminants. Connecting these technologies 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.

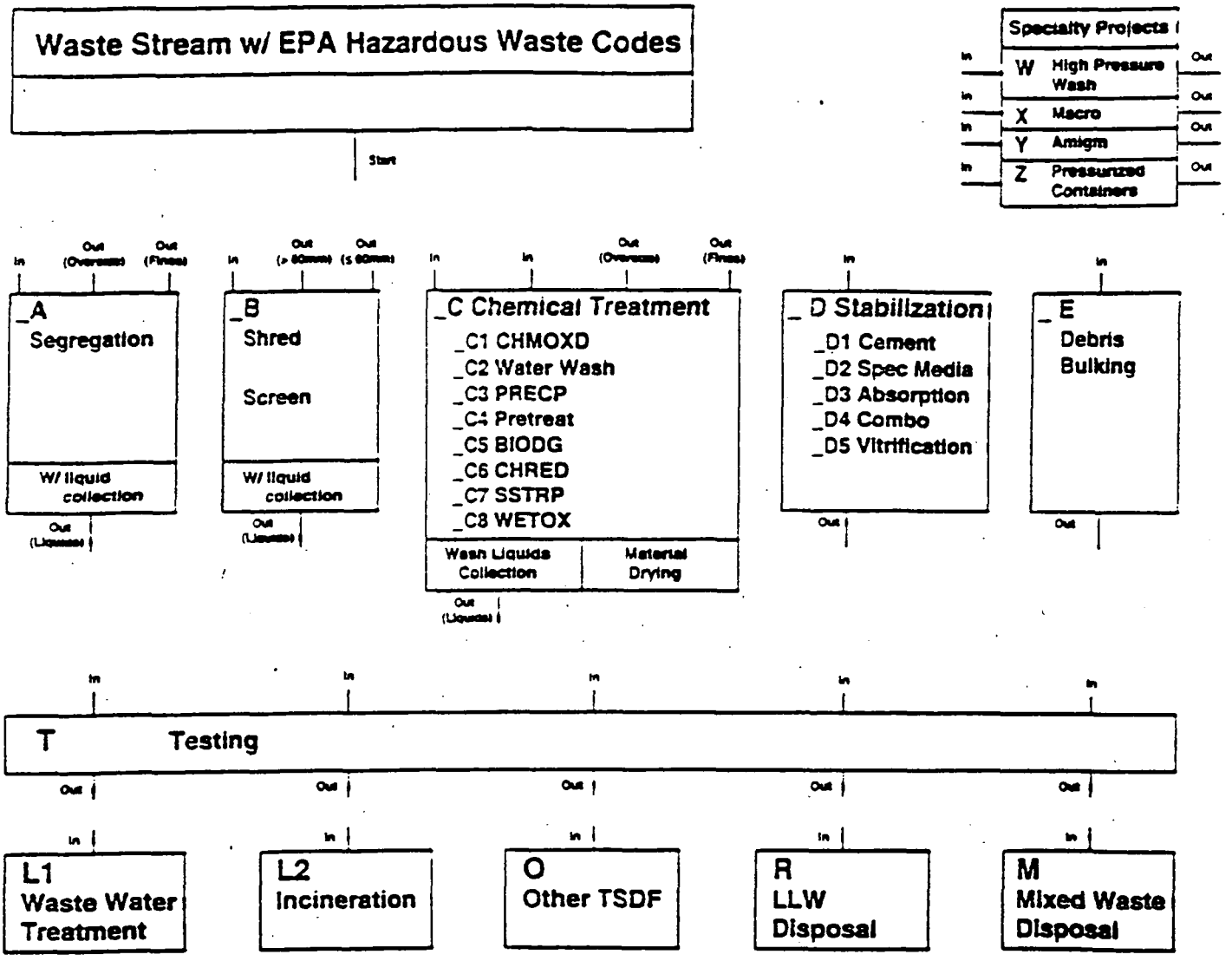
Treatment technologies in a treatment train have been designed to ensure hazardous constituents will be treated in a logical sequence. For example, certain wastes should be incinerated prior to stabilization.

Figure C-1 provides an example of a Treatment Train Worksheet used at the FEMP for assigning the waste to a project.

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 trains are set up so the waste can be treated as required to allow for safe, compliant method of disposal. While doing this, the treatment train must also account for the possible by-products from waste processing and allow the by-products to be moved into the correct process. The complete worksheet provides a diagram clearly illustrating the route through treatment, testing and disposal.

FIGURE C-1

TREATMENT TRAIN WORKSHEET



Graphics #2734. 1 5/94

1.1 Treatment Trains Unit Operation

The FEMP anticipates using combinations of the following technologies in an integrated approach to managing mixed waste. These technologies are incorporated into the treatment options. Waste streams will be directed through a series of technologies to disposition waste in a manner consistent with the Land Disposal Restriction (LDR) regulations (Figure C-1).

1.2 Segregation (Box A on Figure C-1)

Waste Segregation is the physical separation of unlike materials in a heterogeneous 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 will be accomplished by procuring a vendor to provide and operate a trailer mounted mobile unit. This arrangement will allow capacity and length of service to be matched closely with the associated project.

1.3 Shredding (Box B on Figure C-1)

Waste Shredding is an alteration of particle size or shape accomplished by the waste being torn or cut. Shredding will typically be used to improve treatability of on the FEMP waste by standardizing particle size. 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. Mobile units shall 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 on Figure C-1)

Screening is a mechanical means of segregating materials by size. This process separates 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 on Figure C-1)

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. Mobile units consist of waste container receiving, bulk waste handling, dissolver trays and tanks, mixers, pumps, holding tanks, hoses, air filter systems, scales, and steam and high pressure water decontamination facilities. These mobile units include treatment waste recycle systems to minimize the amount of

wastewaters generated during operation. The mobile units will also include treatment systems for reuse of the chemicals and acids that are generated during the treatment process. Some treatment processes being considered for use on the FEMP site are:

1.5.1 Biodegradation (BIODG) of organics or non-metallic inorganics (i.e., degradable inorganics that contain phosphorus, nitrogen, or sulfur) in units operated under either aerobic or anaerobic conditions. A surrogate compound or indicator parameter is monitored to measure reduction of 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; or (9) other oxidizing reagents of equivalent efficiency. Oxidation units are operated so a surrogate compound or indicator parameter is 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 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; or (5) other reducing reagents of equivalent efficiency. 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 affinity. The resulting extract is high in organics and must undergo either incineration, fuel substitution or other recovery/reuse. A raffinate is generated that is proportionately low in organics and must undergo further treatment.

1.5.5 Chemical Precipitation (PRECP) of metals and other inorganics as insoluble precipitates of oxides, hydroxides, carbonates, sulfides, sulfates, chlorides, fluorides, or phosphates. Reagents (or waste reagents) typically used alone or in combination are: (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.

1.5.6 Recovery of Organics (RORGS) utilizes 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). This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation in conjunction with the listed recovery technologies.

1.5.7 Steam Stripping (SSTRP) of organics from liquid wastes is performed by direct application of steam to the waste. In this type of operation, liquid and vapor flow rates, temperatures, and pressures are monitored and maintained at optimal points. These points are dependent upon design parameters such as the number of separation stages and the internal column design. The resulting condensed extract is high in organics and requires further treatment. The extract may be incinerated, reused as a fuel, or other recovery or reuse technology. Extracted wastewater 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 contaminants or contaminated residues from surface layers. This could be completed through washing the waste with detergents in machines which agitate and remove contaminants.

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. Total Organic Carbon is often used as an indicator parameter for many organic constituents that cannot be directly analyzed in wastewater residues.

1.6 Pretreatment

Pretreatment is the chemical or physical treatment of aqueous waste before processing in a Wastewater Treatment System (WWTS). Pretreatment at the FEMP will be provided by an outside vendor prior to processing at the Wastewater Treatment System. Some examples of pretreatment activities proposed for use on the FEMP site are:

1.6.1 Carbon Adsorption (CARBN) of non-metallic inorganics, organo-metallics, or organic constituents onto granulated or powdered carbon particles. The process is operated while observing a compound or indicator parameter for breakthrough. Breakthrough occurs when the carbon has become saturated with the constituent or indicator causing a substantial change in adsorption rate of that constituent. Often Total Organic Carbon is used as an indicator parameter for many organic constituents that cannot be directly analyzed in wastewater residues.

1.6.2 Deactivation (DEACT) removes the hazardous characteristics of a waste (i.e., toxicity, ignitability, corrosivity, 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 > 2 and < 12.5 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 either alone 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; or (7) sodium sulfate. Flocculating, coagulating, or similar reagents and processes that enhance sludge dewatering characteristics will be used when appropriate.

1.7 Stabilization (Box D on Figure C-1)

Stabilization, solidification, and encapsulation isolate hazardous waste from the surrounding environment without destroying the hazardous constituents. The physical treatment will be provided by mobile equipment similar to a truck or trailer mounted pug mill. Treatment objectives are achieved by mixing waste with inorganic compounds such as fly ash, lime, or clay to form a chemically and mechanically stable solid. Treated waste will have higher strength, lower permeability, and lower leachability than untreated waste. This treatment technology is normally limited to

inorganic wastes containing heavy metals. Organic compounds that interfere with the setting action of traditional solidifying agents 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, 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 uses binding agents to contain mixed or hazardous waste in a rigid matrix. In this process, Portland cement is combined with fly ash or other pozzolans to produce a relatively high strength, dimensionally stable, waste and cement 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 by hydration of the Portland cement.

1.7.2 Low Strength Cement Stabilization is an inorganic based process which uses a fine, non-crystalline silica in fly ash and calcium from 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 by the hydration of the lime-pozzolan cement.

1.7.3 Vitrification is thermal treatment that converts contaminated materials into chemically inert glass and crystalline products. Vitrification immobilizes some hazardous components of waste. Simultaneously, residuals such as ash and nonvolatile heavy metals, immobilize into a geologically stable glass form. The final product is reduced in volume and mass by moisture removal, destroying portions of the waste thermally, and consolidating residuals into a dense glass and crystalline product. Glass forming additives 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 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 on Figure C-1)

Although bulking is not considered to be treatment, this activity is significant to the integration and implementation of the various treatment trains. Liquid waste is bulked 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 on Figure C-1)

High pressure washing at the FEMP is used to decontaminate 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.

1.10 Macroencapsulation (Box X on Figure C-1)

Macroencapsulation (MACRO) substantially reduces surface exposure to potential leaching media. Polymeric organics (e.g., resins and plastics) are applied to the surfaces of hazardous waste with an inert, inorganic material.

1.11 Amalgamation (Box Y on Figure C-1)

Amalgamation (AMLGM) of elemental mercury utilizes inorganic reagents such as copper, zinc, nickel, gold, and sulfur that result in a non-liquid, semi-solid. Amalgamation reduces potential emissions of elemental mercury vapors to the air and releases of radioactive contaminants to the environment.

1.12 Pressurized Container Treatment (Box Z on Figure C-1)

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 on Figure C-1)

The process consists of a neutralization step that adjusts pH by adding acid or base and filtering to remove suspended solids. Waste containing hazardous organic constituents 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 the FEMP as a possible treatment process.

1.14 Incineration (Box L2 on Figure C-1)

Incineration is a method of thermal destruction of hazardous waste. The primary use of incineration is processing mixed low level waste liquids and sludges. Incineration destroys a wide range of hazardous organic constituents. Hazardous metals are captured in ash and off-gas recovery systems. Typical incinerators are stationery requiring the generator to package and ship waste to the incinerator location. Mobile units can be practical for short term use.

1.15 Other Treatment, Storage and Disposal Facility (TSDF) (Radiologically Decontaminated Material) (Box O on Figure C-1)

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. Commercial, stationery facilities have been utilized to recycle spent lead-acid batteries from the FEMP.

1.15.2 Recovery/reuse of Compressed Gases (RCGAS). Techniques include reprocessing of 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 volatizing mercury (RMERC). Mercury contaminated material is volatized and subsequently condensed for recovery.

1.15.4 Thermal Recovery (RTHRM) of metals or inorganics from non-wastewaters in industrial furnaces.

1.15.5 Recovery of Metals (RMETL) 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).

1.15.6 Recovery of Organics (RORGS) utilizes 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).

1.16 Management of Secondary Waste Streams

Chemical treatment of mixed waste is anticipated to double the original waste volume. This is a high estimate of anticipated waste volume increase. Technology evaluation and treatability testing are expected to demonstrate higher processing efficiency. The treated waste is anticipated to have a volume one and a half times greater than the untreated waste form. The remaining 50% volume increase will be secondary waste. Secondary waste estimates and the feasible Preferred Option are included in Table 6 of the Background Volume.

Personal protective equipment and waste generated from activities associated with bulking, packaging, shipping, and treatment of mixed waste on-site, is assumed to be five percent of the total waste to be processed.

2.0 Sample Treatment Train

Figure C-2 is an example of a treatment train for FEMP trash contaminated with lead (EPA Code D008). The following will describe the steps that are performed with this treatment train.

A - Segregation of the waste 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 treatment train. This operation includes shredding the waste into pieces of consistent size and shape to enhance process effectiveness throughout the waste stream. This operation will also have a liquid collection system so any liquids that are generated 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 System (L1) or be incinerated (L2).

C - Chemical Treatment is the third step in the treatment train.

For this example the specific treatment process is C2 - Water Wash. Waste is washed in a tank (or equipment similar to a large wash machine) with chemicals or detergent added 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 System (L1) or be incinerated (L2).

Trash > 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).

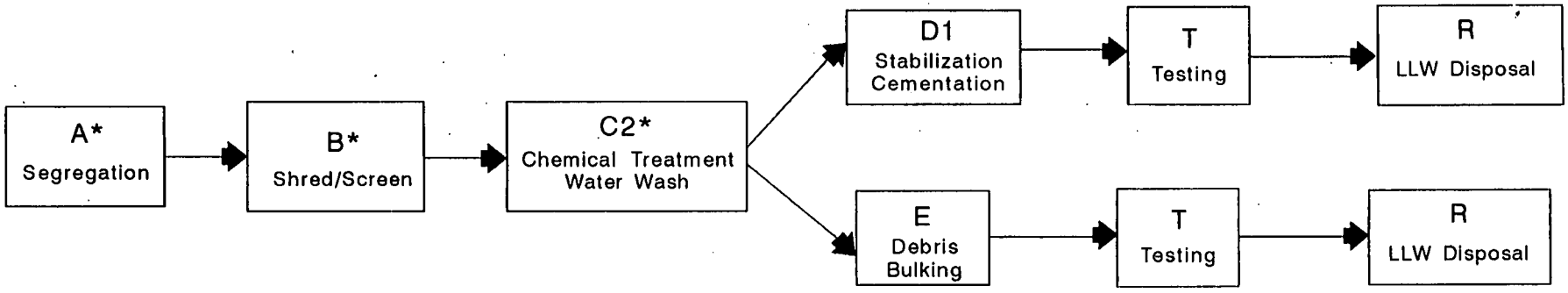
Fines < 2-1/2" in size and contaminated with heavy metals will be stabilized (D) utilizing the Cementation Method (D1), tested (T), then disposed of as LLW (R).

FIGURE C-2

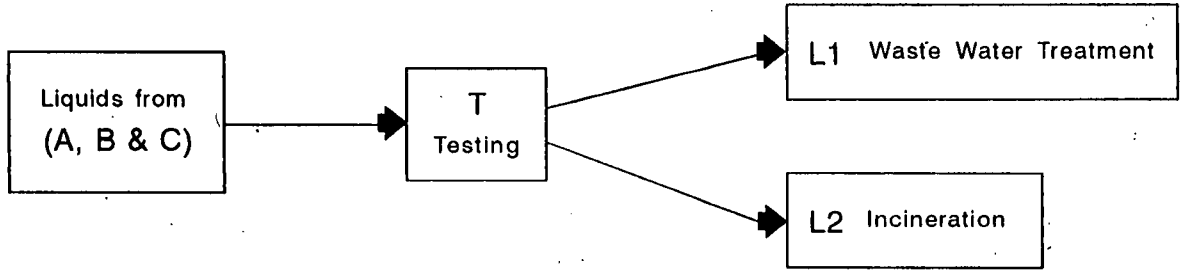
Example of a FEMP TREATMENT TRAIN

Diagram Showing Treatment Steps Required for Mixed Waste to Meet LDR Requirements

Example: (Trash - D008)



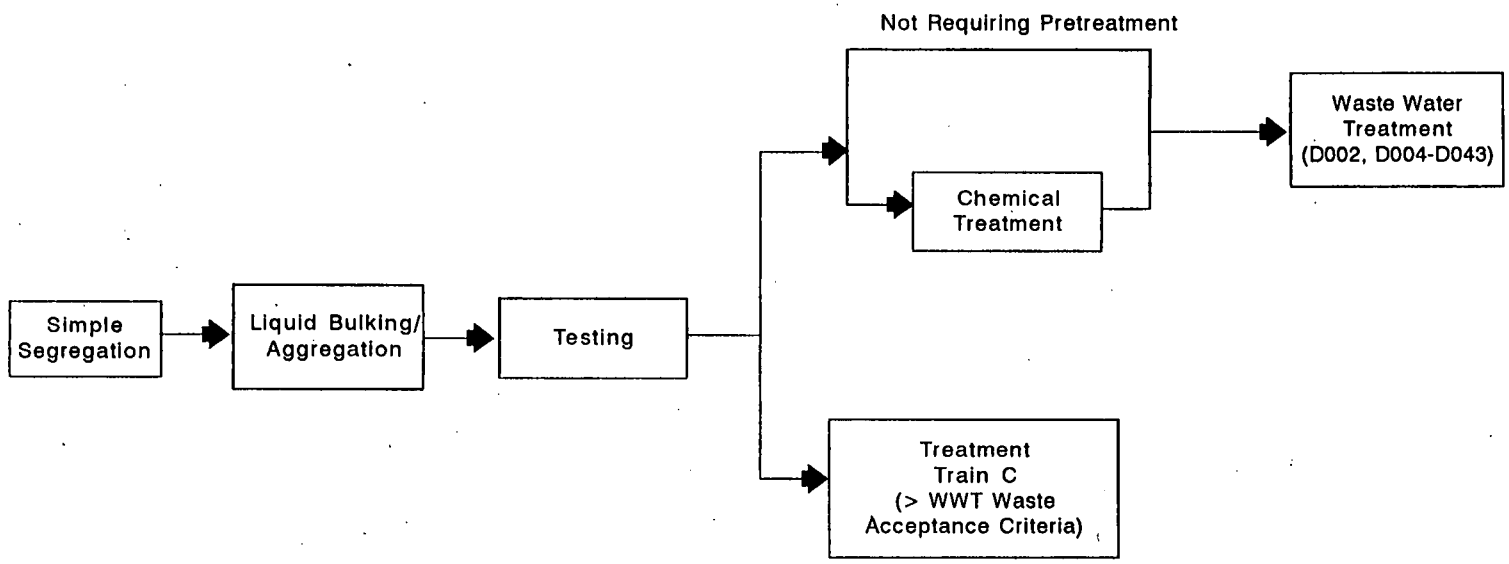
*Typical Steps for Liquids from Steps A, B & C



000407

2629

TREATMENT TRAIN
A



MIXED WASTE PROJECT NAME
Liquid Mixed Waste Project

000408

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN A

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)/ DISPOSAL OPTION
358	FM-W286	D002B★ D019	CAUSTIC SOLUTION (NAOH) FROM PLANT 8 RAFFINATE PROCESSING	292	0.4	0	0	Uran. U235	0.4 ppm 1.5 wt%	-- --	PK SA	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1178	FM-W096	D007 F002	GROUNDWATER FROM WELL #2649	752	1.2	1,537	1.3	Uran.	9.3 ppb	--	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1462	FM-N360	D002B★	CONTAMINATED WATER FROM CHEMICAL PIT #2 SURFACE CAP	397	0.6	0	0	Uran. U235	0.1 ppm 0.201 wt%	0.1 0.579 wt%	PK SA	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1692	FM-W113	D002A★ D007	NITRIC ACID	31	0.2	0	0	NOT AVAILABLE			PK	DEACTIVATION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
1938	FM-W319	D007 D008B D010	NONCHLORIDE, CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1 DRUM PAINTING BOOTH	170	0.2	0	0	Uran. U235	-- --	401 ppm 0.65 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN A

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)/ DISPOSAL OPTION
2210	FM-W325	D001F★	HYDROGEN PEROXIDE SOLUTION	908	0.8	4,763	4.1	NOT AVAILABLE		PK	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
2257	FM-W329	D002A★	TCLP EXTRACTS LAB GENERATED WASTE	155	0.2	811	0.7	NOT AVAILABLE		PK SA	DEACTIVATION★	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
2362	FM-N393	D002A★ D007 D008B D018 D035 D039 D040	RADIOACTIVE ACIDIC LAB WASTE	10,544	9.4	0	0	Uran. 1.25 ppm U234 201 pCi/l U235 12 pCi/l U238 456 pCi/l	Uran. 2.52 ppm U234 399 pCi/l U235 23 pCi/l U238 745 pCi/l	PK SA	DEACTIVATION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
2402	FM-N394	F001 F002 F005A	RINSEATE WATER	161	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000410

2629

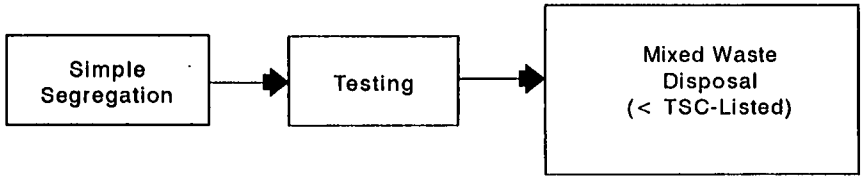
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN A

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2554	FM-N395	D002A*	ACID WASTE	3,189	4.0	0	0	NOT AVAILABLE		PK	DEACTIVATION*	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW
10014	FM-W136	D039	U-CONTAMINATED WATER	2,641	2.8	0	0	Uran. 4.9 ppm U235 0.58 wt%	12.1 ppm 0.73 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 09/19/96	A LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	WASTEWATER TREATMENT (ON-SITE) LLW

000411

2629

TREATMENT TRAIN
B



000412

MIXED WASTE PROJECT NAME

Non-LDR/<TSC Disposal Project

2629

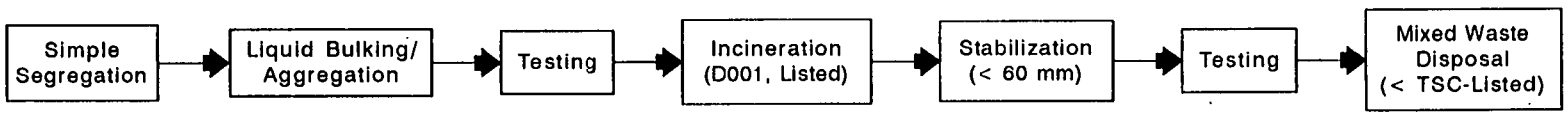
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN B

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
1438	FM-N391	D039	NON-OILY CLEAN-OUT SLUDGES FROM ROASTING	2,825	2.6	2,325	2.0	Uran. U235	1,435 ppm 0.5 wt%	4,136 ppm 0.6 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 09/19/96	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
2048	FM-N348	F001 F002 F005A	SOLIDIFIED LAB WASTE	47,390	33.4	0	0	Uran. U235	0.01 wt% 0.50 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
2581	FM-N413	D039	CONTAMINATED WOOD PALLETS	1,768	7.8	0	0	NOT AVAILABLE			PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW
60017	FM-N350	D039	OILY RAGS AND CLOTHING	63.6	0.4	0	0	U235	.0015 pCi/ml	--	PK SA	TREATMENT STANDARD EFFECTIVE 9/19/96	B NON-LDR/<TSC DISPOSAL PROJECT	ENVIROCARE MLLW

000413

2629

TREATMENT TRAIN
C



000414

2629

MIXED WASTE PROJECT NAME

Liquid Mixed Waste Project

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
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 AND MEET UTS or ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
345	FM-N400	D001A★ D018	CONTAMINATED KEROSENE	14,095	17.0	0	0	Uran. U235	1 ppm 0.79 wt%	1 ppm 0.85 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
379	FM-W005	D008B D018 F001 F002	SPENT 1,1,1-TRICHLOROETHANE	77	0.2	0	0	Uran. U235	0.01 ppm 0.200 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
393	FM-W014	D008B★	LUBRICATING OIL FROM REDUCTION REMELT	330	0.6	0	0	Uran. U235	20 ppm 0.44 wt%	57 ppm 0.67 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000415

26297

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
395	FM-N378	D001A* F002 F003 F005A	PAINT THINNERS AND PAINT RESIDUES	179	0.2	752	0.6	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
400	FM-W019	D001A* D008B F001	USED OIL FROM MAINTENANCE	105	0.2	0	0	Uran. 1.0 ppm U235 0.76 wt%	Uran. -- U235 0.82 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
402	FM-W020	D008B D018 F001 F002	USED OIL	404	0.8	0	0	Uran. 0.01 ppm U235 0.99 wt%	Uran. -- U235 --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
408	FM-W023	D005 D006B D008B F001	USED OIL	146	0.2	0	0	Uran. 31 ppm U235 0.4 wt%	Uran. 86 ppm U235 0.65 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000416

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEP #	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)/ DISPOSAL OPTION
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	3.0 ppm 1.26 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
418	FM-W030	D001A* F003	SPENT ACETONE	975	12.0	1,061	1.0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000417

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
419	FM-W031	D001A* F003	SPENT XYLENE	121	1.8	255	0.2	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
421	FM-W032	D001A* F003	SPENT METHANOL	140	2.0	71	0.1	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
422	FM-W033	F002	SPENT METHYLENE CHLORIDE	15	0.2	95	0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
425	FM-W035	D001A*[1] D002A*[2]	LABORATORY ACIDS (NITRIC ACID AND CYCLOHEXANE)	519	8.2	885	0.9	NOT AVAILABLE		PK	1) ORGANIC RECOVERY or COMBUSTION*[1] 2) DEACTIVATION AND MEET UTS*[2]	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000518

6297

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
426	FM-W036	D001A*	SPENT METHYLENE CHLORIDE	3,260	44.4	3,252	3.2	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
428	FM-W037	D001A*	ACETONITRILE IN WATER	2	0.2	0	0	Uran. <0.005 MG/L	--	PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	TREATMENT STANDARD EFFECTIVE 09/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000419

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
459	FM-W046	D001A★ F001 F002	PAINT	204	0.2	0	0	Uran. U235	22 ppm 0.67 wt%	86 ppm 0.71 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
479	FM-W050	D001A★ D008 D009C D035 F003 F005A	USED PAINT THINNER	436	0.4	0	0	Uran. U235	9.0 ppm 0.89 wt%	-- 1.16 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
480	FM-W333	D018 F002	USED OIL GENERATED DURING CONSTRUCTION PROJECTS	1,172	1.4	0	0	Uran. U235	24 ppm 0.69 wt%	51 ppm 0.84 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
485	FM-W051	D001A★	KEROSENE	92	0.2	0	0	Uran. U235	0.5 ppm 0.739 wt%	-- 0.801 wt%	PK	ORGANIC RECOVERY or COMBUSTION★	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000420

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
507	FM-N401	D001A* D018	GASOLINE	113	0.2	0	0	NOT AVAILABLE		PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
508	FM-W054	D001A* D035	PAINT THINNER	220	0.2	0	0	Uran. 1 ppm U235 0.55 wt%	3 ppm 0.65 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
533	FM-W058	D001A* D006B	PAINT: GREY EPOXY	130	0.2	0	0	Uran. 13 ppm U235 0.70 wt%	35 ppm 0.87 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
633	FM-W075	D007 D008B D009C	OIL - UNKNOWN GENERATION	1,514	2.6	0	0	Uran. 47 ppm U235 1.7 wt%	185 ppm 3.4 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
638	FM-W076	D018	USED OIL	142	0.2	0	0	Uran.	0.01 wt%	--	PK	TREATMENT STANDARD EFFECTIVE 09/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
								U235	0.50 wt%	--				
658	FM-W078	D018	CODED AS OIL - STRONG SOLVENT ODOR	40	0.2	0	0	Uran.	0.01 wt%	--	PK	TREATMENT STANDARD EFFECTIVE 09/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
								U235	1.0 wt%	--				
777	FM-W089	D001A* D008B F001 F002	USED AGITENE	268	0.4	533	0.5	Uran.	2.0 ppm	5.0 ppm	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
								U235	1.07 wt%	--				
818	FM-N402	D001A* D008B	CONTAMINATED OIL	473	0.6	0	0	Uran.	378 ppm	1,030 ppm	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
								U235	0.75 wt%	0.91 wt%				

000422

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
1337	FM-W104	D001A*	CONTAMINATED WATER, NON-CHLORIDE	169	0.2	0	0	Uran. U235	16 ppm 0.7 wt%	54 ppm 0.8 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1411	FM-N363	D001A* D005 D007 D008B D009C D010 D011 D019 F002 F003	CONTAMINATED SOLVENT FROM PAINT SHOP	217	0.2	0	0	NOT AVAILABLE			PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1412	FM-W105	D001A* D006B D008B F001 F002	USED SOLVENT: 1,1,1-TRICHLOROETHANE	188	0.2	0	0	Uran. U235	10 ppm 0.75 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1414	FM-W297	D001A* D008B	OIL AND FUEL FROM GARAGE AREA	355	0.4	0	0	Uran. U235	6 ppm 0.25 wt%	16 ppm 0.69 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000423

6797

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
1423	FM-N380	D008B D009E* D039 D040 F001 F002 F003 F005A	CONTAMINATED INSOLUBLE OIL	170	0.2	0	0	NOT AVAILABLE		PK SA	INCINERATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	8.0 ppm 1.1 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1447	FM-W301	D001A* D008B	NONCHLORIDE CONTAMINATED WATER OR SUMP LIQUOR FROM PLANT 1 DRUM PAINTING BOOTH	56	0.2	0	0	Uran. 60 ppm U235 0.66 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1536	FM-W110	F001 F002	RAINWATER FROM WASTE PIT AREA	30,076	31.2	0	0	Uran. 0.01 wt% U235 0.840 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000424

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
1711	FM-W308	D002A★ D008B D009C D010 F001 F002 F005A	METALS EXTRACTS, DIGESTS AND LEACHATES	2,017	2.4	19,068	16.8	RADIOACTIVITY SCREEN 2×10^{-6} uCi/g		PK SA	DEACTIVATION AND MEET UTS★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1713	FM-W309	D040 F001 F002 F005A	OIL FROM TCLP EXTRACTS	32	0.4	169	0.2	Uran. 0.01 wt% U235 0.5 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1725	FM-W119	D018	LUBRICATING OIL FROM GARAGE	2,814	3.4	6,968	7.5	ALPHA <2.2 pCi/ml BETA <5.1 pCi/ml	-- --	PK	TREATMENT STANDARD EFFECTIVE 09/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1728	FM-W312	D018	CRANKCASE OIL	1,199	1.8	4,499	4.8	NOT AVAILABLE		PK	TREATMENT STANDARD EFFECTIVE 09/19/96	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000425

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
1729	FM-W313	D001A* D008B D018	GASOLINE	1,084	1.8	5,548	6.9	NOT AVAILABLE		SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1815	FM-W316	D018 D001A*	SPENT FUELS	317	0.4	773	0.9	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1949	FM-N381	D001F*	DRAW TEMP 275	92	0.2	0	0	Uran. 0.01 wt% U235 0.50 wt%	-- --	PK SA	DEACTIVATION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
1998	FM-W124	D001A* F003	METHANOL AND CYCLOHEXANE	104	1.2	333	0.3	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000426

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEP #	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)/ DISPOSAL OPTION
2014	FM-W323	D001A* D035	EPOXY - PRIME COAT LDC - 1,000	74	0.4	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2363	FM-N382	D001C*[1] D002B*[2] D006B D008B D009C D018 D035 D038 D039 D040	CAUSTIC LAB WASTE FROM ANALYSIS OF SAMPLES	1,517	1.6	0	0	Uran. 215 ppm U235 29.55 pCi/l	Uran. -- U235 --	PK SA	1) DEACTIVATION AND MEET UTS or ORGANIC RECOVERY or COMBUSTION*[1] 2) DEACTIVATION AND MEET UTS*[2] REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2364	FM-N383	D001C* D006B D007 D008B D018 D035 D039 D040	NEUTRAL LAB WASTE FROM THE ANALYSIS OF SAMPLES	2,300	2.4	0	0	Uran. 1.70 ppm U235 45.12 pCi/l	Uran. -- U235 --	PK SA	DEACTIVATION AND MEET UTS or ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2403	FM-N403	D001A*	DIRT, ROCKS, AND WOOD WITH LIQUID UNKNOWN SOURCE	111	0.2	0	0	Uran. 25,543 ppm U235 0.73 wt%	Uran. 26,148 ppm U235 0.77 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000227

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	NWIR 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)/ DISPOSAL OPTION
2465	FM-N404	D001A* D007 D008B D010	CONTAMINATED LIQUID	193	0.4	0	0	Uran. 21 ppm U235 0.6 wt%	Uran. 46 ppm U235 0.7 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2498	FM-N384	D008B D012* D039 F002 F003	SUMP LIQUOR	560	0.6	0	0	Uran. 3.3 ppm Th 910 ppm	Uran. 410 ppm Th --	PK SA	BIODEGRADATION or INCINERATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2556	FM-N405	D001A*	ETHYL ACETATE	436	0.8	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
2559	FM-N406	D001A*	USED HEPTANE MIXTURE	278	0.8	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	Uran. 141.5 ppm U235 0.41 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000428

6797

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
10006	FM-W129	D008B D009E D039 F001	CONTAMINATED OIL - INSOLUBLE	122	0.2	0	0	Uran. U235	135.5 ppm 0.55 wt%	164.7 ppm --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10027	FM-W146	D039 D040 F001	CONTAMINATED OIL, INSOLUBLE	2,502	2.8	0	0	Uran. U235	27.3 ppm 0.23 wt%	47.3 ppm 0.28 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10029	FM-W148	D006 D007 D008B D019 D029 D040 F001	USED OIL	1,387	1.6	0	0	Uran. U235	48.4 ppm 0.76 wt%	59.7 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10030	FM-W149	D001A* F003	CONTAMINATED SOLVENT (METHANOL)	82	0.6	0	0	NOT AVAILABLE			PK	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10032	FM-W151	F001	CONTAMINATED OIL, INSOLUBLE	303	0.4	0	0	NOT AVAILABLE			PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

004429

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
10034	FM-W152	D001A D018 U019	BENZENE (LABPACKED)	3	0.2	0	0	NOT AVAILABLE		PK	INCINERATION (ORGANIC LAB PACKS)	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
10035	FM-W153	D019 U211	CARBON TETRACHLORIDE (LABPACKED)	20	0.2	0	0	NOT AVAILABLE		PK	INCINERATION (ORGANIC LAB PACKS)	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	Uran. -- U235 --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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%	Uran. 134.9 ppm U235 0.56 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000430

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
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. U235	391 ppm 1.53 wt%	575 ppm 2.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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. U235	41 ppm 0.76 wt%	113 ppm 0.90 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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. U235	530 ppm 0.37 wt%	1,430 ppm 0.42 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
20055	FM-W173	D029 D039 F002	CONTAMINATED OIL - INSOLUBLE FROM PROCESSING EQUIPMENT AT THE PILOT PLANT	196	0.2	0	0	Uran. U235	0.50 wt% 0.950 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000431

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
30033	FM-W191	D001A* D039 F003 F005A	CONTAMINATED SOLVENT FROM MAINTENANCE	2,544	3.4	0	0	Uran. U235	1,061 ppm 0.99 wt%	2,052 ppm 1.28 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
30034	FM-W192	D018 F001	OIL CONTAMINATED WITH SOLVENTS (FROM TANK #5)	12,466	17.0	0	0	Uran. U235	74 ppm 0.45 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
50022	FM-W218	D001A* F003	CONTAMINATED WATER OR SUMP LIQUOR, NON-CHLORIDE FROM PLANT 1 SAMPLING AREA	11	0.2	0	0	Uran. U235	325 ppm 0.91 wt%	329 ppm 0.92 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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. U235	3,128 ppm 0.55 wt%	8,978 ppm 0.62 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000432

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50095	FM-W233	D007	CONTAMINATED INSOLUBLE OIL FROM PLANT 9 GENERAL	168	0.2	0	0	Uran. U235	1,856 ppm 0.88 wt%	3,959 ppm --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
50096	FM-W234	D001A* D007 F003	CONTAMINATED SOLVENTS FROM WATER TREATMENT	153	0.2	0	0	Uran. U235	20 ppm 0.80 wt%	40 ppm 0.81 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60039	FM-N407	D001A* D018	CONTAMINATED SOLVENTS	423	0.4	0	0	Uran. U235	4.0 ppm 0.43 wt%	9.0 ppm 0.44 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60042	FM-N408	D001A* D006B D008B D009C D019 F002	CONTAMINATED SOLVENTS	182	0.2	0	0	Uran. U235	126 ppm 0.6 wt%	209 ppm --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000433

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
60055	FM-N385	D001A* D008B D018	LEADED GASOLINE FROM TANK #12	2,374	4.0	0	0	Uran. U235	0.01 wt% 0.5 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60056	FM-N351	D001A* D007 D008B D009C D039 F002	USED CHLORINATED SOLVENT MIXTURE	4,591.3	4.0	0	0	Uran. U235	183 ppm 0.5 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60059	FM-N352	D001A* D008B F002	USED 1,1,1-TRICHLOROETHANE MIX	481	0.6	0	0	Uran. U235	2 ppm 0.9 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000434

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
60062	FM-N353	D001A* D008B D009C F002	CONTAMINATED INSOLUBLE OIL	1,152.3	1.6	0	0	Uran. U235	32 ppm 0.77 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60065	FM-N409	D001A* D008B D019 F002	CONTAMINATED INSOLUBLE OIL	183	0.2	0	0	Uran U235	116,000 ppm 0.72 wt%	473,000 ppm 0.73 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60067	FM-N354	D008B F002	USED OIL WITH 1,1,1-TRICHLOROETHANE	154.8	0.2	0	0	Uran. U235	2 ppm 0.7 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60068	FM-W277	D008B F001	CONTAMINATED INSOLUBLE OIL FROM PLANT 5 OIL STORAGE AREA	497	0.6	0	0	Uran. U235	16 ppm 0.46 wt%	20 ppm 0.65 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000435

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
60069	FM-W278	D008B F001	CONTAMINATED, INSOLUBLE OIL FROM METAL REDUCTION AREA	1,883	2.6	0	0	Uran. U235	38 ppm 0.4 wt%	74 ppm 0.5 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60070	FM-N410	D001A* D018 D039	CONTAMINATED INSOLUBLE OIL	8,962	12.0	0	0	Uran. U235	16 ppm 0.5 wt%	29 ppm 0.6 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60072	FM-N355	D008B F002	SOLVENT CONTAMINATED WASTE OIL	582.5	0.8	0	0	Uran. U235	14 ppm 0.8 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60073	FM-N411	D006B	CONTAMINATED INSOLUBLE OIL	97	0.2	0	0	Uran. U235	118 ppm 0.30 wt%	119 ppm 0.34 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000436

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
60078	FM-N412	D001A* D006B D008C F002 F005A	USED OIL AND SOLVENTS FROM GARAGE	8,262	10.4	0	0	Uran. U235	7 ppm 0.63 wt%	16 ppm 0.97 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60083	FM-N356	D001A* D008B D019 F002	CONTAMINATED INSOLUBLE OIL FROM BOILER PLANT	674.7	0.8	0	0	Uran. U235	7 ppm 0.79 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
60085	FM-N357	D001A* D005 D006B D007 D008B D010 F002	WASTE OIL FROM PLANT 8 MAINTENANCE	7,785.2	10.6	0	0	Uran. U235	95 ppm 0.79 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000437

2629

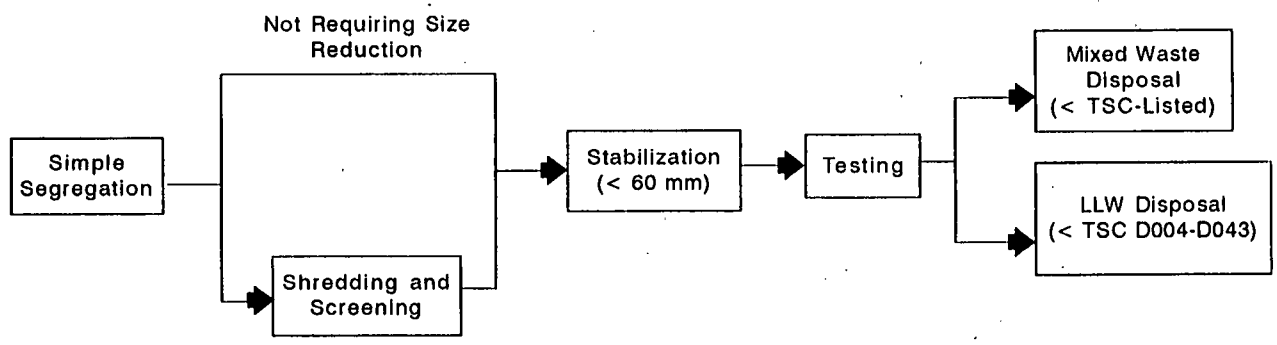
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN C

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
60087	FM-N358	D001A* D008B D039 F002	USED OIL WITH SOLVENTS	1,984.4	2.4	0	0	Uran. 1,659 ppm U235 0.44 wt%	-- --	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW
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 AND MEET UTS or ORGANIC RECOVERY or COMBUSTION*	C LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR MLLW

000438

2629

TREATMENT TRAIN
D



000439

2629

MIXED WASTE PROJECT NAME

Stabilization Project

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
517	FM-W056	D007 D008B	OIL DRY CONTAMINATED WITH OIL FROM BALER	460	0.6	0	0	Uran. 6,269 ppm U235 0.619 wt%	17,524 ppm 0.711 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
538	FM-W059	D006B D007 D008B	SOIL BORING #1508 FROM FIRE TRAINING GROUNDS	2,754	1.8	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	OHIO MOBILE STABILIZATION SYSTEM LLW
700	FM-W083	D003D	MAGNESIUM FLAKE AND OILY RAGS	75	0.2	0	0	Uran. 0.5 wt%	10.0 wt%	PK	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
757	FM-N392	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	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW

000440

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
1380	FM-N415	D007 D008B	NON-OILY CLEANOUT SLUDGES FROM PLANT 8	841	0.6	0	0	Uran. 6,066 ppm U235 0.653 wt%	Uran. 7,735 ppm U235 0.751 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
1714	FM-W310	D010	VOLATILE SOLID WASTE FROM TCT-ST. LOUIS	75	0:2	3,973	8.6	Uran. 0.01 wt% U235 0.55 wt%	Uran. -- U235 --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
10022	FM-W141	D008B	GRIT BLAST	284,614	173.0	0	0	Uran. 123 ppm U235 0.85 wt%	Uran. -- U235 --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20015	FM-N396	D007	SCRAP SALTS, LOW FLUORIDE AND FLOOR SWEEPINGS FROM PLANT 6 NU-SALT 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	OHIO MOBILE STABILIZATION SYSTEM LLW

117000

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
20024	FM-W159	D007 D008B	HIGH FLUORIDE SCRAP SALTS AND FLOOR SWEEPINGS	1,014	1.8	0	0	Uran. U235	12.9 ppm 0.69 wt%	28.6 ppm 0.74 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20027	FM-W160	D004 D011	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM ANALYTICAL LAB	245	0.6	0	0	Uran. U235	58.2 ppm 1.64 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20033	FM-W163	D008B	PROCESS RESIDUES AND WASTE SLURRIES	70	0.2	0	0	Uran. U235	6.12 ppm 0.74 wt%	12.14 ppm 0.78 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20035	FM-W164	D007	DUST COLLECTOR RESIDUES, HIGH FLUORIDE FROM PILOT PLANT	559	0.8	0	0	Uran. U235	67,000 ppm 0.46 wt%	195,000 ppm 1.23 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20047	FM-W170	D004 D008B	SCRAP SALTS AND FLOOR SWEEPINGS - LOW FLUORIDE FROM PLANT 6 ROLLING AREA	230	0.4	0	0	Uran U235	293,500 ppm 0.59 wt%	1,000,000 ppm 0.97 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

004042

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
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%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
20120	FM-N349	D007	DUST COLLECTOR BAGS	17.3	0.2	0	0	Uran. 29.5 wt% U235 1.39 wt%	-- --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
40137	FM-W209	D001E	UNFIRED REDUCTION CHARGES PLUS CAF2	1	0.2	0	0	NOT AVAILABLE		PK	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000443

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
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	OHIO MOBILE STABILIZATION SYSTEM LLW
40192	FM-W345	D008B	THO_2 POWDER REFINERY FEED	30	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50058	FM-W222	D007	DUST COLLECTOR BAGS	12	0.2	0	0	Uran. 83 ppm U235 0.81 wt%	228 ppm 1.62 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
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	OHIO MOBILE STABILIZATION SYSTEM LLW
50089	FM-N361	D001E D003D*	CONTAMINATED MAGNESIUM	438	1.2	657	0.7	Uran. 10.0 wt% U235 1.10 wt%	-- --	PK SA	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50090	FM-N419	D001E D003D*	CONTAMINATED MAGNESIUM	964	2.2	0	0	Uran. 58.10 wt% U235 0.2 wt%	-- --	PK SA	DEACTIVATION*	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000144

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
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	118,00 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
								U235	0.73 wt%	0.74 wt%				
50148	FM-W242	D004	SCRAP U3O8, HIGH FLUORIDE, FROM CRUCIBLE BURNOUT IN PLANT 5 CASTING AREA	109,938	109.2	0	0	Uran.	740,000 ppm	790,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
								U235	0.43 wt%	0.66 wt%				
50165	FM-W245	D007	ROASTED SUMP AND FILTER CAKE FROM PLANT 8 ROTARY KILN	14,944	11.4	0	0	Uran.	475,775 ppm	561,266 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
								U235	0.90 wt%	0.95 wt%				
50169	FM-W246	D007	NON-OILY CLEAN-OUT SLUDGE FOR ROASTING FROM PLANT 9 CASTING	202	0.2	0	0	Uran.	160,000 ppm	336,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
								U235	1.03 wt%	1.04 wt%				
50173	FM-W248	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	4,799	3.2	0	0	Uran.	149,000 ppm	287,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
								U235	0.2 wt%	--				

000445

2629

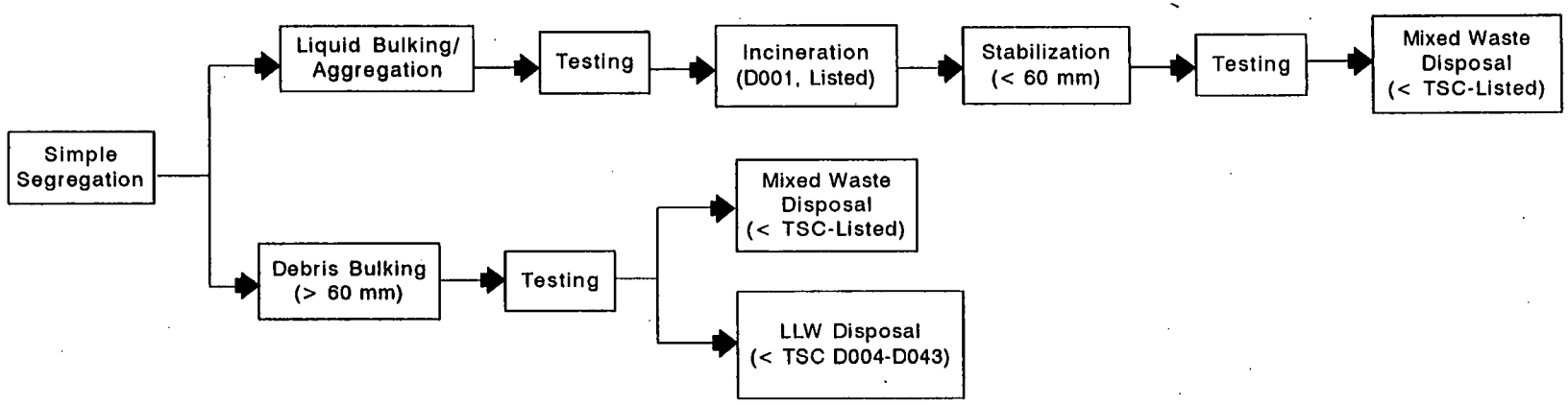
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN D

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)/ DISPOSAL OPTION
50174	FM-W249	D007	SALT SLUDGE, CHLORIDE FROM PLANT 6 NU SALT FURNACE	9,099	10.2	0	0	Uran. U235	36,000 ppm 0.47 wt%	69,000 ppm 0.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50180	FM-W252	D007 D008B D010	FURNACE SALT, NON-CHLORIDE FROM PLANT 6 MACHINING	10,942	7.6	0	0	Uran. U235	2,430 ppm 0.36 ppm	6,230 ppm 0.45 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
50293	FM-W259	D004	U3O8 FOR RE-OXIDATION FROM UNC INC.	3,560	4.8	0	0	Uran. U235	80 ppm 1.25 wt%	82 ppm --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
60107	FM-N416	D008B	ASBESTOS ABATEMENT DEBRIS	30	0.2	0	0	NOT AVAILABLE			PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
60140	FM-W344	D010	STEEL SHOT FROM PLANT 1 DRUM RECONDITIONING WHEELABRATOR SHOT BLAST UNIT	4,088	3.2	0	0	Uran. U235	858 ppm 0.59 wt%	2,025 ppm 0.67 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW
60450	FM-N414	D007	METAL OXIDE POWDERS, PLASMA SPRAY POWDERS	62	0.200	0	0	NOT AVAILABLE			PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	D STABILIZATION PROJECT	OHIO MOBILE STABILIZATION SYSTEM LLW

000446

2629

TREATMENT TRAIN
E



MIXED WASTE PROJECT NAME
Liquid Mixed Waste Project
Stabilization Project

000447

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN E

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)/ DISPOSAL OPTION
1229	FM-W101	D001C* D008B D018 D019 D039 D040 F002 F003	CONTAMINATED SUMP WATER	6,019	6.6	15,280	13.4	Uran. U235 Th	577 ppm 1.1 wt% 7.62 g/l	-- -- --	PK SA	DEACTIVATION AND MEET UTS or ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
1306	FM-N418	D001A* D008B	SPILL CLEANUP FROM K-65 AREA	195	0.2	0	0	Uran. U235	2 ppm 0.8 wt%	3 ppm 0.9 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
1363	FM-N363	D005 D006B D007 D008B D009C	OILY SLUDGES FROM THE WWTS AREA	556	0.4	0	0	Uran. U235	37,274 ppm 0.37 wt%	42,055 ppm 0.51 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
1501	FM-W108	D018	SPILL CLEAN-UPS OF OIL AND GAS	2,632	6.6	13,191	8.9	NOT AVAILABLE			PK	TREATMENT STANDARD EFFECTIVE 09/19/96	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000448

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN E

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
20007	FM-W156	D011	OIL CONTAMINATED WET SUMP OR FILTER CAKE	31,735	62.2	0	0	Uran. U235	61.2 ppm 1.11 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
20037	FM-W166	D029	PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRIES, ETC. FROM PLANT 8	362	0.6	0	0	Uran. U235	77,000 ppm 0.57 wt%	139,000 ppm 0.72 wt%	PK SA	TREATMENT STANDARD EFFECTIVE 09/19/96	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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. U235	242,100 ppm 0.96 wt%	268,200 ppm 1.02 wt%	PK SA	DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
30047	FM-W199	D007 D011	SOLVENT SLUDGE - TRICHLOR, PERCHLOR FROM ANALYTICAL LAB	36	0.2	0	0	Uran. U235	247,000 ppm 0.95 wt%	507,000 ppm 0.97 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000449

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN E

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)/ DISPOSAL OPTION
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 LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
50071	FM-N364	D001A★ D007	SOLVENT SLUDGES FROM WATER TREATMENT PLANT	194	0.2	0	0	Uran. U235	34 ppm 0.59 wt%	38 ppm 0.6 wt%	SA	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
50177	FM-W251	D001A● D004 D008B	FURNACE SALT, NON-CHLORIDE, FROM PLANT 9 ROCKWELL FURNACE BREAKOUT STATION	834	0.8	0	0	Uran. U235	268,000 ppm 0.59 ppm	568,000 ppm 0.99 ppm	SA	ORGANIC RECOVERY or COMBUSTION★ REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
50197	FM-W340	D007	SLUDGES FOR BLENDING FROM PLANT 9 N-R FURNACE	207	0.4	0	0	Uran. U235	3,030 ppm 1.11 wt%	12,350 ppm 1.91 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000450

2629

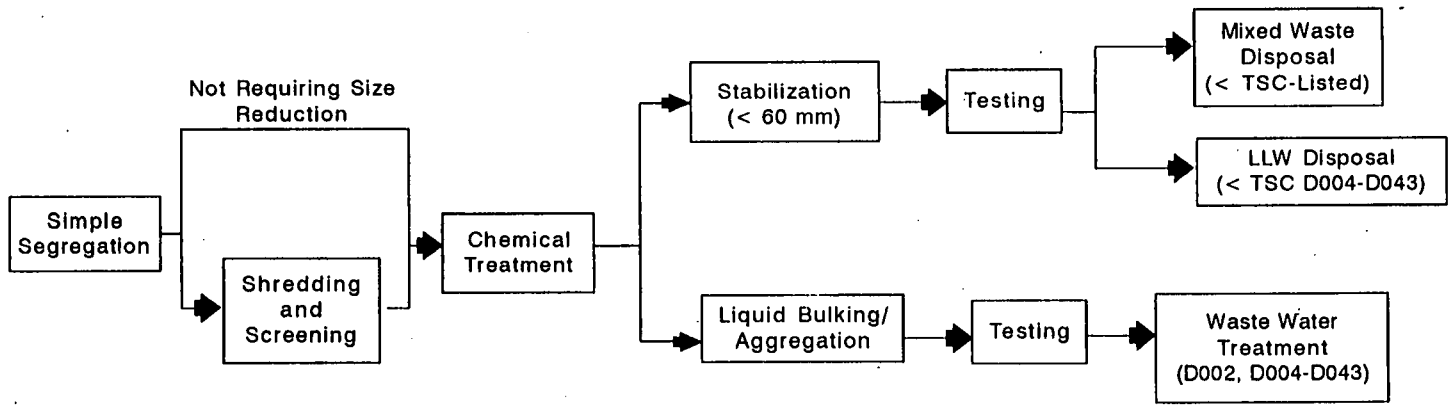
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN E

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50202	FM-W257	D001A* D010	OILY SLUDGE FOR OXIDATION WITH HIGH FREE METAL FROM PLANT 9 CASTING	88	0.2	0	0	Uran. U235	18,000 ppm 0.67 wt%	19,000 ppm 0.73 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW
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. U235	115,000 ppm 0.79 wt%	139,000 ppm 1.10 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	E LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY) STABILIZATION PROJECT	TSCA INCINERATOR OHIO MOBILE STABILIZATION SYSTEM LIQUIDS-MLLW SOLIDS-LLW

000451

2629

TREATMENT TRAIN
F



MIXED WASTE PROJECT NAME

Chemical Treatment Project

000452

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN 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)/ DISPOSAL OPTION
383	FM-W008	D011	X-RAY FIXER & DEVELOPER, CLEAR LIQUID	123	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
873	FM-W094	D011	SPENT FIXER	612	1.2	0	0	Uran. 0.01 wt% U235 0.2 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1773	FM-W315	D011	CONCENTRATE FIXER	98	0.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1999	FM-N366	D002A* D007 D009C D011	NESSLER REAGENT, COD DIGESTION SOLUTION, ROCHELLE SALT	4	<0.1	38	<0.1	NOT AVAILABLE		PK	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2443	FM-N417	D008B	NON-RECOVERABLE TRASH	157	1.0	0	0	Uran. 1,554 ppm U235 0.59 wt%	3,940 ppm 0.74 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10002	FM-W125	D005 D008B	SCRAP SALTS, LOW FLUORIDE FROM RMI, INC.	6,217	4.8	0	0	Uran. 26,567 ppm U235 0.82 wt%	40,119 ppm 1.10 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000453

6797

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN 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)/ DISPOSAL OPTION
30080	FM-W206	D002A* D004 D007 D008B D011	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
40122	FM-W208	D002A* D005 D009C	THORIUM WASTE SLURRIES	183	0.2	0	0	NOT AVAILABLE		SA	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
40181	FM-W211	D002A* D007 D008B	THORIUM NITRATE SOLUTION	2,280	0.6	0	0	NOT AVAILABLE		PK	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000454

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN 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.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50349	FM-W265	D008B	DUST COLLECTOR RESIDUES - HIGH FLUORIDE FROM PLANT 8	87	0.2	0	0	Uran.	22,300 ppm	28,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.67 wt%	0.83 wt%				
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	840,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	1.5 wt%	2.3 wt%				
50387	FM-W272	D005	SALT SLUDGE, CHLORIDE FROM LAB	324	0.4	0	0	Uran.	144 ppm	566 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	1.46 wt%	3.71 wt%				
50405	FM-W273	D006B D007	NON-RECOVERABLE TRASH FROM PLANT 6 - DARK GREY SOLIDS	298	0.8	0	0	Uran.	1,160 ppm	2,790 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.67 wt%	0.75 wt%				
50406	FM-W274	D004 D011	FURNACE SALT, CHLORIDE FROM PLANT 6 SALT-OIL FURNACE	2,945	5.4	0	0	Uran.	111,000 ppm	177,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.4 wt%	0.6 wt%				

000455

2629

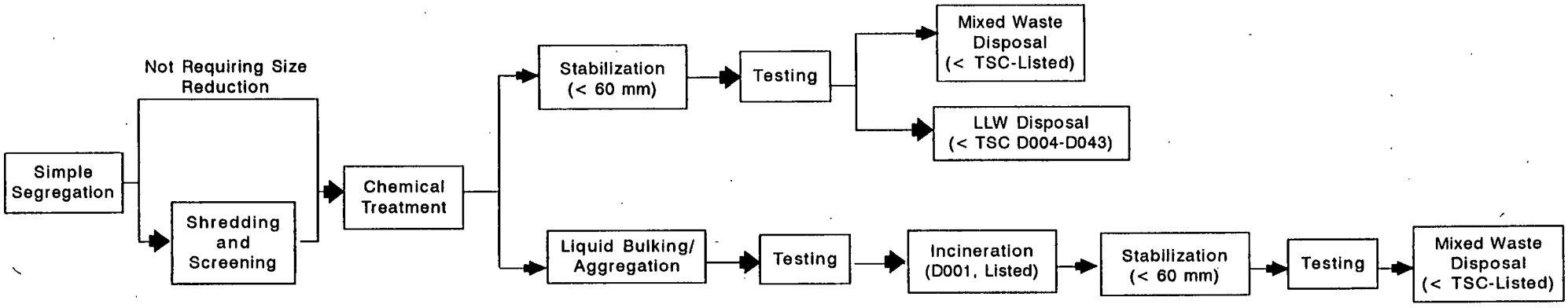
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN F

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60306	FM-N398	D005	HARDENED SALT BATH SLUDGE FROM RMI	2,327	1.4	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60307	FM-N367	D005 D008B	FURNACE SALT, SOLIDIFIED CHLORIDE	16,267	13.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	F CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000456

2629

TREATMENT TRAIN
G



000457

2629

MIXED WASTE PROJECT NAME

Chemical Treatment Project

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

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)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
386	FM-W288	D019 D039 F001 F002	FLOOR SUMP CLEAN-OUT SLUDGE	633	0.4	0	0	Uran. U235	486 ppm 0.6 wt%	662 ppm 0.6 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
526	FM-N368	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000458

26629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

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)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
720	FM-W085	F001	SOIL BORING #1261	250	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
776	FM-W088	F001	SOIL BORING #1674, LOCATED INSIDE PILOT PLANT	154	0.2	0	0	Th 28 ppm Uran. 359 ppm	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
819	FM-W091	F001	SOIL BORING #1251	414	0.4	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1550	FM-W302	D003D	URANIUM HEXAFLUORIDE	7	0.2	0	0	Uran. 0.5 wt% U235 1.25 wt%	-- --	PK	DEACTIVATION*	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM LLW

000459

6297

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

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)/ DISPOSAL OPTION
1706	FM-W114	D018 D021 D035 D038 D039 D040 D043 F002 F005A	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1841	FM-W121	F001 F002	SOIL	1,512	1.2	0	0	Uran. 330.0 ug/g	--	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2425	FM-W332	D002A* F001 F002 F005A	CTC CORROSIVE WASTE	198	0.2	1,040	1.0	Uran. 24.5 ppm U235 0.14 wt%	-- --	PK	DEACTIVATION AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

094000

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10010	FM-W132	D029 D039 D040 F001	SLUDGES, OILY	77,665	105.8	0	0	Uran. U235	841 ppm 0.30 wt%	1,091 ppm 0.41 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10016	FM-W137	D010 D039 F002	OILY SLUDGE FOR OXIDATION	1,352	1.2	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000461

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
10021	FM-W140	D008B D039 D040 F001	SLUDGES, OILY	311	0.4	0	0	Uran. U235	872 ppm 0.46 wt%	3,468 ppm 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10026	FM-W145	D001A* F001	1,1,1-TRICHLOROETHANE STILL BOTTOMS FROM NATIONAL ELECTRIC COIL	6,990	7.8	0	0	Uran. U235	133 ppm 0.65 wt%	247 ppm 0.74 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10028	FM-W147	D008B F001	SLUDGES, OILY	1,476	2.0	0	0	Uran. U235	1.60 wt% 0.950 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10031	FM-W150	D029 D030 F001	FLOOR SUMP CLEAN-OUT SLUDGE	594	0.6	0	0	Uran. U235	1,871 ppm 0.47 wt%	5,093 ppm 0.52 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20006	FM-W155	F002	OIL CONTAMINATED WET SUMP CAKE PRODUCED FROM COEXTRUSION OPERATIONS AT UNC CORP	16,397	25.4	0	0	Uran. U235	9,400 ppm 1.01 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

2629

000482

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
20045	FM-W168	D019 D022 D039 F002	CONTAMINATED TBP AND/OR KEROSENE MIXTURES AND SLUDGES FROM LAB	50	0.4	0	0	Uran. U235	1.3 wt% 0.93 wt%	2.9 wt% 1.12 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30005	FM-W185	D001A* D019 D039 D040 F001 F003 F005A	OILY SLUDGES FROM OIL DECANTATION SYSTEM	15,541	15.8	0	0	Uran. U235	5,800 ppm 0.61 wt%	9,200 ppm 0.77 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30010	FM-W187	D039 D040 F002	OIL CONTAMINATED WET SUMP OR FILTER CAKE FROM SERVICE BUILDING SUMP	10,611	10.6	0	0	Uran. U235	7,000 ppm 0.43 wt%	11,000 ppm 0.48 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30018	FM-W188	D039 F002	WET SUMP OR FILTER CAKE - NON-OILY	3,231	4.2	0	0	Uran. U235	22,500 ppm 0.93 wt%	32,400 ppm 0.96 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30037	FM-W194	D039 F002	DISCARD PROCESS RESIDUES, TRAILER CAKES, WASTE SLURRY FROM PILOT PLANT CATCH BASIN	454	0.8	0	0	Uran. U235	37,000 ppm 1.05 wt%	59,000 ppm 1.29 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000463

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
30042	FM-W196	D039 F002	WET SUMP OR FILTER CAKE - NON-OILY, NON-HALIDE FROM PILOT PLANT SUMP	592	0.8	0	0	Uran. U235	10.7 ppm 0.89 wt%	17.7 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30046	FM-W198	D019 F001	NON-OILY CLEAN-OUT SLUDGES FOR ROASTING FROM GARAGE SUMPS	1,864	2.0	0	0	Uran. U235	1,000 ppm 0.51 wt%	3,000 ppm 0.56 wt%	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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. U235	46,450 ppm 0.31 wt%	55,030 ppm 0.53 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50113	FM-N369	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50129	FM-W240	F001	SCRAP U3O8 - LOW F FROM OXIDATION FURNACE IN PLANT 8	6,151	7.6	0	0	Uran. U235	714,000 ppm 0.33 wt%	755,000 ppm 0.49 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000464

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50131	FM-W241	F002	SCRAP U3O8 - LOW F FROM PLANT 8 OXIDATION FURNACE	56	1.0	0	0	Uran. U235	83.85 wt% 0.766 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50152	FM-W243	F002	SCRAP U3O8, HIGH FLUORIDE BURNED IN OXIDATION FURNACE #1 AND SCREENED AT PLANT 8 ROTEX	13,646	8.4	0	0	Uran. U235	801,200 ppm 0.210 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50154	FM-W244	F001	ROASTED CALCIUM-PRECIPITATED SUMP AND FILTER CAKE	21,067	32.6	0	0	Uran. U235	30,700 ppm 0.9 wt%	38,100 ppm 0.9 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50175	FM-W250	F002	SALT SLUDGE, CHLORIDE FROM PLANT 9 CASTING AREA	500	1.0	0	0	Uran. U235	27,240 ppm 0.8 wt%	72,470 ppm --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50183	FM-W253	F001	SCRAP SALTS, LOW F FROM PLANT 6 DEGREASING AND PICKLING AREA	216	0.4	0	0	Uran. U235	521,000 ppm 0.742 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000465

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50200	FM-N370	D001A* F001	OILY SLUDGE FOR OXIDATION	90	0.2	0	0	Uran. U235	8,200 ppm 0.40 wt%	13,320 ppm 0.49 wt%	SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50339	FM-W262	F002	SLUDGES, OILY, FOR OXIDATION, HIGH FREE METAL FROM PLANT 6 MACHINING	1,601	2.2	0	0	Uran. U235	31,500 ppm 0.26 wt%	57,000 ppm 0.29 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60119	FM-W279	D001A* F001 F002	OILY SLUDGES, HIGH FREE METAL FROM GARAGE	2,954	3.2	0	0	Uran. U235	190 ppm 0.56 wt%	390 ppm 0.61 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60123	FM-W280	D039 F002	SOLVENT SEMI-SOLID FROM THE SERVICE BLDG. AND ADMIN. BLDG. LAUNDRY	40	0.2	0	0	Uran. U235	1.0 ppm 0.791 wt%	-- 0.945 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

004466

2629

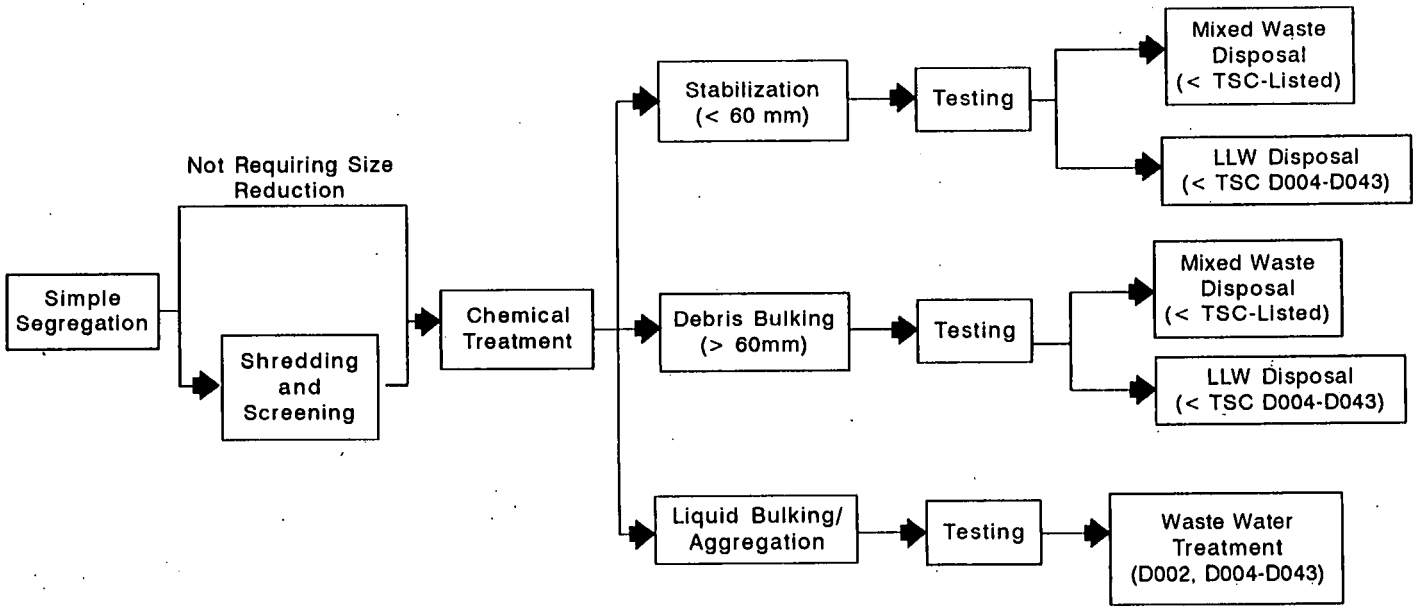
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN G

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)/ DISPOSAL OPTION
				(kg)	(m³)	(kg)	(m³)		Ave.	Max.				
60149	FM-W281	F001 F002	U3O8 FROM PLANT 8 OXIDATION BOX FURNACE	40,712	50.2	0	0	Uran. U235	317,900 ppm 1.0 wt%	499,001 ppm --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60152	FM-W282	F001	U3O8 ROTEXED PLANT 8 FURNACE PRODUCT	75,533	69.4	0	0	Uran. U235	770,000 ppm --	800,000 ppm 0.99 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	G CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000467

6629

TREATMENT TRAIN
H



MIXED WASTE PROJECT NAME

Chemical Treatment Project

000468

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN H

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)/ DISPOSAL OPTION
644	FM-W077	D008B D010	TRASH, PADS, RAGS AND WATER	107	0.2	0	0	Uran. U235	5,187 ppm 0.4 wt%	13,443 ppm 0.5 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1421	FM-W298	D008B	NON-RECOVERABLE TRASH: OILY RAGS, PADS, GLOVES AND PLASTIC WITH GREASE	64	0.2	0	0	Uran. U235	16,900 ppm 0.675 wt%	17,208 ppm 0.712 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1430	FM-N371	D010	PLASTIC SHEETING, GLOVES, FLOOR SWEEPINGS	1,377	1.6	0	0	Uran. U235	1,136 ppm 0.71 wt%	2,326 ppm 0.72 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1906	FM-W318	U134*	HF TANK CAR CLEAN-OUT MATERIAL	3,877	0.8	0	0	Uran. U235	0.01 wt% 0.95 wt%	-- --	PK SA	NEUTRALIZATION*	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2021	FM-W322	D005	BARIUM CARBONATE FROM PLANT 2/3 PROCESSING	1,870	3.0	0	0	Uran. U235	0.01 wt% 0.95 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000469

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN H

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
10025	FM-W144	D005	CONTAMINATED SOIL, ROCKS BRICKS, SAND AND CERAMICS FROM RMI	5,471	4.4	0	0	U238 U235	104.1 pCi/g 3.85 pCi/g	111.4 pCi/g 4.05 pCi/g	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20046	FM-W169	D007	NON-METALLIC MISCELLANEOUS SAMPLES FROM LAB	35	0.4	0	0	Uran. U235	18.2 wt% 0.56 wt%	35.7 wt% 1.56 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20139	FM-W180	D005	SAMPLES, NON-METALLIC FROM RMI	84	0.2	0	0	Uran. U235	53.1 ppm 0.51 wt%	103.4 ppm 0.80 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30039	FM-W195	D011	CONTAMINATED ROCKS, SOIL, BRICKS AND CERAMICS FROM PILOT PLANT	449	0.6	0	0	Uran. U235	128,000 ppm 0.82 wt%	-- --	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

004470

2629

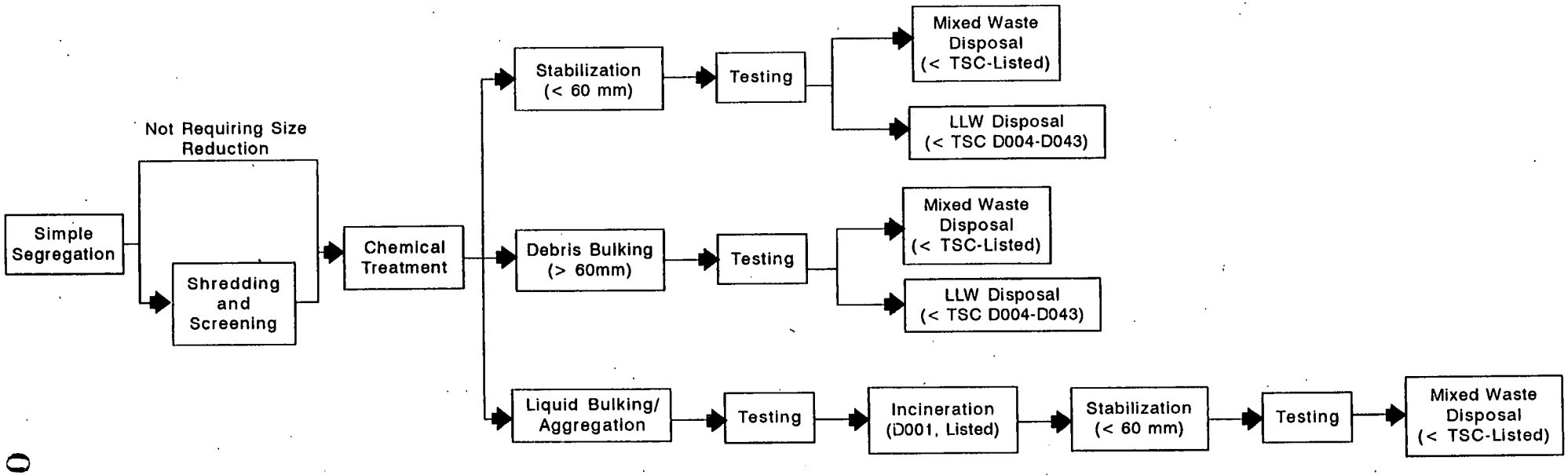
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN H

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50031	FM-W220	D008B D010	CONTAMINATED METALLIC FILTER ELEMENTS	1,293	0.4	0	0	Uran.	62,000 ppm	100,000 ppm	SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	0.43 wt%	0.51 wt%				
50367	FM-W271	D008B	NON-RECOVERABLE TRASH	194	0.2	0	0	Uran.	0.01 wt%	--	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	H CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
								U235	1.25 wt%	--				

004271

2629

TREATMENT TRAIN
I



224000

MIXED WASTE PROJECT NAME

Chemical Treatment Project

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

MEP #	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)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
376	FM-W004	F002	SOLVENT CONTAMINATED RAGS	103	0.4	14	<0.1	Uran. 185 ppm U235 0.44 wt%	Uran. -- U235 --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
398	FM-W017	D008B D009C F001	NON-RECOVERABLE TRASH CONTAMINATED ABSORBENT PADS	19	0.2	0	0	Uran. 9.0 ppm U235 0.67 wt%	Uran. 19 ppm U235 0.71 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	Uran. 19 ppm U235 2.14 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000873

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
415	FM-W028	D008B D018 F002	OILY RAGS AND ABSORBENTS, WD-40 AND VARIOUS OILS	35	0.2	0	0	Uran. 0.01 wt% U235 0.50 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
434	FM-W040	D004 D005 D006B D007 D008B D022 F002 F003	LABORATORY CONTAMINATED WASTE	614	2.4	13,122	10.9	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
* 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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

* An approval from the USEPA is required for this treatment train due to the PCB constituents. Further evaluation of this waste stream and future mixed waste streams that contain PCBs may be necessary to obtain the appropriate treatment approvals.

00074

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
584	FM-W068	D018	KEROSENE (DIESEL FUEL)/ SLUDGE	1,028	1.4	0	0	NOT AVAILABLE		PK	TREATMENT STANDARD EFFECTIVE 09/19/96	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
627	FM-W072	F001	5-GAL. CAN W/ SPILL CLEAN-OUT MATERIAL	6	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
628	FM-W073	F001	SPILL CLEAN-UP MATERIAL	65	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
870	FM-W093	D001A*	VARNISH - UNUSED	89	0.2	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000475

6297

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
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%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1428	FM-W300	F001 F002	SPILL CLEAN-UP MATERIAL FROM BUILDING 79 RCRA STORAGE PAD	86	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1504	FM-W335	DOO1A*	FLAMMABLE PAINT AND PAINT-RELATED PRODUCTS	495	0.4	2,598	2.0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1537	FM-W111	F001 F002	FILTER MATERIAL - SAND, GRAVEL, FLY ASH, ANTI-C's, MISC. TRASH, PLYWOOD, CONCRETE FORMS FROM ETF REMOVAL	186,313	23.0	0	0	Uran. 0.01 wt% U235 0.84 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

974000

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
1617	FM-W305	F001 F002 F005A	CONTAMINATED PROTECTIVE CLOTHING	69	1.2	0	0	Uran. 0.01 wt% U235 0.95 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1707	FM-W115	D002A* D007 D008B D019 D028 D039 F001 F002	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 AND MEET UTS* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1716	FM-W118	F001 F002 F005A	LAB GENERATED WASTE, CONTACT WASTE SOLID	621	3.8	0	0	Uran. 440 ppm U235 12 ppm	816 ppm 26 ppm	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2016	FM-W324	D001A* D018 D026	PAINT BITUMASTIC 300 M A AND B COAL TAR COATING	33	0.2	0	0	NOT AVAILABLE		PK	ORGANIC RECOVERY or COMBUSTION*	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
2235	FM-W328	D010 F002	LAB GENERATED ORGANIC LIQUID WASTE	1,746	2.0	9,152	9.5	ALPHA 76.0 pCi/ml BETA 113.0 pCi/ml	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2259	FM-W330	D009C F001 F002	TCLP LEACHATE	191	0.2	999	0.9	Uran. 346 ppm U235 6,290 pCi/l	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2401	FM-N373	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2500	FM-N374	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
10012	FM-W134	D029 D039 D040 F001	CONTAMINATED BURNABLES	777	1.8	0	0	Uran. 2,875 ppm U235 0.61 wt%	-- --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000478

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
10024	FM-W143	D018 F001	CONTAMINATED BURNABLES	99	0.4	0	0	Uran. U235	63 ppm 0.50 wt%	191 ppm 0.52 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20036	FM-W165	F001	SCRAP SALTS AND FLOOR SWEEPINGS	387	0.8	0	0	Uran. U235	546,000 ppm 0.93 wt%	878,000 ppm 1.19 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20048	FM-W171	F005A	DISCARD PROCESS RESIDUES FROM LAB	9	0.2	0	0	Uran. U235	87,200 ppm 0.77 wt%	105,200 ppm 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20094	FM-W175	D008B D011 F001	CONTAMINATED BURNABLES, RAGS, FILTER CLOTH, PAPER, CARTRIDGES, RUBBER, WOOD, ETC.	359	1.4	0	0	Uran. U235	60,000 ppm 0.70 wt%	150,000 ppm 0.91 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
20114	FM-W178	F001	CONTAMINATED BURNABLES: RAGS, PAPER, POLY-ETHYLENE	184	0.4	0	0	Uran. U235	35,200 ppm 0.31 ppm	109,700 ppm --	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000429

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
20142	FM-W181	D001A* D019 D022 D039 F002 F003	CONTAMINATED TBP AND KEROSENE MIXTURES FROM ANALYTICAL LAB	15	0.2	0	0	Uran. U235	13,000 ppm 0.93 wt%	29,000 ppm 1.12 wt%	PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30053	FM-W201	D006B D007 D008B D018 D040 F002 F005A	DISCARD PROCESS RESIDUES - GLOVES, PAINT, MISC. DEBRIS	78	0.2	0	0	Uran. U235	7,000 ppm 0.42 wt%	7,307.8 ppm 0.77 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30074	FM-W204	F002	CONTAMINATED NON-BURNABLES: FILTER CARTRIDGES, GRAVEL, ROCKS, SOIL	1,135	0.8	0	0	Uran. U235	2,500 ppm 0.75 wt%	4,100 ppm 0.85 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
30075	FM-W205	F002	CONTAMINATED NON-BURNABLES: METALLIC FILTER ELEMENTS AND CARTRIDGES	14	0.2	0	0	Uran. U235	1,900 ppm 0.91 wt%	2,500 ppm 0.93 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000480

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

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)/ DISPOSAL OPTION
50002	FM-W214	D001A F003 F005A	NON-RECOVERABLE TRASH FROM LAB	35	0.4	0	0	NOT AVAILABLE		PK SA	ORGANIC RECOVERY or COMBUSTION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50010	FM-W216	F002 F005A	NON-RECOVERABLE TRASH FROM PLANT 1 - CONTAINS LIQUIDS AND OIL	204	0.2	0	0	Uran. 220 ppm U235 0.45 wt%	Uran. 290 ppm U235 0.47 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50014	FM-W217	D019 F002	NON-RECOVERABLE TRASH	455	1.0	0	0	Uran. 6,080 ppm U235 0.47 wt%	Uran. 15,330 ppm U235 0.78 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	Uran. 191,000 ppm U235 1.54 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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%	Uran. 610,000 ppm U235 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000481

2629

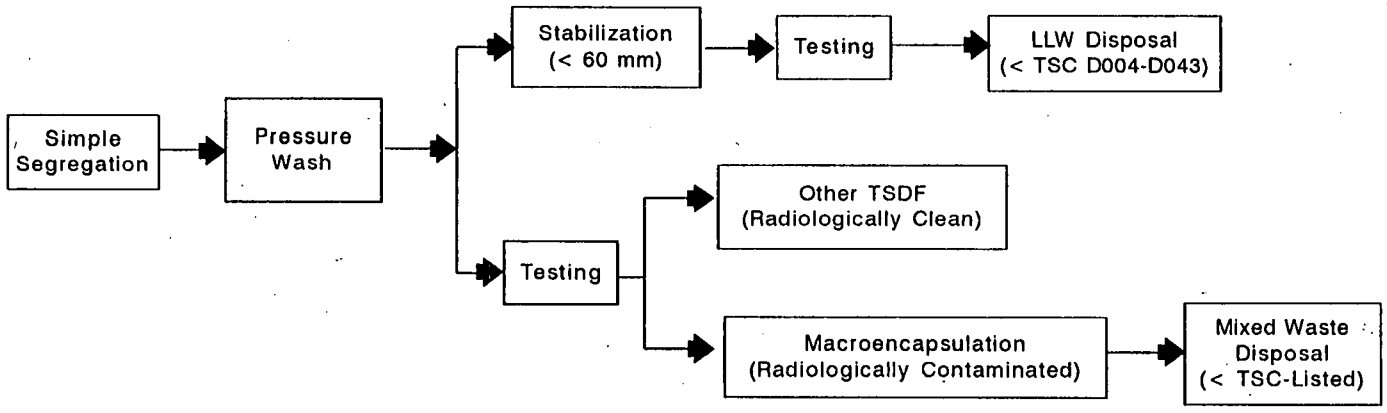
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN I

MEP #	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)/ DISPOSAL OPTION
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%	Uran. 404,000 ppm U235 1.02 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50359	FM-W269	F002	NON-RECOVERABLE TRASH	225	0.8	0	0	Uran. 4,187 ppm U235 0.29 wt%	Uran. 11,427 ppm U235 0.38 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
50364	FM-W341	D007 F001 F002	U3O8, +8MESH, LOW F FROM PLANT 8 BOX FURNACE	640	0.4	0	0	Uran. 631,833 ppm U235 0.96 wt%	Uran. 788,044 ppm U235 1.00 wt%	PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
60100	FM-N397	D039 U210	CONTAMINATED BURNABLES	56	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	I CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000482

2629

TREATMENT TRAIN
J



000483

2629

MIXED WASTE PROJECT NAME
Chemical Treatment Project

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN J

MEP #	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
547	FM-W290	D008C★	MISC. LEAD TOOLS, PIPING, ETC.	679	1.2	2,317	5.1	Uran. 0.01 wt%	--	PK	MACROENCAPSULATION★	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
874	FM-N375	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1271	FM-W102	D008B	LEAD SOLDER JOINTS	128	0.2	0	0	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1281	FM-W295	D008C★	LEAD BRICKS	336	0.6	0	0	NOT AVAILABLE		PK	MACROENCAPSULATION★	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
1585	FM-W303	D002A★[1] D008A★[2]	LEAD ACID BATTERY (SPLIT)	3,566	4.2	15,768	13.3	Uran. 0.01 wt% U235 0.50 wt%	-- --	PK	1)DEACTIVATION★ 2)MACROENCAPSULATION★	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE

000484

2629

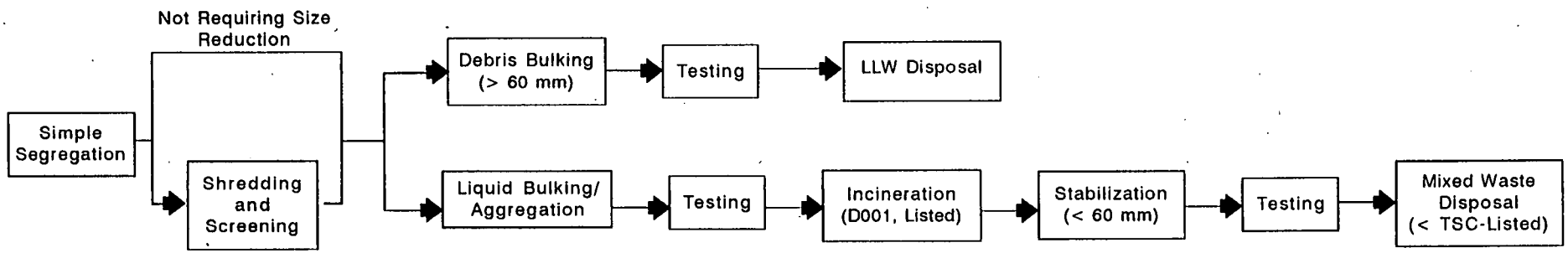
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN J

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
1731	FM-W314	D008C*	LEAD	76	0.2	0	0	Uran.	0.01 wt%	--	PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
								U235	0.5 wt%	--				
1987	FM-W123	D008C*	LEAD/LEAD SEALS	13,202	4.8	18,244	15.4	Uran.	0.01 wt%	--	PK	MACROENCAPSULATION*	J CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM RECYCLE
								U235	0.50 wt%	--				

000485

2629

TREATMENT TRAIN
K



<u>MIXED WASTE PROJECT NAME</u>

Liquid Mixed Waste Project

000486

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN K

MEF #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
1709	FM-W117	D001A*[1] D002A*[2]	LAB GENERATED WASTE, FLAMMABLE ORGANIC EXTRACTS	295	0.4	7,150	6.3	Uran. U235	357 ppm 1.9 ppm	375 ppm 2.0 ppm	PK SA	1) ORGANIC RECOVERY or COMBUSTION*[1] 2) DEACTIVATION AND MEET UTS*[2]	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
2006	FM-W346	D001A*	CURING COMPOUND	173	0.4	0	0	NOT AVAILABLE			PK	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
2224	FM-W327	D001A*	FLOOR COATING BASE	356	0.8	0	0	Uran. U235	0.01 wt% 0.5 wt%	-- --	PK	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
30045	FM-W197	D001A*	OILY SLUDGES, HIGH FREE METAL FROM PLANT 6 WATER TREATMENT AREA	423	0.6	0	0	Uran. U235	151,300 ppm 0.193 wt%	-- --	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50008	FM-W215	D001A*	COPPER CONTAMINATED SUMP CAKE FROM THE GENERAL SUMP	36,831	31.0	0	0	Uran. U235	667 ppm 1.03 wt%	1,356 ppm 1.04 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW

000987

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN K

MEP #	MWIR ID#	EPA CODES	WASTE DESCRIPTION	CURRENT QTY (kg)	CURRENT QTY (m³)	5 YEAR RATE (kg)	5 YEAR RATE (m³)	RADIOLOGICAL CONCENTRATION	Ave.	Max.	BASIS OF CHAR.	LDR TREATMENT STANDARD	TREATMENT TRAINS/ PROJECT NAME	PREFERRED OPTION(S)/ DISPOSAL OPTION
50068	FM-W225	D001A*	NON-OILY SLUDGE FOR ROASTING FROM GENERAL SUMP	13,990	13.4	0	0	Uran. U235	1,080 ppm 0.84 wt%	1,390 ppm 0.98 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50178	FM-W339	D001A*	FURNACE SALT, NON-CHLORIDE	76	0.2	0	0	Uran. U235	250,000 ppm 0.92 wt%	-- --	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50346	FM-N365	D001A*	OILY SLUDGE FROM OXIDATION	292	0.4	0	0	Uran. U235	70,000 ppm 0.86 wt%	210,000 ppm 1.14 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50347	FM-W264	D001A*	DISCARD PROCESS RESIDUES FROM BOILER PLANT	179	0.2	0	0	Uran. U235	94 ppm 0.53 wt%	232 ppm 0.62 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50355	FM-W267	D001A*	DISCARD PROCESS RESIDUES FROM GENERAL SUMP	3,675	3.2	0	0	Uran. U235	60 ppm 0.87 wt%	120 ppm 0.89 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
50358	FM-N388	D001A*	CONTAMINATED NON-BURNABLES	1,445	0.8	0	0	Uran. U235	100 ppm 0.54 wt%	126 ppm 0.63 wt%	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW

000488

2629

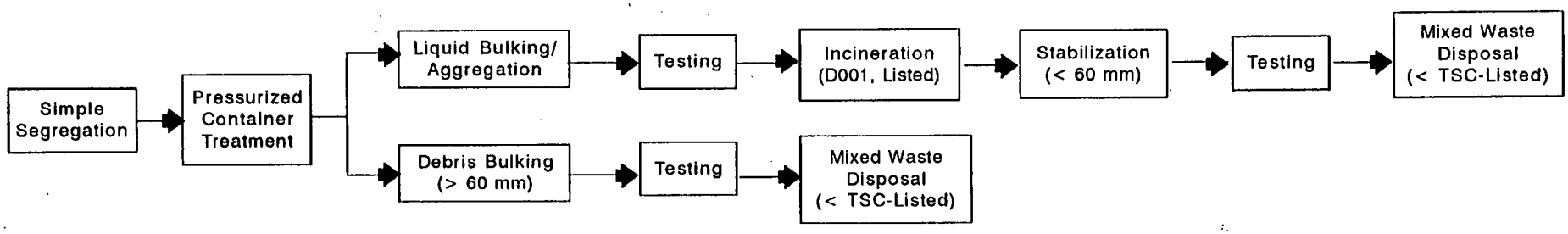
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN K

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
50407	FM-W275	D001A*	NON-RECOVERABLE TRASH	96	0.2	0	0	Uran.	4,187 ppm	11,427 ppm	SA	ORGANIC RECOVERY or COMBUSTION*	K LIQUID MIXED WASTE PROJECT (LIQUIDS ONLY)	TSCA INCINERATOR LIQUIDS-MLLW SOLIDS-LLW
								U235	--	0.38 wt%				

000489

2629

TREATMENT TRAIN
L



000490

MIXED WASTE PROJECT NAME

Chemical Treatment Project

2629

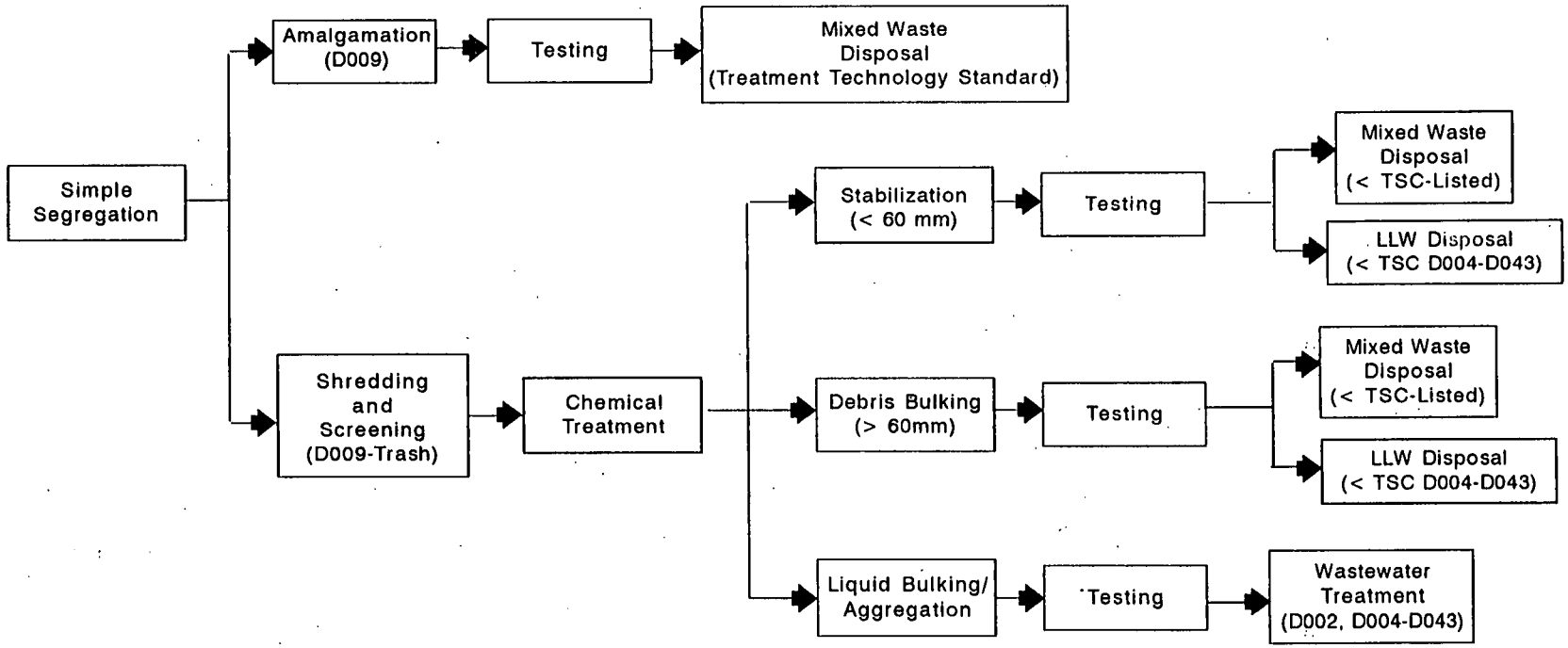
MIXED LOW LEVEL WASTE STREAM TO BE TREATED BY TREATMENT TRAIN L

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
196	FM-N376	D001D* D007 D008 D018 D019 D035 D039	FLAMMABLE AEROSOLS	11	<0.2	262	0.3	NOT AVAILABLE		PK	DEACTIVATION* REMAINING ESTABLISHED STANDARDS ARE CONCENTRATION BASED	L CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000491

6797

TREATMENT TRAIN
M



MIXED WASTE PROJECT NAME

Chemical Treatment Project

000492

2629

MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN M

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)/ DISPOSAL OPTION
423	FM-W034	D009D	USED MERCURY (ELEMENTAL) FROM LAB	20	0.2	0	0	NOT AVAILABLE		PK	AMALGAMATION*	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
432	FM-W038	D006B D008B D009C	MERCURY THERMOMETER SPILL CLEAN-UP 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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
855	FM-W294	D009C	MERCURY BATTERIES	667	0.6	2	<0.1	NOT AVAILABLE		PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1199	FM-W100	D009C	MERCURY CONTAMINATED FLOOR TILE & PIPE INSULATION	909	1.6	0	0	Uran. 0.01 wt% U235 0.5 wt%	-- --	PK	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
1272	FM-N377	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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000693

2629

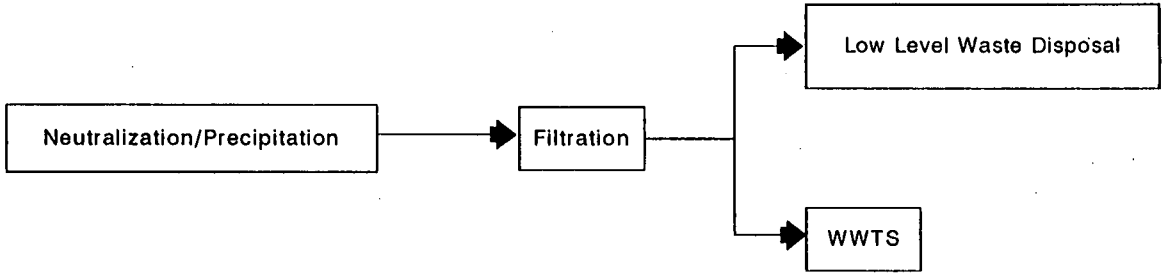
MIXED LOW LEVEL WASTE STREAMS TO BE TREATED BY TREATMENT TRAIN M

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)	Ave.	Max.				
2211	FM-W326	D009D	ELEMENTAL MERCURY IN EQUIPMENT - SWITCHES, THERMOMETERS, ETC.	202	0.4	961	1.1	NOT AVAILABLE		PK	AMALGAMATION*	M OHIO MOBILE CHEMICAL TREATMENT SYSTEM	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
2418	FM-N399	D009C	TRASH OLD FLUORESCENT LIGHT BULBS	118	0.2	0	0	NOT AVAILABLE		PK SA	ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	M CHEMICAL TREATMENT PROJECT	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW
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	OHIO MOBILE CHEMICAL TREATMENT SYSTEM MLLW

000494

2629

TREATMENT TRAIN
N



MIXED WASTE PROJECT NAME

UNH Neutralization System

000495

2629

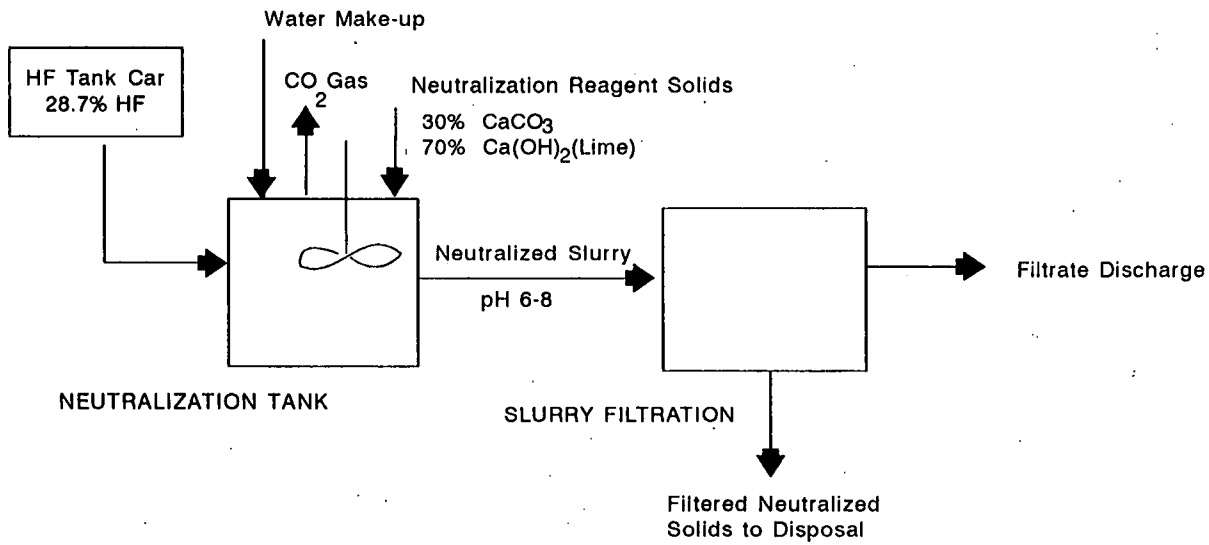
MIXED LOW LEVEL WASTE STREAM TO BE TREATED BY TREATMENT TRAIN N

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
844	FM-W092	D002A* D005 D007	UNH SOLUTION IN TANKS	840,000	761	0	0	Uran. U235	120 g/l 0.99 wt%	-- --	PK	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	N UNH NEUTRALIZATION SYSTEM	UNH TREATMENT SYSTEM LLW

000496

2629

TREATMENT TRAIN
O



<u>MIXED WASTE PROJECT NAME</u>

HF RCRA Closure

000297

2629

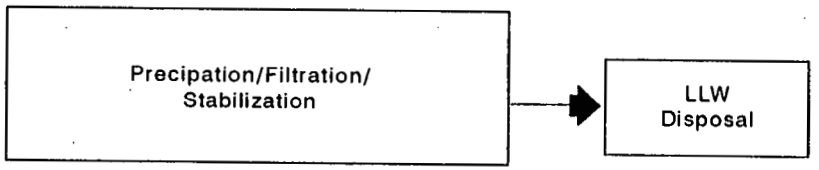
MIXED LOW LEVEL WASTE STREAM TO BE TREATED BY TREATMENT TRAIN O

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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
1691	FM-W112	D002A*	DILUTE HYDROFLUORIC ACID HF TANK CAR	19,710	19.72	0	0	Uran. TH	63 ppm <45 ppm	-- --	PK	DEACTIVATION*	O HF RCRA CLOSURE	HF NEUTRALIZATION SYSTEM LLW

000498

2629

TREATMENT TRAIN
P



000399

MIXED WASTE PROJECT NAME
Thorium Nitrate RCRA Closure

2629

MEP	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)/ DISPOSAL OPTION
				(kg)	(m^3)	(kg)	(m^3)		Ave.	Max.				
2594	FM-N359	D002A* D006B D007	THORIUM NITRATE SOLUTION IN TANK T-2	8892.0	22.0	0	0	Th-228 Th-230 Th-232	0.0021 pCi/ml <0.0038 pCi/ml <0.0027 pCi/ml	--- --- ---	PK SA	DEACTIVATION* REMAINING ESTABLISHED TREATMENT STANDARDS ARE CONCENTRATION BASED	P THORIUM NITRATE RCRA CLOSURE	THORIUM NITRATE TREATMENT SYSTEM LLW

00-000

2629

APPENDIX D

STAKEHOLDER INVOLVEMENT

Appendix D, Stakeholder Involvement

Appendix D provides an overview of information disseminated and input received on the development of the documents on the Federal Facility Compliance Act (FFCAct) at the FEMP.

Appendix D consists of information which sequentially documents; Regulatory Agency comment and FEMP responses, public comment and the FEMP responses, as well as public meetings, presentations, fact sheets, notifications, news articles and briefings associated with the FFCAct.

APPENDIX D
STAKEHOLDER INVOLVEMENT

TABLE OF CONTENTS

ITEM NO.	ACTIVITY/DOCUMENTATION	PAGE
Item No. 1	DSTP Formal Comments	D-1
Item No. 2	Response to DSTP Formal Comments	D-4
Item No. 3	Transcript of U.S. Department of Energy Community Meeting, October 18, 1994 plus DSTP Questions and FEMP Responses	D-6
Item No. 4	Legal Notice for Public Comment, Cincinnati Enquirer, Wednesday, September 7, 1994	D-115
Item No. 5	Legal Notice for Public Comment, The Harrison Press, Wednesday September 7, 1994	D-116
Item No. 6	Ohio EPA's General Comments and FEMP Responses on DSTPs	D-117
Item No. 7	Ohio EPA's FEMP Site Specific Comments and FEMP Responses on DSTP	D-120
Item No. 8	Planning for Public Involvement on the FFCAct	D-125
Item No. 9	Transmittal Letter for the Draft Fernald Public Participation Program	D-127
Item No. 10	Draft Fernald Public Participation Program for the FFCAct (CSTP)	D-128
Item No. 11	Fact Sheet Distributed at October 21, 1993 DOE Community Meeting	D-132
Item No. 12	Material from FFCAct Exhibit at October 21, 1993 Community Meeting	D-134
Item No. 13	Talking Points at October 28, 1993 FRESH Meeting	D-136
Item No. 14	Talking Points at October 25, 1993 Crosby Township Meeting	D-137
Item No. 15	Feedback from FRESH to OEPA at November 18, 1993 FRESH Meeting	D-138
Item No. 16	Subcommittee Appointed at March 1994 Meeting of Fernald Citizens Task Force (FCTF)	D-139

APPENDIX D
STAKEHOLDER INVOLVEMENT

TABLE OF CONTENTS (Cont'd)

ITEM NO.	ACTIVITY/DOCUMENTATION	PAGE
Item No. 17	Talking Points at March 24, 1994 FRESH Meeting	D-140
Item No. 18	Talking Points at April 24, 1994 FRESH Meeting	D-141
Item No. 19	Draft Public Participation Plan for the FFCAct (DSTP)	D-142
Item No. 20	FFCAct Fact Sheet	D-146
Item No. 21	Talking Points at July 12, 1994 Waste Disposition Subcommittee Briefing	D-149

ITEM NO. 1

DSTP FORMAL COMMENTS

My name is Darryl Huff, and I am the chair of the Fernald Citizens Task Force's Waste Disposition Subcommittee. I would like to formally comment on the Draft Site Treatment Plan, which the Department of Energy issued to Ohio EPA to comply with the Federal Facilities Compliance Act. I would like to make clear, however, that my comments represent my views as an individual and not the views of the subcommittee as a whole.

To begin, I favor the Department of Energy consistently choosing options that utilize mobile treatment technologies over options that would involve building permanent treatment facilities at the Fernald site for two reasons. The first reason is that the cost is lower. The second reason is that Fernald should not become a permanent treatment facility. The area residents have been repeatedly assured that the site will be "cleaned up and closed," as former site manager Phil Hamric said in a September 29, 1993 letter to Don Schregardus of Ohio EPA. Hamric continued by saying that if Fernald becomes a regional or national treatment center, that would appear to be "inconsistent with" what the Department of Energy has been saying. I agree wholeheartedly. Fernald should not become a permanent treatment facility.

That point leads me to a few concerns that I have about the Draft Site Treatment Plan. One of my concerns is that Portsmouth is recommending shipping one hundred and nine cubic meters of mixed waste here for treatment in Fernald's MAWS facility. That amount would be roughly the same as 546 drums of waste. Strangely, Fernald recommends mobile treatment options for the very same waste streams. How will the Department of Energy decide which set of engineers is correct? Will accepting Portsmouth waste lead to

having to accept waste from other Department of Energy sites for treatment?

Another concern that I have is that according to Section 8.3 of the Background Volume of the draft Site Treatment Plan, the Department of Energy will sit down with each individual state that has a Department of Energy site with mixed waste and discuss what mixed wastes will be treated at which sites. The section further states that these discussions could occur after the draft Final Site Treatment Plans are submitted to the states. Will there be any opportunity for public participation in the decisionmaking at that point in time?

Also, I am concerned that Fernald is still on the list of sixteen sites the Department of Energy is considering using for disposal of mixed waste. While I have been informally assured that Fernald is not likely to remain on the list much longer, I will continue to worry until Fernald is officially taken off the list. I do not want to have to wait until the Record of Decision comes out under the Department of Energy's Environmental Management Programmatic Environmental Impact Statement to see Fernald is not on the list. I don't want Fernald to even have the opportunity to appear on the list.

My final concern has to do with alternate plans. Envirocare is listed as a preferred option for some of the mixed waste at Fernald, as is the TSCA Incinerator in Oak Ridge. What would the alternate plans be if Utah and Tennessee closed their borders to out-of-state waste? Would the alternate plans be the plans that received the second-highest scores in the evaluation process? Would the Department of Energy go back to the drawing board? Would the public have the chance to participate in the formulation of the new plans? A similar scenario might be if the planned technology was ineffective on a particular type of mixed waste.

ITEM NO. 1

In conclusion, these thoughts are partly my own and partly those of other people. I, along with many other area residents, want to know what the Department of Energy's response is. Promises were made to us, and we want to see them kept. I believe the Department of Energy is on the right path, but I want to see the end reached.

Darryl D. Huff

ITEM NO. 2

RESPONSE TO DSTP FORMAL COMMENTS

COMMENT: One of my concerns is that Portsmouth is recommending shipping one hundred and nine cubic meters of mixed waste here for treatment in Fernald's MAWS facility. That amount would be roughly the same as 546 drums of waste. Strangely, Fernald recommends mobile treatment options for the very same waste streams. How will the Department of Energy decide which set of engineers is correct? Will accepting Portsmouth waste lead to having to accept waste from other Department of Energy sites for treatment?

RESPONSE: **Portsmouth has revised their Preferred Option for these waste streams from the FEMP MAWS Facility to an option which does not involve on-site treatment at the FEMP.**

However, a mixed waste stream from Battelle Columbus Laboratory has been identified for treatment at the FEMP. The States will continue discussion of mixed waste being treated at off-site locations. These discussions may involve equity issues to establish a fair and just distribution of mixed waste treatment at DOE sites. These equity discussions may result in additional DOE sites identifying the FEMP for treatment of their mixed wastes in the future. The FEMP will continue to discuss this issue with stakeholders.

COMMENT: Another concern I have is that according to Section 8.3 of the Background Volume of the Draft Site Treatment Plan, the Department of Energy will sit down with each individual state that has a Department of Energy site with mixed waste and discuss what mixed wastes will be treated at which sites. The section further states that these discussions could occur after the Draft Final Site Treatment Plans are submitted to the states. Will there be any opportunity for public participation in the decisionmaking at that point in time?

RESPONSE: **The State of Ohio is required by the Federal Facility Compliance Act (FFCAct) to solicit public comment on the Proposed Site Treatment Plans.**

COMMENT: Also, I am concerned that Fernald is still on the list of 16 sites the Department of Energy is considering using for disposal of mixed waste. While I have been informally assured that Fernald is not likely to remain on the list much longer, I will continue to worry until Fernald is officially taken off the list. I do not want to have to wait until the Record of Decision comes out under the Department of Energy's Environmental Management Programmatic Environmental Impact Statement to see Fernald is not on the list. I don't want Fernald to even have the opportunity to appear on the list.

ITEM NO. 2

RESPONSE: The Programmatic Environmental Impact Statement (PEIS) does not drive the committee reviewing DOE sites for disposal of mixed waste.

The review process for mixed waste disposal sites is on-going. The FEMP will continue to provide updates on the FEMP's ranking as a mixed waste disposal site at public meetings.

The PEIS process & disposal site selection within the PSTP are not similar activities. Additionally, the disposal site selection process identifies the best candidate facilities. The actual decision to use a site as a disposal location will be made by DOE in conjunction with regulators, public, and other stakeholders.

COMMENT: My final concern has to do with alternate plans. Envirocare is listed as a preferred option for some of the mixed waste at Fernald, as is the TSCA Incinerator in Oak Ridge. What would the alternate plans be if Utah and Tennessee closed their borders to out of state waste? Would the alternate plans be the plans that received the second-highest scores in the evaluation process? Would the Department of Energy go back to the drawing board? Would the public have the chance to participate in the formulation of the new plans? A similar scenario might be if the planned technology was ineffective on a particular type of mixed waste.

RESPONSE: A number of options were reviewed for the technologies needed to treat the mixed waste at Fernald. Alternatives for treatment are available, however, they may not be as cost effective and/or would take substantially longer to implement. DOE is investigating all the alternatives to out of state treatment of FEMP mixed waste.

Envirocare is being used by Fernald strictly for licensed disposal capacity, not for treatment. Envirocare is the only disposal facility in the United States for mixed low level waste. If Envirocare is unavailable, Fernald would have to develop a new strategy for disposing of the affected waste streams.

The Proposed Site Treatment Plan which describes the FEMP's current plans for mixed waste treatment will be available for public review and comment. Changes to these plans will require public review and comment.

ITEM NO. 3

6797

U.S. DEPARTMENT OF ENERGY

COMMUNITY MEETING

OCTOBER 18, 1994

THE PLANTATION

- - -

1 MR. STEGNER: Good evening folks,
2 welcome. Thank you all for coming. My name is
3 Gary Stegner. I work in Public Affairs for the
4 Department of Energy at Fernald.
5 You notice a little bit different
6 look here tonight, it's a different room for one
7 thing than we're used to. We no longer have a
8 standing lease here on this building, so we pretty
9 much had to take what they gave us, but the
10 break-out sessions tonight, we'll use this room and
11 the room down the hall. You also see we have
12 tables. Someone suggested on their comment cards
13 at the last meeting that we use tables, and there,
14 you have tables.
15 The format for tonight's meeting you
16 see up here is going to be essentially the same as
17 we've had in the previous months. We'll start off
18 after I get finished, which I won't be very long,
19 with some remarks by Johnny Reising, kind of give
20 you an update on the cleanup status, and then we'll
21 go into break-out sessions. The break-out sessions
22 tonight will deal with the Draft Site Treatment
23 Plan and also the recommendations of the Fernald
24 Citizens Task Force, which is extremely important

1 and fundamental to our path forward at Fernald.
2 Let me see, the way we will do it
3 tonight is after we're done with this particular
4 session, after Johnny gets done with his remarks,
5 we will go into break-out sessions, which will be
6 more or less 30 minutes each. John Sattler from
7 DOE will sort of lead and Rod Warner will try to
8 facilitate the discussion on the Draft Site
9 Treatment Plan, and John Applegate and Dennis
10 Arnold will head the discussion on the
11 recommendations of the Fernald Citizens Task
12 Force.
13 You should all have comment cards on
14 your chairs, and I hope you all signed in when you
15 came in because the results of the meeting, results
16 of the discussion groups will be mailed to the
17 folks who have signed in tonight.
18 Let's see, as usual, following the
19 break-out sessions we will reconvene, we will take
20 about a ten-minute break after that, and we'll
21 reconvene in here hopefully about 8:40, 8:45 time
22 frame, and then, as has been the tradition here, we
23 will have comments from US and Ohio EPA, the
24 Fernald Citizens Task Force, and FRESH. And then

1 we will have an open mike period, and the only
2 thing we ask is that you do use the mikes.
3 We have a court reporter here
4 recording this tonight. Of course, the transcript
5 will be in the Public Reading Room very soon.
6 Before we get into anymore of the
7 program, why don't we kind of look at the upcoming
8 public involvement activities we're going to be
9 having. As you can see, it's a full schedule down
10 the road here. One thing I do want to point out, I
11 believe it's next Tuesday here at the Plantation,
12 we're going to be having kind of an availability
13 session with the Operable Unit 2 representatives on
14 the disposal cell for Fernald. That's something
15 that I think is of great interest to the
16 community. We urge you to put that on your
17 calendars. Shortly thereafter on the 8th, also
18 here at the Plantation, we'll have the public
19 meeting and take formal comments on the Operable
20 Unit 2 proposed plan.
21 Also in the back of the room you'll
22 see a lot of information there, including the
23 strategic plan, which is sort of the management
24 strategy the management put forward for Fernald.

1 There's a lot of documents there. Look at them,
2 take what you want.
3 Before I introduce John, there's two
4 things I want to do. I want to bring you
5 up-to-date on some staff changes at Fernald and
6 broach a not so pleasant topic, at least from my
7 perspective, with you. Ray Hansen, who I think
8 most of you have come to know through the years,
9 has retired effective September 30th. Jack Craig
10 is now the acting area office director at Fernald.
11 Jack is in a series of meetings this week in
12 Washington and was not able to be here tonight.
13 Asked me to convey his regrets. He will be back in
14 town on Friday. Glenn Griffis has assumed Ray's
15 position as the acting deputy area office director
16 at Fernald. Simply removed Glenn from his previous
17 stint at Fernald and recently with the Ohio field
18 office. Johnny Reising is now the acting associate
19 director for environmental management, which is the
20 job that Jack Craig normally would have, and Johnny
21 will be doing, performing Jack's role here tonight,
22 and Ron Quador is the acting associate director for
23 safety assessment. So as usual, kind of a score
24 card at Fernald. I think actually we had a

1 permanent site manager for about eight or nine
2 months out of the last two and a half years, and he
3 was with the Ohio field office for Hamilton.
4 The subject I wanted to broach with
5 you that was not so pleasant from our perspective
6 was a story you may have heard on the radio on your
7 way in, you probably will read it maybe in this
8 evening's editions of the newspaper, that is a
9 letter that we received today from the Ohio EPA
10 threatening enforcement actions because they are
11 not pleased with our performance in handling the
12 uranyl nitrate hexahydrate situation at Fernald.
13 We refer to that as UNH. I think my second
14 community meeting here about two years ago this was
15 an issue. And quite honestly, I can understand the
16 position of the State of Ohio in this. We have not
17 performed particularly well in this, our path
18 forward has not been very quick, it has not been
19 very definite. Let me say, however, there are
20 ideas, proposals on the table that we are pursuing,
21 but in terms of the position of the State of Ohio,
22 they have not seen much tangible progress in the
23 last two years on UNH. Even as we speak today, I
24 mentioned Jack Craig was in Washington, DC. The

1 topic of his meeting today in Washington, DC was
2 UNH, what are we going to do, where do we stand.
3 Not only is Jack there, but several of the
4 management from DOE here at Fernald and also FERMCO
5 were there.
6 We're not prepared to discuss
7 in-depth the UNH situation here tonight simply
8 because the folks who are the experts are not
9 here. I did not want that -- I know there's some
10 concern, you hear something like this through the
11 press. We will afford you an opportunity to learn
12 more about UNH in a workshop that we promise to
13 have in the next 30 days on this. During this
14 workshop we will tell you exactly what the
15 situation is with UNH, we will tell you what the
16 problems are with UNH, why we have not been as
17 responsive as we should have been with the State of
18 Ohio on our handling of UNH, and we will give you
19 our proposed path forward on UNH.
20 Again, we feel we do owe you an
21 in-depth explanation on this. Johnny is going to
22 go through a lot of areas where I think we can take
23 a lot of pride in terms of our accomplishments on
24 getting close to the Record of Decision, but quite

1 honestly, our performance in this area is not one
2 we can take a lot of pride in. So stay tuned for
3 information on a workshop that will be added to
4 this mess on UNH.
5 So without further ado, let me
6 introduce Johnny Reising.
7 MR. REISING: Thank you, Gary.
8 Appreciate your opening remarks. As Gary did
9 indicate, Jack does send his regrets. Jack is in
10 Headquarters attending to a number of issues. As
11 Gary indicated, one of those is the UNH situation
12 and we're in the process of attempting to address
13 that and to try to charter a course forward as far
14 as moving forward on that operation.
15 In preparing my remarks for this
16 evening, it became quite obvious to me that since
17 our last community meeting, which I think took
18 place on June 14th, that a number of things have
19 happened I think that are extremely significant,
20 and I will run through those quite rapidly for you
21 in my opening remarks. But I think we're seeing a
22 tremendous amount of progress at the site in a
23 number of different areas, not that we haven't seen
24 progress in the past, but I think we're continuing

1 to gain momentum and continuing to move forward,
2 and I am personally very proud of that and very
3 proud of FERMCO and also proud of my DOE comrades
4 in relationship to that.
5 One of the areas that we've seen a
6 lot of progress has been in this removal and the
7 approval of primary RI/FS documents, RI's, FS's,
8 Proposed Plans, and the Record of Decision. We
9 continue to see implementation of the various
10 removal actions that we have ongoing. I think at
11 last count we have had 29 removal actions that were
12 actually on the books here at Fernald. Of those 29
13 removal actions, we have actually completed 19 of
14 those, which means that we have 10 that are still
15 outstanding or to be completed, and of that 10,
16 there are a number of them that are continuing,
17 they are yearly updates and yearly statuses,
18 continuing with the level of waste shipments and
19 those types of things. So I think we made a lot of
20 progress in relationship to that.
21 Also in the area of D&D, that's
22 decontamination and dismantling of structures, we
23 moved forward in relationship to that, and I will
24 be talking about three or so of those structures

1 that we've been able to actually break down
2 recently in a few moments.
3 We're actually starting to enter a
4 new phase here at Fernald, and something that I'm
5 very pleased to see. We're actually making a
6 transition, and for those of you who have watched
7 this for the last six, eight, or so years, I think
8 it's important to recognize this transition that we
9 have. We're actually going from the remedial
10 investigation and feasibility study portion to the
11 Records of Decision of the RI/FS process and
12 starting to move into the remediation, the remedial
13 design and the remedial action implementation
14 portions of CERCLA, which is really very exciting,
15 and I think we're going to see continued work in
16 remediation at the site.
17 Once again, we are making a
18 transition through the CERCLA process, and along
19 with this we're going to see some changes as far as
20 the various activities and hopefully we will be
21 getting into less investigation, less evaluation,
22 and much more actual remediation.
23 In doing a quick tally of the various
24 operable units and where we've been moving forward,

1 I think I show a score card of approximately three
2 RI's that we've had approved recently, we have
3 three FS's and Proposed Plans, we have one interim
4 Record of Decision, and one Record of Decision.
5 Quickly running through the operable
6 units and to give you a status update. Operable
7 Unit 1, as indicated by the slide, received the
8 final RI approval from the EPA's on August 1 of
9 this year. Subsequently the FS and Proposed Plan
10 was approved by EPA on July 27th. The public
11 comment period then on the proposed plan and
12 feasibility study ran from August 10th to September
13 8th. During that period, as required, we had a
14 public meeting on the proposed plan, which was held
15 August 23rd, 1994, at which a number of you
16 participated in and commented in relationship to
17 that document. We're in the process of preparing
18 to submit the draft record of decision and the
19 responsiveness summary to the EPA's on November
20 4th. I think it's important to recognize that the
21 responsiveness summary within the record of
22 decision is the document which addresses the
23 comments that were made during that formal process
24 and during that formal comment period on the

1 proposed plan.
2 Operable Unit 2, we also show
3 continued progress. EPA conditionally approved the
4 RI's as it indicates here on August 1, and again
5 this approval is based on the incorporation of the
6 EPA's comments on that document. We also received
7 conditional approval of the FS and proposed plan as
8 recently as October 11 of this year, again subject
9 to incorporation of the comments. As Gary
10 indicated, there is a Round Table scheduled for
11 October 25th pertaining to Operable Unit 2,
12 specifically the cell design and on-site disposal
13 as it pertains to that recommended alternative that
14 is in the proposed plan for Operable Unit 2. The
15 30-day public comment period on the proposed plan
16 will be held October 26th through November 24th.
17 And as a result of having the public comment period
18 as required, we will be having a public meeting and
19 taking formal comments on the proposed plan, and
20 the date for that meeting is November 8th, 7:00
21 here. Also as indicated by the slide, the draft
22 records of decision, which includes responsiveness
23 summary, will be submitted to the EPA by January 5
24 as required by the Amended Consent Agreement.

1 Operable Unit 3, glad to say that
2 we're able to live through the Operable Unit 3
3 Interim Record Of Decision, public comment period,
4 and Proposed Plan. We were able to effectuate the
5 signature of that document on July 22nd by the
6 EPA. So we do have a signed and approved Interim
7 Record Of Decision for Operable Unit 3. As a
8 result of having the approval of the Interim Record
9 Of Decision as required by the Amended Consent
10 Agreement, we had to submit the remedial design,
11 remedial action work plan to the EPA within 60 days
12 of the signature of that document. So we chose to
13 combine the remedial design and remedial action
14 work plan for the OU-3 IROD's and submitted that
15 document to EPA on September 19th.
16 In addition, we also submitted what
17 we refer to as the implementation plan for the D&D
18 of Building 4-A, which is the next complex that we
19 are attempting to go in and to D&D. This is the
20 green salt plant. It's the largest plant on the
21 site. Now that Plant 7 is down, it's quite obvious
22 in the skyline of Fernald. We're anticipating also
23 sometime in the relative near future, depending
24 upon our available funding for letting contracts,

1 submitting our second implementation plan for our
2 next complex. That next complex is anticipated to
3 be the Plant 1 complex, and depending upon funding
4 and letting of contracts, we will be submitting
5 that document also to the EPA.
6 In addition, we have some other
7 activities in OU-3 as far as RI/FS is concerned.
8 Recently the EPA approved a modification of the
9 OU-3 RI/FS work plan addendum, and in this approval
10 it will allow DOE to submit the Remedial
11 Investigation and the Feasibility Study and
12 Proposed Plan upon the final Record of Decision for
13 OU-3 as a combined document. Also as a result of
14 negotiations and combining this document, we were
15 able to bring the ROD date in basically from April
16 of 1997 about nine months earlier into July of
17 1996. We were able to do this basically as a
18 result of having an approved Interim Record of
19 Decision to where a decision has been made
20 primarily to take all those structures that were in
21 Operable Unit 3 and to D&D those and to either
22 dispose of them on-site or keep it and dispose of
23 it until we can effectuate the final Record of
24 Decision. And the final Record of Decision is

where the decision as to either on-site or off-site or possibly accommodation of both will be made.

Moving on to Operable Unit 4, a couple of significant actions have taken place. One of the most important being the Record of Decision was submitted to the EPA on August 9th of this year, and we obtained conditional approval of the Record of Decision from the EPA's on September 6th. We anticipate the signing by the EPA of the Record of Decision by December. In talking to Randi Allen, she indicated this may happen as quickly as November. So we're looking forward to that. Again, as required by the Amended Consent Agreement, the remedial design work plan will be submitted to the EPA's within 60 days after the signature of the Record of Decision.

As indicated by the slide, we also initiated construction on June 23rd of '94 of the OU-4 vitrification pilot plant. It's coming along well. In talking to the group they indicate that phase one, which is the surrogate process at the vitrification plant, is due to initiate in June of 1995. So again, I think as you can see, in Operable Unit 4 we continue to move forward.

1 Operable Unit 5, the RI for OU-5 was
2 submitted to the EPA's on June 24th, 1994. The
3 OU-5 RI was disapproved with comments by the
4 agencies, and we're in the process of responding to
5 those comments and incorporating them back into the
6 document and anticipate submitting it back to the
7 agencies by November 1. Even though you see the
8 term "disapproved," this is a standard practice as
9 far as the review site is concerned. Very few of
10 our documents are normally approved first time
11 through because of clarifications, additions,
12 various modifications that we need to make to the
13 document. Again, it is important that you realize
14 that the document is disapproved with comments and
15 that we then address those comments, we incorporate
16 them into a revised document and submit them back
17 to the agencies to continue through the review
18 cycle.
19 In addition to that, the draft
20 Feasibility Study and the Proposed Plan is
21 scheduled for submittal on November 16th according
22 to the Amended Consent Agreement, and then
23 subsequently the Record of Decision will be
24 scheduled for submittal on July 3rd of 1995.

1 That's a quick rundown of the various
2 operable units and a lot of the RI/FS activities
3 that have taken place. I would like to take just a
4 few minutes to go through some of the removal
5 actions and some of the D&D and the other
6 activities that we have taking place, some of the
7 other work, the additional work and some of the
8 remediation work that has taken place.
9 Takedown of Plant 7, this is Removal
10 Action 19. As indicated by the slide, we did
11 utilize shaped charges for using the implosion
12 technology. This had a number of beneficial
13 factors. Primarily we were able to minimize lead
14 radiological exposure to workers, we were able to
15 shave some time off the schedule itself, and in
16 addition we were able to save some money. We had a
17 lot less cuts as far as the potential for lead
18 exposure and radiological exposure. The second
19 bullet indicates we had zero lost time and
20 accidents. We considered this technique, this
21 technology was much safer. We had much less worker
22 time, we conducted high picks with the crane. This
23 structure was 114, 120 or so foot high. We did
24 have seven stories. Originally we wanted to take a

1 number of picks by crane and this will allow us to
2 take it down much more rapidly. We also employ a
3 washdown, lockdown technology, which allowed us to
4 minimize the amount of contamination that we had to
5 the environment. Proved to be very successful. We
6 evaluated this. We have a lot of lessons to learn
7 as a result of this removal action, and we're going
8 to be employing this in the future.
9 The overall schedule to dismantle
10 Plant 7 was reduced significantly by approximately
11 a year, and from the initial inception of the
12 removal action to presently we've been able to save
13 approximately $5,000,000 off the entire project.
14 Plant 7, as we indicated, I think will be
15 duplicated as far as using that technology in the
16 future. Again, as the slide indicates, we feel
17 that it is safer for the workers, it allows us to
18 save time, it is quicker and does in actuality save
19 us money. We may also utilize implosion by shaped
20 charge mechanism in the future.
21 A couple of striking slides, you may
22 have seen these in earlier presentations, but to
23 make a long story short, it took us a couple of
24 tries in order to get it down completely, but in my

1 mind it was a success. The first implosion took
2 place on September 10th at approximately 9:45,
3 something after that. With the first attempt we
4 were able to bring it partially down, approximately
5 half way down. In retrospect, in looking at the
6 situation, I think we underestimated the
7 construction of the building, the engineering
8 design of the building, and CEI, the sub who were
9 brought in to actually do the implosion, I think
10 was probably one of the most surprised individuals
11 on the site when the structure did not fall.
12 Subsequently we went in and were able
13 to re-evaluate the situation, to go back in. We
14 determined that it was safe for re-entry, people
15 were able to go back in to reset linear charges,
16 and on September 17th, approximately 9:45 or so in
17 the evening, we had this shot, which was basically
18 the second implosion, which in fact did bring it
19 down.
20 As you can see, there's the structure
21 as it has been brought down. The significance of
22 this is that we were able to bring the seven-story
23 building down to basically one story to where it is
24 able to be reached with hydraulic shears that

1 actually cut apart and then put into white metal
2 boxes which makes a much safer configuration and a
3 much safer process. Again, although it did take us
4 a couple of tries, we're very proud of this and we
5 may be utilizing this where appropriate in the
6 future.
7 Let me briefly talk about the Plant 1
8 ore silos, Removal Action 13. The Plant 1 ore silo
9 project contains, as indicated here, six concrete
10 silos and eight tile silos. I'm pleased to say
11 that all six of the concrete silos and the
12 associated scaffolding and protective shield that
13 we had on them have been removed. We initiated and
14 to date have been able to remove in addition to
15 that all eight of the tile silos and about half of
16 the protective scaffold and shield associated to
17 that. This material is being size reduced, put
18 into white metal boxes, and awaiting disposition.
19 We've got a couple of slides here
20 which depict the Plant 1 ore silos, as we
21 indicated. This is a before picture showing you
22 that we had the six top silos -- excuse me -- does
23 this pick up, can you hear this? Fine, great. So
24 we had the six concrete silos located in this area

1 there, and then we had the eight tile silos which
2 were located here. Unfortunately, these are a
3 couple of tanks which did contain UNH. Again, this
4 is prior to the D&D of the structure.
5 This next slide is approximately
6 about half way through the takedown. As you can
7 see, this was the six concrete silos. They have
8 been basically, about half of them taken down a
9 portion of the way. Here's some of the scaffolding
10 that was used in order to cut around the concrete
11 silos, and in the back you can see some of the
12 protective sheeting that was used. The protective
13 sheeting was used in an attempt to keep this under
14 negative pressure using HEPA filters in order to
15 prevent releases from the environment. Again you
16 can also see the erection that we have here of a
17 protective shield over the UNH tanks in case there
18 may have been some tile from the silos that may
19 have fallen potentially. This would be protected
20 also from various lists.
21 The next slide is one of my favorite
22 slides, I think it shows a lot of good work and
23 technology. As you can see, this is where the six
24 concrete silos have been. Those concrete silos

1 have in fact been eliminated. Here's some of the
2 remaining cones that are going to be size reduced
3 and shipped off or whatever.
4 These are the remaining eight tile
5 silos, two tall silos on each side with the four
6 smaller silos in the middle. Here you can see an
7 open structure, a mechanism realized to where we
8 actually have a large cone type shoot that went
9 down into white metal boxes so that we were able to
10 take the tile material, dump it into the shoot,
11 move it directly down into, here, these are the
12 white metal boxes. The white metal boxes then were
13 actually somewhat on a roller track and able to
14 come out. Very efficient, very effective
15 mechanism. It worked very, very well. And again,
16 employing here the use of negative pressure in
17 order to reduce or to hopefully eliminate the
18 release of anything to the environment.
19 This shows the demolition of the Fire
20 Training Facility. The Fire Training Facility is
21 exactly what it implies, it is a series of
22 structures, it was a two-story building that is
23 north of the production area, and you will see it
24 as you come in the north access road. Demolition

of the Fire Training Facility was completed on September 12th. Debris from the building was stored on-site, awaiting determination of the final disposition of that material. Some of the tanks we had in relationship to that structure have been size reduced and will be put on the scrap metal pile, and we hope to recycle those. I think we still have one which still needs to be reduced.

So closing out of that, some additional action that will take place is the excavation of the asphalt pad and some of the contaminated soils that we had in that area. Again, this is a Fire Training Facility. They use some of the solvents from the plant, TCE, TCA, benzene. That would be either thrown on the ground, possibly the first floor of the structure, ignited, and then the fire force would come out and practice utilizing training by extinguishing those fires.

Again an attempt to give you a before and after picture of this. This is in partial of the cleanup here. This is the Fire Training Facility, the two-story structure itself. This is a small pond. This is a containment vessel that

1 would actually burn. Some small trenches in this
2 entire area, and various types of solvents and
3 other material placed on it. The constituents that
4 are concerned that we're dealing with here
5 primarily were volatiles, PCB's, and relatively
6 little landlock contamination.
7 Again, this is the two-story
8 building, basically one of two stories as far as
9 practice entering and exit and also to extinguish
10 fires on the first story. Went in and we scaffold
11 both the floor on the first floor and the floor on
12 the second floor in order to eliminate the
13 potential of any radiological contamination that
14 was there and also to get rid of any of the VOC's
15 or any material.
16 We looked at a number of different
17 techniques that we have employed, and here is a
18 fairly straightforward mechanism to where we took a
19 track off and simply said here she goes. They were
20 in the process as this was actually taking place,
21 they would spray this and wet this and try to
22 reduce the amount of emissions, but realizing
23 again, as I said, that the amount of radiological
24 contamination in relation to this structure was

1 very, very small, very minimal. I think it's
2 important that if you contrast the Fire Training
3 Facility, the Plant 7, and the Plant 1 ore silos,
4 we have three very distinct mechanisms, three very
5 distinct technologies that have been employed.
6 Again the different technologies have been employed
7 based upon the time, the levels of contamination,
8 and the types of contamination that we had.
9 In the Plant 1 ore silos we saw a
10 complete encapsulation of machine, trying to reduce
11 and eliminate pressure potential for any release.
12 In Plant 7 we had the washdown, we had the lockdown
13 in order to take the transite out and take all the
14 material out the best we could. We were able to
15 have remaining structural steel skeleton and have
16 use of the shaped charges in order to bring that
17 down. In this situation the problem of
18 radiological is not as prevalent. Thus by wetting
19 the area and knocking it down we were able to take
20 it down, and presently this material is in a large
21 pile on this pad, has been tarped and protected as
22 a way of further disposition.
23 I would like to briefly discuss an
24 incident that we had as far as a low-level waste

1 transportation accident. You may have read about
2 this in the newspaper. As indicated by the slide,
3 it occurred on October 1 of this year. It occurred
4 approximately 5:45 in the afternoon near Rolla,
5 Missouri, which is about 90 minutes southwest of
6 St. Louis on I-44. I think it is important to note
7 as we go through this discussion that this is the
8 first accident we had as far as shipping is
9 concerned in over 3,320 shipments, and this is to
10 NTS and to various other sites, indicating that
11 this is the first accident that we had in over 6.3
12 million log miles.
13 This is an indication of the scene of
14 the accident itself. Primarily, as you can see,
15 this is a Sealand. The Sealands are normally put
16 on a flatbed truck and then taken from the site to
17 the Nevada test site, which is where this was
18 headed. What happened is the driver of the rig
19 basically wandered off the medium of the road in
20 this area there, off into the left side of the
21 road. There's approximately between an 8 to
22 10-inch drop in that medium. As his cab dropped
23 off, realizing that he was off the road, moving
24 forward attempted to bring the cab back onto the

1 road. Unfortunately, at that point in time the
2 trailer, which was following naturally off on the
3 side, and as he attempted to move forward, the
4 movement of the trailer caused him to flip over so
5 both the trailer and the cab flipped on its side.
6 As you can see, this is the marks to where the rear
7 axles, the rear wheels were on their side. This
8 mark, I don't know if it shows up that well, is the
9 skid marks to where the Sealand itself was in
10 actuality on its side skidding near the bed of the
11 truck to where the straps were. At this point in
12 time the straps finally broke through, and when the
13 straps broke through, as you can see, it was on its
14 side and then it made another 90 degree and
15 basically landed on its top. So this Sealand
16 structure is in juxtaposition or turned over 180
17 degrees.
18 Again, this gives you an indication
19 of close-up of the Sealand as it was sitting after
20 the accident.
21 The Emergency Operations Center at
22 the site was notified and was activated
23 approximately 6 p.m., 15 minutes or so after the
24 accident on October 1. The EOC advised the local

1 responders in Missouri to wait for the Fernald
2 assistance to get there. The plant recovery team,
3 which I think was composed of four individuals,
4 arrived on the scene at approximately 2:00 in the
5 morning on the 2nd.
6 The recovery team basically surveyed
7 the area from the impact to where the container
8 initially turned over until -- the truck turned
9 over until the actual area, from there to the
10 container. Finding that that was basically void of
11 any contamination, the survey team actually went up
12 then and inspected the container itself. After
13 they verified that there was solid containment, the
14 recovery team waited for daylight as a result of,
15 for safe precautions and safety reasons.
16 After determining that there was
17 containment and no release of material, cranes were
18 used to roll the container over approximately 90
19 degrees. As you can see in this picture, the top
20 is being surveyed by three individuals. These are
21 individuals from the Missouri Board of Health, the
22 Missouri Department of Natural Resources, and also
23 the recovery team. So we had our results as far as
24 our recovery team, the fact that there was not any

1 release of material, verified by two other state
2 emergency response agencies.
3 The Sealand container again was
4 rotated 90 degrees onto its bottom, it was
5 basically upright on its side. The Sealand, as you
6 can see in this slide, was lifted onto the trailer,
7 which took place at approximately 12 p.m. They
8 were able to move the trailer from there to a
9 wrecker storage yard. Unfortunately, they were not
10 able to use the same trailer, they had to procure
11 an additional trailer to put the Sealand on an
12 additional trailer and the new cab and to bring the
13 material back to Fernald. The Sealand in fact
14 returned back to the Fernald site on October 4th at
15 approximately 2:00 in the afternoon.
16 The last slide that I have is one
17 that Ray Hansen normally speaks to, so it's a
18 privilege to be able to talk to this slide.
19 Basically it's an indication of the shipment of
20 drum equivalents of low-level waste the various
21 years. A couple of things I would like to point
22 out, that in 1994, through 1994, fiscal year '94,
23 September, we were able to ship off over 78,000
24 drum equivalents of low-level waste. Significant

1 in that, and I asked Dave to get this information
2 for me, is that of this amount that we were able to
3 ship, we were able to ship over 15,000 drum
4 equivalents in September of '94 alone, which I
5 think speaks very, very well. In addition to this
6 there's also, we were able to reinitiate the old
7 shipments, thorium shipments were initiated again
8 in September of this year, and I think that in
9 September we were able to make approximately three
10 shipments, a total of about 364 or so drum
11 equivalents.
12 Another topic that Ray would point
13 out has to do with materials products that have
14 been shipped. In this case in fiscal year '94,
15 239,000 plus pounds of this material has been
16 shipped to Manufacturing Science Corp, and I
17 believe the majority of this material has been
18 converted. Thank you.
19 MR. STEGNER: Thank you, Johnny. I
20 think what we ought to do right now is proceed into
21 the break-out sessions, and I want to reiterate the
22 fact that after the break-out sessions we will
23 reconvene in here for the comments by the four
24 organizations that I mentioned before, and we will

have an open mike. If you don't want to use the microphone but you do have a question, you can use the comment card and give it to me and I can see that you get an answer to it.

Why don't we go ahead right now directly to the break-out sessions. One is down the hall, one is in the back of the room. We're going to try to do both, everyone here will be able to attend both sessions. So kind of divide yourself evenly if you can. We'll reconvene in about an hour.

(Off the record.)

MR. WARNER: I'm Rod Warner with the Department of Energy here at Fernald, and we're going to talk to you tonight a little bit about a document called a Draft Site Treatment Plan. This plan was generated in response to the Federal Facilities Compliance Act, and we're going to discuss it with you briefly. After we go through the discussion, we will open it up for questions, and I would appreciate it if you would kind of hold the questions until we get through the presentation. John Sattler from the Department of Energy is going to be doing the presentation, and

1 we'll turn it over to John here. It should take,
2 what, about 10 or 15 minutes?
3 MR. SATTLER: Oh, yeah, no more than
4 that. We'll have plenty of time for questions.
5 I am John Sattler. I work with DOE
6 here at Fernald, and putting together the Draft
7 Site Treatment Plan is my project, and I work with
8 a lot of other people within DOE and FERMCO to
9 assemble this.
10 The first thing we're going to do --
11 well, the second thing we're going to do is talk
12 about what is the Draft Site Treatment Plan. The
13 first thing, I want to make sure, there are a
14 couple of pieces of literature here, there were
15 some on the seats in the circle here. There's some
16 additional Fernald fact sheets about the Draft Site
17 Treatment Plan and Federal Facilities Compliance
18 Act. Also if you're interested when we're
19 finished, the State of Ohio has also put together a
20 fact sheet on the investigation of the Draft Site
21 Treatment Plan. So those are available to you.
22 What is the Draft Site Treatment
23 Plan? In short, the Draft Site Treatment Plan is a
24 summary of Fernald's plans, our projects for

1 treating mixed wastes. It is important to remember
2 that we're only talking about mixed wastes though.
3 Mixed wastes are those wastes that have a hazardous
4 component, they might be corrosive, they might have
5 metals, they might exhibit some type of toxicity as
6 well as a radioactive component. Most of the waste
7 that we're dealing with at Fernald has the
8 radioactive components; a much smaller amount
9 relatively speaking is mixed waste.
10 So why are we putting this document
11 together? The bottom line reason is we're required
12 to by law. In 1992 the Federal Facilities
13 Compliance Act was signed into law by President
14 Bush, and one of the requirements of that statute
15 was for Department of Energy facilities that stored
16 or handled mixed waste had to assemble, had to put
17 together this Draft Site Treatment Plan to display
18 what it was we were going to do with our mixed
19 waste. So 49 DOE sites have been working on
20 putting together the Site Treatment Plan.
21 DOE had come up with a plan of
22 issuing this plan in three steps. Last October, a
23 year ago, we issued what we called a Conceptual
24 Site Treatment Plan. It was very general. It

1 listed primarily all the various options we had for
2 dealing with our mixed waste. The end of August
3 the Draft Site Treatment Plan was issued, and it
4 really narrowed down all of those options listed in
5 the Conceptual Site Treatment Plan to what we
6 really think or what we think as of the end of
7 August of this year what our best options are for
8 treating those mixed wastes. In February of next
9 year we will be presenting what some people call
10 the Final Site Treatment Plan, other people are
11 calling the Proposed Site Treatment Plan, and that
12 will further define these options we've listed in
13 the Draft Site Treatment Plan.
14 Who are we submitting this plan to?
15 Well, we are submitting it to Ohio EPA, certainly
16 US EPA will be getting a copy of this too. This
17 particular plan will go to Ohio EPA, they will
18 review it, and they will approve it or they will
19 approve it with modifications, they will give it
20 back to us to make changes. The goal is that by
21 October of next year we will have an approved plan
22 and we will have some kind of consent order,
23 compliance order from the State of Ohio that says
24 go ahead and do this treatment of mixed waste.

1 This table is here and it's also in
2 the second page of the handout that you have. It
3 lists what we identified in that Draft Site
4 Treatment Plan as our preferred options for dealing
5 with mixed waste, how we're going to treat it, and
6 what we have done is we have taken all of the mixed
7 waste on-site that we define as legacy waste, which
8 primarily is the mixed waste that's left over from
9 production operations or perhaps more recently
10 generated through site maintenance activities, some
11 of the safe shutdown activities, the stuff that we
12 have in containers in storage. What are we going
13 to do with it? These are the preferred options.
14 Now, you'll see here it's listed in
15 volumes of the waste, on this particular table it's
16 listed as cubic yards. In the table on your
17 handout it's listed in cubic meters. We have a
18 cubic meter here for you that was put together in
19 response to a comment that we received at a
20 previous meeting was when people talk about cubic
21 yards, cubic meters, we don't know what that means,
22 it's hard to visualize. This is a cubic meter. On
23 the table that Johnny Reising just showed you, on
24 the bottom of it the total amount of waste that was

1 shipped off-site, it was something on the order of
2 400,000 drum equivalents, 450,000 drum equivalents,
3 okay, that would equate approximately into 200,000
4 of these cubic meters. Now, his demonstration
5 there was not mixed waste, so I don't want to
6 confuse that point, but 200,000 cubic meters were
7 moved off the site for disposal disposition.
8 Okay. As you can see, if you add all
9 this up, we're talking about something on the order
10 of 3,000 or so cubic meters. A cubic yard is a
11 little bit less than a cubic meter, so we have
12 3,000 or so cubic meters to deal with with the
13 legacy waste. These are our options here. We have
14 the HF treatment, which we are planning on working
15 with Ohio right now to initiate that treatment of
16 that material, actually as a RCRA closure
17 activity.
18 One of the things that we decided
19 early on at Fernald was that we didn't want to
20 reinvent the wheel. A lot of this mixed waste was
21 to be dealt with with ongoing or planned
22 activities, like the HF, the RCRA closure activity,
23 and that's the regulatory vehicle, if you will,
24 that will guide the treatment of that material.

000545

1 Johnny or Gary spoke to the UNH, there was a
2 removal action ongoing to deal with that, and that
3 will be the driver for the UNH treatment.
4 Other interesting things to note here
5 is that most of the treatment projects you will see
6 here show that the treatment is to be done
7 on-site. The only off-site treatment that was
8 identified is to ship some wastes to TSCA
9 Incinerator in Oak Ridge, and that's really a
10 continuation of some of the waste management plans
11 we had for some time. Down at the bottom it shows
12 Envirocare of Utah. That will be taking care of
13 some of our mixed waste, but they will not be
14 treating that particular mixed waste before final
15 disposal of that mixed waste. A lot of our
16 preferred options also show that we have plans for
17 mobile vendor treatment. Our goal is to have a
18 vendor come in, so some company will come in and
19 they will set up shop on-site to treat the waste,
20 and they will ideally have some kind of mobile
21 unit, might literally be a truck on wheels or might
22 be skid mounted, but in some form or fashion it
23 will be transportable.
24 One of the reasons we want to do that

is that we think we can get it done that way sooner and cheaper. Another reason we're talking about doing this is we've been having discussions with other DOE facilities, especially those here in Ohio, that have similar type of wastes, and if we can set up a mobile unit here to do say our stabilization project and then box that stuff up and ship it off to the Portsmouth facility and have them utilize that same equipment, that is going to make the whole situation a lot better for all of us involved.

Where we are right now in the process is, as I mentioned, we issued the Draft Site Treatment Plan. The Draft Site Treatment Plan is available for public review and comment. As a matter of fact, we are right now in the process in the period where we are seeking comments from the public, seeking comments from the regulatory community as well on that plan so that we can take those comments and we can roll them into development of the final plan. That's to come out in February. The plan is available in the Reading Room. We have a copy of it up here. Comments are welcome.

1 One thing I want to touch on here
2 this evening is why this plan is important.
3 Obviously it's important to us because it's
4 required for us to do it by law. If you take a
5 look at the volume of mixed waste compared to our
6 total waste volume, as I mentioned earlier, it's
7 relatively small volume. So as we've gone through
8 this process, all of us working on this, we are
9 finding out what's the real importance of this
10 particular issue. It's kind of dwarfed in scope by
11 the total waste volumes we have to deal with.
12 Well, there are a couple of reasons why this is
13 important. One reason is in this process, this
14 process of developing this site treatment plan is a
15 little bit unique when you compare it with a lot of
16 the other documents or a lot of the other plans
17 we've developed. While we have been working to
18 develop our own plan here at Fernald, at the same
19 time we've been working with DOE across the
20 complex. I mentioned that there were 49 site
21 treatment plans, draft site treatment plans
22 developed, over 49 conceptual site treatment plans
23 submitted. We've been having regular meetings with
24 DOE headquarters and representatives from the

1 various DOE operations offices so that we can
2 develop these plans at least in a consistent
3 format, and that's important for the people who are
4 reviewing these plans, the people who are taking a
5 look at these plans so they can make some
6 comparisons on what's going on. If we're going to
7 be shipping our waste to the State of Tennessee for
8 incineration, the State of Tennessee is interested
9 in that.
10 At the same time we've been working
11 with the other DOE facilities. We've been working
12 with not only the State of Ohio, but in many of
13 these meetings we've been meeting with Ohio and all
14 the other states, and many of the state
15 representatives feel that this is important because
16 they have, as they have expressed at these
17 meetings, they feel that coming to terms on this
18 mixed waste issue is somewhat representative or
19 maybe a precursor on how well DOE works on dealing
20 with the bigger issues of the low-level waste or
21 all of the regulatory waste. So it's important for
22 us to put together a successful plan and implement
23 a successful plan in dealing with mixed waste
24 because it's important to a lot of the people we're

1 going to be considering whether or not they want to
2 accept it. The State of Tennessee has some say in
3 this matter.
4 The other reason it's important is
5 because there are some issues associated with this
6 plan that you all need to be aware of. Because we
7 are working with all the other DOE sites across the
8 complex, we're not working in a vacuum. There are
9 other DOE facilities out there who are looking at
10 our mixed waste treatment capabilities and making
11 decisions on whether or not they want to send their
12 waste to Fernald for treatment.
13 Now to date what I can tell you is
14 that only one other facility has identified Fernald
15 as a treatment facility, remember the term we used,
16 preferred option, for some of their mixed waste,
17 and that's the Portsmouth facility here in Ohio.
18 They've identified three mixed waste streams
19 totaling something on the order of 84 or 85 cubic
20 meters of waste to come to Fernald to be processed
21 through the vitrification, the MAWS vitrification
22 plant at Fernald.
23 Now, that's not a done deal, and when
24 I say that, that cuts both ways. What I mean is

1 that we don't know for sure if that's going to
2 happen. On the other hand, DOE across the complex
3 as well as the DOE facilities within Ohio are now
4 going back and taking a look at all these various
5 site treatment plans and deciding whether or not
6 that all of these solutions that we've put on the
7 table make sense. For example, if we have
8 identified going, putting together a mobile
9 stabilization unit here at Fernald, and say
10 Portsmouth is identifying the same thing and a
11 facility in Paducah, Kentucky is identifying the
12 same thing and half a dozen or a dozen other
13 facilities the same preferred option, does that
14 make sense for us to do that. So we're trying to
15 come to terms with that, how can we get some kind
16 of economy of scale, how can we come up with the
17 best options that make the best sense for each
18 individual site like Fernald as well as across the
19 complex.
20 So we're doing that on, as I said, on
21 two levels. We're meeting with the Ohio sites for
22 an Ohio regional look and DOE also has a work group
23 put together to do that on an across the DOE
24 complex basis. And the results of that could be

1 that perhaps other facilities identify Fernald as a
2 place to treat some of their waste. Now as of
3 today I don't know what the results of that process
4 is. I don't have any information to offer to you
5 as far as that goes. I won't have any kind of
6 feedback from that work group until later this
7 month.
8 What I can tell you from working with
9 the Ohio regional group is that what we're looking
10 to do is to really explore further the idea of the
11 mobile treatment, and the mobile stabilization is a
12 good example of that. If we're putting together
13 that unit here, what we're exploring is taking that
14 unit, taking that technology and picking it up and
15 sending it off to Portsmouth, for example, because
16 they have some of the same types of waste, similar
17 types of problems that require similar treatment.
18 One other important issue if you do
19 take the time to sit down and open up the Draft
20 Site Treatment Plan and read through it, you will
21 see a discussion of disposal, and it's a similar
22 issue as the treatment issue inasmuch as DOE has a
23 work group -- when I say DOE, I don't mean Fernald
24 necessarily, I mean DOE headquarters and

1 representatives of the various field offices has a
2 work group to identify the best mixed low-level
3 waste disposal facilities, and they have developed
4 a process for doing that evaluation.
5 It started out with these 49 sites.
6 They have made one cut. Fernald was carried
7 through that cut, which means that Fernald is being
8 carried through this evaluation process. That work
9 group will be coming out and visiting us on-site
10 here sometime in November to collect the
11 information they need to go through their process.
12 When they are finished, what they will come up with
13 is a recommendation for the best candidate
14 facility. What that means is that those candidate
15 facilities are not necessarily identified as the
16 best low-level waste disposal facilities, but
17 they're saying these are the best candidates. So
18 they may, that study may result in one facility
19 being identified, could be two, could be six, any
20 number of facilities. That, too, I don't have a
21 lot of information beyond what I very briefly
22 summarized for you right here and now. But there
23 are a lot of factors that are going into that
24 process. So these are a couple of important issues

that we wanted to identify for you.

Questions?

PUBLIC: I assume the State of Ohio has already bought into all the Draft Site Treatment Plans developed by the Ohio sites?

MR. SATTLER: The question was Ohio has bought into all of the Draft Site Treatment Plans.

PUBLIC: Prepared by the Ohio sites.

MR. SATTLER: Prepared by the Ohio sites.

PUBLIC: In other words, us people in Ohio, are we together on this right now in dealing with the DOE Headquarters and all the people involved in this?

MR. SATTLER: I can't speak necessarily for Ohio. We have some folks here from Ohio. What I can tell you is where we are in the process is getting comments from Ohio. Recently we've received comments from the State of Ohio that are kind of general. What I mean is that they are applicable to all or most of the five DOE sites in Ohio, and we're waiting to get from them the specific comments for Fernald.

PUBLIC: So they have been incorporated in the Draft Site Treatment Plan as they were submitted to Headquarters?

MR. SATTLER: No yet, no. That's where we are in the process. Those comments we will address in the Final Site Treatment Plan.

MS. DASTILLUNG: Is there a list of the criteria that this group will be looking at to decide which sites become disposal sites for the mixed waste?

MR. SATTLER: Yes, it's summarized in the draft plan. If you want more detailed information than that, I can get that for you. Or I can attempt to get that for you. But what is in the plan I think is a pretty good summary of what they're going for.

MS. DASTILLUNG: Do you know offhand which section? I have a copy at home, it's this big.

MR. SATTLER: Section 8 I believe. It's either Section 8 or Section 6 of the plan.

PUBLIC: Does Fernald meet the criteria that you're describing in Section 8?

MR. SATTLER: Well, that's the

1 process they're going through right now to
2 determine that. What I can tell you is that there
3 are a couple of issues that will weigh heavily into
4 their evaluation process. Number one is the issue
5 of Fernald sitting on an aquifer. The other issue
6 is that -- and there's an important piece of
7 information that these folks did not have, and that
8 information is the information that's being
9 developed in our FS process, in particular for
10 Operable Unit 2, which is making some decisions for
11 disposal. So they only have that information now
12 in very general terms. They have yet to visit us
13 and collect all the detailed information. I can't
14 speak for that group, but I suspect that's going to
15 weigh heavily in the final recommendation.
16 PUBLIC: I have a question. Do you
17 expect to have an agreement signed by next October
18 with EPA?
19 MR. SATTLER: Yeah, that's the
20 goal. Do I think it's going to happen, yeah, I
21 do. I think Ohio has raised a lot of questions,
22 but I really think that they are things that we can
23 resolve.
24 PUBLIC: You have a schedule on the

1 chart of completion of facilities by January of
2 '95.
3 MR. SATTLER: Yeah, that brings up a
4 good point. These were the schedules, and I left
5 these up intentionally because these are the ones
6 that were presented in the Draft Site Treatment
7 Plan. Are these going to change? Yeah, they will,
8 and there are any number of factors that are going
9 to cause them to change. Probably the number one
10 biggest factor right now is our funding and the
11 whole crisis that we're going through with funding
12 cuts. How much is it going to change? If you look
13 on here it shows that everything is going to be
14 dealt with by the end of '97. What it looks like
15 right now is that this will be pushed back until
16 '98, so we're still planning as of right now that
17 all these activities will be completed by the end
18 of '98. So that while it's going to be pushed
19 back, it's not like it's going to be pushed back
20 ten years.
21 MR. RAST: John, I think an
22 important point to bring up, and I'm Dave Rast with
23 DOE, is that in our discussions, any of our
24 progress towards treating mixed waste that we have

1 previously scheduled, we intended this process not
2 to delay or to hold up the implementation of any
3 kind of waste treatment or the treatment of mixed
4 waste that we could do. We were hoping, as John
5 said earlier, to mirror the actions that we had
6 intended to do in the Draft Site Treatment Plan,
7 not wait two or three years until this plan was
8 final before we take any action. So we are
9 continuing to go through the process and try to
10 implement mixed waste treatment and mixed waste
11 disposal on the site.
12 MR. SATTLER: Yeah, I guess another
13 way of saying that is if the HF treatment didn't
14 exist, would this still happen? Yeah. HF tank car
15 is a separate regulatory vehicle, we have a closure
16 plan that is driving it. UNH is a removal action.
17 The wastewater treatment is something that's
18 ongoing. What this really is is a subset of the
19 TSCA incinerator. As we go through and look at
20 those films before we send them off to TSCA, we
21 expect to find that some are not appropriate to
22 send for incineration, but we also expect that most
23 of those drums that aren't appropriate can be
24 readily treated in the wastewater treatment

1 system. So that's an ongoing project for
2 environmental removal action. Envirocare project,
3 off-site disposition being driven by a removal
4 action.
5 So the only ones that on this list
6 that are not covered are the mobile stabilization
7 and the mobile chemical treatment. The mobile
8 stabilization we've already initiated thoughts with
9 Ohio EPA about getting that started sooner rather
10 than waiting until October of '95. So I think
11 we've got a real opportunity here to actually
12 continue on and get some of this done. Which is a
13 little bit different than many of my colleagues at
14 the other DOE facilities, who are really struggling
15 and just getting started.
16 Any other comments or questions?
17 MR. WINSTON: I'm Tom Winston from
18 the State of Ohio, and I was just going to make a
19 few brief comments in terms of what the State feels
20 is important as we go through this. I think we
21 recognized pretty early that Ohio was going to be
22 an exporter of waste, and that put us in a
23 difficult situation considering the power that the
24 act gives governors of states to say yeah or nay on

1 waste coming into the state. We've looked at this
2 throughout this process as it being in our best
3 interest to try to get Fernald, Portsmouth, Mound,
4 Battelle, and RMI, the five sites in Ohio, to
5 maximize the amount of waste they were able to
6 manage at their own site and minimize the amount of
7 waste they would be shipping.
8 That's good for a number of reasons,
9 one just the accountability issues, it's more
10 convincing with other states that we're trying to
11 do what we can in Ohio. If we're managing as much
12 as we can, it will minimize risk of transportation
13 and the associated activities. We have been very
14 supportive of efforts to look at mobile treatment
15 because rather than moving the waste, we're moving
16 the treatment facility, whether it might be on
17 skids or small units.
18 The process has required all of the
19 states, there's 20 some states with these 49 sites,
20 to get together and talk about how can we create a
21 national framework for management of waste that is
22 not unfair to either a section of the country,
23 individual states, and this process is sort of
24 nearing its end point. I'm pleased at where we are

1 at this point, but I will also point out that in
2 the initial, the Draft Site Treatment Plans came
3 in, Ohio is still one of the largest exporters of
4 waste for treatment in other states. And we have
5 the actual, I think the highest shipment from one
6 state to another, Ohio and Tennessee to facilities
7 there. And that's not just Fernald, that's from
8 the other, two other sites as well.
9 We're committed to doing what we can
10 to make sure that Fernald is and the other sites
11 are clearly delineating what their rationale for
12 decision making, we're going to need to talk to
13 Tennessee, to possibly Utah, to the State of
14 Washington and some of the other sites about how we
15 took the sites to task to make sure they were on a
16 sound basis when they made their decision. It
17 wasn't just business as usual. We've sent waste to
18 the TSCA center in the past, we're going to do it
19 again. So those are things that we're looking at.
20 I know there was an earlier question
21 about whether or not the State of Ohio had bought
22 into that recommendation. We're certainly
23 satisfied so far, but it's going to be a dynamic
24 process, and one other component of this is input

1 from the public. This is not going to be a
2 finished project, if you will, until we approve the
3 final treatment plan sometime after submission in
4 February and then try to negotiate an order that
5 will set time lines and more specifics. We're
6 interested in any comments that you are interested
7 in either giving to us or to Fernald, and I guess I
8 would ask, John, any comments that you receive from
9 the public, if you could send us those comments as
10 well because we're very interested in that.
11 Paul Hardy, who is with me here, has
12 a copy of the State's general comments. Once again
13 they are for all five sites. It's just probably
14 two pages, which briefly outlines what we felt when
15 we got the drafts in a couple of weeks ago, what we
16 felt were some of the over-arching deficiencies
17 between the five sites that we want to make sure
18 were corrected or improved at the Final Site
19 Treatment Plan submission.
20 The final thing I was going to say,
21 certainly we're very concerned about the issue of
22 disposal. It is true that Fernald is on the list
23 of sites, the 16 or 17 sites that are undergoing
24 many performance assessments, but we feel very

1 clearly that Fernald would be a totally
2 inappropriate place for disposal. We will fight
3 that very strongly, and the process, though, that
4 we've gone through is that DOE has been forced
5 because we have all of these 20 some states
6 involved at the table, DOE has been forced to take
7 sites through the system unless all the states
8 agree that a site is not suitable.
9 We had a meeting a couple of months
10 ago, this summer where Ohio proposed that Fernald
11 and Mound be dropped off the list due to severe
12 deficiencies we felt would not make them suitable
13 for disposal site. We were successful in having
14 Mound considered a low priority level, though not
15 off the table. While most of the other states
16 agreed that Fernald has significant deficiencies
17 that would not make it a good site, we were not
18 successful in quite getting it off the table. We
19 will continue to keep you apprised of that process
20 as well.
21 One of the things John said earlier,
22 even though -- it is a very good point -- that even
23 though it is not a major component from a volume
24 standpoint, that is Fernald, this is the one area

1 where the states are in a sense in the driver's
2 seat and they are exerting as much influence over
3 this process because the Federal Facilities
4 Compliance Act gives the states, whether it's the
5 State of Tennessee, the State of Nevada, or the
6 State of Washington, gives them authority to say
7 yes or no on low-level waste. You normally are
8 using NEPA and environmental impact statements and
9 other techniques, so this is a great opportunity
10 for us to sort of build something that may help us
11 on waste management issues on Fernald down the
12 road, as long as we are playing fairly with other
13 states and doing a thorough job of justification.
14 MS. DASTILLUNG: What are you doing
15 to not create any more mixed waste that we'll have
16 to deal with?
17 MR. SATTLER: Part of the process --
18 I'm going to let John jump in here too -- part of
19 the process we're going through in the site
20 remediation is to generate some more waste. What I
21 mean is in particular we expect in the short term
22 that we will in fact be adding to some of the
23 volumes of some of the mixed waste streams. The
24 safe shutdown process is going through and cleaning

1 up, and we anticipate that some of that volume will
2 actually be added to what we have.
3 MR. WARNER: Can you talk a little
4 louder.
5 MR. SATTLER: I'm sorry. We expect
6 that will be added. Keep in mind too that most of
7 the mixed waste, almost all this mixed waste we're
8 dealing with here, what we call the legacy waste
9 from the production operations or from the
10 maintenance activities, we can impact those
11 maintenance activities utilizing materials that
12 when they become waste they don't become hazardous
13 waste and mix the waste by changing out whatever
14 the product is. Instead of using solvents for
15 cleaning parts, we use other types of cleaners.
16 That we have some impact over. The materials that
17 need to be cleaned out in the interim activities we
18 don't have much impact over.
19 Do you want to add anything to that?
20 MR. WITZEMAN: My name is John
21 Witzeman, I'm with FERMCO. I'm responsible for the
22 bottom five of these projects. In waste programs
23 where I work at FERMCO we have another organization
24 that operates next to mine called Waste Utilization

1 Pollution Prevention. Within that organization we
2 research and implement activities and techniques to
3 minimize the generation of waste, as you're
4 speaking, not only mixed waste but low-level waste,
5 just normal sanitary type waste, all types of
6 waste. And I can cite several examples of things
7 we have going on now that are beneficial, but we do
8 have a program specifically for that purpose.
9 One example recently is the fire
10 training ground that Johnny Reising spoke of
11 earlier. Certain portions of that project
12 contained PCB contamination, and we implemented
13 some techniques on that project through Crew 3 that
14 did the actual demolition of the building to create
15 a condition so that that entire building, all of
16 that rubble was not PCB waste, waste that needed to
17 be managed as being contaminated with PCB's or
18 being contaminated with other types of mixed
19 waste. Now that waste is only low-level waste and
20 is easily or more easily managed to a certain
21 degree. And we have other similar types of
22 programs. Does that --
23 MS. DASTILLUNG: Yeah, I guess some
24 point in the future I would like to hear more

1 details about that.

2 MR. SATTLER: Okay.

3 MR. RAST: Through this report

4 process, Vicky, through our annual reporting of our

5 hazardous and mixed waste, we have a good idea of

6 what our mixed waste treatment are. We have

7 implemented substitutions where we've gone from

8 chlorinated solvents to aciduric acid based

9 solvents. We've tried to substitute and eliminate

10 hazardous materials or mixed waste where they're

11 not feasible, and right now our big generation of

12 mixed waste actually comes from investigation

13 derived waste following the sample procedures for

14 the remedial investigation that we have to follow.

15 That's our largest generator. So we've gotten rid

16 of a lot of mixed generation, waste generation

17 where we can. But investigation derived waste,

18 there's not many substitutions for the different

19 solvents used in the lab and, unfortunately, motor

20 oil becomes mixed waste. There's no substitutes.

21 So we're trying.

22 MR. SATTLER: Excuse me, we're

23 getting the signal here.

24 MR. WARNER: Thank you all for your

1 interest.

2 (Off the record.)

3 MR. WARNER: We're going to go ahead

4 and get started here. I'm Rod Warner from DOE here

5 at Fernald, and we are going to tell you a little

6 bit tonight about a document called the Draft Site

7 Treatment Plan that we generated in response to the

8 Federal Facilities Compliance Act. John Sattler

9 from DOE is going to give you a briefing on that,

10 after which we will entertain any of your questions

11 and concerns. We'd appreciate if you'd hold your

12 questions until we get through the briefing here,

13 and then we're going to have all your questions

14 written down that we can't respond to, and we will

15 get back to you with formal responses if we don't

16 have an answer right now.

17 MS. CRAWFORD: In two days?

18 MR. WARNER: For you, Lisa,

19 tomorrow. So I'm going to turn it over to John,

20 and we'll take questions here in a few minutes.

21 MR. SATTLER: Did everyone get one

22 of the fact sheets, Fernald Fact Sheets? In

23 addition to -- Dave has more if anyone didn't get

24 one. When we're finished here for this evening,

there are a couple of other pieces of literature up here you might be interested in as well. Feel free to take one. The fact sheet that you have was prepared by DOE at Fernald. This one is a fact sheet on the FFCA Draft Site Treatment Plan prepared by the State of Ohio. The other thing up here are Ohio, State of Ohio's general comments on the Draft Site Treatment Plan to the Ohio DOE facility, not just Fernald but the five Ohio sites, five DOE sites in Ohio.

The Draft Site Treatment Plan, let's talk about what is the Draft Site Treatment Plan. It is a document that was put together by DOE that summarizes what our plans, what Fernald's plans are for treating our mixed waste on-site. In particular what we identify as our legacy waste. In short, legacy wastes are the mixed wastes that have been generated through production processes or not so distant past maybe through maintenance activities or maybe even through some of the activities like the safe shutdown, which is one of the processes on-site for removing materials from tanks and pipes and what not.

What the Draft Site Treatment Plan

1 does is it lists what we call in the plan preferred
2 options. What this table does here is provide for
3 you what we have identified in the Fernald plant as
4 our preferred options. Those are nothing more than
5 our plans, our projects for dealing with mixed
6 waste. The important thing to remember is that
7 this plan deals only with mixed low-level wastes.
8 So those are the wastes that have a hazardous
9 component. They are corrosive or toxic, they're
10 heavy metals, as well as a radiological component.
11 By and large most of the wastes to be dealt with at
12 Fernald is not mixed waste but rather it's
13 low-level waste, has a radiological component
14 only.
15 So why do we do this, why did we
16 build this plan in the first place? The bottom
17 line reason is we are required to by law. In
18 October of 1992 the Federal Facilities Compliance
19 Act was signed into law by President Bush, and it
20 required DOE facilities that managed, that dealt
21 with mixed waste to generate a site treatment plan
22 for the mixed waste and submit those plans to the
23 state in which they're in. The state would then
24 take a look at those plans, they will review the

1 plan, they will approve it or they will approve it
2 with some modifications or changes, give it back to
3 us, ask us to do further work.
4 The end point in this process for the
5 states' review and approval comes in October of
6 '95, so just a year from now. In the statute
7 itself the act requires for us to develop these
8 plans, issue them, the state to review them and
9 then issue a compliance order to us at Fernald to
10 implement the plan. So after the State of Ohio
11 reviews these preferred options, decides that
12 they're satisfied with them, then they will
13 implement an order to DOE at Fernald and say go
14 ahead and do these treatment projects you have
15 identified here.
16 Now before we talk about this table a
17 little bit more, this thing here is a
18 representation -- well, is a cubic meter. It's
19 built and put here because in one of our previous
20 sessions someone made the comment that we keep
21 talking about volumes, tossing out dimensions like
22 cubic yards, cubic meters, I don't know what a
23 cubic meter is. If you look at a Draft Site
24 Treatment Plan, it lists everything in cubic

1 meters. This is a cubic meter. If you were to add
2 up all this legacy waste that we talk about in the
3 Draft Site Treatment Plan, it would total up
4 something on the order of 3,000 cubic meters,
5 thereabouts. So that's the volume of legacy mixed
6 waste that we're trying to deal with in the Draft
7 Site Treatment Plan in compliance with the Federal
8 Facilities Compliance Act.
9 Taking a look at this table, the
10 first thing you'll notice if you have good eyesight
11 is that at the top it says cubic yards and this
12 says cubic meters. In your handout it lists cubic
13 meters, and what you'll see if you have a mind for
14 mathematics, that a cubic yard is a little bit
15 smaller than a cubic meter. These, as I said, are
16 preferred options. These represent the projects,
17 these are the projects we have on-site to deal with
18 the mixed wastes.
19 One of the first points I want to
20 make is that when we started building this Draft
21 Site Treatment Plan, we decided not to reinvent the
22 wheel, and what that means is that if we had
23 projects that were ongoing or in the planning
24 stages already existing for dealing with mixed

1 wastes, we didn't want to scrap those and start
2 over. We decided that we would just reflect those
3 in our Draft Site Treatment Plan. And many of
4 those projects on here are things that are ongoing
5 or in the planning.
6 Johnny Reising earlier and Gary
7 Stegner talked about many projects. One of them
8 that was mentioned was the UNH treatment process.
9 That's reflected in this particular plan. What
10 decisions are made on UNH treatment we will mirror
11 in this plan. The way the process is working is
12 you notice on your agenda and on here it says DSTP,
13 it says Draft Site Treatment Plan, DOE in response
14 to this law coming into being said the way we're
15 going to approach this is we will do it in three
16 steps. We'll issue a Conceptual Site Treatment
17 Plan, then a Draft Site Treatment Plan, and finally
18 a Final or some people call it Proposed Site
19 Treatment Plan.
20 The conceptual plan was issued a year
21 ago in October, and that was pretty broad in scope,
22 pretty general. It solicited really a whole
23 laundry list of potential options for treating our
24 mixed waste. The draft plan really is our first

1 cut at identifying what we think are the best
2 options.
3 Now the idea of where we are here of
4 leading into the final plan is we presented this,
5 we've sent it to the State of Ohio, we sent a copy
6 of it to US EPA, we put a copy of it in the Reading
7 Room. We are in a stage now, in the process where
8 we are soliciting comments both from the regulators
9 as well as the public. And ideally what we want to
10 do is sit down, go through all those comments and
11 that Final Site Treatment Plan that will be
12 submitted in February of next year, February of
13 '95, will reflect or address the comments that we
14 get from the regulators and from the public.
15 As I mentioned when we started out
16 here, that there are some general comments from the
17 State of Ohio. There are five DOE sites in Ohio,
18 so these comments are addressing issues that they
19 believe cut across the Draft Site Treatment Plans
20 for all five sites. Ohio is still going to provide
21 us with specific comments on the Fernald Draft Site
22 Treatment Plan, and I believe the schedule is by
23 the end of the month.
24 As I started to say, many of these

1 projects are already ongoing. The HF tank car, HF
2 neutralization is really being driven as a RCRA
3 closure activity, and we have a plan in specific to
4 this to the State of Ohio that they are in the
5 process of reviewing, and once they approve that,
6 we will commence treatment of this hydrofluoric
7 acid in that rail car.
8 UNH, I already mentioned. The TSCA
9 incinerator down here at the bottom, that's a
10 continuation of an activity that has been going on
11 where we want to send mixed waste to Tennessee, Oak
12 Ridge, Tennessee to the TSCA incinerator for
13 incineration.
14 Envirocare, that really is not a
15 treatment option here, we're not sending it to
16 Envirocare for treatment, but we have some mixed
17 wastes that are ready for disposal at Envirocare.
18 These last two projects listed here
19 are, like the UNH, CERCLA removal actions which are
20 driving the process.
21 So for Fernald, if the FFCA didn't
22 come along and require us to put this plan
23 together, many of these activities were already
24 being driven by one regulatory mechanism or

1 another. We have had plans in place for the mobile
2 stabilization and mobile chemical treatment, and we
3 will reflect those in this draft section of the
4 plan.
5 I mentioned earlier that this is
6 dealing only with mixed low-level waste, and I also
7 said that in the grand scheme of things that most,
8 by far most of the wastes we're dealing with
9 on-site is not mixed low-level waste, but low-level
10 waste problem. So the logical question that comes
11 out of that is what's the real importance of this
12 or why is it important enough that we're presenting
13 this to you this evening and soliciting your
14 comments. There's a couple of reasons why it's
15 important. One of the reasons is that it's
16 important to the State of Ohio and the other states
17 across the nation. This process of building this
18 Draft Site Treatment Plan is not exactly the same
19 as the process for a lot of the other plans that
20 we've put together for a lot of the remediation
21 activities on-site. One of the big differences is
22 that while we have been building a plan that
23 reflects what we at Fernald want to do, through the
24 whole process we have been working with the other

1 DOE facilities and DOE headquarters across the DOE
2 complex. There are 49 sites that have turned in
3 Draft Site Treatment Plans or will turn in Final
4 Site Treatment Plans. We have regular meetings
5 with them through this process to develop a means
6 that is consistent so that if you pick up one plan
7 for Fernald compared to one say from Portsmouth,
8 that they will be similar, similar enough so that
9 you can compare what we're doing and what they're
10 doing.
11 One of the real importances of doing
12 that is that if we are proposing to send something
13 to Tennessee for Oak Ridge incinerator, the State
14 of Tennessee wants to know that, and they want to
15 be able to pick up our plan and be able to look
16 through that and relatively easily identify that we
17 plan on sending our waste to them for
18 incineration.
19 Now, in addition to working with the
20 other DOE facilities, we have been working with
21 Ohio and we have been having regular meetings
22 across the complex with the other states that are
23 involved in this process too, like the State of
24 Tennessee.

1 Now getting back to the importance of
2 this issue, during these meetings many of the
3 states, in particular those states who will be
4 receiving wastes for treatment, have expressed to
5 DOE and to their colleagues in the other states
6 that they feel very strongly that it is important
7 for DOE to develop good Draft Site Treatment Plans
8 because they believe that if we can work
9 successfully with the other DOE facilities in the
10 other states, that this is going to set the stage,
11 so to speak, for dealing with the bigger rad waste
12 issues. So even though relatively speaking the
13 scale of mixed waste problems is small, we're
14 talking about volume, that this could have an
15 impact on future dealings on the rad waste issue as
16 a whole. So that's a good reason why we take this
17 to heart and are trying to work as best we can in
18 developing a good plan to justify what we want to
19 do.
20 The other reason it's important is
21 there's a couple of issues associated with the
22 Draft Site Treatment Plan that may be of interest
23 to you. Those issues are, number one, that other
24 sites may identify Fernald as a facility for

1 sending their waste to us for treatment. Okay. To
2 date what I can tell you is one other DOE facility
3 has done that, and that one facility is the
4 Portsmouth facility. That doesn't mean it's a done
5 deal. All I'm saying is that if you pick up their
6 Draft Site Treatment Plan, you will see that
7 they've identified Fernald to send three of their
8 mixed waste streams, totaling something on the
9 order of, I believe it's 84 cubic meters of waste
10 to come to Fernald to be treated in the MAWS
11 treatment system.
12 MS. CRAWFORD: You should add, too,
13 though that our understanding is if it was
14 agreeable that it be brought here to be treated or
15 whatever you call it, stabilized or whatever, that
16 it and any leftover gunk goes back to Portsmouth.
17 MR. WARNER: This is just a plan.
18 It is a draft that they are putting together right
19 now. That goes without saying.
20 MS. CRAWFORD: But you need to say
21 that because already people are --
22 MR. WARNER: We'll get to that.
23 MR. SATTLER: The purpose of the
24 Draft Site Treatment Plan was to identify these

1 options. From them identifying it, that's just one
2 of a whole host of issues we have to deal with if
3 that's going to occur, and that's where we are in
4 the process, is to start working out all those
5 kinds of issues.
6 MS. CRAWFORD: That's the only one
7 you've seen?
8 MR. SATTLER: That's the only one so
9 far.
10 MS. CRAWFORD: And we're still on
11 the list. You know, the list has been cut a couple
12 of times because we've been kind of watching that.
13 MR. WARNER: We're getting off the
14 issue here. We'll get to that.
15 MS. CRAWFORD: Okay.
16 MR. SATTLER: We're talking about
17 wastes, about sites sending their waste to Fernald
18 for treatment. The list you referred to is the
19 other issue that's important, that's disposal.
20 Now, let me get back to the disposal issue. Let me
21 address the treatment.
22 Where we are in the process is now
23 that all the sites, those 49 sites have turned in
24 their Draft Site Treatment Plans, DOE across the

complex is looking at all these 49 Draft Site Treatment Plans and saying does this make sense, from a national perspective does this make sense. If Fernald is saying we're going to build a mobile on-site stabilization process, and say Portsmouth identifies that and sites in Kentucky and Tennessee and Washington or South Carolina all identify a similar option, they want to stand back and say is this making sense on a large scale, and they're going to come back and make recommendations on consolidating treatment or influence, possibly changing some of these particular options. The result of that could be that their recommendations might wind up with other facilities identifying Fernald as a place to treat mixed wastes.

To date I have no information to offer to you from that particular work group, I haven't gotten any feedback from them as of yet. I expect to get feedback from them later this month sometime with those recommendations. That is their schedule to provide that information to us and to Ohio at the same time.

MS. CRAWFORD: And that information will be shared regularly?

MR. SATTLER: Sure, yes. The other issue I mentioned was disposal. There is also a work group within DOE that is looking at these 49 sites trying to identify the best candidates for a disposal facility for mixed low-level waste, and they're doing it in a series of cuts or stages. Fernald passed the first cut, so they're still on the list to be evaluated as a mixed low-level waste disposal facility. Where that process is right now is that that particular group that was doing that evaluation, that work group will be coming to Fernald and talking to people from DOE and FERMCO and collecting information to do their performance evaluation. We expect them to literally arrive on-site sometime in November to do that process.

MS. CRAWFORD: They're not going to talk to anybody else except DOE and the contractor?

MR. SATTLER: I don't know. I don't know. I can relay that message back to them.

MS. CRAWFORD: I would very highly recommend that you do that.

MR. RAST: That has been brought up, Lisa, excuse me, at the different sessions for the support group that the work group in their initial

1 plan and in their initial layoff of doing their
2 performance evaluation was strictly looking at the
3 scientific data and had not built into their plan
4 any opportunities for stakeholder input. Some
5 people are harder hitters than others, and we
6 emphasized at their last meeting that they should
7 talk to stakeholders.
8 MS. CRAWFORD: On top of talking to
9 stakeholders I would recommend they also talk to
10 regulators.
11 MR. SATTLER: The regulatory
12 community is very aware of this activity.
13 MS. CRAWFORD: We just want to make
14 sure.
15 MR. SATTLER: I'm going to let Tom
16 elaborate on that.
17 MS. CRAWFORD: Okay.
18 MR. SATTLER: Now, the important
19 thing to remember is that the end result is that
20 they may identify one or two or six or twelve, I
21 don't know how many, candidate facilities. That
22 doesn't mean that one or two or six will in fact
23 become the DOE mixed level waste facilities.
24 That's kind of an exclusion process, whittle it

1 down. From that they will recommend, they will
2 make a recommendation that these are the best
3 candidate facilities for disposal.
4 So that is what the FFCA Draft Site
5 Treatment Plan is about, in 15 minutes. Did I cut
6 it a little bit shorter this time, Dave?
7 MS. YOCUM: If you're wanting
8 comments, how can we give comments if we don't have
9 enough information as far as whether we want mixed
10 low-level waste staying here at Fernald from other
11 sites or, you know, this is just an opening, the
12 first step, and what can we comment about it?
13 MR. SATTLER: Okay. The Draft Site
14 Treatment Plan is available, the document itself is
15 available for you on these issues and in particular
16 the issue on disposal. In that plan is what I
17 think is a pretty good summary of what that work
18 group, national work group is trying to do. So it
19 gives you basically the format or information of
20 where they're going. As far as their final
21 decisions go, you're right, you don't have that
22 information. I don't have that information. We
23 won't even have that information until about the
24 time that the Final Site Treatment Plan is due in

1 February.

2 MS. YOCUM: Well then, it's best to

3 give our comment as far as that we do not want

4 their other plants' waste stored on our site from

5 the very beginning if that's a comment to be made

6 from the very beginning.

7 MR. SATTLER: Absolutely.

8 MS. CRAWFORD: When are the comments

9 due?

10 MR. SATTLER: We would like to get

11 the comments by the end of October, October 30th.

12 MS. CRAWFORD: Halloween.

13 MR. WARNER: Tom, could you

14 elaborate just a little bit on what you talked

15 about a little bit ago as far as your involvement.

16 MR. WINSTON: It's a real

17 interesting process because the first time that all

18 the states that are players in ultimately the

19 disposal issues and certainly the treatment issues

20 and being at the table together have been sitting

21 down and talking together. John made a good point

22 before where this is a small subset of the total

23 waste burden that Fernald is going to be worried

24 about. But this is really going to be the, I think

1 the harbinger of maybe some things that will help
2 this site and the State of Ohio. The act is very
3 clear that equity discussions are supposed to occur
4 between states. There was a recognition that all
5 of the treatment was not going to be able to occur
6 on-site or an expectation, and so Congress said
7 through the act that states would have to have
8 equity discussions because of a concern primarily
9 that there was going to be a lot of shipment to a
10 couple big sites or shipments west.
11 As we started to look at the
12 inventory at the five sites in Ohio, it was clear
13 to us that Ohio would probably be an exporter
14 through the five sites in the plan proposals to
15 export to other states. So from our vantage point,
16 we were best served by trying to push the issue of
17 on-site management to the extent possible, and I
18 think really all the states across the country have
19 felt that that was far superior than just massive
20 shipment of waste across the country, and they
21 wanted the sites to build the plans rather than
22 Washington, rather than headquarters in Washington
23 to say we want a configuration as for a site, they
24 wanted the sites to build from the ground up. I

1 think from my vantage point the sites have done
2 that, and in fact 93 percent of the toxic waste is
3 going to be managed on the site if you take a look
4 at the initial site treatment plans. The question
5 is, is that affordable, you know, would we be able
6 to tweak that a little bit, have a little bit more
7 shipment of waste and get a significant savings if
8 you go to other aspects of the cleanup. That's
9 what this group is looking at right now.
10 I think it's important that we
11 separate the issue of treatment from disposal. The
12 Federal Facilities Compliance Act only addresses
13 treatment, and yet at the same time every state
14 that might be a recipient, like Tennessee, South
15 Carolina, Washington, Idaho, they said early on
16 we're not going to allow waste to come in unless we
17 start to get a picture about what's the ultimate
18 resolution. If we were working towards trying to
19 push DOE to identify a number of disposal options
20 and move in that direction early on so that we can
21 take that into account in our discussions of
22 equity. The time line just isn't going to work out
23 and we're going to be forced to make some decisions
24 on the plans prior to knowing where the waste is

1 ultimately going to be disposed. Because of that,
2 we have come up with all of the residuals go back
3 to the generating site, which means, for example,
4 when wastes go to the TSCA incinerator from
5 Fernald, there would be an expectation that at
6 least for a time those wastes would come back to
7 Fernald. You may not like that, but that does
8 protect you from the issue of wastes from
9 Portsmouth coming in and being stuck at Fernald
10 with residuals if there's any treatment at the
11 site.
12 Now on the issue of disposal, DOE has
13 49 sites and they quickly pared that down to about
14 26 sites based on some of them are in college labs,
15 some of these sites are not what you would even
16 think of at a site like Fernald. And then there
17 was an effort to try to get the states to agree
18 amongst themselves to drop that number down
19 further. We were hopeful that we would get Fernald
20 dropped off that list. We were at a meeting in
21 July where we argued strongly for both Mound and
22 Fernald to be dropped from the list. More due to
23 the dynamics of the meeting, the only way it could
24 be dropped off the list is if every other state,

1 all 26 states in the room agreed it was not worthy
2 of any further consideration. Because of that, the
3 dynamics of the meeting, only Mound was dropped
4 from the list, and it wasn't totally dropped, it
5 was made a lower priority.
6 What I can tell you is that the
7 Fernald site offers severe limitations to the point
8 where I do not feel it will at all be in the cards
9 appropriate, anything that the State of Ohio would
10 stand for to have disposal at the site, have
11 Fernald designated as a disposal site. To be
12 frank, I'm not terribly worried about that. We're
13 going to watch it closely and let this process take
14 its course, but at the same time the only way --
15 DOE has a tough job right now because they have to
16 try to satisfy all of the states, all of the states
17 that came together, and those states that
18 ultimately are more likely to be disposal sites are
19 being very stingy about moving quickly to having
20 them being designated as a site.
21 So those are kind of the two issues.
22 One is just the waste treatment that we're talking
23 about and the other is disposal, which most people
24 are much more concerned about.

PUBLIC: I'm Darrell. I'm sort of concerned with both of them, Tom, but I guess the one, just what you were saying, being a disposal site, I thought at one time that we would never be considered and it isn't even legal that we should be considered because of the aquifer situation. Is it legal that --

MR. WINSTON: And that's why I'm saying the State of Ohio would not stand for that.

PUBLIC: Then why don't they take us off the list?

MR. WINSTON: Well, because the only way they can take us off the list is if the other 25 states agree to take us off the list. So in a sense it's an exercise. There's no way that we can force them and say it doesn't satisfy our siting criteria in Ohio, because they would say, well, we haven't looked at your siting criteria, there wasn't enough time and effort put into it. So what the agreement was, that these sites would be carried along. What it means is that DOE has to put in a lot of effort on something that has no chance of ever getting the blessing of the State of Ohio.

1 MR. SATTLER: DOE's concern in this
2 process is pretty much what Tom was saying. What
3 we're afraid of is by not carrying through in the
4 process, that it will jeopardize what we want to do
5 here and even beyond what's listed on here, that we
6 will be perceived as not playing fairly.
7 PUBLIC: You can see how it makes us
8 nervous.
9 MR. SATTLER: Absolutely.
10 PUBLIC: It's just not happening,
11 We're still on the list and still being considered.
12 MS. CRAWFORD: Personally I think
13 we'll be okay. I agree with Tom, I think we'll be
14 okay. It makes me nervous that our name is still
15 on the list too.
16 MR. WINSTON: From our vantage
17 point, do we consider just walking out of meetings
18 and saying, no, we're not going to play fair with
19 the other states. We are probably the largest
20 exporter from the Draft Site Treatment Plan,
21 exporter of any state in the country, shipments of
22 DOE waste from one state to another. So it's a
23 very fragile dynamic, and we're trying to gingerly
24 kind of walk on egg shells to get accomplished what

1 we need to get accomplished, and once again, this
2 is a small portion of the total waste. We've got
3 issues relating to shipments to Nevada, just purely
4 low-level waste, and all of this is very, very
5 fragile. We're trying to -- I guess our goal is to
6 push DOE to do as much as they can locally,
7 communicate constantly with the other states,
8 especially states like Tennessee, Nevada, and Utah,
9 that are going to be players from a regulatory
10 sense so there's no surprises, to know what's
11 happening, in constant communication, talk to the
12 public and see what we can share with you, what
13 ideas.
14 Your strong comments that Fernald is
15 totally unacceptable for a disposal site is
16 excellent, and I would urge you to take that kind
17 of stand. I would also urge you to be cautious of
18 saying those 83 cubic meters from Portsmouth -- you
19 don't want to put up a barrier and say we don't
20 want to have anything happening that might bring a
21 small amount in because we're sending so much out.
22 So you have to try to consider all those things.
23 MR. WARNER: Edwa, can I let Jim
24 Saric make a comment?

1 MS. YOCUM: Oh, yes.
2 MR. SARIC: I think what Tom was
3 saying about the disposal issues, and they really
4 have them down to the real criteria as far as the
5 site, is the site good enough, does it meet
6 regulatory, they haven't gotten to that point.
7 This really is a RCRA waste and, you know, that we
8 look at it and it's very important that waste be
9 managed from cradle to grave as we say, so what DOE
10 is addressing here is that part of a big nationwide
11 problem. There's only one commercial and operating
12 mixed waste facility in the country, and that's
13 Envirocare, that can take that material as it
14 exists now. But DOE complex-wide, nationwide does
15 generate a large volume of mixed waste. So what
16 we're seeing here is every site has their own
17 burden of figuring out how can we treat this waste
18 first to make it in a more stabilized form and then
19 determine the fact where is it all going to end
20 up. And obviously you can't bombard Envirocare
21 with all that material.
22 So I think you're looking at DOE
23 looking at it complex-wide how to manage this
24 problem on their own. It is a real concern. I

1 think the issue of the landfill siting criteria
2 that you talked about before, that's something that
3 I think -- this is a different scenario, would be
4 to have a facility to store this waste or dispose
5 of this waste is different than the other
6 discussions we talked about, taking Superfund waste
7 or cleanup waste and disposing of it, two different
8 situations.
9 MR. SATTLER: What I can tell you is
10 that we hear the message. We, DOE site office,
11 hear loud and clear and we're trying to relay this
12 message as well.
13 Following what Jim said, the folks
14 performing the evaluation haven't been here yet, so
15 they aren't privy to all the information yet, and I
16 think we can make a real strong case.
17 MS. YOCUM: Well, what I was
18 concerned about, too, is Ohio may be the largest
19 exporter of mixed low-level waste, but we soon will
20 be the importer too if we have that low-level
21 radioactive waste disposal site put in Ohio that
22 will be taking it from, low-level waste from seven
23 other states, and that is quite a lot, and that's
24 -- the site possibly might be in, what, near

1 Scioto, Adams County, somewhere around there, which
2 will be closer to Tennessee than what we are, and
3 is that going to be open for mixed low-level waste
4 from DOE facilities?
5 MR. WINSTON: No. The steams are
6 separate and they are kept separate, so DOE waste
7 cannot go to a compact site. I know in the equity
8 discussions, certainly our governor would certainly
9 raise the issue that certainly we're doing our
10 share as far as the low-level problem, being a
11 low-level site with the compact. The problem is
12 that would not be persuasive to Tennessee. That's
13 in a different compact. They would not be sending
14 waste into the Ohio site. As it turns out, there's
15 not an awful lot, other than the five sites in
16 Ohio, there's not many DOE sites within the rest of
17 the compact. So I've been trying to think of the
18 kinds of issues that would be persuasive with other
19 states that would not be quite so persuasive with
20 the States of Washington, Tennessee, Utah, the
21 people we're --
22 MS. YOCUM: Like you were saying, we
23 already have five DOE sites within Ohio and then
24 with Ohio being, our main resource is the aquifer

1 because Ohio is almost, what, three-fourths
2 aquifer, underground aquifer?
3 MR. WINSTON: Certainly the two
4 sites that are under this aquifer.
5 MS. YOCUM: No, I'm talking about
6 the whole State of Ohio as far as the water
7 resources we have, the underground water resources,
8 and then putting low-level radioactive disposal
9 sites in the State of Ohio is, I mean that's kind
10 of scary, especially when it comes to the
11 groundwater situation. I'm not one of these don't
12 put it in my back yard, I'm willing to take my
13 share. I mean some other people don't believe
14 that, but I mean we can't be sticking it other
15 people's back yards either.
16 MR. WINSTON: Well, one of the
17 issues I have been raising from an equity
18 standpoint is continuing operation. This facility
19 has a mission to close, and so I think that those
20 facilities are going to be part of the continuing
21 complex at DOE, have a different responsibility
22 because of their continued mission there, and
23 that's something I've raised with my counterparts
24 in other states.

1 So there's a lot of issues, a variety
2 of issues. Compact is a big issue since a lot of
3 the same folks are in the compact that are dealing
4 with the DOE sites in their states as well. But it
5 can also be solid waste treatment. Ohio is an
6 importer of solid waste. That's something that our
7 governor would be very, very interested in pursuing
8 with other governors.
9 MR. WARNER: We've got time for a
10 couple more quick ones. Treatment technologies,
11 waste streams.
12 MR. WINSTON: I have one question.
13 PUBLIC: I just have one. Why
14 aren't the numbers on that different than the
15 numbers we've received?
16 MR. SATTLER: These numbers are
17 cubic meters. I don't know why, but whoever made
18 up this table put in cubic yards.
19 PUBLIC: Well, the estimated cost
20 was the same, and that's where I got a little
21 confused. If it was more, why was it costing the
22 same. That was my --
23 MR. SATTLER: Yes, it's two
24 different units of measure.

1 MR. WARNER: We have to watch out
2 for her.
3 MR. WINSTON: I just have one quick
4 question. What is the funding status of anything
5 you propose out of this, how would you fund that?
6 MR. SATTLER: That's a good
7 question. These are the costs and these are the
8 schedules that were listed in the draft plan, and
9 frankly, over the last month or so that was the $64
10 question, is where does the funding for all of this
11 as well as the overall funding at the site stand,
12 and because the real impact is going to be if we
13 don't have the funding, it's going to impact the
14 schedules. Where it stands right now as of today
15 for FY-95 the money that we needed to implement
16 these plans, most of it -- I would be hard pressed
17 to tell you exactly how much is there. What it
18 looks like right now is that these schedules, if
19 you look at the latest, what this says is that all
20 this legacy mixed waste will be treated by the end
21 of 1997. These schedules will be slipped back it
22 looks like a little bit, but not beyond 1998. It's
23 not the situation where we're looking like we can
24 push it back many years.

1 MR. REISING: I think Tom raises an
2 excellent question, something we have been
3 grappling with site-wise as far as the budgeting is
4 concerned, but what we're trying to meet before we
5 get to the compliance case is the fact that we are
6 in compliance with all the requirements in the
7 Amended Consent Decree and also the Consent
8 Agreement. Now we have the other regulatory driver
9 as far as the FFCA and the site treatment plan
10 because once that is signed, properly incorporated
11 into our plans, then it becomes an enforceable
12 document and has to be addressed.
13 MR. WINSTON: That's another issue
14 we're going to be very interested in the comments
15 of stakeholders about how long you feel this is
16 appropriate given other activities at the site.
17 This fits in with other things as well, and I think
18 that's a discussion we're going to have to have
19 next spring of how long and where does it come out
20 of the budget. It's going to fit into a lot of
21 other things, and those are tough issues.
22 MR. RAST: As John pointed out, a
23 lot of these are plans that we had initiated
24 earlier, we're planning to do. I think this year

we're about at 90 or 95 percent of our anticipated funding level just because we are a compliance program driven by RCRA and some of its laws and that we have an opportunity here to stay in compliance. We've got a lot of our funding this year.

MS. CRAWFORD: I would really encourage you to, I know a lot of us have site treatment plan documents, they're hard to read, they're kind of confusing to some of us. I have not read mine, to be honest with you, you know, in between 5,000,000 other things we're doing these days, but I think a lot of people probably have forgotten that these are due at the end of October, and we may need to make a real concerted effort to deal with that.

MR. SATTLER: What we want to do is check the comments by the end of October so that we can incorporate those comments into the final plan in February. So there's going to be another opportunity to --

MS. CRAWFORD: If you don't make the October deadline, you can come back in February and make like your final comments then?

MR. SATTLER: Yeah. We will have more opportunity.

MR. WINSTON: This doesn't mean it's approved, when it says final plan it's not finally approved. It's the final submittal, and we will hold a public hearing and solicit comments.

MS. CRAWFORD: So technically we could miss the end of October deadline and shoot for the February?

MR. WINSTON: Right, and I would also say as you get comments in over, even prior to February, it's going to be a dynamic process, and I want to see, I have asked in the earlier session to see all the public comments as well because we're sending them our comments, but we're, you know, there will be additional information coming in based on the evaluation complex-wide so, you know, there will be several additional points to comment between now and the end of this process.

PUBLIC: The final plan, is that the same as the -- you've got conceptual, you've got the draft which you're talking about now, did I not hear you say proposed?

MR. SATTLER: Some people are going

1 to find the thing that's due next February, some
2 folks are calling it the Final Site Treatment
3 Plan. Some people are going to define it the
4 Proposed Site Treatment Plan. The reason for the
5 difference --
6 MR. WINSTON: Proposed is probably
7 more accurate in the sense that we still have to --
8 MS. CRAWFORD: Final leads us to
9 believe it's final, it's binding, and that's it.
10 MR. SATTLER: And it's not.
11 MR. WINSTON: We ought to start
12 calling it proposed.
13 MR. RAST: One more comment here, we
14 will try to put together a better summary document
15 that describes your comments than this document.
16 MR. CRAWFORD: You may want to think
17 about a workshop or something. Not now.
18 MR. RAST: Maybe in February.
19 MS. CRAWFORD: Yeah.
20 (Brief recess.)
21 MR. STEGNER: Let's go ahead and get
22 started again. We're way behind schedule tonight,
23 so let's everyone take their seats. The last part
24 here is reserved for comments by the regulatory

1 agencies and Citizens Task Force and FRESH, and we
2 have an open mike also. We're going to ask Jim
3 Saric to lead off, US EPA. You can use one of the
4 microphones out there or come up here, Jim.
5 MR. SARIC: I'll try to make this
6 quick as I always do when I come up here. The
7 break-out sessions were kind of interesting because
8 they really represented two distinctly different
9 issues. I think it is really exciting to see what
10 the Task Force is coming forth with, and for those
11 of you who know other people who typically come to
12 these meetings and didn't have an opportunity to
13 come tonight, I really encourage you to talk to
14 them about some of the things and some of the
15 issues that were proposed by the Task Force because
16 I think they're really going to key in and
17 formulate some key decisions and help bring forth
18 some of the things that will happen in the future,
19 so I really want if you can to kind of spread the
20 word over what some of the recommendations of the
21 Task Force are to help inform others on that.
22 The other issue is the Site Treatment
23 Plan is just the beginning. You know, there's a
24 lot of constantly generated efforts and beginning

1 of this whole mixed waste storage disposal problem,
2 and what we're going to do with that. It doesn't
3 just affect DOE, but it really does indicate what
4 other facilities, other entities throughout the
5 country will do.
6 I guess on another note, something
7 that's real interesting that Johnny touched on, if
8 you looked when he went through a bunch of the
9 successes earlier, he talked about a lot of the
10 Records of Decisions coming forward and being made
11 and the facility changing from a RI/FS type
12 facility to one of RDRA and doing action. That's
13 really true, and I know for years, you look at
14 these schedules, and I can look back in '91 and
15 when we renegotiated these schedules and said we're
16 going to have all these Records of Decision coming
17 out and they're going to come one after another.
18 Well, they're here, and I fully anticipate in our
19 next fiscal year, which would be by October 1st of
20 next year, that four of the five decisions as far
21 as what's going to be done at the site to clean up
22 the place will probably be officially and legally
23 binding and made by then if things go according to
24 schedule. And the fifth one being with the

1 buildings in Operable Unit 3, we already have an
2 Interim Record of Decision for that. So in my kind
3 of view, really by October of next year at the
4 latest, I really imagine a lot of the decisions
5 will be made, and it's a question of going out and
6 implementing those things. And that's a lot of
7 work, and there will be budgetary issues and other
8 issues.
9 So I guess now is the time to really
10 stay active and keep on top of what's going on, and
11 if you really have concerns, to voice them. I know
12 there's a lot of meetings that come on the schedule
13 for everybody to be a lot of different ones that
14 seem to be thrown at you left and right, but the
15 next few months is really the time to stay
16 involved.
17 If you have any questions, as always
18 I'm available after the meeting or you can always
19 get in touch with me and I can discuss these things
20 with you. It's really been an interesting process
21 in seeing how the public involvement and all us
22 working together to really come forward with
23 decisions so quickly and hopefully we can continue
24 in the future as far as actually continuing on with

1 the remediation. Thanks.
2 MR. STEGNER: Thank you, Jim. Laura
3 Hegge will speak tonight on behalf of Ohio EPA.
4 MS. HEGGE: Hi. I'm not going to
5 talk too long, I know everyone wants to get out of
6 here. Tom Schneider, the Fernald group leader,
7 sends his regards. He's in Phoenix. I would just
8 like to introduce a couple of people we have here
9 tonight with the Ohio EPA. We have three gentlemen
10 with our Commission on Hazardous Waste Management,
11 Paul Hardy, Phil Harris, and Mark Retkamp are all
12 sitting back there. You guys want to raise your
13 hand. Tom Winston, our District Chief in charge of
14 the Southwest District up in Dayton is here, and a
15 few more members from the newly formed office of
16 Federal Facilities Oversight, Graham Mitchell, the
17 chief also, John Alcoach, Tim Hall, and Jim Coon.
18 They may be a couple of new faces with the office
19 of Federal Facilities Oversight.
20 As we have seen tonight, there's lots
21 of issues going on here, there's Citizens Task
22 Force issues we talked about, FFCA issues, there's
23 newly formed issues that are coming up every day,
24 and we just really, the regulators here, we

1 encourage everybody to keep abreast of these
2 issues. There's lots of opportunities for public
3 participation, and we fully encourage everybody to
4 come out to all these opportunities.
5 Coming up we have OU-2 opportunities,
6 that will take up I know the next several weeks for
7 public participation.
8 I'd like to take this time tonight to
9 announce an Ohio EPA Operable Unit 2 availability
10 session. We have tentatively scheduled this for
11 November 3rd, that's a Thursday night at 7 p.m.
12 This is just an opportunity for the regulators to
13 talk one on one with members of FRESH, members of
14 the Task Force, and other members of the community
15 about the decisions that are being proposed in the
16 Operable Unit 2 Proposed Plan. This is going to be
17 held tentatively, as I said, at the Venice
18 Presbyterian Church in Ross. I'm going to be
19 sending out some invitations to members of the
20 community about this, and we encourage you all to
21 come. And I know this is an issue that's near and
22 dear to the hearts of a lot of people. It's where
23 the first disposal cell is going to be first
24 proposed, so we would like to really hear your

1 input on this issue.
2 We are moving forward, as Jim
3 reinforced the idea, we've seen process. We have
4 the Plant 1 ore silos coming down, we had the Plant
5 7, that was a success after a couple of tries, it
6 wound up being a success, but there are still
7 issues that we're confronting. The UNH issue, I
8 know Gary Stegner announced that and he announced
9 that there will be a workshop to address this. The
10 State of Ohio has issued a notice of enforcement
11 referral. We just really want to enhance our
12 enforcement process. We referred this issue to our
13 Attorney General's Office, and the measures beyond
14 this, they're still up in the air. There are
15 negotiations going on. We have a couple of members
16 back here from Hazardous Waste that if you'd like
17 to talk to them after the meeting, they would be
18 happy to answer any of your questions.
19 And I guess that's about all. One
20 thing I did want to let you guys know, in lieu of
21 having another meeting, we talked about having yet
22 another meeting to introduce the Office of Federal
23 Facilities staff, we've prepared a booklet, and we
24 have copies of it back here on the information

1 table. In it we have all the members of the
2 Fernald team listed. There's our phone numbers,
3 our job descriptions, what you as the public, you
4 as the DOE community might want to contact us at
5 the State of Ohio about. So please pick up a copy
6 of that, and like I said, please stay involved and
7 come to some more of the public participation
8 opportunities. Thank you.
9 MR. STEGNER: Thank you, Laura.
10 John Applegate, Fernald Citizens Task Force.
11 MR. APPLEGATE: After those
12 break-out sessions, I can't imagine anyone wants to
13 hear another word from me, so I will just once
14 again invite any public comment on our
15 recommendations, and if you didn't get one of those
16 green handouts about our interim report, please do
17 pick one up before you leave. It gives our phone
18 number and address, and once again we really would
19 like as much comment on that as possible. Thank
20 you.
21 MR. STEGNER: Thank you, John.
22 Lisa, Lisa Crawford, FRESH.
23 MS. CRAWFORD: Vicky and I are going
24 to do this together. We're going to share

1 tonight. The first thing we wanted to bring up
2 again was just to remind and encourage DOE that we
3 want the public participation to proceed beyond the
4 RODs into the RDRA stuff, since I don't remember
5 all those technoweeny term you guys use. We want
6 that officially on the record because we're going
7 to keep reminding you of that until we see it in
8 writing somewhere.
9 The second thing I want to talk a
10 tiny bit about is the UNH, and I want to encourage
11 the Department of Energy to move forward, you all
12 have been dragging your feet for two years.
13 Somebody needs to go to Headquarters, and if it has
14 to be us, it won't be a pretty scene, and cut the
15 bureaucracy and let's move on. We back the Ohio
16 EPA's decision in their letter fully because this
17 is not good. And we want you to do it, but we want
18 you to do it now.
19 The third thing -- well, Vicky, you
20 do this one now.
21 MS. DASTILLUNG: The other thing we
22 want to emphasize is with OU-2 there is a
23 discussion of a disposal cell on-site, and it is
24 really going to be the critical point with the

1 community as to whether the community as a whole
2 wants to accept the idea of the site becoming a
3 permanent waste disposal site. You may feel that
4 you like that idea or you don't like that idea, and
5 now is the time to say your piece and to make
6 comments and come to the workshops because now is
7 when you can have impact on that decision. Also if
8 you are for having it, the criteria that will be
9 set up for such a disposal cell would also be very
10 important, how nasty a stuff can you live with
11 being on that site. These two issues are very
12 critical. While the Task Force is important and
13 FRESH has worked on these issues, finding consensus
14 within the community is probably going to be a
15 difficult one on that particular issue, and we
16 don't want to presume that we are voicing the
17 opinion of the entire community. So it's up to
18 everybody to get involved on that.
19 MS. CRAWFORD: And the last and the
20 most important thing is we want to remind everybody
21 that on November 17th will be our next FRESH
22 meeting. It's a week early because of
23 Thanksgiving, and we will be celebrating our
24 ten-year anniversary, and we will be having a very

1 brief FRESH meeting, and a guy by the name of Joe
2 Shoemaker is going to come in and do a presentation
3 for us on the Native American burial grounds that
4 some of the water lines are going to be going
5 through, and he is going to talk about the
6 artifacts that are being found and how they are
7 going to deal with that. We have asked the members
8 of the Native American Council of Ohio to come to
9 this meeting, which we have not got an acceptance
10 but it looks real good, and to be a part of this
11 presentation, and Joe has said that if you have
12 Native American artifacts that you would like to
13 bring with you, he would be more than willing to
14 try to give you a little bit of history on them.
15 When that's all said and done, we're
16 going to have cake and punch. We've already talked
17 about spiking the punch but we won't be able to do
18 that because it's a church. We would like to take
19 the opportunity to invite everybody here. All
20 FRESH meetings are open to the public, and come in
21 and celebrate with us. Ten years is a long time to
22 work on something, and we're all a little grayer
23 and a little tireder, but we're hanging in there
24 though. In the Task Force room we talked a little

bit about being workshop junkies. So, you know, please feel free to join us that evening. I think it will be a real exciting evening for all of us to hear some good talk and learn a few things and celebrate and to have some of Edwa's mother's homemade came and some unspiced punch and a little fun. Thanks.

MR. STEGNER: Thank you, Lisa. And congratulations on ten years in advance. A lot of hard work and a lot of hours you ladies have given and gentlemen to this cause. I think we all owe you a lot of thanks for keeping us in the public eye.

You mentioned public involvement through the remedial design, we can guarantee that is going to happen. At the next community meeting we should have copies of the new community relations plan available for everyone. It's in the review process right now. We ran it by both the US and Ohio EPA's and some of the stakeholder groups, and we think we have a good document and you will be able to see it at the next community meeting.

Does anyone else have anything you want to say before we adjourn for the night? I

1 apologize for keeping you so late, longer than we
2 anticipated. We have an open mike.
3 Going once. Twice.
4 MS. CRAWFORD: We're out of here.
5 MR. STEGNER: We're out of here.
6 Thank you all for coming.
7 - - -
8 COMMUNITY MEETING CONCLUDED
9 - - -
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

ITEM NO. 3

1 C E R T I F I C A T E

2 I, LOIS A. ROELL, RPR, the undersigned, a
3 notary public-court reporter, do hereby certify
4 that at the time and place stated herein, I
5 recorded in stenotypy and thereafter had
6 transcribed with computer-aided transcription the
7 within (105) one hundred five pages, and that the
8 foregoing transcript of proceedings is a complete
9 and accurate report of my said stenotypy notes.
10
11
12
13 MY COMMISSION EXPIRES: LOIS A. ROELL, RPR
14 AUGUST 12, 1997. NOTARY PUBLIC-STATE OF OHIO
15
16
17
18
19
20
21
22
23
24

ITEM NO. 3

QUESTIONS FROM THE PUBLIC ON THE DRAFT SITE TREATMENT PLAN
TAKEN FROM THE TRANSCRIPT OF THE OCTOBER 18, 1994
DOE COMMUNITY MEETING

1. Page 45: Line 3 - Has the State of Ohio already bought into all the Draft Site Treatment Plans developed by the five Ohio DOE sites?

   Response: The State of Ohio has reviewed each Ohio DOE site's Draft Site Treatment Plan and has provided comments. Ohio sites will resolve Ohio's comments in the Proposed Site Treatment Plans.

   Other Ohio DOE sites DSTP status is a matter of discussion with each site. Ohio has reviewed the Draft Site Treatment Plan for the FEMP. Ohio has returned comments which have been reviewed and answered or incorporated as appropriate.

2. Page 46: Line 7 - Is there a list of the criteria to decide which sites become disposal sites for the mixed waste?

   Response: Criteria used to evaluate sites for the disposal of waste are discussed in Section 8.2 of the Background Volume. These criteria are used to set priorities which will eliminate some sites from consideration and identify sites with low potential as disposal sites. General criteria, including steps to complete the disposal site evaluation process, are described in Section 8.3 of the Background Volume.

3. Page 46: Line 22 - Does the Fernald site meet the criteria that is described in Section 8 of the DSTP for becoming a disposal site?

   Response: Initial screening does not eliminate the Fernald site from consideration for final disposal. The evaluation process is continuing and may, at some point, eliminate Fernald from further consideration.

4. Page 47: Line 24 - Does DOE expect to have an agreement signed with EPA by next October (1995)?

   Response: DOE's goal is to have all PSTPs and implementing FFCAct Orders in place by October 1995.

ITEM NO. 3

5. Page 47: Line 24 - Does DOE have a schedule (for the completion and treatment of mixed waste)?

   Response: A primary purpose of the Proposed Site Treatment Plan is to develop enforceable schedules for all legacy and newly generated wastes in the DOE system. Waste treatment and disposal schedules are impacted by many factors including technological developments and funding.

6. Page 55: Line 14 - What is DOE/FERMCO doing to not create any more mixed waste at the site?

   Response: The FEMP provides for waste minimization efforts during planning stages of remediation projects. These efforts include engineering and administrative controls. The controls will minimize, but not completely eliminate, the generation of mixed waste.

7. Page 72: Line 24 - How will DOE keep the public informed on the decisions being made by DOE and the States concerning the selection of permanent disposal sites?

   Response: Regulations define what information must be released to the public. Release of additional information is at the discretion of the Department. DOE-FN has committed to keeping the public informed as the selection process proceeds.

8. Page 73: Line 16 - Will the working group within DOE that is looking at the remaining sites to identify the best candidates for permanent disposal, talk to anybody else except DOE and the contractor?

   Response: Yes, DOE is also working with the states, the public and other regulators to identify preferred disposal sites.

9. Page 75: Line 8 - How can the public give comments (on the DSTP) if we don't understand it or have enough information?

   Response: Information is available to the public at the Public Environmental Information Center located in the JAMTEK Building on State Route 128 near the FEMP. Requests for additional information and presentations may be made to the DOE Public Information Office by calling 648-3153. DOE gave a presentation on the FFCAct/DSTP to the Fernald Citizens Task Force at their request.

ITEM NO. 3

10. Page 89; Line 4 - What is the funding status for the completion of the treatment of Fernald's mixed waste?

Response: Funding levels for all DOE sites, including the FEMP, are determined by DOE-HQ and Congress on an annual basis at the beginning of each fiscal year. While the FEMP can project future funding requirements and DOE-HQ can project future funding levels, funding levels for FY-96 and beyond have not been determined. DOE will take all reasonable and appropriate actions within the DOE funding and budgeting process to request funding for mixed waste treatment and disposal projects.

ITEM NO. 4

E6/Sports THE CINCINNATI ENQUIRER Wednesday, September 7, 1994 TC

LEGAL NOTICE

THE UNITED STATES DEPARTMENT OF ENERGY AT THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT, FERNALD, OHIO ANNOUNCES THE AVAILABILITY FOR PUBLIC COMMENT OF THE DRAFT SITE TREATMENT PLAN. The U.S. Department of Energy (DOE) at the Fernald Environmental Management Project (FEMP) announces the availability for public comment of the Draft Site Treatment Plan. The comment period will begin with the publication of this notice and end on October 31, 1994. The Site Treatment Plan will identify how, when, and where suitable treatment capacity for the mixed wastes at DOE facilities will be developed, constructed and operated. The main goals of the FEMP Draft Site Treatment Plan are: ♦ To describe the preferred options for treating the mixed waste at Fernald; ♦ To describe other options for management of the mixed waste and how they were evaluated, and, ♦ To promote discussion and solicit comments from stakeholders on the preferred options and related issues. The Draft Site Treatment Plan contains the preferred options for treating the FEMP mixed waste currently in inventory and defines a management process for future generated mixed wastes. In addition to the preferred treatment option for each mixed waste, schedules for completion of waste characterization activities and a discussion of disposal issues are found in the plan. The Draft Site Treatment Plan and a fact sheet on the plan are available for review at the following location and times: Public Environmental Information Center, JAMTEK Building, 10845 Hamilton-Cleves Highway, Harrison, Ohio 45030, Telephone: (513) 738-0164. Hours: Monday and Thursday, 9 a.m. - 8 p.m., Tuesday, Wednesday and Friday, 9 a.m. - 4:30 p.m., Saturday 9 a.m. - 1 p.m. Please send all comments on the Draft Site Treatment Plan to: Gary Stegner, Director, Public Information, Fernald Area Office, U.S. Department of Energy, P.O. Box 538705, Cincinnati, OH 45253-8705, Telephone: (513) 648-3153.

ITEM NO. 5

2A, THE HARRISON PRESS, SEPTEMBER 7, 1994

THE UNITED STATES DEPARTMENT OF ENERGY AT THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT, FERNALD, OHIO ANNOUNCES THE AVAILABILITY FOR PUBLIC COMMENT ON THE DRAFT SITE TREATMENT PLAN

The U.S. Department of Energy (DOE) at the Fernald Environmental Management Project (FEMP) announces the availability for public comment of the Draft Site Treatment Plan. The comment period will begin with the publication of this notice and end on October 31, 1994. The Site Treatment Plan will identify how, when, and where suitable treatment capacity for the mixed wastes at DOE facilities will be developed, constructed and operated. The main goals of the FEMP Draft Site Treatment Plan are:

- To describe the preferred options for treating the mixed waste at Fernald;
- To describe other options for management of the mixed waste and how they were evaluated; and,
- To promote discussion and solicit comments from stakeholders on the preferred options and related issues.

The Draft Site Treatment Plan contains the preferred options for treating the FEMP mixed waste currently in inventory and defines a management process for future generated mixed wastes. In addition to the preferred treatment option for each mixed waste, schedules for completion of waste characterization activities and a discussion of disposal issues are found in the plan.

The Draft Site Treatment Plan and a fact sheet on the plan are available for review at the following location and times:

Public Environmental Information Center
JAMTEK Building
10845 Hamilton-Cleves Highway
Harrison, Ohio 45030
Telephone: (513) 738-0164
Hours:
Monday and Thursday
9 a.m. - 8 p.m.
Tuesday, Wednesday and Friday
9 a.m. - 4:30 p.m.
Saturday
9 a.m. - 1 p.m.

Please send all comments on the Draft Site Treatment Plan to:

Gary Stegner, Director Public Information
Fernald Area Office
U.S. Department of Energy
P.O. Box 45253-8705
Telephone: (513) 648-3153

ITEM NO. 6

Ohio EPA's General Comments
& FEMP Responses on DSTP

COMMENT #1: As stated in the DSTP's they do not reflect evaluation by DOE of impacts on other DOE facilities or to the DOE program overall. The Options Analysis Team (OAT) effort should address this. How will the results of that evaluation be incorporated into individual site STP's?

RESPONSE: **The final OAT recommendations have been reviewed and have no impact on the Preferred Options for FEMP mixed waste streams.**

COMMENT #2: Ohio recognizes DOE's current policy in handling TRU (transuranic) waste is through the WIPP project and as such DOE identifies that as its preferred (and only) option. DOE must address alternatives to WIPP in the STP(s) as a "plan B" if WIPP doesn't work out.

RESPONSE: **The FEMP does not store or generate transuranic waste and therefore is not affected by this comment.**

COMMENT #3: The DSTP's in general, do not account for the management of treatment residuals and secondary waste streams. Quantity estimates do not appear to be accounted for in projected estimates of waste to be managed. The STP's must address the issue of residual and secondary waste stream handling e.g., storage, disposal, further treatment and quantity estimates generated from individual waste treatment schemes.

RESPONSE: **Secondary wastestream types and volumes are expected to be generated from the Chemical Treatment Project and are discussed in Section 3.1.6 of the Background Volume. On-site storage of treatment residuals is addressed in Section 6.0 of the Background Volume. Disposal of residues is discussed in Section 8.0 of the Background Volume and the type of disposal required (mixed or low level) for residues generated from the treatment of each waste stream is identified in the Appendix C tables.**

COMMENT #4: The DSTP's do not provide sufficient narrative discussion as to how each of the treatment options received the scores it did for each of the rating criteria. The STP's must address in more detail the rationale behind the elimination of treatment options and the selection of the preferred option.

RESPONSE: **An enhanced, detailed discussion of the rationale for evaluating and selecting each of DOE's Preferred Options is presented in Appendix A.**

ITEM NO. 6

COMMENT #5: The DSTP's do not provide detailed technical information including process description and engineering drawings regarding proposed treatment processes. While Ohio understands it may be too soon for DOE to provide this information DOE must understand that detailed information on proposed treatment technologies will be required of DOE prior to the issuance of authorization to construct/operate. This information, if available, should be submitted at the time of the PSTP submittal. It is Ohio's position that if this level of information is not contained in the STP's it will be necessary to include a compliance schedule in each order requiring its submittal.

RESPONSE: **Treatment technology and process information for each of DOE's Preferred Options is described in Section 3.0 of the Background and Plan Volumes as well as Appendix A. Schedules for providing detailed plans, specifications and process descriptions for each of the Preferred Options are presented in Section 3.0 of the Background Volume.**

COMMENT #6: As indicated to DOE in previous communications Ohio does not ratify DOE's approach to establishing milestones. Enforceable milestones which do not support funding the projects and moving the projects forward are not acceptable to Ohio. We will be discussing this issue with each of our sites in upcoming meetings.

RESPONSE: **All references to establishing milestones have been removed from the Proposed Site Treatment Plan.**

COMMENT #7: The disposal issue is not appropriately addressed in the DSTP's. The STP's must begin to project the narrowing of disposal options for residuals in order for states to carry-out equity discussions and for states to be in a position to approve the STP's.

RESPONSE: **The FEMP has identified the disposal option (mixed or low level) for each waste stream in the tables in Appendix C. Also refer to DOE site specific responses to comments #11 and #17.**

COMMENT #8: DOE must provide a schedule for waste characterization in the STP's where there is a lack of sufficient waste characterization to determine the appropriate treatability grouping and where there is insufficient characterization to determine specific treatment levels for technologies chosen.

RESPONSE: **DOE has provided schedules for addressing further characterization of specific waste stream populations in Section 3.3 of the Background Volume.**

ITEM NO. 6

COMMENT #9: Section 6. Future Generation of Mixed Waste Streams

This section represents that "the site treatment plan, or modification thereto, will not include any environmental restoration wastes for which treatment is addressed pursuant to any agreement, order or plan issued by Ohio or to which Ohio is a party." DOE must include a discussion in the STP's which identifies these waste streams, quantity, the order (authority) under which they're being addressed, schedules and treatment technology being utilized. Consideration must be given to this by DOE in their development of a facility-wide waste treatment scheme. It is also important that stakeholders be fully advised of all relevant issues.

RESPONSE: **A discussion of quantities, types, and strategies for treating future-generated mixed waste is presented in Section 6.0 of the Background Volume.**

COMMENT #10: Complete life cycle costs need to be reflected in each DSTP for treatment technologies chosen. It is not apparent in each DSTP that this has been done.

RESPONSE: **The FEMP has updated the cost information in Appendix A for the PSTP. The cost information is provided by total project cost.**

COMMENT #11: There was little evaluation or summary of "The Ohio Option" in the DSTP's and no apparent decision points as to why the "Ohio Option" was not chosen as a preferred option.

RESPONSE: **The Ohio Options have been clearly identified in Appendix B of the FEMP PSTP. This Appendix evaluates treatment options from a regional perspective for treating mixed waste streams from DOE sites in Ohio and Kentucky. The Ohio Option is evaluated against other alternatives for treatment of FEMP waste streams in Appendix A and is selected as the DOE Preferred Option for many FEMP waste streams.**

ITEM NO. 7

OHIO EPA's FEMP SITE SPECIFIC COMMENTS AND FEMP RESPONSES ON DSTP

COMMENT #1: Background Volume, Section 2.4.1, page 19 - The DSTP does not provide detailed technical information regarding the treatment processes. This section references project "work plans" to be developed which will address technical aspects of MW (mixed waste) treatment. What is the schedule for development of these plans? Are they to be a part of the Final STP? See Ohio EPA General Comment #5.

RESPONSE: **Treatment technology and process information to be utilized for each of DOE's Preferred Options is described in Section 3.0 of the Background and Plan Volumes. Schedules for submitting work plans for these Options are presented in Section 3.0 of the Background Volume.**

COMMENT #2: Background Volume, Section 2.4 - This section avoids discussion of sampling and analysis as an integral part of the characterization process. The discussion centers around process knowledge as being sufficient for initial characterization. Mixed waste must be fully characterized before treatment can be undertaken. See Ohio EPA General Comment #8.

RESPONSE: **Section 2.4 of the Background Volume discusses the use of sampling and analysis in the waste characterization process.**

COMMENT #3: Background Volume, Section 2.4.1, page 18 - This page references Figure 1 on page 19. However, Figure 1 is on page 21. This type of misnumbering occurs throughout the Background Volume.

RESPONSE: **References to figures and tables have been corrected as necessary throughout the PSTP.**

COMMENT #4: Background Volume, Section 3.1.3, page 30 - DOE must provide additional information clarifying the relationship of the incineration project with the wastewater treatment project. Currently language lends to confusion as to how certain waste streams will actually be treated.

RESPONSE: **For clarification, the TSCA Incinerator and Wastewater Treatment are now designated as two separate preferred options that comprise the Liquid Mixed Waste Project. An explanation of this relationship is provided in Sections 3.1.4 and 3.1.7 of the Background Volume.**

ITEM NO. 7

COMMENT #5: Background Volume, Section 3.1.5, page 40 - This section describes the Mobile Chemical Treatment Preferred Option. Under this mobile chemical treatment "umbrella", 11 separate treatment processes are described. Describe the rationale for including 11 different processes under one option and describe how DOE has ensured that all treatment options will be properly evaluated (considering on-site, and/or commercial capabilities for each of the 11 processes). See comment 14 below.

RESPONSE: **A discussion of the approach used in developing and evaluating options for the Chemical Treatment Project is provided in Appendix A.**

COMMENT #6: Background Volume, Section 3.1.6, Table 6 - Under the EPA codes for some of the waste streams, there is a notation (WW) or (NWW). However, this is not the case for all waste streams. Provide an explanation for this. Also describe what criteria you used to designate a (WW) versus a (NWW).

RESPONSE: **This notation has been removed from these tables.**

COMMENT #7: Background Volume, Section 3.3, pages 71-78 - Provide justification for the schedule provided to characterize these wastes. How are these wastes affected (or unaffected) by the schedules provided in the Stipulated Amended Consent Decree (SACD)? See Ohio EPA General Comment 8.

RESPONSE: **Justification for these schedules is provided in Section 3.3 of the Background Volume. These waste populations are generally unaffected by the schedules provided in the Stipulated Amendment to the Consent Decree (SACD).**

COMMENT #8: Background Volume, Section 6.0-6.2, pages 79-83 - In addressing future generation of mixed waste streams, DOE proposes to submit information/schedules for treatment as driven by the CERCLA process. DOE must include a discussion in the STP's which identifies these waste streams, quantity, the order (authority) under which they're being addressed, schedules and treatment technology being utilized. See Ohio EPA General Comment 9.

RESPONSE: **Mixed wastes projected to be generated from remediation activities are discussed in Section 6.0 of the Background Volume.**

COMMENT #9: Background Volume, Section 6.0, page 81 - The information presented does not account for all HWMU's (and associated projected mixed waste quantities.) in OU 3. Explain.

RESPONSE: **Mixed wastes projected to be generated from the remediation of FEMP Hazardous Waste Management Units over the next five years is discussed in Section 6.0 of the Background Volume.**

ITEM NO. 7

COMMENT #10: Background Volume, Section 6.0-6.2, pages 79-83 - In addressing future generation of mixed waste streams, DOE only discusses the generation of remediation wastes. This section should also discuss ongoing generation of wastes other than remediation wastes, and should discuss the plan and schedule for the treatment of this waste.

RESPONSE: **A discussion of all mixed wastes projected to be generated over the next five years at the FEMP is presented in Section 6.0 of the Background Volume.**

COMMENT #11: Background Volume, Section 8.4, pages 92-93 - This section briefly discusses disposal factors, and refers to Appendix C for disposal information. However, Appendix C does not include specific disposal information for treatment residuals. Section 8.4 and Appendix C should provide specific disposal plans for the residuals. See Ohio EPA General Comment 7.

RESPONSE: **The projected disposal option for each waste stream (mixed or low level) is identified in the tables in Appendix C.**

COMMENT #12: Appendix A, page A-8 - This section states that FEMP did not always evaluate the Ohio option or the off-site option if a viable on-site option existed, consistent with the DOE-HQ framework. The Ohio option should be evaluated in all cases, and rationale for not selecting the Ohio option must be provided. See Ohio EPA General Comment 11.

RESPONSE: **The Ohio Options are evaluated as alternatives for all options addressed in Appendix A. This also includes a discussion of the rationale used in evaluating and selecting each of DOE's preferred options.**

COMMENT #13: Appendix A, Figures - These Figures chart the comparison of options for each of the preferred options. However, there is no corresponding narrative to describe the rating of each option discussion provided as to why the Mound Glass Melter received a 3 rating for Environmental/Public Health while On-Site Mobile Stabilization received a 5 in this category. The plan must include additional detail describing the rationale for each rating so that the state can evaluate the adequacy of DOE's selection process. See Ohio EPA General Comment 4.

RESPONSE: **Appendix A has been restructured to provide additional detail on the options evaluation and selection process for each Preferred Option.**

ITEM NO. 7

COMMENT 14: Appendix A, Section 2.4, page A-33 - As previously stated (comment 5), Mobile Chemical Treatment is actually a number of different processes. While Section 3.1.5 breaks it out into 11 different processes, this section describes 7 different treatment trains associated with the Mobile Chemical Treatment preferred option. From the description of the treatment trains, it appears that it might be appropriate to split this one preferred option into at least 4 - Deactivation, Neutralization, Fuel substitution, and Amalgamation. As stated in comment 4, provide additional discussion justifying DOE's approach to the Mobile Chemical Treatment preferred option. Again, this may be significant in ensuring that all available options have been evaluated properly and adequately for each waste stream.

RESPONSE: **A discussion of the approach used in developing and evaluating options for the Chemical Treatment Project is provided in Appendix A.**

COMMENT #15: Appendix A, Section 2.5, page A-43 - In the background volume, On-site Wastewater Treatment is identified as a Preferred Option. However, in Appendix A, the Wastewater Treatment option is not evaluated separately, but appears to be lumped in with the evaluation of TSCA Incinerator option. The Wastewater Treatment option should be evaluated separately.

RESPONSE: **The Wastewater Treatment Project is evaluated as a separate project in Appendix A.**

COMMENT #16: Appendix A, Section 2.6, page A-60 - The narrative states that no treatment is required prior to shipment to Envirocare. However, Treatment Train K is identified as being necessary to complete the project for some of the waste streams. Treatment Train K describes incineration and stabilization steps prior to disposal. Explain the discrepancy.

RESPONSE: **Treatment Train K is designated for wastes comprised of EPA - ignitable liquids and non-hazardous solids. The Treatment Train K diagram in Appendix C has been revised to indicate treatment of liquids at the TSCA Incinerator with disposal of solids as low level waste.**

COMMENT #17: Appendix C/Treatment Trains - Disposal of treatment residues are generally addressed for each treatment train. However, specific disposal options are not identified. Do we assume that "Mixed Waste Disposal" indicates the waste will go to Envirocare, and "LLW Disposal" means the waste will go to NTS? See Ohio EPA Comment 7.

RESPONSE: **Yes. These can generally be assumed to be the disposal options for each of the waste streams. In addition, the disposal option for each waste stream has been added in the tables in Appendix C.**

ITEM NO. 7

COMMENT #18: Appendix D, page D-24 - This section, dealing with public participation, states that the DSTP will be made available for public review and comment, and that comments received will be considered in the preparation of the Final STP. It should be stated that public comments will also be shared with Ohio EPA.

RESPONSE: **All public comments received on the DSTP are included in Appendix D.**

COMMENT #19: Plan Volume, Section 3.1.4, page 13 - The regulatory mechanism described for the wastewater treatment option (CERCLA Removal Action) is inconsistent with that indicated in the summary sheet given to Ohio EPA during the 9/8/94 meeting with FEMP. (The summary sheet indicates the regulatory mechanism to be an Ohio Consent Order).

RESPONSE: **As indicated in Section 3.1.4 in the Plan Volume, DOE is proposing to use a CERCLA Removal Action as the regulatory mechanism for the Liquid Mixed Waste Project.**

COMMENT #20: General comment - The plan does not account for the potential disposal of residues in the Envirocare and TSCA Incinerator preferred options. In order to adequately address equity issues with Utah and Tennessee, it is important for Ohio to have a handle on the <u>total</u> quantity of waste that might be shipped to these out of state facilities throughout the course of activities described in the plan. This total should include existing waste, future generated waste, and to the extent possible, treatment residues. See Ohio EPA General Comment 3.

RESPONSE: **Total quantities of wastes that are currently in inventory which are proposed to be shipped to the TSCA Incinerator in Oak Ridge, Tennessee are identified in Table 7 in Section 3.1.7 of the Background Volume. Total quantities of inventoried wastes to be shipped off-site for direct disposal at Envirocare in Clive, Utah are identified in Table 8 in Section 3.1.8 of the Background Volume. The total quantity of secondary wastes/treatment residuals to be generated from the Chemical Treatment Project which may be dispositioned off-site are identified in Section 3.1.6 of the Background Volume.**

COMMENT #21: General comment - A review of the DOE-Ports DSTP reveals that they have identified FEMP's MAWS system as a preferred option for some of their waste streams accounting for approximately 83 cubic meters of waste. FEMP's DSTP does not reflect this activity. The plan must clearly reflect any plans for receipt of waste from off-site. See General Comment 1.

RESPONSE: **Portsmouth has revised their Preferred Option for these waste streams from the FEMP MAWS Facility to an option which does not involve on-site treatment at the FEMP. Discussion of waste from off-site is initiated in Section 3.0 of the Background Volume.**

DRAFT

ITEM NO. 8

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. 9

6797

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

D-127

Recycled and Recyclable

000831

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;

- 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.

000634

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.

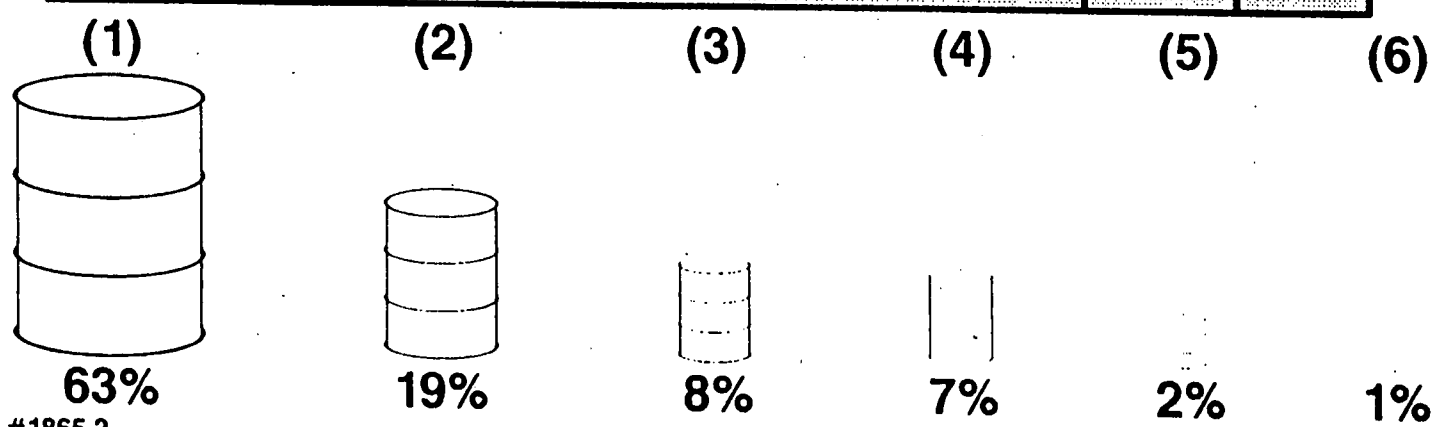
Treatment

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%



Graphics #1865.2

ITEM NO. 12

000638

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

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

000640

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. 15

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."

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 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

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

Appendix E identifies terms, abbreviations, and definitions that have been referenced in the Proposed Site Treatment Plan. Definitions have been derived from regulatory agency and DOE site, environmental journals, and other sources of regulations and documents.

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. The words and phrases are listed alphabetically. Common abbreviations, if any, follow the term.

Amalgamation (AMLGM) - A process applicable to liquid radioactive wastes containing mercury and particularly to liquid wastes containing radioactive mercury isotopes. Liquid mercury compounds are converted into a solid alloy utilizing inorganic reagents such as zinc, copper, nickel, gold, and sulfur, 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.

Aqueous Liquids (as a waste matrix) - Liquids/slurries with a total organic carbon (TOC) content less than 1 percent. Slurries must be flowable (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 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 evaluates 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 (i.e. inorganics that contain the elements of phosphorous, nitrogen, and sulfur) by microorganisms 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. Total Organic Carbon is often 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 in a vessel or a barge. Packaging in 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 wastewaters 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 in bulk to wastewater.

Cemented Solids (as a waste matrix) - Sludges or solids (e.g. particulates, etc.) that have been solidified/stabilized with Portland 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 bind hazardous components in the waste to minimize the leaching of such components and 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; or (9) other oxidizing reagents of equivalent efficiency. Units are operated such that a measurable surrogate compound or indicator parameter is reduced in concentration in the residual. Total Organic Carbon is often 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 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; (3) sodium hydrasulfide; (4) ferrous salts and/or; (5) other reducing reagents of equivalent efficiency. Total Organic Halogens are often 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. "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, 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°c (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.

Designated Facility - A hazardous or mixed waste treatment, storage, or disposal facility that has received an EPA permit or an interim permit 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 - Permanent isolation of waste with no intent of recovery.

Disposal Facility - (1) Land, structures, and equipment used for 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 usually following engineering waste treatment to meet all effluent controls, including on-site retention and decay. 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 not, that flows from 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), prepared by the EPA or under EPA guidance, attempts to identify and analyze the environmental impacts of a proposed action and feasible alternatives. The DEIS 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 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, magneto-hydrodynamics 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 by the Resource Conservation and Recovery Act (RCRA). The FFCAct 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 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 or 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 Federal Waste Pollution Control Act (FWPCA); (b) any element, compound, mixture, solution, or substance designated 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 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.

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 process 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 Nuclear Waste Policy Act (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, an oxidizer or ignitable compressed liquid per Department of Transportation Regulations, or a solid that 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 reduces the leachability of hazardous constituents.

Immobilized Materials - Materials that are fixed in a matrix.

Incineration - (1) The engineered process of combusting of solid, liquid, or gaseous wastes 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. Examples of 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. 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. The extract is high in organics and must undergo either incineration, reuse as a fuel, or other recovery/reuse. A raffinate is also produced that is proportionately low in organics and must be treated 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 radioactive waste, provided the concentration of TRU is less than 100 Nci/g.

Macroencapsulation (MACRO) - Application of surface coating materials with polymeric organics 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 and solvent extraction; (5) freeze crystallization; (6) ultrafiltration and/or (7) simple precipitation (i.e. crystallization). 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, 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 - Located within a single research or production DOE site; 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, 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, initial phases of an action, or a set of actions performed, or actions that are concurrent but located in different parts of a site. (2) A discrete portion of a site consisting of one or multiple release sites considered together for assessment and cleanup activities. Primary criteria for placement of release sites into an operable unit include geographic proximity, similarity of waste characteristics and site type, and for economies of scale. (3) An overall response action that by itself eliminates or mitigates a release, a threat of a release, or an exposure pathway.

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, glovebox gloves including lead-lined, and animal carcasses.

Organic Liquids (as a waste matrix) - Liquids and slurries with a total organic carbon (TOC) content greater than or equal to 1 percent. Slurries must be flowable (e.g. suspended/settled solids can be up to approximately 35-40 percent). Only liquids or slurries packaged or 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 - For radioactive materials, the packaging together with its radioactive contents.

Packaging - 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, devices for cooling and shock absorbing mechanisms. The conveyance, tie-down system, and auxiliary equipment may be part of the packaging.

pH - A measure of the acidity or alkalinity of a liquid or solid material.

Pollutant or Contaminant - Any element, substance, compound, or mixture, that is released into the environment and upon exposure to any organism may reasonably cause death, disease, behavioral abnormalities, genetic mutation, physiological malfunctions or physical deformations. Petroleum, including fractions and crude oil, is exempt from classification as a hazardous substance.

Precipitation (PRECP) - Treatment of metals and other inorganics with reagents 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 of the waste.

Project - A project is the mechanism to implement the Preferred Option. A project may contain one or more Preferred Options. 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 non-ionizing radiations, such as sound, microwave, radiowave and 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 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.

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 - 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). This does not preclude the use of other physical phase separation techniques such as decantation, filtration (including ultrafiltration), and centrifugation, used in conjunction with the above listed recovery technologies.

Remedial Action (RA) - (1) Activities conducted at DOE facilities to reduce potential risks to people, or harm to the environment from either radioactive or hazardous substance contamination. (2) Those actions consistent with permanent remedy taken instead, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment. (3) The term includes actions at the location of the release. Other activities may be included at the direction of the President. Complete definition is in §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 - Handling of wastes from a distance 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 how hazardous waste will be managed at a treatment, storage, or disposal facility.

Screening - A system designed to prevent particles or liquids in one area from mixing or reacting with another.

Segregation - Separation of waste materials to facilitate handling, storage, treatment, transportation, 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 the required facilities for management functions. A site is not a satellite of another site. (2) For the purposes of the ERWM Five-Year Plan, sites are lands, installations, or facilities for which DOE has or shares responsibility for ERWM activities. (3) An area at which hazardous substances have been located. This includes all contiguous land, 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. 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 taken upon completion of operations to prepare the disposal site for custodial care and ensure the site will remain stable and not need active maintenance.

693030

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 reduces leachability of hazardous metal constituents.

Steam Stripping - A continuous process consisting of a boiler, stripping column, condenser, and 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 depend upon the design parameters of the unit. The result is a condensed extract high in organics that must undergo either incineration, reuse as a fuel, or other recovery/reuse. Extracted wastewater 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) 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 that must be met achieved to land dispose waste.

Thermal Treatment - Treatment of hazardous waste 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 of DOE waste, 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 rendering it less hazardous, safer to transport, store or dispose, or reduced in volume.

Treatment Facility - Specific area of land, structures, and equipment dedicated to waste treatment and related activities.

Treatment, Storage, and Disposal (TSD) Facility - Any structure or installation where a radioactive or hazardous substance is treated, stored, or disposed.

Treatment System - 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 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 - Planning, coordination, and direction functions related to generation, handling, treatment, storage, transportation, and waste disposal, including associated surveillance and maintenance activities.

Waste Minimization - (1) An action that avoids or reduces 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) Reduction 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 reduction of total volume of hazardous waste, reduction of toxicity of hazardous waste or both.

Waste Segregation - Separation of waste materials before the package or repackage process to facilitate handling, storage, treatment, transportation, or disposal.

Waste Stream - Waste materials with specific definable characteristics that remain the same throughout 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). Wastewater includes 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.

6797

Plan Volume

6797

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PROPOSED SITE TREATMENT PLAN

PLAN VOLUME

000673

Plan Volume Summary

The Plan Volume is the second of two volumes that comprise the Proposed Site Treatment Plan (PSTP). The Plan Volume identifies treatment capacity to be developed and associated schedules as required by the FFCAct. The Plan Volume also addresses implementation of the Proposed Site Treatment Plan and establishes target dates that will be enforced by the implementing FFCAct Order. It references, but does not duplicate, details on the options as discussed in the Background Volume.

PROPOSED SITE TREATMENT PLAN
PLAN VOLUME
TABLE OF CONTENTS

PAGE #

1.0 PURPOSE AND SCOPE 1

2.0 IMPLEMENTATION OF THE PROPOSED SITE TREATMENT PLAN 3

2.1 Funding 3

2.2 Modification of Technologies 3

3.0 MIXED LOW LEVEL WASTE STREAMS 4

3.1 Mixed Waste Streams for which Technology Exists 4

3.1.1 Waste Stream for which Technology Exists - Preferred Option: Hydrofluoric Acid (HF) Neutralization System . 5

3.1.2 Waste Stream for which Technology Exists - Preferred Option: Uranyl Nitrate Hexahydrate (UNH) Treatment System 6

3.1.3 Waste Stream for which Technology Exists - Preferred Option: Thorium Nitrate Treatment System 7

3.1.4 Waste Streams for which Technology Exists - Preferred Option: Wastewater Treatment 8

3.1.5 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Stabilization System 9

3.1.6 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Chemical Treatment System 10

3.1.7 Waste Streams for which Technology Exists - Preferred Option: TSCA Incinerator 11

3.2 Mixed Waste Streams for which Technology Exists But Needs Adaptation or for which No Technology Exists 12

3.3 Mixed Waste Streams Requiring Further Characterization or for which Technology Assessment Has Not Been Done 12

4.0 TRU MIXED WASTE STREAMS 12

5.0 HIGH LEVEL MIXED WASTE STREAMS 12

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
PROPOSED SITE TREATMENT PLAN
PLAN VOLUME

1.0 PURPOSE AND SCOPE

1.1 The U.S. Department of Energy (DOE) is required to prepare a plan for developing treatment capacities and technologies for each facility at which DOE generates or stores mixed waste, pursuant to Section 3021(b) of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C 6939c(b), as amended by Section 105(a) of the Federal Facility Compliance Act [(P.L. 102-386) (FFCAct)]. The mixed waste must be treated or otherwise managed in accordance with the land disposal restriction standards under Section 3004 of RCRA. Upon submission of the plan to the appropriate regulatory agency, the FFCAct 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 EPA and any State in which a facility affected by the plan is located. Upon approval of a plan, the regulatory agency must issue a FFCAct Order requiring compliance with the approved plan.

1.2 The DOE Fernald Office, hereinafter referred to as DOE-FN, has prepared this Proposed Site Treatment Plan (PSTP) for mixed waste at the FEMP, which identifies how DOE-FN proposes to obtain treatment of the site's mixed waste or develop technologies for treatment where technologies do not exist or need modification. For some waste streams, a plan and schedules for characterizing wastes, undertaking technology assessments, and for providing the required plans and schedules for developing capacities and technologies, as appropriate, are provided.

1.3 The Plan Volume and implementing FFCAct Order address LDR requirements pertaining to storage and treatment of covered wastes, whether such wastes were generated or accumulated in the past, present or future. Covered wastes are all mixed waste at the FEMP identified in the PSTP or added to the PSTP in accordance with the implementing FFCAct Order, except those mixed wastes which 1) meet LDR requirements, regardless of the time of generation, or which 2) are being stored, or will be stored when generated, solely for the purposes of accumulating sufficient quantities of mixed waste as are necessary to facilitate proper recovery, treatment, or disposal.

1.4 Establishment of the implementing FFCAct Order will provide:

1.4.1 An enforceable framework in conjunction with the FFCAct Order in which DOE-FN will develop and treat or otherwise meet RCRA land disposal restrictions (LDR) for all covered LDR mixed wastes currently in storage and to be generated or received in the future; and

1.4.2 Storage of current and projected covered LDR mixed wastes at the FEMP during implementation of this PSTP and the FFCAct Order.

1.5 The Plan Volume, in conjunction with the Background Volume, comprises the PSTP. The Plan Volume provides overall schedules and target dates for achieving compliance with LDR. Additional discussion contained in the Background Volume is provided for informational purposes only.

1.6 This PSTP and a FFCAct Order issued, fulfills the requirements contained in the Federal Facility Compliance Act of 1992, RCRA Section 3021, and pursuant to §105(a) of the FFCAct (RCRA §3021(b)(5)). This PSTP and FFCAct Order shall stand in lieu of any other interpretations of the DOE-FN requirement to develop and submit a plan for the development of treatment capacities and technologies pursuant to RCRA Section 3021.

2.0 IMPLEMENTATION OF THE PROPOSED SITE TREATMENT PLAN

The mechanisms and procedures for administering and implementing the treatment plans and schedules in Sections 3.0 through 5.0 of the Plan Volume will be established in the FFCAct Order.

2.1 Funding

DOE-FN will take all necessary steps, and use its best efforts to obtain timely funding to meet its obligations under the STP, including but not limited to the submission of timely budget requests. However, nothing in the STP affects DOE's authority over its budget and funding level submissions. Further, it is DOE's position that any requirement for the payment or obligation of funds by DOE established by the terms of the STP and FFCAct Order requiring compliance with the STP would be subject to the availability of appropriated funds, and that no provision of the STP or FFCAct Order should be interpreted to require the obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341, as amended. In cases where the payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the payment or obligation of such funds should be appropriately adjusted. If appropriated funds are not available to fulfill DOE-FN obligations under the STP or FFCAct Order, DOE-FN would meet promptly with the appropriate regulatory agency representatives to discuss whether accommodation on adjustments to deadlines that require the payment or obligation of such funds can be reached.

2.2 Modification of Technologies

Emerging or new technologies not yet considered that provide opportunities to manage waste more safely, effectively, and at lower cost than the current technologies identified in the PSTP may be identified in the future. Working closely with regulators and other interested parties during the implementation of the PSTP, 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 more promising technologies be identified, DOE may request a modification of its PSTP in accordance with provisions of the implementing FFCAct Order.

3.0 MIXED LOW LEVEL WASTE STREAMS

The Plan Volume of the PSTP establishes overall schedules for achieving compliance with LDR requirements for mixed wastes at the FEMP. The schedules include those activities required to bring existing waste treatment facilities or technologies into operation, and those required to develop new facilities and capacity for treatment. The assumptions upon which individual schedules are dependent are contained in Sections 3.0 through 5.0 of the Background Volume. The schedules may be affected if the underlying assumptions, such as funding, change. Dates provided in the Plan Volume schedules become enforceable through the procedure established in the implementing FFCAct Order.

3.1 Mixed Waste Streams for which Technology Exists

The FEMP has identified seven Preferred Options for the treatment of characterized mixed low level waste streams in inventory. Only minor modifications of the Preferred Option, if any, are needed to treat the wastes. 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: HF RCRA Closure

The FEMP mixed waste stream for which the Preferred Option is identified as the HF Neutralization System is listed in Table 1 of the Background Volume. 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 of the Closure Plan Information and Data (CPID) from OEPA. The schedules presented below reflect dates established by the approved closure plan.

MIXED WASTE STREAM FOR WHICH TECHNOLOGY EXISTS

Project Start Date: January 1992

Schedule for submitting all applicable permit applications: Not applicable. Treatment of this waste stream will be performed under a RCRA Closure of a HWMU. The CPID for this project was submitted on July 17, 1994 and approved by the OEPA in February 1995.

Schedule for entering into contracts: The contract necessary for this project is in place.

Schedule for initiating construction: December 1994

Schedule for conducting systems testing: June 1995

Schedule for commencing operations: June 1995

Schedule for processing backlogged and currently generated mixed wastes: June through August 1995

Project Completion Date: September 1995

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

Project Name: UNH Neutralization System

The FEMP mixed waste stream for which the Preferred Option is identified as the UNH Treatment System is listed in Table 2 of the Background Volume. Treatment can be accomplished through the use of on-site existing facilities augmented with new piping and new skid-mounted pumps. The FEMP is a CERCLA site and has been working with USEPA and OEPA to treat this waste on-site through CERCLA Removal Action #20. 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 STREAM FOR WHICH TECHNOLOGY EXISTS

Project Start Date: November 1993

Schedule for submitting all applicable permit applications: No permit required under CERCLA Removal Action #20.

Schedule for entering into contracts: No contracts anticipated.

Schedule for initiating construction: May 1994

Schedule for conducting systems testing: April 1995 *

Schedule for commencing operations: July 1995 *

Schedule for processing backlogged and currently generated mixed wastes: July 1995 - April 1996 *

Project Completion Date: April 1996 *

*Note: A revised schedule for the UNH project was submitted by the DOE to the USEPA and the OEPA in February 1995. Revised schedule information is incorporated above.

3.1.3 Waste Stream for which Technology Exists - Preferred Option: Thorium Nitrate Treatment System

Project Name: Thorium Nitrate RCRA Closure

The FEMP mixed waste stream for which the Preferred Option is identified as Thorium Nitrate Treatment System is listed in Table 3 in the Background Volume. Treatment of this single waste stream is planned as a RCRA Closure of a HWMU. A treatability study is currently under way to select an appropriate treatment process for the waste. The current alternatives being evaluated are a Neutralization/ Stabilization System and a Neutralization/Filtration System. Detailed information on the alternatives is located in Section 3.1.3 of the Background Volume.

MIXED WASTE STREAM FOR WHICH TECHNOLOGY EXISTS

Project Start Date: December 1994

Schedule for submitting all applicable permit applications: Not applicable. Treatment of this waste stream will be performed under a RCRA Closure for a HWMU. The CPID for this project will be submitted in November 1995.

Schedule for entering into contracts: Not Applicable

Schedule for initiating construction: October 1995 *

Schedule for conducting systems testing: March 1996 *

Schedule for commencing operations: April 1996 *

Schedule for processing backlogged and currently generated mixed wastes: Pursuant to OEPA approval of the CPID.

Start and End Date of Operations: April 1996 - August 1996 *

Project Completion Date: January 1997 *

*Note: The PSTP schedule dates for this Preferred Option may be revised upon submittal and approval of the Closure Plan. Any revised schedule information, once approved, will be incorporated into the Site Treatment Plan.

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

Project Name: Liquid Mixed Waste Project

The FEMP mixed waste streams for which the Preferred Option is identified as Wastewater Treatment are located in Table 4 of the Background Volume. Treatment of these waste streams will occur on-site in an existing facility. This project is part of the Liquid Mixed Waste Project. Liquids are will be bulked, tested and a determination will be made whether they are acceptable for the FEMP Wastewater Treatment System. Detailed information on this treatment is located in Section 3.1.4 of the Background Volume.

The Liquid Mixed Waste Project is designed to address treatment and disposal of all liquid mixed waste currently in storage through the WWTS or the TSCA Incinerator Preferred Options.

MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 1994

Schedule for submitting all applicable permit applications: Not applicable. This project will be initiated as part of CERCLA Removal Action #9 (RA #9). RA #9 will be modified to clarify the scope of work and will be consistent with the FEMP's Investigation Derived Waste (IDW) policy and NPDES permit and will meet the requirements of the RCRA wastewater treatment unit exclusion.

Schedule for entering into contracts: No contract is required.

Schedule for initiating construction: No construction is required for this project.

Schedule for conducting systems testing: October 1994 - Tank set-up and testing are completed.

Schedule for commencing operations: June 1995

Schedule for processing backlogged and currently generated mixed wastes: June 1995 through September 1996

Project Completion Date: September 1996

3.1.5 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Stabilization System

Project Name: Stabilization Project

The FEMP mixed waste streams for which the Preferred Option is identified as Ohio Mobile Stabilization System are listed in Table 5 of the Background Volume. Treatment of these waste streams will occur on-site using a vendor provided mobile service. Detailed information on this treatment is located in Section 3.1.5 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 will implement the Stabilization Project as part of CERCLA Removal Action #9 (RA #9), however, treatment operations will not begin prior to Ohio EPA approval.

MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 1994

Schedule for submitting all applicable permit applications: Not applicable. This project will be initiated as part of RA #9.

Schedule for entering into contracts: May 1995

Schedule for initiating construction: Vendor will supply a fully constructed mobile system.

Schedule for conducting systems testing: November 1995 Complete Operational Readiness Review.

Schedule for commencing operations: November 1995

Schedule for processing backlogged mixed wastes: November 1995 through September 1996

Project Completion Date: September 1996

3.1.6 Waste Streams for which Technology Exists - Preferred Option: Ohio Mobile Chemical Treatment System

Project Name: Chemical Treatment Project

The FEMP mixed waste streams where the Preferred Option is identified as Ohio Mobile Chemical Treatment System are listed in Table 6 of the Background Volume. Treatment of these waste streams will occur on-site using vendor provided services. Detailed information on this treatment is located in Section 3.1.6 of the Background Volume.

MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 1994

Schedule for submitting all applicable permit applications: Not applicable. It is anticipated that this project will be initiated as part of CERCLA Removal Action #9.

Schedule for entering into contracts: August 1996

Schedule for initiating construction: Vendor will supply a fully constructed mobile system.

Schedule for conducting systems testing: November 1996

Schedule for commencing operations: November 1996

Schedule for processing backlogged and currently generated mixed wastes: November 1996 through July 2001

Project Completion Date: September 2001

3.1.7 Waste Streams for which Technology Exists - Preferred Option: TSCA Incinerator

Project Name: Liquid Mixed Waste Project
The FEMP mixed waste streams (liquid portion only) for which the Preferred Option is identified as the TSCA Incinerator are listed in Table 7 of the Background Volume. Treatment of these waste streams will occur off-site at the DOE K-25 site in Oak Ridge, Tennessee.

The FEMP is currently allotted 693,000 pounds or approximately 318,780 kilograms of mixed low level waste treatment capacity per year at the TSCA Incinerator. The FEMP plans to bulk mixed waste for shipment to the TSCA Incinerator. Detailed information on this treatment is located in Section 3.1.7 of the Background Volume.

Bulking and transport of these wastes will be implemented as part of CERCLA Removal Action #9 (RA #9). However, these activities will not begin prior to Ohio EPA approval.

The Liquid Mixed Waste Project is designed to address treatment and disposal of all liquid mixed waste currently in storage through the WWTS or the TSCA Incinerator Preferred Options.

MIXED WASTE STREAMS FOR WHICH TECHNOLOGY EXISTS

Project Start Date: October 1994

Schedule for submitting all applicable permit applications: Not applicable. This project will be initiated as part of RA #9.

Schedule for entering into contracts: Contracting complete (DOE facility to DOE facility agreement).

Schedule for initiating construction: No construction is required for this project.

Schedule for conducting systems testing: October 1994 Tank set-up and testing are completed.

Schedule for commencing operations: June 1995

Schedule for processing backlogged and currently generated mixed wastes: June 1995 through September 1996 *

Project Completion Date: September 1996 *

*Note: These schedule dates represent bulking and transport of these wastes to the TSCA Incinerator.

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 for treatment. After final characterization, which will occur as a part of the project management process, certain variances may be requested. Specifically, there may be 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.

3.3 Mixed Waste Streams Requiring Further Characterization or for which Technology Assessment Has Not Been Done

All FEMP mixed low level waste streams identified in the PSTP, detailed in Appendix C, have a Preferred Option for treatment.

4.0 TRU MIXED WASTE STREAMS

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

5.0 HIGH LEVEL MIXED WASTE STREAMS

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