

PANTEX PLANT
FEDERAL FACILITY COMPLIANCE ACT
COMPLIANCE PLAN
SEPTEMBER 1995

Barry R. McBee, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
John M. Baker, *Commissioner*
Dan Pearson, *Executive Director*



October 3, 1995

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
Protecting Texas by Reducing and Preventing Pollution

Jerry Johnson
Department of Energy
Albuquerque Operations
Amarillo Area Office
P.O. Box 30030
Amarillo, TX 79120

RE: UNITED STATES DEPARTMENT OF ENERGY PANTEX PLANT; Docket No. 95-1371-IHW-E
Agreed Order and Compliance Plan

Enclosed is a certified copy of:

an enforcement order of the Commission determining substantial noncompliance, assessing administrative penalties, imposing stipulated penalties, and/or requiring certain actions, the details being more fully set out therein.

an order cancelling a Commission permit. This cancellation is a memorandum of official action taken with respect to the permit and is notification that the permit is no longer in effect.

an order dismissing an application for a Commission permit.

an emergency order issued by the Commission. If applicable, please note the date and time at which the Commission will affirm, modify, or set aside the order.

an order affirming, modifying or setting aside an emergency order of the Commission.

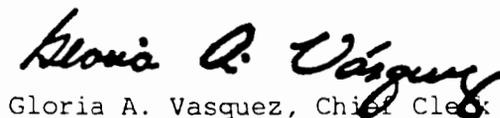
an order approving construction of facilities.

an order authorizing discharge of wastewater.

an order regarding the above-referenced matter.

Should you have any questions, please contact us.

Sincerely,


Gloria A. Vasquez, Chief Clerk

GAV:ra

cc: TNRCC Region 1
Lisa Roberts, Legal Services, TNRCC
Geof Meyer, Correction Action, IH&W, TNRCC

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION AGREED ORDER
with the
UNITED STATES DEPARTMENT OF ENERGY
for the
PANTEX PLANT

TABLE OF CONTENTS

List of Acronyms 2

I. STATEMENT OF PURPOSE AND COMPLIANCE REQUIREMENTS 4

II. JURISDICTION 5

IV. SUMMARY OF FACT AND CONCLUSIONS OF THE LAW 5

V. SEVERABILITY 6

VI. ORDERING PROVISION 6

V. EFFECTIVE DATE 6



LIST OF ACRONYMS

AEA	Atomic Energy Act
AL	Albuquerque Operations Office - United States Department of Energy
atms	Atmospheres
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act
CFR	Code of Federal Regulations
DOE	United States Department of Energy
DOE-AAO	United States Department of Energy - Amarillo Area Office
DOE-HQ	United States Department of Energy - Headquarters
DRC	Dispute Resolution Committee
ER	Environmental Restoration
FFCA	Federal Facility Compliance Act
GJPO	Grand Junction Project Office - DOE facility in Colorado
HE	High Explosives
HLMW	High Level Mixed Waste
HLW	High Level Radioactive Mixed Waste
LANL	Los Alamos National Laboratory - DOE facility in New Mexico
LDR	Land Disposal Restrictions
LLMW	Low Level Mixed Waste
LLW	Low Level Radioactive Waste
Mound	Mound Plant - DOE facility in Ohio
MTRU	Mixed Transuranic

LIST OF ACRONYMS (cont.)

MTU	Mobile Treatment Unit
NEPA	National Environmental Policy Act
Pantex Plant	DOE facility in Amarillo, Texas
PIN	Pinellas Plant - DOE facility in Florida
RCRA	Resource Conservation and Recovery Act
SEC	Senior Executive Committee
STP	Site Treatment Plan
TAC	Texas Administrative Code
TNRCC	Texas Natural Resource Conservation Commission
TRU	Transuranic
TSWDA	Texas Solid Waste Disposal Act
WM	Waste Management

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34

IN THE MATTER OF THE

UNITED STATES
DEPARTMENT OF ENERGY
PANTEX PLANT

§
§
§
§

BEFORE THE

TEXAS NATURAL RESOURCE
CONSERVATION COMMISSION
~~THE STATE OF TEXAS~~
COUNTY OF TRAVIS

I hereby certify that this is a true and correct copy
Texas Natural Resource Conservation Commission document
the original of which is filed in the permanent records of
Commission

Given under my hand and the seal of office on

OCT 03 1993

AGREED ORDER AND COMPLIANCE PLAN

I. STATEMENT OF PURPOSE AND COMPLIANCE REQUIREMENTS

Blanca A. Vargas
Blanca A. Vargas, Chief Clerk
Texas Natural Resource
Conservation Commission

1. The general purpose of this Agreed Order, entered into by the Texas Natural Resource Conservation Commission (TNRCC) and the U. S. Department of Energy (DOE), the "Parties", is to provide an enforceable framework to fulfill the requirements of the Federal Facility Compliance Act of 1992 (FFCA), Pub. L. No. 102-386, 106 Stat. 1505 (1992), and other applicable requirements of federal and state hazardous waste laws and regulations for matters covered herein and is to be achieved through the appended and TNRCC approved Compliance Plan. The approved Compliance Plan contains compliance requirements, provisions and overall schedules for achieving compliance with the Land Disposal Restrictions (LDR), as well as procedures for establishing milestones to be enforced under this Agreed Order.
2. TNRCC and DOE agree that this Agreed Order and Compliance Plan fulfill the requirements contained in the FFCA of 1992, 42 U.S.C. § 6939c, Texas Solid Waste Disposal Act (TSWDA) and 30 Texas Administrative Code (TAC) 335, and further agree as set forth in Section 1.4.2 of the Compliance Plan that said Agreed Order and Compliance Plan shall stand in lieu of any other interpretations of DOE's requirements pursuant to 42 U.S.C. § 6939c, TSWDA and 30 TAC 335.
3. The Parties agree that DOE's compliance with the terms of this Agreed Order and approved Compliance Plan shall constitute compliance with the FFCA, 42 U.S.C. § 6939c, TSWDA and related implementing federal and state requirements. TNRCC and DOE further agree that DOE's compliance with this Agreed Order and Compliance Plan shall resolve any currently outstanding allegations of violations regarding the subject matter of the Agreed Order and approved Compliance Plan, and specifically the allegation made in TNRCC Notice of Violation of 31 TAC Section 335.431(c)/40 CFR 268.50(c) to DOE-Pantex Plant by letter dated November 13, 1992, and subsequently referred by TNRCC to EPA for enforcement by letter dated January 22, 1993.

1 II. JURISDICTION

2 TNRCC and DOE enter into this Agreed Order and Compliance Plan pursuant to the
3 TSWDA and the Federal Solid Waste Disposal Act, as amended by the Resource
4 Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 et seq., and FFCA, which
5 require each department, agency, and instrumentality of the federal government engaged in
6 the disposal or management of hazardous waste to comply with all federal and state
7 requirements respecting the control and abatement of hazardous waste disposal and
8 management, 42 U.S.C. § 6961; Executive Order 12088. DOE, a department of the
9 executive branch of the Federal Government, owns and operates the Pantex Plant, a nuclear
10 weapons production facility located near Amarillo, Texas. DOE-Amarillo Area Office
11 (DOE-AAO); an area office of the DOE, is the onsite DOE entity responsible for
12 administering the contract for the operation of the Pantex Plant.

13 III. SUMMARY OF FACTS AND LAW

- 14 1. Pantex Plant is a federal facility owned by the United States Department of Energy and
15 located in the Panhandle of Texas, approximately seventeen (17) miles northeast of Amarillo,
16 Texas.
- 17 2. The TNRCC administers a hazardous waste management program pursuant to the
18 TSWDA and the 30 TAC Chapter 335. The State of Texas is authorized, pursuant to
19 RCRA, to administer this hazardous waste management program. 55 Fed. Reg. 11,015
20 (March 26, 1990); 57 Fed. Reg. 24,572 (June 11, 1992). DOE generates, transports and
21 manages hazardous waste at the Pantex Plant and is therefore subject to and must comply
22 with all applicable federal and state requirements respecting hazardous waste, including
23 RCRA, TSWDA and 30 TAC Chapter 335.
- 24 3. Pursuant to 30 TAC § 335.431 (40 CFR § 268.50), in the case of hazardous waste which
25 is prohibited from one or more methods of land disposal, the storage of such LDR waste is
26 prohibited unless such storage is solely for the purpose of accumulation of such quantities of
27 hazardous waste as necessary to facilitate proper recovery, treatment, or disposal.
- 28 4. In order to be in compliance with the FFCA of 1992 and 30 TAC 335.431 (40 CFR §
29 268.50), the DOE has determined the necessity for the development of treatment technology
30 and capacity to provide adequate treatment capacity for its LDR mixed wastes currently in
31 storage and to be generated at Pantex Plant during the pendency of this Agreed Order and
32 Compliance Plan.
- 33 5. DOE is currently planning to construct or obtain treatment capacities and technologies to
34 treat and/or dispose of the mixed wastes described in the Compliance Plan appended to this
35 Agreed Order to meet the LDR requirements.

1 IV. SEVERABILITY

2 If any provision or authority of this Agreed Order or Compliance Plan or the application of
3 this Agreed Order or Compliance to any Party or circumstances is held by any judicial or
4 administrative authority to be invalid, the application of such provisions to other Parties or
5 circumstances and the remainder of the Agreed Order and Compliance Plan shall remain in
6 force and shall not be affected thereby.

7 V. ORDERING PROVISIONS

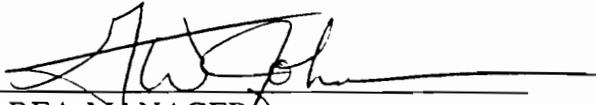
8 NOW, THEREFORE, THE TEXAS NATURAL RESOURCE CONSERVATION
9 COMMISSION ORDERS THAT THE DOE SHALL UNDERTAKE CERTAIN ACTION
10 AS FOLLOWS:

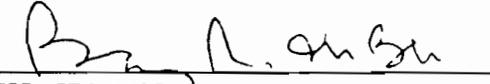
- 11 1. The TNRCC hereby approves the appended Pantex Plant Compliance Plan pursuant to
12 RCRA, 42 U.S.C. § 6939c, upon the effective date of this Agreed Order.
- 13 2. Immediately upon the effective date of this Agreed Order, DOE shall commence its
14 development of mixed waste treatment capacities and technologies for the Pantex Plant
15 pursuant to the requirements of the Compliance Plan appended hereto and fully
16 incorporated by reference herein as subject to and made a part hereto of this Agreed
17 Order.

18 VI. EFFECTIVE DATE

19 The effective date of this Agreed Order and approved Compliance Plan shall be the date of
20 signature by the Chairman of the TNRCC. The undersigned representatives of the Parties
21 warrant that he or she is fully authorized to and does hereby enter into and legally bind his
22 or her agency to this Agreed Order.

23 SO AGREED:

24 9/21/95 
25 Date AREA MANAGER
26 U.S. DEPARTMENT OF ENERGY
27 AMARILLO AREA OFFICE

28 10/21/95 
29 Issue Date CHAIRMAN
30 TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

31 ATTEST:

32 10/3/95 
33 Date GLORIA A. VASQUEZ, CHIEF CLERK
34 TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

PANTEX PLANT
FEDERAL FACILITY COMPLIANCE ACT
COMPLIANCE PLAN
SEPTEMBER 1995

**PANTEX PLANT SITE TREATMENT PLAN/COMPLIANCE PLAN
TABLE OF CONTENTS**

1.0	Purpose and Scope	2
1.1	History	2
1.2	Description of Plan	2
1.3	Purposes	2
1.4	Statutory and Regulatory Requirement	3
1.5	Definitions	3
2.0	Implementation of the Site Treatment Plan/Compliance Plan	8
2.1	Covered Matters	8
2.2	Compliance Schedules	8
2.3	Annual Compliance Plan Updates	14
2.4	Inclusive of New Mixed Waste Streams	15
2.5	Revisions	16
2.6	Extensions	17
2.7	Deletion of Wastes, Termination and Enforceability	20
2.8	Procedures for Review and Approval	22
2.9	Funding	24
2.10	Disputes	27
2.11	Covenants and Reservations	31
2.12	Project Manager	31
2.13	Notification	32
2.14	DOE's NEPA Review and FFCA Implementation	33
2.15	Amendment and Modification	34
3.0	Low Level Mixed Waste Streams	35
3.1	Mixed Waste for Which Technology Ends	35
3.2	Mixed Waste for Which Technology Needs Adaptations or No Technology Exists	38
4.0	Mixed Transuranic (MTRU) Waste Streams	53
5.0	High-Level Mixed Waste (HLMW) Streams	53

**PANTEX PLANT SITE TREATMENT PLAN/COMPLIANCE PLAN/
PLAN FOR DEVELOPMENT OF MIXED WASTE TREATMENT CAPACITIES AND
TECHNOLOGIES FOR THE PANTEX PLANT**

1.0 Purpose and Scope

1.1 History

The United States 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. 6921, as amended by Section 105 (b) of the Federal Facility Compliance Act, Pub. L. 102-386 (1992) (FFCA). Upon submission of the plan to the appropriate regulatory agency, the Texas Natural Resource Conservation Commission (TNRCC), the FFCA requires the recipient regulatory agency to solicit and consider public comments, and approve, approve with modification, or disapprove the plan within six months. The regulatory 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 an order requiring compliance with the approved plan.

1.2 Description of Plan

The DOE Amarillo Area Office (AAO) has prepared this Site Treatment Plan (STP) or Compliance Plan for mixed waste at Pantex Plant, which identifies how DOE proposes to obtain treatment of the site's mixed waste or develop technologies where technologies do not exist or need modification. Schedules for developing technologies, as appropriate, are provided.

1.3 Purposes

The purposes of this STP or Compliance Plan include:

1.3.1 Fulfilling the requirements of the FFCA;

1.3.2 Establishing an enforceable framework in conjunction with the Agreed Order in which DOE will develop treatment capacities and technologies 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

- 1.3.3 Allowing for storage of current and projected covered LDR mixed wastes at Pantex Plant during the implementation and term of this Compliance Plan and Agreed Order.

1.4 Statutory and Regulatory Requirements

1.4.1 This Compliance Plan is the statutorily required document described in the FFCA Section 105(b) as a "plan for developing treatment capacities and technologies" to treat the mixed waste at Pantex Plant pursuant to EPA standards at Section 3004(m) of RCRA. This Compliance Plan is also the STP discussed by DOE in the Publication Schedule for Submitting Plans for Treating Mixed Waste Generated or Stored at Each Site as Required by the Federal Facility Compliance Act of 1992, Federal Register Notice, Vol. 58, No. 64, 17875-17880, April 6, 1993. This Compliance Plan provides overall schedules with milestones and target dates for achieving compliance with LDR, a general framework for the establishment and review of milestones and target dates and the conversion of target dates into milestones, and other provisions for implementing the TNRCC approved Compliance Plan enforced under the Agreed Order.

1.4.2 This Compliance Plan and Agreed Order fulfill the requirements contained in the Federal Facility Compliance Act of 1992, RCRA Section 3021 and the Texas Solid Waste Disposal Act (TSWDA); and therefore, pursuant to Section 105(b) of the FFCA (RCRA §3021(b)(5)) and TSWDA, this Compliance Plan and Agreed Order shall stand in lieu of any other interpretations of DOE's requirement to develop and submit a plan for the development of treatment capacities and technologies pursuant to RCRA Section 3021 for the Pantex Plant. Storage of covered waste at Pantex Plant, pending the development of treatment capacities and technologies and completion of LDR treatment requirements pursuant to the Compliance Plan, shall be considered in compliance with this Compliance Plan, Agreed Order and applicable RCRA and TSWDA requirements.

1.5 Definitions

Except as provided below or otherwise explicitly stated herein, the terms used in the Compliance Plan shall have the same meaning as used in the TSWDA, the Texas Administrative Code (TAC) Chapter 335, RCRA and the EPA Rules and Regulations, 40 C.F.R. Parts 124, 260 through 268, and 270.

Agreed Order or Order: The document to which this approved Compliance Plan is appended.

Atomic Energy Act or AEA: The Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2011 *et seq.*

Authorized Representative: Any person including a contractor or subcontractor who is specifically designated by a Party to act on behalf of that Party in any capacity, including an advisory capacity.

Compliance Plan: Plan required by Section 105(b) of the FFCA to set forth schedules and plans for developing mixed waste treatment capacities and technologies for Pantex Plant covered wastes. Also referred to as the Site Treatment Plan or Plan for Developing Mixed Waste Treatment Capacities and Technologies.

Covered Waste: Waste covered by the Treatment Plan, as described in Subsection 2.1 of the Compliance Plan. The term includes new waste streams included pursuant to the notice provision of Subsection 2.4 of the Compliance Plan, entitled "Inclusion of New Waste Streams."

Days: Calendar days, unless otherwise specified. Any submittal under the terms of the Compliance Plan that would be due on a Saturday, Sunday, or a state or federal holiday shall be due the following business day.

Deliverable: Any written document that is to be placed into a method of delivery (e.g., in the U. S. Mail) in satisfaction of milestones or other requirements under this Compliance Plan or the Agreed Order.

DOE: The United States Department of Energy, including the Amarillo Area Office, and any of DOE's contractors and subcontractors at any tier, successor agencies, employees, and authorized representatives.

DOE-AAO: The United States Department of Energy Amarillo Area Office, and any of DOE's contractors and subcontractors at any tier at Pantex Plant, successor agencies, employees, and authorized representatives.

EPA: The United States Environmental Protection Agency, including Region 6, and any of its successor agencies, employees, and authorized representatives.

Fiscal Year: October 1 of one calendar year through September 30 of the following calendar year. For example, Fiscal Year 1994 encompasses October 1, 1993, through September 30, 1994.

Hazardous Waste: A hazardous waste is a solid waste which is deemed hazardous due to characteristic or listed constituents as defined by 40 C.F.R. Part 261.3 and 30 TAC §335.1 and is not exempt as defined by 40 C.F.R Part 261.4.

High-Level Waste or HLW: The term high-level waste or HLW shall have the meaning as set for high-level waste in DOE Order 5820.2A or any successor DOE orders or amendments. Under DOE Order 5820.2A, HLW is waste material that results from the reprocessing of spent nuclear fuels, including the liquid waste produced directly in the reprocessing, and any solid waste derived from the liquid that contains a combination of transuranic waste and fission products at concentrations requiring permanent isolation.

Land Disposal Restrictions or LDR: The limitations on land disposal and storage of waste set forth in the 30 TAC § 335.431 (RCRA, 42 U.S.C. § 6924; 40 C.F.R. Part 268).

LDR Mixed Waste: Mixed waste that is restricted from one or more methods of land disposal or storage under RCRA, 42 U.S.C. § 6924; 40 C.F.R. Part 268.

LDR Requirement or Standard: The EPA's promulgated level(s) or method(s) of treatment or management specified in 40 C.F.R. Part 268 for a waste subject to the land disposal or storage restriction under Section 3004 of RCRA (42 U.S.C. 6924), which are incorporated by reference through 30 TAC § 335.431(C).

LDR Waste: Waste subject to the requirements of the land disposal and storage restrictions of 30 TAC § 335.431 Regulations and (40 C.F.R. Part 268).

LLMW: Term Low-Level Mixed Waste or LLMW shall mean waste that contains both low-level radioactive waste or LLW (source, special nuclear or by-product material subject to the Atomic Energy Act of 1954, 42 U.S.C. § 2011 *et.seq*). and hazardous waste as defined by 40 C.F.R. Parts 261.3 and 261.4 ; i.e. low-level mixed waste as set forth in RCRA, 42 U.S.C. § 6903 (41).

Low-Level Radioactive Waste or LLW: The term low-level radioactive waste or LLW shall have the same meaning as given to "low-level waste" in DOE Order 5820.2A (i.e., "Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.") or any successor DOE orders or amendments.

Milestone: Fixed, firm, and enforceable date as set forth in this Compliance Plan and Agreed Order.

Mixed Waste: Waste that contains both hazardous waste and source, special nuclear, or by-product material subject to the Atomic Energy Act of 1954 (42 U.S.C. § 2011 *et.seq.*). RCRA, 42 U.S.C. § 6903 (41).

NEPA: The National Environmental Policy Act, 42 U.S.C. § 4321 *et.seq.*, and the U.S. Department of Energy's rules and regulations implementing that statute, 10 C.F.R. § 1021 *et.seq.*

Off-Site: Any facility or installation other than Pantex Plant.

On-Site: The Pantex Plant, as that term is defined in this definition section.

Pantex Plant or Site: The nuclear weapons plant owned and operated by DOE and located seventeen miles northeast of Amarillo, Texas.

Plan for Developing Mixed Waste Treatment Capacities and Technologies: The Plan for Developing Mixed Waste Treatment Capacities and Technologies is a plan required under Section 105(b) of the FFCA to set forth schedules and plans for developing technologies and capacities to treat the Pantex Plant covered waste to the EPA standards promulgated pursuant to Section 3004(m) of RCRA; also referred to as the Site Treatment Plan or Compliance Plan.

Planning Date: The anticipated completion date of tasks which have not been designated as milestones and which refer to events occurring beyond the DOE three year budget cycle planning period. Planning dates are not requirements and are not enforceable.

Project Manager: Any official designated pursuant to Section 2.12, Project Managers, of the Compliance Plan, to coordinate, monitor or determine actions required by the Compliance Plan or Agreed Order.

Radionuclide Separation: For the purposes of the Compliance Plan, the term "radionuclide separation" shall mean the segregation of the radioactive portion of the mixed waste from the hazardous portion of the mixed waste and may include storage (not RCRA treatment) of mixed waste for the purposes of allowing for radioactive decay of the radioactive portion of the mixed waste to facilitate proper recovery, treatment, or disposal in compliance with RCRA Section 3004(j).

RCRA: The Resource Conservation and Recovery Act (the Solid Waste Disposal Act), 42 U.S.C. § 6901 *et. seq.*, as amended by the Hazardous and Solid Waste Amendments of 1984, Pub. L. No. 98-616, 98 Stat. 3221 (1984), and the Federal Facility Compliance Act of 1992, Pub L. No. 102-386, 106 Stat. 1505 (1992).

Site Treatment Plan: Plan for developing mixed waste treatment technologies and capacities for Pantex Plant covered waste, as approved by the Texas Natural Resource Conservation Commission pursuant to the Federal Facility Compliance Act of 1992, Pub. L. No. 102-386, 106 Stat. 1505 (1992); also referred to as the Compliance Plan or the Plan for Developing Mixed Waste Treatment Capacities and Technologies.

Storage: The term shall have the meaning set forth in Section 1003 (33) of RCRA (42 U.S.C. § 6903 (33)), 40 C.F.R. § 260.10, and 30 TAC Chapter 335, the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Target Date: The anticipated completion date of tasks which have not been designated as milestones; target dates are not requirements and are not enforceable.

TNRCC: The Texas Natural Resource Conservation Commission or any of its predecessor and/or successor agencies, employees, and authorized representatives.

Transuranic Waste or TRU Waste: The term shall have the meaning set forth in Section 11 (ee) of the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2014 (ee) and DOE Order 5820.2A (radioactive waste that contains greater than 100 Nci/g of isotopes with atomic numbers greater than 92 and half-lives greater than 20 years) and successor DOE orders and amendments.

Treatment: The term shall have the meaning set forth in Section 1003 (34) of RCRA (42 U.S.C. § 6903 (34)), 40 C.F.R. § 260.10, and 30 TAC § 335.1, any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

TSWDA: Texas Solid Waste Disposal Act, Texas Health and Safety Code Annotated Chapter 361, as amended by Texas Revised Civil Statute Chapter 4477-7, and its implementing regulations found in 30 TAC Chapter 335.

2.0 Implementation of the Site Treatment Plan/Compliance Plan

This section establishes the mechanisms and procedures for administering and implementing the treatment plans and schedules set forth in Sections 3.0 through 5.0 of the Compliance Plan.

2.1 Covered Matters

The Compliance Plan and Agreed 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 during the pendency of the Compliance Plan and implementing Agreed Order. Covered wastes are those mixed wastes at Pantex Plant identified in Table 3-1 of the Compliance Plan or added to the Compliance Plan in accordance with Section 2.4 set forth below, except those mixed wastes which meet regulatory requirements.

2.2 Compliance Schedules

2.2.1 The Compliance Plan provides overall schedules for achieving compliance with LDR requirements for mixed wastes at Pantex Plant. 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 Compliance Plan schedules show target dates and milestones for treatment technologies and facilities for covered wastes.

- 2.2.1.1 For the purposes of the Compliance Plan, milestones and target dates shall identify dates or time frames by which a certain activity (including an event such as submittal of a deliverable) is scheduled to occur.
- 2.2.1.2 Assumptions upon which individual schedules are dependent are contained in Section 3.3 of the Compliance Plan. The schedules may be affected if the underlying assumptions are incorrect or change.
- 2.2.1.3 *Milestones* are fixed, firm and enforceable dates as set forth in the Compliance Plan. Milestones correspond to the categories of milestones set forth below in Section 2.2.3. Changes or Revisions to milestones are subject to approval, approval with modifications, or disapproval by the TNRCC according to the process and framework set forth in this Compliance Plan. Milestones are set based on target dates, defined in Section 2.2.1.4 below, in accordance with the process in Section 2.2.2.
- 2.2.1.4 *Target dates* mark the anticipated completion of tasks which have not been designated as milestones. Target dates correspond to the categories of milestones set forth in Section 2.2.3. Target dates are not requirements and are not enforceable. Target dates are converted into enforceable milestones in accordance with the process in Section 2.2.2.
- 2.2.1.5 *Planning dates* refer to events beyond the DOE three year budget cycle planning period. Planning dates are not requirements and are not enforceable. Planning dates may be converted into target dates.

2.2.2 Milestones and Target Dates

- 2.2.2.1 For the purposes of this Compliance Plan and Agreed Order, milestones shall identify specific dates in a current fiscal year (FY) on which a certain activity (including an event such as submittal of a deliverable) is scheduled to occur and which will be enforceable as set forth in this Compliance Plan and Agreed Order. Target dates shall identify specific dates in the two subsequent fiscal years (FY+1 and FY+2) on which a certain activity is anticipated to occur, but which will be unenforceable dates as set forth in the

Compliance Plan and other dates agreed to by the Parties that will not be enforceable. Planning dates or planning schedule dates are schedule dates that are outside the three year federal budgetary period (i.e., current FY, FY+1, and FY+2) and which are unenforceable estimated schedule dates.

2.2.2.2 Milestones and target dates will be established for a three year period consisting of the current fiscal year (FY) for milestones plus two additional fiscal years (FY +1 and FY +2) for target dates as follows:

2.2.2.2.1 On the effective date of this Compliance Plan and Agreed Order, enforceable milestones will be established for the current fiscal year. Additionally, target dates, planning dates and planning schedule dates, as appropriate, will be established in the outlying fiscal years. Subsequently after expiration of a fiscal year, FY+1 target dates will be converted to current fiscal year milestones, except target dates otherwise agreed to remain as target dates. FY+2 target dates will be converted to FY+1 target dates. Planning schedule activities falling within the FY+2 time period shall be converted to FY+2 target dates. All conversions will be automatic and remain in effect, unless DOE-AAO notifies the TNRCC of any proposed changes. Such changes may be made necessary as DOE-AAO identifies milestones, target dates, and planning schedule activities which cannot be accomplished within the Office of Management and Budget (OMB) target funding levels. Notification of proposed changes under this paragraph will be submitted within 21 days of DOE-AAO receiving its approved fiscal year funding allocation from DOE-HQ. This notification will include any proposed adjustments to milestones for the current FY and to the target dates for FY+1, as well as proposed target dates to be set for FY+2. If the Parties cannot agree to milestones within 30 days of DOE-AAO's notice of proposed changes, the issue shall be subject to Section 2.10, Disputes. Nothing in this section precludes DOE from proposing or

requesting changes to milestones or target dates at other times. All proposed changes to milestones will be subject to Section 2.9, Funding, and where the Parties cannot agree, to Section 2.10, Disputes.

2.2.2.2.2 In establishing and adjusting milestones and target dates pursuant to this section, the following, at a minimum, will be considered: (1) funding availability as it is appropriated by Congress, and the amount of funds provided to the Pantex Plant by DOE in its Approved Funding Program for the current fiscal year (FY) for waste management activities and the President's budget for the next fiscal year (FY+1) and associated out-year funding targets for the Pantex Plant, (2) sitewide waste management priorities, (3) cost estimates, (4) new or emerging technologies, and (5) other new Compliance Plan information.

2.2.2.3 Schedule dates shall be identified by reference to fiscal year quarters and the specific date of the milestone or target date shall be the last day of the quarter identified. The first quarter or "1Q" shall have December 31 as its corresponding specific date. The second quarter or "2Q" shall have March 31 as its corresponding specific date. The third quarter or "3Q" shall have June 30 as its corresponding specific date. The fourth quarter or "4Q" shall have September 30 as its corresponding specific date.

2.2.3 Categories of milestones and target dates

The categories of activities for which milestones and target dates will be provided are the different types of treatment approaches in the Compliance Plan and are listed in Tables 2-1 through 2-3 and in other provisions below. The categories of activities are based on Section 3021(b)(1)(B)(i), (ii) and (iii) of RCRA, as appropriate.

2.2.3.1 Plan Where Treatment Technologies Exist [RCRA Section 3021(b)(1)(B)(i)]. For identified and developed treatment technologies for waste which will be treated on-site, the categories of milestones and target dates identified in Table 2-1, "Schedule For Wastes With Existing Treatment Technologies" shall apply.

Table 2-1: SCHEDULE D SUBMISSIONS FOR MIXED WASTES WITH EXISTING TREATMENT TECHNOLOGIES

Categories of Milestones/Targets:

- a) Submitting applicable RCRA permit applications to TNRCC
- b) Entering into contracts
- c) Initiating construction
- d) Commencing systems testing
- e) Commencing operations
- f) Processing backlogged and currently generated mixed wastes

2.2.3.2 Plan Where Technologies Must Be Developed [30021(b)(1)(B)(ii)]. For some mixed wastes at Pantex Plant, treatment technologies either have not been identified and/or developed or treatment technologies must be modified or adapted to be made applicable to Pantex Plant mixed waste. For these wastes which will be treated on-site, the categories of milestones and target dates identified in Table 2-2, "Schedule for Waste Without Existing Treatment Technologies" shall apply.

Table 2-2: SCHEDULE D SUBMISSIONS FOR MIXED WASTES WITHOUT EXISTING TREATMENT TECHNOLOGIES

Categories of Milestones/Target Dates:

- a) Identifying funding requirements for identification and development of technologies
- b) Identifying and developing technologies
- c) Submitting treatability study exemption application
- d) Submitting RD&D permit applications

2.2.3.3 Requirements Pertaining to Radionuclide Separation (RCRA Section 3021 (b)(1)(B)(iii)). The FFCA sets additional requirements in cases where DOE intends to conduct radionuclide separation of mixed waste. No current plans exist to conduct radionuclide separation of mixed wastes generated or stored at Pantex Plant. Should DOE determine to conduct radionuclide separation of such mixed wastes, DOE will provide for such

wastes which will be treated on-site those milestones and target date categories identified in Table 2-3, "Schedule for Radionuclide Separation of Mixed Waste."

Table 2-3: SCHEDULE D SUBMISSIONS FOR RADIONUCLIDE SEPARATION OF MIXED WASTES

Categories of Milestones/Target Dates:

- a) Estimation of the volume of waste generated by each case of radionuclide separation
- b) Estimation of the volume of waste that would exist or be generated without radionuclide separation
- c) Estimation of the costs of waste treatment and disposal if radionuclide separation is used, compared to the estimated costs if it is not used
- d) Assumptions underlying such waste volume and cost estimates

2.2.3.4 Plans for Other Types of Activities. The Compliance Plan may contain additional milestones and target dates for other types of specific situations related to treatment of Pantex Plant's mixed wastes, including:

(a) In the event that DOE ships waste to an off-site treatment facility in lieu of treating such waste on-site, DOE shall so notify the TNRCC in writing, and the pre-existing schedules, target dates or milestones pertaining to management of that particular waste will no longer be applicable or the pre-existing milestones enforceable.

(b) For mixed wastes which are not sufficiently characterized to allow identification of appropriate treatment, the Compliance Plan will contain schedules for characterizing such wastes. Once each such waste is characterized, DOE shall either identify the facility that will receive the waste and submit any related necessary schedule changes or develop and submit for approval a schedule for development of treatment capacities or technologies for these wastes, as appropriate.

(c) *TRU waste (Reserved for language development in applicable circumstances, i.e., TRU waste identified as covered waste pursuant to Sections 2.1 and 2.4).*

(d) Storage of mixed wastes for purposes of allowing for radioactive decay of the radioactive portion of the mixed waste shall be considered to be storage (not RCRA treatment) for the purpose of accumulation of such quantities of waste as are necessary to facilitate proper recovery, treatment or disposal in compliance with RCRA Section 3004(j). Such storage shall be included in the schedules of the Compliance Plan, as appropriate, including treatment schedules or schedules related to radionuclide separation.

(e) For mixed wastes for which onsite treatment units are being developed offsite by other Albuquerque Operations Office sites, schedule shall be provided but no milestones shall be established until such treatment units are available for operation at Pantex Plant.

2.3 Annual Compliance Plan Updates

2.3.1 This section provides a mechanism to: (1) communicate and exchange information about schedule, technology development, funding and other concerns that affect the implementation of the Compliance Plan, and (2) propose and establish the next ensuing milestones and (3) update and propose Revisions to the Compliance Plan.

2.3.2 Each fiscal year after the fiscal year in which the Compliance Plan is approved and Agreed Order executed, DOE shall provide an Annual Update to the Compliance Plan to the TNRCC for review and comment. The Annual Update shall provide the TNRCC with information to track progress on milestones and target dates. The Annual Update shall allow input from the public, affected states and EPA to be obtained when Revisions to the Compliance Plan are proposed. Each Annual Update will bring the Compliance Plan current to the end of the previous fiscal year (September 30). The Annual Update will minimize the paperwork necessary to document changes and will be handled by page changes to the extent practicable. These changes will be marked for comparison to the previous Compliance Plan. If there are no changes to the information, milestones, or target dates in the Compliance Plan, a letter to that effect may be sent to the TNRCC in lieu of an Annual Update. The Annual Update shall be provided to the TNRCC no later than 90 days after the Pantex

Plant receipt of its fiscal year funding for waste management unless an extension is requested.

2.3.3 The Annual Update to the Compliance Plan may also contain notification of changes or requests for approval of changes to the Compliance Plan. The notification or requests for approval may include as appropriate:

- (a) Any changes to the Compliance Plan incorporated since the previous Annual Update.
- (b) Any proposed revisions or conditionally approved revisions.
- (c) Any proposed new milestones, in accordance with Section 2.2.
- (d) Any other changes to the overall schedules.

The Annual Update would clearly identify proposed changes requiring approval under Sections 2.8, Procedures for Review and Approval, and 2.5, Revisions.

2.3.4 DOE shall make the Annual Update publicly available. When the update includes proposed Revisions to the Compliance Plan, the provisions of Section 2.5, Revisions, also apply to such proposed Revisions.

2.4 Inclusion of New Mixed Waste Streams

2.4.1 This section establishes a method for including new mixed waste streams which are discovered, identified, generated, or received from off-site, and mixed waste streams which are generated through environmental restoration to the extent such wastes are identified as a covered waste pursuant to Section 2.1 and as set forth in this section.

2.4.2 DOE shall notify the TNRCC of new mixed waste streams which have been generated or stored, and may notify the TNRCC of mixed wastes anticipated to be generated or stored at Pantex Plant, which are expected to be covered wastes. Unless otherwise specified in the notification, the mixed waste will be covered waste and subject to the requirements of this Compliance Plan (1) upon receipt of such notification or (2) when generated or stored at Pantex Plant, whichever is later. To the extent practicable, DOE shall provide a description of the waste code, waste form, volumes, technology and capacity needs, and similar pertinent information in the notification. In general, additional detail on the waste and the proposed plan and schedules consistent with Section 2.2, Compliance Schedules, will be provided in the next regularly

scheduled Annual Update, or a date for submittal of such a proposed plan and schedules will be provided if additional time is required for its preparation. The information provided pursuant to this subsection is subject to TNRCC approval to the extent provided for in Subsection 2.4.4.

- 2.4.3** If DOE cannot provide such information or schedules as required by Subsection 2.4.2 because of inadequate characterization or it is otherwise impracticable, DOE shall include appropriate justification, supporting information, and proposed plans for approval as a deliverable under Section 2.8, Procedures for Review and Approval, for developing such information and schedules consistent with Section 2.2, Compliance Schedules.
- 2.4.4** DOE may propose changes to the Compliance Plan to accommodate new waste streams. If any such changes are required, DOE shall submit the changes for approval as a deliverable under Section 2.8, Procedures for Review and Approval. Also, DOE may propose Revisions to the Compliance Plan as necessary to accommodate new waste streams subject to Section 2.5, Revisions.

2.5 Revisions

2.5.1 A Revision is a change to the Compliance Plan which requires, for those affected portions of the Compliance Plan and Agreed Order, publication of a notice of availability to the public and consultation with affected states and EPA pursuant to this Compliance Plan and Section 3021 (b)(2) and (3) of RCRA. A Revision is: (a) the addition of a treatment facility at Pantex Plant or technology development not previously included in the Compliance Plan; or (b) an extension to a milestone (including an extension by mutual agreement under Section 2.6 or a proposed milestone converting a target date under Section 2.2) for a period greater than one year. Changes in waste volume; the addition or deletion of wastes or waste types; extensions or changes to milestones for a period less than a year; or changes to target dates shall not, by themselves, constitute a Revision.

2.5.2 Revisions to the Compliance Plan shall be made as follows:

2.5.2.1 DOE shall identify to the TNRCC the need to revise the Compliance Plan and provide supporting information for the Revision as a deliverable pursuant to Section 2.8, Procedures for Review and Approval. Under these procedures, within 30 days of receipt TNRCC may conditionally approve the Revision, return it to DOE with comments so that changes can be made for

resubmittal, or disapprove it. Disapprovals may be subject to the procedures of Section 2.10, Disputes. In reviewing the Revision, TNRCC shall consider the need for regional treatment facilities. Conditional approval of a Revision is a determination by the TNRCC that the Revision is acceptable subject to the results of public comment and consultation with affected states and EPA.

2.5.2.2 Within 30 days subsequent to conditional approval, the TNRCC shall publish a notice of availability and make the Revision available to the public for review and comment and to affected states and EPA for consideration and consultation. Revisions shall be approved or approved with modification by TNRCC within 6 months after TNRCC's receipt of the proposed Revision. TNRCC shall either (1) notify DOE that the Revision has final approval or (2) notify DOE that TNRCC received comments from the public, affected states or EPA indicating that such Revision should be modified before approval. Any proposed modifications to the Revision shall include supporting explanation and information. DOE shall have 30 days to discuss the proposed modifications with TNRCC. If agreement is not reached on the proposed modifications in this 30 day period, the procedures of Section 2.10, Disputes, will apply.

2.5.3 To the extent practicable, comments from the public, affected states and EPA on conditionally approved Revisions will be obtained in conjunction with the Annual Update to the Compliance Plan, governed by Section 2.3, Annual Compliance Plan Updates. However, if a conditionally approved Revision is proposed to become effective before it could be addressed in the regularly scheduled Annual Update, the TNRCC shall publish a Notice of Availability and consult with affected states and EPA, as appropriate, within 30 days of such conditional approval.

2.6 Extensions

2.6.1 DOE shall implement the Compliance Plan in accordance with the milestones set forth in the Compliance Plan, as well as milestones subsequently developed pursuant to the Compliance Plan. DOE shall adopt all reasonable measures to avoid or minimize any delays in the implementation of the Compliance Plan.

2.6.2 A milestone shall be extended upon receipt of a timely request for extension where good cause exists. Any request for an extension shall be made to the TNRCC prior to the milestone date, either in writing or orally with a written

follow-up request within ten (10) business days of the oral request. The request for an extension shall extend the milestone until receipt of the TNRCC's written position on the request, unless it is determined that the request was made in bad faith and without reasonable justification. Any oral or written request shall be provided to the project manager responsible for implementation of Compliance Plan. The written request shall specify:

- (a) The milestone sought to be extended;
- (b) The length of the extension sought;
- (c) The good cause(s) for the extension; and
- (d) Any related milestone or target date that would be affected if the extension were granted.

2.6.3 Good cause for an extension includes, but is not limited to:

- (a) An event of force majeure, as defined below in Subsection 2.6.4;
- (b) A delay caused by TNRCC's failure to meet any requirement imposed under the Compliance Plan or Agreed Order.
- (c) A delay caused by the good faith invocation of dispute resolution or the initiation of administrative or judicial action;
- (d) A delay caused, or which is likely to be caused, by the grant of an extension in regard to another milestone;
- (e) A delay caused by additional work agreed to by DOE and the TNRCC;
- (f) Circumstances unforeseen at the time this Compliance Plan was prepared that significantly affects the work required under the Compliance Plan;
- (g) Delay in review of a permit application or in the TNRCC's issuance of a permit required to meet a milestone;
- (h) Inconsistency with the requirement of any other existing agreement, order or permit to which DOE is a Party and affecting the Pantex Plant; and
- (i) Any other event or series of events mutually agreed to by DOE and the TNRCC as constituting good cause.

- 2.6.4** An event of force majeure shall mean any event arising from causes beyond the control of DOE that causes a delay in or prevents the performance of any obligation under the Compliance Plan including, but not limited to, acts of God; fire; war; insurrection; civil disturbance; explosion; unanticipated breakage or accident to machinery, equipment or lines of pipe despite reasonably diligent maintenance; adverse weather conditions that could not be reasonably anticipated; unusual delay in transportation; restraint by court order or order of public authority; inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits or licenses due to action or inaction of any governmental agency or authority other than the DOE; delays caused by compliance with applicable statutes or regulations such as those governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence; the change of any assumptions stated in Sections 3 through 5 of the Compliance Plan that results in or causes a delay in performance; the failure of a technology or design to perform as described in the Compliance Plan, the failure of another site subject to the FFCA to deliver a mobile treatment unit to the Pantex Plant as required despite its diligent efforts. A force majeure event shall also include any strike or other labor dispute, whether or not within the control of DOE, and insufficient availability of appropriated funds, if DOE has timely requested sufficient funds as part of the budgetary process as set forth in Section 2.9, Funding, of this Compliance Plan, and DOE has appropriately allocated a share of the appropriated funds to Pantex Plant.
- 2.6.5** Absent agreement of the DOE and the TNRCC with respect to the existence of good cause, either or both of them may seek and obtain a determination through the dispute resolution process, Section 2.10, Disputes, whether or not good cause exists.
- 2.6.6** For extension requests by DOE, the following procedures will apply:
- (a) Within thirty (30) days of receipt of a written request for an extension of a milestone, the TNRCC shall advise DOE in writing of its position on the request. Any failure by the TNRCC to respond within the thirty (30) day period shall be deemed to constitute concurrence with the requested extension. If the TNRCC does not concur with the requested extension, it shall include in its statement of nonconcurrence an explanation of the basis for its position. For circumstances when basis for extension is not known in time to make a timely request for extension, DOE may request an emergency extension in writing concurrently with an oral request. TNRCC shall advise DOE orally of its position upon receipt of the

request, to be followed by TNRCC's written position or approval within two (2) working days of receipt.

- (b) If the TNRCC determines that the requested extension is warranted, then the affected milestone shall be extended accordingly. If the TNRCC determines that all or part of the requested extension is not warranted, the milestones shall not be extended except as set forth in Paragraph (a) of this Subsection or in accordance with a determination resulting from the dispute resolution process.
- (c) Within fourteen (14) business days of receipt of a statement of nonconcurrence with the requested extension or within two business days for a request for an emergency extension, the DOE may invoke dispute resolution. If DOE does not invoke dispute resolution within the time period set forth above, then DOE is deemed to accept the TNRCC's nonconcurrence and the existing schedule.

2.6.7 For extension requests by the TNRCC if DOE does not invoke dispute resolution within fourteen (14) business days after written notice of the requested extension, the extension shall be deemed approved.

2.6.8 A timely and good faith request for extension shall toll any penalty assessment during TNRCC's consideration of the request or the initiation of any action to enforce the affected milestone until a decision is reached on whether the requested extension will be approved.

2.6.9 DOE shall notify the TNRCC in writing within fourteen (14) days after it becomes aware of events which DOE knows or should know constitute a force majeure event that may delay or prevent the performance of an obligation under the Compliance Plan. Such notice shall describe the cause and anticipated length of delay and mitigation measures being taken. Subsequent to such notification any request for an extension based on a force majeure event shall be made pursuant to Subsection 2.6.2 of this section and the procedures of Subsection 2.6.6 shall apply.

2.7 Deletion of Wastes, Termination and Enforceability

2.7.1 Deletion of Wastes - The requirements of the Compliance Plan and Agreed Order shall terminate with regard to any covered waste upon DOE's notice to the TNRCC and TNRCC's concurrence under 2.7.3 of the following:

- (a) Completion of activities required pursuant to a milestone under the Compliance Plan for treatment of such waste;
- (b) Shipment of waste off-site for treatment, storage, or disposal;
- (c) Changes to statute or regulation or determinations of the regulatory authority which cause a waste or waste categories to be no longer subject to the requirements of RCRA or the LDR requirements of RCRA;
- (d) Storage for the sole purpose of accumulating such quantities of covered wastes as are necessary to facilitate proper recovery, treatment or disposal;
- (e) Information demonstrating the waste meets the treatment standards of RCRA, Section 3004(m);
- (f) Treatment in accordance with the conditions of an approved LDR treatability variance; or
- (g) Mutual agreement between DOE and the TNRCC.

2.7.2 Inasmuch as the intent of the FFCA requirement to develop a plan for mixed waste treatment capacities and technologies or Compliance Plan is to address compliance with RCRA Section 3004 (j), the Compliance Plan and Agreed Order shall terminate either at such time as (1) there is no longer any mixed waste, regardless of when generated, being stored or generated at the Pantex Plant which does not meet LDR requirements or (2) all mixed waste, regardless of when generated, at the Pantex Plant is being stored, solely for the purpose of accumulating sufficient quantities of mixed wastes as are necessary to facilitate proper recovery, treatment, or disposal.

2.7.3 DOE will notify the TNRCC of such termination independently and/or in the Annual Updates to the Compliance Plan. The TNRCC will provide DOE with a written response to the notification within 30 days. The response to this notice shall be subject to the provisions of Section 2.10, Disputes.

2.7.4 DOE agrees that the Compliance Plan and Agreed Order shall be admissible as evidence in any proceeding to enforce the Compliance Plan and Agreed Order.

- 2.7.5 DOE expressly recognizes that failure to comply with the terms of the Compliance Plan or Agreed Order may result in an enforcement action for any relief available under the TSWDA. Non-enforceable commitments in the Compliance Plan, such as target dates, are not subject to said enforcement actions.
- 2.7.6 DOE acknowledges that the Compliance Plan and Agreed Order are enforceable, except as to non-enforceable commitments such as target dates, pursuant to the citizen suit provision on RCRA, 42 U.S.C. § 6972, including actions or suits by the State and its agencies. DOE agrees that the State and its agencies are a "person" within the meaning of § 7002(a) of RCRA, 42 U.S.C. § 6972(a).
- 2.7.7 TNRCC agrees that no enforcement action or other regulatory or statutory remedy otherwise available by law for DOE's failure to meet requirements of the Compliance Plan or Agreed Order shall be initiated by the TNRCC until full exhaustion of the disputes resolution process in Section 2.10, Disputes, of this Compliance Plan and Agreed Order. For statutory or regulatory violation for actions outside the scope of this Compliance Plan or Agreed Order, all remedies available to the TNRCC may be sought.
- 2.7.8 TNRCC shall provide DOE with written notice at least five (5) working days before taking any action pursuant to Section 2.7.7. Such notice period may be abbreviated if delay in taking Section 2.7.7 actions would result in an emergency involving mixed waste that presents an immediate and substantial endangerment to the public health and safety or to the environment.

2.8 Procedures for Review and Approval

- 2.8.1 Deliverables developed by DOE pursuant to this Compliance Plan shall be submitted by DOE to the TNRCC for review and comment as provided in this section. Deliverables include documents or notices signifying completion of milestones, identifying new wastes, and supporting proposed Revisions as required or permitted under this Compliance Plan. Where the TNRCC approval of a deliverable is expressly required in this Compliance Plan, the approval provisions in this section apply. Permit applications and National Environmental Policy Act (NEPA) documents shall not be subject to the procedures of this section. Permit applications shall be submitted and reviewed under applicable regulations and NEPA documents shall be submitted and reviewed under the DOE regulations implementing NEPA. Each submittal of a deliverable shall specify the milestone or other provision of this Compliance Plan requiring submittal of that deliverable.

- 2.8.2 Unless otherwise noted, each deliverable shall be transmitted directly to the project manager of the TNRCC responsible for implementation of this Compliance Plan.
- 2.8.3 The TNRCC will promptly review each deliverable submitted by DOE required to be approved pursuant to this Compliance Plan, within the time frames established in this section unless other time frames are agreed to in writing. In the course of its review, the TNRCC will consult with DOE regarding the adequacy of each deliverable. Oral comments made during these discussions shall not require a written response.
- 2.8.4 Deliverables which do not require the TNRCC approval shall be provided to the TNRCC for review and comment. In the event that DOE disagrees with the TNRCC's comments, DOE shall respond to the TNRCC's comments in writing explaining the DOE's position. If DOE has not received comments from the TNRCC within 30 days of submittal of the deliverable, it will be deemed that the TNRCC has no comments. Disagreements concerning comments to deliverables that are not required to be approved under this Compliance Plan will not constitute a dispute under Section 2.10.
- 2.8.5 For any deliverable that requires TNRCC approval under the provisions of the Compliance Plan, the following procedures shall apply:
- 2.8.5.1 The TNRCC shall, within 30 days of receipt, take action as follows: (1) approve, conditionally approve (if the deliverable is a Revision), or disapprove the deliverable as submitted, or (2) return the deliverable to DOE with written comments so that changes can be made for resubmittal. Conditionally-approved Revisions will be approved or approved with modification after public review and comment and consultation with affected states and EPA pursuant to Section 2.5, Revisions. The TNRCC may extend this review period by an additional 30 days by notifying DOE. This period may be further extended for an additional period of time, as may be agreed to by the TNRCC and DOE. Written comments on the deliverable shall be provided with adequate specificity so that DOE can make the appropriate changes to the document. To the extent applicable, comments shall refer to specific paragraphs of any sources of authority or references on which the comments are based, and upon request of DOE, the TNRCC shall provide a copy of the cited authority or reference.

- 2.8.5.2** If the TNRCC fails to take one of the actions specified above within the time frames required by the Compliance Plan, work under the deliverable can commence upon receipt of a letter so indicating from the TNRCC. If the TNRCC extends the review period for a deliverable, any milestones or target dates dependent upon the results of deliverable review will automatically be extended an equivalent amount of time as the time taken beyond the specified time frame for review. DOE will notify the TNRCC in writing of any enforceable milestones needing extension or revision.
- 2.8.5.3** In the event that the TNRCC returns the deliverable to DOE with comments, within thirty (30) days of receipt, DOE shall incorporate the comments and shall re-transmit the deliverable. DOE may extend this period by an additional 30 days by notifying the TNRCC. This period may be further extended for an additional period of time, as may be agreed to by the TNRCC and DOE. In the event DOE disagrees with the TNRCC's comments and the Parties are unable to resolve their disagreement, DOE may invoke the dispute resolution provisions of Section 2.10, Disputes.

2.9 Funding

- 2.9.1** TNRCC shall have an opportunity to have input formulating the Pantex Plant budget and setting the Pantex Plant budget priorities as set forth in this section and Section 2.2.2, Milestones and Target Dates. Nothing in the Compliance Plan affects DOE authority over its budget and funding level submissions. Further, any requirement for the expenditure or obligation of funds by DOE established by the terms of the Compliance Plan and Agreed Order requiring compliance with the Compliance Plan would be subject to the availability of appropriated funds, and no provision of the Compliance Plan or Agreed Order shall be interpreted to require the obligation or expenditure of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341, as amended. In cases where the expenditure or obligation of funds would constitute a violation of the Anti-Deficiency Act, the dates established requiring the expenditure or obligation of such funds shall be appropriately adjusted.
- 2.9.2** It is the expectation of the Parties that all obligations of DOE arising under this Compliance Plan and Agreed Order will be fully funded. The Parties recognize that successful implementation of this Compliance Plan and Agreed Order is dependent upon prudent use of resources, and that resource

requirements and constraints will be considered during the work planning, budget formulation, and budget execution process. To ensure the development of responsible budget requests consistent with the requirements of the Compliance Plan and Agreed Order and applicable federal/state statutes, the Parties will work cooperatively and in good faith.

2.9.3 DOE shall take all necessary steps to obtain sufficient funding to comply with the provisions of this Compliance Plan and Agreed Order as set forth in this section through consultation with TNRCC and submission of timely budget requests.

2.9.4 Pursuant to Section 2.12, the Project Managers will meet periodically and discuss projects being funded in the current FY and any events or new information that may cause significant changes to target schedules or other issues relevant to activities being performed under this Compliance Plan and Agreed Order. DOE shall provide projected and actual cost information regarding such changes for these meetings, to the extent practicable.

2.9.5 DOE shall consult with TNRCC in formulating its annual Pantex Plant Environmental Management (EM) FY+2 budget request as set forth in this section.

2.9.5.1 No later than 30 days prior to the submission of its budget request to DOE-HQ, DOE-AAO shall provide TNRCC with information or a briefing on the proposed Pantex Plant EM FY+2 budget allocation, including appropriate supporting documents. In the process of formulating its annual FY+2 budget request, DOE may be subject to target funding guidance directed by the OMB. The information or briefing will address the impacts of such OMB target funding guidance.

TNRCC agrees not to release confidential budget information to any other person or entity prior to submission by the President of his budget request to Congress unless authorized by DOE or required to do so by court order. DOE may seek to intervene in any proceeding brought to compel or enjoin release of this information. If allowed to intervene, DOE shall assert its interest in, and the legal basis for, maintaining the confidentiality of this information.

2.9.5.2 Before DOE-AAO submits its annual budget request and supporting budget formulation documents to DOE-HQ, the Parties

shall attempt to reach agreement regarding work scope, priorities, schedules/milestones, and funding levels required to accomplish the purpose of the Compliance Plan and Agreed Order. TNRCC shall, to the extent practicable, provide comments on the proposed budget request and proposed activities, make recommendations, and identify any additional activities that they believe to be appropriate to accomplish the intent of the Compliance Plan, including those that cannot be accommodated within the environmental management funding target level for the DOE-AAO.

2.9.5.3 DOE-AAO may revise its budget request and supporting documents to resolve the comments of TNRCC to the extent agreed by the Parties or DOE-AAO otherwise deems it appropriate.

2.9.5.4 DOE-AAO will submit to DOE-HQ its budget request with detailed budget formulation documents, and shall forward with it the target budget level funding and any unresolved issues regarding funding for additional or accelerated activities submitted by TNRCC, and any other unresolved issues raised by TNRCC. If these issues are not subsequently resolved prior to DOE's submission of its budget to OMB, DOE-HQ shall forward with its budget request any such unresolved issues and additional or accelerated activities, and related funding information to OMB.

2.9.6 Funds authorized and appropriated annually by Congress under the Energy and Water Development Appropriations Act and allocated by the DOE Assistant Secretary for Environmental Management to Pantex Plant waste management activities will be the sole source of funds for activities required by this Compliance Plan and Agreed Order.

2.9.6.1 If funding has been requested as described in Subsections 2.9.4 - 2.9.5, and if appropriated funds allocated to Pantex plant for waste management activities by the DOE Assistant Secretary for Environmental Management are not available to accomplish the activities proposed for FY under this Compliance Plan and Agreed Order,

2.9.6.1.1 The Parties shall attempt to negotiate appropriate adjustments, including extensions, to the activities for FY under this Compliance Plan and Agreed Order; and

2.9.6.1.2 TNRCC shall toll any penalties during the extension or period of adjustment, whether or not dispute resolution is invoked.

2.9.6.2 If the Parties are unable to reach agreement, then the Parties shall use Section 2.10, Disputes, to determine the extent that activities shall be adjusted or the length of the extensions for milestones and target dates in order to accommodate the Pantex plant FY funding allocation for waste management activities. The Parties agree that, unless DOE-AAO has not followed the procedures set out in Subsections 2.9.4 - 2.9.5, the dispute resolution procedure shall not result in a decision requiring activities that Pantex Plant cannot accomplish given its FY funding allocation for waste management activities.

2.9.7 If any administrative enforcement or judicial action (including a judicial enforcement action by TNRCC or any judicial review after exhaustion of any required administrative remedies sought by DOE) arises due to failures of the Parties to agree to adjust schedules based upon lack of sufficient funding under this section, the milestones and schedules (including final order after appeal) at issue shall be null and void and not subject to the remedy of specific performance.

2.9.8 If the DOE-AAO takes steps, as set forth in this section, through consultation with TNRCC, this will constitute a good faith effort to comply with the requirements of this Compliance Plan and Agreed Order. Subsequent receipt of less funding that submitted shall not constitute a knowing violation under RCRA or applicable State law for purpose of criminal fines or civil penalties.

2.9.9 Nothing herein shall affect DOE's ultimate authority and responsibility to formulate and submit to the President appropriate budget requests and to allocate appropriated funds to meet the Department's obligation and to serve the Department's missions.

2.10 Disputes

2.10.1 Except as specifically set forth elsewhere in the Compliance Plan or Agreed Order, any action which leads to or generates a dispute regarding compliance with the Compliance Plan or Agreed Order is subject to resolution under this section. The dispute resolution procedures of this section shall be followed and exhausted before pursuing any other legal remedy in any other forum.

2.10.2 DOE and the TNRCC shall make reasonable efforts to informally resolve disputes as expeditiously as possible at the project manager level. If resolution cannot be achieved informally, either Party may elevate the dispute for resolution by requesting in writing to the other Party that the dispute be elevated pursuant to this section. If resolution appears imminent, upon agreement of both Parties in writing, the informal resolution period may be extended.

2.10.3 When formal dispute resolution is initiated, the disputing Party shall submit to the other Party a written Notice of Dispute specifying:

- (a) the nature of the dispute.
- (b) the work affected by the dispute;
- (c) the disputing Party's position with respect to the dispute; and
- (d) the information the disputing Party is relying upon to support its position.

The written Statement of Dispute shall be forwarded to both members of the Dispute Resolution Committee (DRC).

2.10.3.1 The DRC will serve as a forum for resolution of disputes for which agreement has not been reached through the informal dispute resolution process. The TNRCC representative on the DRC is the Director of the Industrial and Hazardous Waste Division. The DOE representative on the DRC is the appropriate DOE-AAO Assistant Area Manager with responsibility for waste management.

2.10.3.2 Following elevation of a dispute to the DRC, the DRC shall have thirty (30) days to unanimously resolve the dispute and issue a written decision. If the DRC is unable to unanimously resolve the dispute within this thirty (30) day period, the written Statement of Dispute from the disputing Party (as described in Section 2.10.3) and a written formal position from the other Party shall be forwarded within ten (10) days to the Senior Executive Committee (SEC) for resolution.

2.10.3.3 The SEC shall serve as the forum for resolution of disputes for which agreement has not been reached by the DRC. The

TNRCC representative on the SEC is the Deputy Director of the Office of Waste Management. The DOE representative on the SEC is the DOE-AAO Area Manager. The members of the SEC shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision. If unanimous resolution of the dispute is not reached within thirty (30) days of receipt of the written Statement of Dispute, TNRCC's Deputy Director of the Office of Waste Management shall issue a written position on the dispute. The DOE may, within 30 days after the issuance of TNRCC's position, issue a written notice elevating the dispute to the Executive Director for resolution. Under TNRCC authority, the Commission has delegated, to the Executive Director the authority to be the final arbiter for disputes under Section 2.10 of the Compliance Plan.

- 2.10.3.4** If either Party at the SEC level identifies issues at any time during the dispute resolution process that are deemed pertinent to national policies or to the policies of the State of Texas, either Party may refer the dispute to the Executive Director for resolution pursuant to Section 2.10.3.5. Upon agreement of the Parties at any point in the dispute process that resolution of a dispute is immediately necessary to avoid, prevent, or respond to emergency conditions, the dispute may be escalated to the Executive Director for resolution pursuant to Section 2.10.3.5.
- 2.10.3.5** Upon escalation of the dispute to the Executive Director pursuant to this section, the Executive Director will review and resolve the dispute within thirty (30) days. Disputes escalated based on emergency conditions as set forth in Subsection 2.10.3.4 above, shall be resolved by the Executive Director as soon as reasonably possible. Upon request by the DOE-AAO Manager, in consultation with the Manager, Albuquerque Operations Office, and before resolving the dispute, the Executive Director shall meet and confer with the Secretary of Energy to discuss the issue(s) under dispute. Upon resolution, the Executive Director shall provide DOE with a written decision setting forth resolution of the dispute. The duties of the Executive Director set forth in this Subsection shall not be delegated.
- 2.10.3.6** The DOE reserves the right to either accept the decision of the Executive Director or to seek an administrative review or judicial appeal of the decision.

- 2.10.3.7** The thirty (30) day review periods mentioned above in Sections 2.10.2, 2.10.3.2, 2.10.3.3 and 2.10.3.4 may be extended by the mutual agreement of the Parties, as necessary, to complete the resolution of a dispute.
- 2.10.4** The pendency of any dispute under this section shall not affect DOE's responsibility for timely performance of the work required pursuant to this Plan, except that the time period for completion of work affected by such dispute shall automatically be extended for a period of time usually not to exceed the actual time taken to resolve any good faith dispute in accordance with the procedures specified herein. All elements of work required by the Compliance Plan that are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.
- 2.10.5** When dispute resolution is in progress, work affected by the dispute will immediately be discontinued if TNRCC requests, in writing, that work related to the dispute be stopped because, in TNRCC's opinion, such work is inadequate or defective, and such inadequacy or defect is likely to yield an adverse effect on human health or the environment, or is likely to have a substantial adverse effect on the implementation process. To the extent possible, TNRCC shall give DOE prior notification that the work stoppage request is forthcoming. After stoppage of work, if DOE believes that the work stoppage is inappropriate or may have potential significant adverse impacts, DOE may subject this final written decision to formal dispute resolution at the DRC or the SEC level. To invoke dispute resolution at this level, DOE shall submit a written Statement of Dispute to the TNRCC representative on the DRC or SEC within 15 days after work stoppage.
- 2.10.6** Within thirty-five (35) days after resolution of a dispute pursuant to the procedures specified in this section, DOE shall incorporate the resolution and final determination into the appropriate plan, schedule, or procedure and proceed with implementation in accordance with the amended plan, schedule or procedure.
- 2.10.7** Responsibilities of members of the DRC and SEC may be delegated only to those persons acting for the designated member during a designated member's absence.
- 2.10.8** States affected by the dispute and/or EPA may be consulted by the Parties as part of the dispute resolution process, as appropriate.

2.10.9 Disputes related to establishment of milestones may be expedited by sending notice of dispute directly to SEC representatives after failure to reach informal resolution.

2.10.10 This Agreed Order and Compliance plan shall be governed by applicable State of Texas and federal requirements.

2.11 Covenants and Reservations

2.11.1 The Compliance Plan and Agreed Order shall stand in lieu of any administrative, legal and equitable remedies which are available to the TNRCC against DOE, its contractors and subcontractors at any tier and all persons bound by this Compliance Plan and Agreed Order with respect to the matters addressed therein, so long as DOE and all parties bound by this Compliance Plan and Agreed Order are in compliance with the Compliance Plan and Agreed Order as determined by the TNRCC or a court of competent jurisdiction.

2.11.2 Except as specifically set forth herein, DOE reserves and does not waive any rights, authority, claims or defenses, including sovereign immunity, that it may have or wish to pursue in any administrative, judicial or other proceeding with respect to any person; nor does DOE waive any claim of jurisdiction over matters which may be reserved by law, including the Atomic Energy Act. Nothing in this Compliance Plan and Agreed Order shall constitute an admission on the part of DOE, in whole or in part, in any proceeding, except in a proceeding to enforce the Agreed Order and Compliance Plan. DOE specifically reserves all rights it may have by law to seek and obtain administrative or judicial review or appeal according to law of any determination made by TNRCC during DOE's performance of its obligations under the Compliance Plan and Agreed Order. DOE also specifically reserves all rights it may have by law to seek and obtain administrative or judicial review or appeal of permit requirements.

2.12 Project Manager

2.12.1 Within ten (10) days of the effective date of the Compliance Plan, DOE and the TNRCC shall designate a Project Manager. DOE and the TNRCC shall each notify the other in writing of the Project Manager they have selected. Each Project Manager shall be responsible for overseeing the implementation of the Compliance Plan. Either the DOE or TNRCC may change its designated Project Manager by notifying the other in writing, ten (10) days before the change, to the extent possible. To the extent possible,

communications between the DOE and TNRCC concerning the terms and conditions of the Compliance Plan shall be directed through the Project Managers. Each Project Manager shall be responsible for assuring that all communications from the other Project Manager are disseminated appropriately to that responsible Project Manager's organization.

- 2.12.2** The Project Managers shall have authority or obtain the appropriate level of authority to act for their respective agency to agree to changes to schedules and requirements, subject to the provisions of the Compliance Plan on Disputes and Revisions. The Project Managers shall meet quarterly, if necessary, to discuss progress and problems relating to all work under the Compliance Plan. As a requirement of the agenda for each meeting, the TNRCC shall notify DOE of all potential issues or problems regarding compliance with the Compliance Plan. Additionally, the status of the curing of any previously identified problems or issues of compliance shall be provided and discussed. Additional meetings may be requested by either Project Manager to discuss issues, problems, or activities associated with this Compliance Plan.
- 2.12.3** Draft meeting minutes shall be prepared by DOE and provided to the TNRCC within ten (10) days of the meeting. Any changes to the minutes shall be provided to DOE in writing within fourteen (14) days of receipt of the draft minutes for incorporation into the final minutes. Failure to provide timely changes to the minutes shall constitute agreement.
- 2.12.4** It is the intent of the TNRCC and DOE that this notification and curing process shall be used to avoid disputes to the extent possible.

2.13 Notification

- 2.13.1** Unless otherwise specified, any report or submittal provided by DOE pursuant to a milestone identified in or developed under the Compliance Plan shall be sent by first class mail, express mail, facsimile or hand delivered, with a certification of mailing or confirmation of delivery, to the address of the TNRCC Project Manager.
- 2.13.2** One copy of all documents to be submitted pursuant to this Compliance Plan shall be sent to the Project Manager at the address stated below. Either TNRCC or DOE may request additional copies of any document submitted pursuant to this Compliance Plan.

Project Manager
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, TX 78711-3087

Project Manager
Department of Energy - Amarillo Area Office
P. O. Box 30030
Amarillo, TX 79120

2.14 DOE's NEPA Review and FFCA Implementation

- 2.14.1** DOE plans to issue a Programmatic Environmental Impact Statement (PEIS) for Waste Management and Sitewide Environmental Impact Statement (SWEIS) for Pantex Plant. DOE intends both documents to include a range of alternatives broad enough to accommodate any reasonable configuration of waste treatment and storage facilities that might emerge from the development of site treatment plans under the FFCA. The alternatives in the draft PEIS and the Pantex Plant SWEIS are expected to accommodate site-specific options outlined in the site treatment plans; and the final versions of both EISs are planned to include an alternative for mixed waste management consistent with the proposals contained in final site treatment plans to be submitted to the states. The EISs will analyze the environmental effects associated with the possible waste management configurations. The PEIS and the Pantex Plant SWEIS are planned to provide analysis of environmental impacts related to activities described in the Compliance Plan under NEPA and DOE's implementing regulations.
- 2.14.2** Before proceeding with any site-specific action under the Compliance Plan or any changes to the Compliance Plan, DOE may prepare environmental documentation pursuant to NEPA, and if needed, issue a finding as to the significance of the action in accordance with its implementing regulations. An EIS may be prepared if DOE finds, on the basis of an environmental assessment or independently, that the site-specific action is one that requires preparation of an EIS. To eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for review in deciding whether to proceed with a site-specific action, DOE may tier an environmental assessment and/or environmental impact statement to the PEIS and/or the Pantex Plant SWEIS. DOE shall provide a draft of any EA for a site-specific action under the Compliance Plan to the state to achieve early coordination and review.

2.14.3 Changes in the Compliance Plan or Agreed Order may be required or warranted by the public's comments upon or the analysis of environmental effects set forth in an environmental assessment or EIS prepared pursuant to Subsections 2.14.1 or 2.14.2. The Parties agree to negotiate in good faith any resulting appropriate or necessary changes in the Compliance Plan or Agreed Order.

2.15 Amendment and Modification

2.15.1 This Compliance Plan and Agreed Order may only be amended or modified by mutual written agreement of the TNRCC and DOE. Any amendment or modification of this Compliance Plan or Agreed Order shall be in writing, shall have as the effective date the date of signature by TNRCC, and shall be incorporated into the Compliance Plan or Agreed Order and be enforceable in the same manner as any other requirement of the Compliance Plan or Agreed Order. If a modification constitutes a Revision as defined in Section 2.5 in the Compliance Plan, it shall be subject to the provisions of Section 2.5, Revisions in the Compliance Plan, and as such, the mutual agreement of the TNRCC and DOE shall be subject to the procedures applicable to a conditionally approved Revision set forth in Section 2.5 in the Compliance Plan. Modifications or amendments as the result of delays in performance or extension requests shall be made pursuant to Section 2.6, Extensions, in the Compliance Plan.

2.15.2 In the event there is a change in applicable state or federal law or regulation, the Compliance Plan or Agreed Order shall be amended or modified to incorporate such change, as necessary. In the event that federal or state law or regulation is amended after the effective date of the Compliance Plan or Agreed Order in a manner which is inconsistent with the provisions or requirements of the Compliance Plan or Agreed Order, the Compliance Plan or Agreed Order shall be modified or amended to be consistent with such changes. With the exception of the provisions of Subsection 2.7.1 (c) in the Compliance Plan, regarding deletion of covered wastes, during the pendency of any such amendment or modification, the Compliance Plan or Agreed Order shall remain in effect unless an exemption is provided in writing by the TNRCC.

3.0 Low-Level Mixed Waste Streams

This chapter presents DOE’s preferred options for treatment of mixed waste generated at Pantex along with the proposed schedules for development of these options. The schedules required by the FFCA are divided into two categories, (1) existing technologies, and (2) non-existing technologies or technologies that require adaptation. Section 3.1 presents the preferred options for existing treatment technologies, and Section 3.2 presents preferred options for technologies which are non-existing technologies or technologies that require adaptation. Technologies have been placed within these categories based on the definition of existing technologies as only those which have been proven on a full production scale on Pantex mixed waste streams. Therefore, due to the stage of development of the Albuquerque Operations Office (AL) Mixed Waste Treatment Plan Mobile Treatment Units (MTUs), the DOE Amarillo Area Office considers them to be non-existing technologies or technologies that need adaptation to treat Pantex generated low-level mixed waste. The MTUs will be operated in the Hazardous Waste Treatment and Processing Facility (HWTPF), which is planned to be operational by the year 2001.

Table 3-1 delineates Pantex Plant’s LLMW by waste stream, identification numbers, volume, and constituents. Information on the treatment technologies selected for each waste stream is in Table 3-2.

3.1 Mixed Waste for Which Technology Exists

3.1.1 Separating, Surveying, and Decontaminating

Separating, surveying, and decontaminating has been selected as a preferred existing technology option to be included in the treatment train for treating the following Pantex waste streams. The following shows waste streams that require at least one of these three steps. Refer to Table 3-2 for a detailed listing of applicability of each step and other MTU technologies required to treat these waste streams.

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
4.1	Lead Waste	Initial/Final
5.1	ER Program Soils	Initial
7.1	Lab Packs	Initial
10.1	Batteries	Initial/Final
11.1	Aerosol Cans	Initial/Final

Separation involves physically sorting the material from other waste matrices. Surveying consists of sampling the stream and analyzing it for radioactivity levels. Surface decontamination involves aqueous washing to remove the radioactive contaminants. Decontaminating may also involve using the lead decontamination trailer, an existing technology developed by LANL. This process employs a wet surface blasting technology using a mixture of water, air and grit. After decontamination, the material will be sampled and analyzed for radioactivity levels and, if determined to be nonradioactive, reclassified as a non-MW, and dispositioned appropriately.

If decontamination cannot be achieved to meet health-based radioactive release limits for surface contamination, an alternate technology will be selected.

Separating, Surveying, and Decontaminating Schedule¹

Activity	Milestone	Target Date	Planning Date
Procure contract		Complete	
Submit permit application		Complete	
Initiate construction		Complete	
Conduct systems testing		Complete	
Commence operations		30 Apr 97	
Process mixed waste		31 Dec 97	

¹ Separating, surveying, and decontaminating are operations that are currently defined, and that can be performed in existing permitted Pantex facilities. Processing is scheduled for the period between 30 April 1997, and 31 December 1997 (this period overlaps the government fiscal years of FY97 and FY98).

Separating, Surveying, and Decontaminating Time Line¹

ACTIVITY	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Procure contract	Complete						
Submit permit application	Complete						
Initiate construction	Complete						
Conduct systems testing	Complete						
Commence operations			◇				
Process mixed waste				◇			

¹Separating, surveying, and decontaminating are operations that are currently defined, and that can be performed in existing permitted Pantex facilities. Processing is scheduled for the period between 30 April 1997, and 31 December 1997 (this period overlaps the government fiscal years of FY97 and FY98).

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.1.2 Pantex Burning Ground

The burning ground is an existing onsite facility where waste exhibiting an explosive reactive characteristic (D003) is being treated. Treatment of HE waste at the burning ground is authorized by the Texas Air Control Board under written grant of authority, and the facility units have interim status provided in 40 CFR 265, Subpart P.

The following waste streams are being treated at the burning ground:

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
8.1	Waste Water Sludge from Explosives	Initial/Final
8.2	Explosives-contaminated Support Material	Initial/Final

Burning Ground Treatment Schedule¹

Activity	Milestone	Target Date	Planning Date
Procure contract	Completed (10/91)		
Submit permit app. (RCRA Part A)	Completed (10/80)		
Written Grant of Authority	Completed (5/91)		
Initiate construction	Completed		
Conduct systems testing	Completed		
Commence operations	Completed		
Process mixed waste	Ongoing		

¹The burning ground at Pantex is currently operating under RCRA interim status and under a written Grant Of Authority issued by the Texas Air Control Board which was merged into the TNRCC for the disposal of certain types of mixed waste.

Burning Ground Treatment Time Line¹

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Procure contract								
Submit permit application								
Initiate construction								
Conduct systems testing								
Commence operations								
Process mixed waste	Ongoing							

¹The burning ground at Pantex is currently operating under RCRA interim status and under a written Grant Of Authority issued by the Texas Air Control Board, which has merged into the TNRCC for the disposal of certain types of mixed waste.

LEGEND

- ▼ Milestone
- ◇ Target Date
- Planning Date

3.2 Mixed Waste Streams for Which Technology Needs Adaptation or No Technology Exists

This section describes those Pantex LLMW streams that will be treated to meet LDRs using existing technologies that require significant adaptation. Treatment units other than macroencapsulation and stabilization/barium sulfate precipitation are being developed at other DOE-AL sites. Pantex Plant is included in the integrated schedule for use of these units for treatment of Pantex Plant MW.

3.2.1 Macroencapsulation

Macroencapsulation has been selected to be included in the treatment train for treatment of the following Pantex waste streams. Refer to Table 3-2 for other MTU technologies required to treat these waste streams.

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
6.1	Organic debris: solvent-contaminated solids	Initial/Final
6.2	Inorganic debris: contaminated scrap metal	Initial/Final
6.3	Inorganic debris: lead-contaminated waste	Initial/Final
6.4	Inorganic debris: mercury-contaminated solids	Initial/Final
6.5	Heterogeneous debris: (metals, solvents, lead, beryllium)	Initial/Final
6.6	Heterogeneous debris: (metals, mercury)	Initial/Final
6.7	Plutonium-contaminated debris	Initial/Final

Macroencapsulation encloses solid waste in an inert envelope to reduce the exposure to potential leaching media in a landfill. The Pantex Plant is responsible for adapting the technology for this process application. Pantex Plant will build a modular-sized macroencapsulation treatment unit.

Macroencapsulation Treatment Schedule

Activity	Milestone	Target Date	Planning Date
Identify treatment technology		09 December 1995 ¹	
Identify funding requirements		06 June 1996 ¹	
Submit treatability study exemptions		06 July 1996 ¹	
Submit R&D permit application		06 July 1996 ²	

¹Macroencapsulation technology is being developed at Pantex. Pantex calculated dates and durations which are contingent upon the "Completion of Conceptual Engineering" (10 October 1995).

²Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions".

Macroencapsulation Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology			◇					
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.2 Stabilization

Stabilization has been selected to be included in the treatment train for treatment of the following Pantex waste streams. Refer to Table 3-2 for other MTU technologies required to treat these waste streams.

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
1.1	Paint waste	Final
1.2	Spent solvents	Final
1.3	Mercury-contaminated liquid	Final
1.4	Miscellaneous organic liquids	Final
1.5	Scintillation vials	Final
2.1	Waste water	Final
2.2	Alodine solution	Final
2.3	Rinse water	Final
2.4	Metal cleaning waste	Final
3.1	Process residual (organic solids)	Final
4.2	Burning ground ash	Final
5.1	ER Program soils	Final
7.1	Lab packs	Final

Stabilization also has been selected to treat process residues. Stabilization is a process by which wastes are treated to reduce the leachability by producing a hard, water-resistant solid, suitable for disposal in a landfill. Pantex Plant is responsible for adapting the treatment technology for this process application and will produce a skid-sized unit.

Stabilization/Sulfate Precipitation Treatment Schedule

Activity	Milestone	Target Date	Planning Date
Identify treatment technology		14 September 1996 ¹	
Identify funding requirements		13 March 1997 ¹	
Submit treatability study exemptions		12 April 1997 ¹	
Submit R&D permit application		12 April 1997 ²	

¹Stabilization and sulfate precipitation technologies are being developed at Pantex. Pantex calculated dates and durations which are contingent upon the "Completion of Conceptual Engineering" (16 July 1996).

²Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions".

Stabilization/Sulfate Precipitation Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology			◇					
Identify funding requirements				◇				
Submit treatability study exemptions (if applicable)				◇				
Submit R&D permit application (if necessary)				◇				

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.3 Barium Sulfate Precipitation

Sulfate precipitation has been selected to be included in the treatment train for treatment of the following Pantex waste stream (refer to Table 3-2 for other MTU technologies required to treat this waste stream).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
4.2	Burning Ground ash	Intermediate

The process involves mixing gypsum and sulfuric acid with the ash to form insoluble barium sulfate; the resulting sludge is then stabilized. Pantex Plant is responsible for adapting the technology for this process application. Due to the simplicity and similarity to the stabilization MTU, this technology is now combined into the stabilization MTU. These activities will follow the same schedule as those presented in Section 3.2.2, Stabilization.

3.2.4 Packed Bed Reactor/Silent Discharge Plasma

Packed bed reactor/silent discharge plasma is being developed by a team that includes Sandia National Laboratory, New Mexico and LANL personnel. This technology has been selected to be included in the treatment train for treatment of the following Pantex MW streams (refer to Table 3-2 for other MTU technologies required to treat these waste streams).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
1.1	Paint Waste	Initial
1.3	Mercury-contaminated liquids	Initial
1.5	Scintillation Vials (Liquids)	Initial

The packed bed reactor/silent discharge plasma is a thermal treatment unit that consists of a fuel atomizer and injector, an alumina-filled metal cylinder, and an electric furnace. Control of the fuel mixture and partial control of the combustion reactions with the electric furnace results in a process without a flame; hence, the reactor is classified as a thermal treatment unit and not an incinerator.

Packed Bed Reactor/Silent Discharge Plasma Treatment Schedule

Activity	Milestone	Target Date ⁽¹⁾	Planning Date
Identify treatment technology		(1a)	
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at Sandia National Laboratory, New Mexico which has its own enforceable compliance schedule requirements. Pantex calculated dates and durations for items 1a, 1b, and 1c are contingent upon the availability of information from the Albuquerque Mixed Waste Treatment Schedule. The referenced dates, and durations from the "Identify treatment technology" date are:

(1a) Identify treatment technology, 01 March 1996

(1b) Identify funding requirements, 28 August 1996, 6 months from Identify treatment technology

(1c) Submit treatability study exemptions, 27 September 1996, 7 months from Identify treatment technology

See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of Submit treatability study exemptions (27 September 1996, 7 months after the completion of Identify treatment technology).

Packed Bed Reactor/Silent Discharge Plasma Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology			◇					
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.5 Hydrothermal Oxidation

Hydrothermal oxidation is being developed by LANL. This technology has been selected to be included in the treatment train for treatment of the following Pantex MW streams (refer to Table 3-2 for other MTU technologies required to treat these waste streams).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
1.2	Spent solvents	Initial
1.4	Miscellaneous organic liquids	Initial

Hydrothermal oxidation is a destruction technology that operates at temperatures between 400 and 600°C and at pressures between 250 and 1,000 atms. Because these conditions are above the critical point of pure water (374°C and 218 atms), this process is sometimes referred to as supercritical water oxidation. Water near the critical point is a unique solvent in which chemical oxidation or reduction can take place at relatively low temperatures, thereby limiting the production of harmful byproducts.

Hydrothermal Processing Treatment Schedule

Activity	Milestone	Target Date ⁽¹⁾	Planning Date
Identify treatment technology		(1a)	
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at LANL which has its own enforceable compliance schedule requirements. Pantex calculated dates and durations for items 1a, 1b, and 1c are contingent upon the "Availability of Permit Information" (27 Nov 1996) from the Albuquerque Mixed Waste Treatment Schedule. The referenced dates and durations from the "Identify treatment technology" date are:

- (1a) Identify treatment technology, 26 January 1997
 - (1b) Identify funding requirements, 25 July 1997, 6 months from Identify treatment technology
 - (1c) Submit treatability study exemptions, 24 August 1997, 7 months from Identify treatment technology
- See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions" (24 August 1997, 7 months after the completion of Identify treatment technology).

Hydrothermal Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology				◇				
Identify funding requirements				◇				
Submit treatability study exemptions (if applicable)				◇				
Submit R&D permit application (if necessary)				◇				

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.6 Evaporative Oxidation

Evaporative oxidation is being developed by GJPO. This technology has been selected to be included in the treatment train for treatment of the following Pantex MW streams (refer to Table 3-2 for other MTU technologies required to treat these waste streams).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
2.1	Waste water	Initial
2.3	Rinse water	Initial

This technology combines the principles of evaporation and vapor catalytic oxidation to concentrate nonvolatile contaminants into a thick liquor or slurry and destroy the volatile compounds. The offgases generated by this treatment are composed mainly of waste and small amounts of acidic gases. These gases are passed through a scrubber and a condenser for cleanup before being released.

Evaporative Oxidation Treatment Schedule

Activity	Milestone	Target Date ⁽¹⁾	Planning Date
Identify treatment technology		(1a)	
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at GJPO which has its own enforceable compliance schedule requirements. Pantex calculated dates and durations for items 1a, 1b, and 1c are contingent upon the "Availability of Permit Information for GJPO" (30 November 1995) from the Albuquerque Mixed Waste Treatment Schedule. The referenced dates and durations from the "Identify treatment technology" date are:

- (1a) Identify treatment technology, 29 January 1996
 - (1b) Identify funding requirements, 27 July 1996, 6 months from Identify treatment technology
 - (1c) Submit treatability study exemptions, 26 August 1996, 7 months from Identify treatment technology
- See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions" (26 August 1996, 7 months after the completion of Identify Treatment Technology).

Evaporative Oxidation Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology			◇					
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.7 Thermal Desorption

Thermal desorption is being developed by GJPO. This technology has been selected to be included in the treatment train for treatment of the following Pantex MW streams (refer to Table 3-2 for other MTU technologies required to treat these waste streams).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
1.5	Scintillation vials (solids/Vermiculite)	Initial
3.1	Process residuals (organic solids)	Initial
4.2	Burning Ground Ash	Initial
5.1	ER Soils	Intermediate

This technology is a batch-drying process used to separate organic and other volatile contaminants from solids, soils, and sludges. The contaminants are vaporized under a vacuum in an indirectly heated vessel and passed through an offgas treatment system (i.e., a regular filter, high-efficiency particulate air filter, multiple-stage chilled water condenser, and an activated carbon adsorber).

Thermal Desorption Treatment Schedule

Activity	Milestone ⁽¹⁾	Target Date ⁽¹⁾	Planning Date
Identify treatment technology	(1a)		
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at GJPO which has its own enforceable compliance schedule requirements. Pantex calculated dates and durations for items 1a, 1b, and 1c are contingent upon the "Completion of Conceptual Design" (19 May 1995) from the Albuquerque Mixed Waste Treatment Schedule. The referenced dates and durations from the "Identify treatment technology" date are:

- (1a) Identify treatment technology, 18 Jul 1995
 - (1b) Identify funding requirements, 14 Jan 1996, 6 months from Identify treatment technology
 - (1c) Submit treatability study exemptions, 13 Feb 1996, 7 months from Identify treatment technology
- See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions" (13 Feb 1996, 7 months after the completion of Identify Treatment Technology).

Thermal Desorption Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology		▽						
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.8 Amalgamation

Amalgamation is being developed by PIN. This technology has been selected for treatment of the following Pantex MW stream.

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
9.1	Liquid mercury (process residual)	Initial/Final

This technology consists of mixing liquid mercury with powder reagents such as copper, zinc, tin, nickel, gold, and sulfur to yield a metal alloy. When mixed in the correct proportions, the liquid mercury is completely amalgamated and contains no free mercury. The resulting metal alloy is leach resistant and has a reduced potential for emitting mercury vapors.

Mercury Amalgamation Treatment Schedule

Activity	Milestone ⁽¹⁾	Target Date ⁽¹⁾	Planning Date
Identify treatment technology	(1a)		
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at Pinellas which has its own enforceable compliance schedule requirements. Pantex calculated dates and durations for items 1a, 1b, and 1c are contingent upon the "Availability of Permit Information for Pinellas" (31 July 1995) from the Albuquerque Mixed Waste Treatment Schedule. The referenced dates and durations from the "Identify treatment technology" date are:

- (1a) Identify treatment technology, 29 September 1995
 - (1b) Identify funding requirements, 27 March 1996, 6 months from Identify treatment technology
 - (1c) Submit treatability study exemptions, 26 April 1996, 7 months from Identify treatment technology
- See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions" (26 April 1996, 7 months after the completion of Identify Treatment Technology).

Mercury Amalgamation Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology		▽						
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.2.9 Plating Waste Skid

The plating waste skid is being developed by LANL. This technology has been selected to be included in the treatment train for treatment of the following Pantex MW streams (refer to Table 3-2 for other MTU technologies required to treat these waste streams).

<u>Waste Stream</u>	<u>Description</u>	<u>Treatment Step</u>
2.2	Alodine solution	Initial
2.4	Metal-cleaning waste	Initial

This technology provides for inorganic oxidation and reduction reactions and for acid and base neutralization. The primary use of this technology will be to precipitate metals out of aqueous solutions by forming insoluble metal hydroxides. Separation techniques will be employed to remove the precipitates from the aqueous solutions.

Plating Waste Treatment Schedule

Activity	Milestone	Target Date ⁽¹⁾	Planning Date
Identify treatment technology		(1a)	
Identify funding requirements		(1b)	
Submit treatability study exemptions (if applicable)		(1c)	
Submit R&D permit application (if necessary)		(2)	

(1) This technology is being developed at LANL which has its own enforceable compliance schedule requirements. The "Availability of Permit Information for LANL" from the Albuquerque Mixed Waste Treatment Schedule is indicated as 20 January 1994. Because the availability of permit information date is past, Pantex selected the beginning of FY 1996 (01 October 1995) as the start date for this schedule, items 1a, 1b, and 1c. The referenced dates and durations (based on the assumed date of 01 October 1995) from the "Identify treatment technology" date are:

- (1a) Identify treatment technology, 30 November 1995
 - (1b) Identify funding requirements, 28 May 1996, 6 months from Identify treatment technology
 - (1c) Submit treatability study exemptions, 27 June 1996, 7 months from Identify treatment technology
- See Section 2.2.3.4(e)

(2) Current Pantex mixed waste types, and test quantities, do not require the submittal of an R&D permit application. If a R&D permit application is required, the assumed date for submitting that application will be concurrent with the submission of "Submit treatability study exemptions" (27 July 1996, 7 months after the completion of Identify treatment technology).

Plating Waste Treatment Time Line

ACTIVITY	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Identify treatment technology			◇					
Identify funding requirements			◇					
Submit treatability study exemptions (if applicable)			◇					
Submit R&D permit application (if necessary)			◇					

LEGEND

- ▽ Milestone
- ◇ Target Date
- Planning Date

3.3 Schedule Assumptions

Schedule requirements were calculated based on the following:

- The activity "identify funding requirements for identification and development of non-existing technologies" is two months in duration following the start dates identified below.
- The activity "identify and develop such technologies" (interpreted to mean identify and develop treatability study requirements) is 6 months in duration following the activity "identify funding requirements for identification and development of non-existing technologies" (above).
- The activity "submit treatability study exemptions", when applicable, is one month in duration following the activity "identify and develop such technologies" (above).
- The activity "submit R&D permit application", when necessary, is concurrent with the completion of the activity "submit treatability study exemptions" (above).
- The HWTPF will be operational as planned to house MTUs during their onsite operation.

<u>MTU</u>	<u>START DATE</u>
Thermal Desorption (GJPO)	The starting date is the completion of conceptual engineering.
Plating Waste (LANL)	LANL design and permit applications for this MTU are now complete and therefor the start of FY96 was selected as a start date.
Hydrothermal Processing (LANL)	The starting date is the date when LANL permit information is available.
Macroencapsulation (Pantex)	The starting date is the completion of conceptual engineering.
Mercury Amalgamation (Pinellas)	The starting date is the date when Pinellas permit information is available.
Stabilization/Sulfate Precipitation (Pantex)	The starting date is the completion of conceptual engineering.
Evaporative Oxidation (GJPO)	The starting date is the date when GJPO permit information is available.
Packed Bed Reactor/ Silent Discharge Plasma (Mound)	The starting date is the date when Mound permit information is available.
Burning Ground (Pantex)	This is an ongoing activity, the start of which preceded FY95.

4.0 MIXED TRANSURANIC (MTRU) WASTE STREAMS

MTRU waste is defined as radioactive waste that contains greater than 100 Nci/g of isotopes with atomic numbers greater than 92 and half-lives greater than 20 years (DOE Order 5820.2A, Radioactive Waste Management, U.S. DOE, Office of Defense Waste and Transportation Management, Washington, D.C., September 26, 1988.) in and hazardous waste as defined by RCRA. This definition includes the isotopes of neptunium, plutonium, americium, curium, and californium. Pantex Plant does not generate MTRU waste during routine operations and is not currently expected to do so (Interim Mixed Waste Inventory Report: Waste Streams, Treatment Capacities, and Technologies, U.S. DOE, DOE/NBM-1100, Amarillo Area Office, April 19, 1993.)

5.0 HIGH-LEVEL MIXED WASTE (HLMW) STREAMS

As defined by DOE Order 5820.2A, HLW is waste material produced from the reprocessing of spent nuclear fuels, including the liquid waste produced directly in the reprocessing, and any solid waste derived from the liquid that contains a combination of transuranic waste and fission products at concentrations requiring permanent isolation. There is no HLW or HLMW generated or stored at Pantex Plant, and none is expected in the future (Interim Mixed Waste Inventory Report: Waste Streams, Treatment Capacities, and Technologies, U.S. DOE, DOE/NBM-1100, Amarillo Area Office, April 19, 1993.) Therefore, FFCA requirements for this waste category are not addressed in this PSTP.

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 1 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage		5-Year Projections		Physical State	Characterization ¹	Composition	
		RCRA	TNRCC	m ³	barrels	m ³	barrels			HAZ	RAD
Organic Liquids	1.1 Paint Waste	D001	0051211H	0.38	1.8	0.36	1.7	Liquid	Requires SA	MEK & caustic, MEK, toluene, acetone, TCE, freon, isopropyl alcohol, Cd, Cr, Pb, Benzene	suspect H3, Th, DU
		D006-9									
		D035 D039 F002 F003 F005									
	1.2 Spent Solvents	D001	0040202H	1.51	7.3	0.55	2.6	Liquid	PK Medium	Freon, MEK, HE, DMSO. DMSO is flammable. May contain sludge &/or polymeric material at the bottom. May include toluene, acetone, TCE, freon & isopropyl alcohol, Cd, Cr, Pb, Nitrobenzene, Reactive	DU, H3
		D006-8									
		D035-36 D039 F001-5	0042203H								
	1.3 Contaminated Oil	D003	0117206H	0.70	3.4	0.85	4.1	Liquid	PK Medium	Hg @ ≈ 26 ppm Cd, Pb, Cr, MEK, TCE acetone	H3, Th, DU
		D006-9									
		F001-5									
	1.4 Misc. organic liquids	D001	0112204H	0	0	0.15	0.7	Liquid	PK High	Freon, Alcohol	suspect H3
		U codes									
	1.5 Scintillation vials	D001	0030001H	4.79	23.0	0.00	0	Liquid	PK Medium	Pseudocumene, Toluene, Xylene	H3, Th, U at very low levels
		F003									
Volume Total				7.38	35.5	1.91	9.1				

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 2 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage		5-Year Projections		Physical State	Characterization ¹	Composition	
		RCRA	TNRCC	m ³	barrels	m ³	barrels			HAZ	RAD
Aqueous Liquids	2.1 Wastewater	D002	0065102H	1.61	7.7	22.3	107.2	Liquid	PK Medium	HE, Cr & Pb, F solvents are suspect. Pb & Cr are Se, Si	suspect H3, Th, U
		D004-11 F001-5	0063101H								
		D002 D007	0078105H	0	0	0.15	0.7	Liquid	PK Medium	Chromic acid, iron cyanide, chlorine salts, toxic metals w/Cr-IV.	H3, Th, U are suspect
	2.3 Rinse Water	D002 D004-11 F001-5	0063101H	N/A	N/A	0.00	N/A	Liquid	PK Medium	The Pb is from Pb azide which is part of a parachute deployment system. The other materials are listed because of the chemicals used in the area.	DU
	2.4 Metal Cleaning Waste	D002 D006-9 D011	0067105H	0.15	0.7	1.95	9.4	Liquid	PK Medium	Alodine solution with nitric acid, Cr, Cd, Hg, Pb	Th & U @ suspect levels
Volume Total					1.76	24.40	117.3				
Solvent Contaminated Solids	3.1 Process Residuals	D001 D005-8 D035 D039 F001-5	0081901H	N/A	N/A	N/A	N/A	Solid	PK Medium	TCE, MEK, toluene, Br, Cr, Cd, Benzene, Pb	
				0.00	0.0	0.00	0.0				
Volume Total					0.00	0.00	0.0				

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 3 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage		5-Year Projections		Physical State	Characterization ¹	Composition	
		RCRA	TNRCC	m ³	barrels	m ³	barrels			HAZ	RAD
Inorganic Solids	4.1 Lead Waste	D008	0038307H	0.06	0.3	0.15	0.7	Solid	PK Medium	Toxic metals; No Hg	Suspect Depleted U, Th, H3
	4.2 Burning Ground Ash	D003 D005-9 F002 F005	0024304H	18.88	90.7	7.5	36.0	Powder or ash, and debris	SA High	Barium has been separated into 4 drums. This material has passed TCLP for solvents, however some of the solvents are listed.	H3 & DU have been monitored at 20,000 counts in some ash
Volume Total				18.94	91.0	7.65	36.7				
Soils	5.1 ER program soils ²	ER IDW D003-9 F001-3 F005	0061302H	0	0	190.0	913.0	Solid	PK Medium	Organics, Benzene, metals	@ very low levels H3, Th, DU
Volume Total				0.00	0.0	190.00	913.0				
Debris	6.1 Organic debris; Solvent contaminated solids	D001 D005-11 D035 D039 F001-5	0151319H 0081901H	57.38	275.8	27.9	134.1	Solid	PK Medium SA High	MEK, organics and Pb, metals. No Hg. Suspect solvents. Pb from seals, no Pb tape should be present.	suspect from an RMMA H3, Th, DU
		D005-D010 F002-F005	0140301H	11.16	53.6	567.9	2729.3	Solid	SA High	Cd & Pb most likely	H3
		D008	0106319H	2.30	11.1	5.6	26.9	Solid (debris/mixed)	SA High	Pb (no Hg)	DU, H3, Pb will have U238 contamination

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 4 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage		5-Year Projections		Physical State	Characterization ¹	Composition	
		RCRA	TNRCC	m ³	barrels	m ³	barrels			HAZ	RAD
	6.4 Inorganic debris; Mercury contaminated solids	D009	001409H 0016319H	1.69	8.1	1.95	9.4	Solid	SA High	Very little Hg present	from an RMMA
		D004-10 D018 D035 F002-5	0044319H	9.48	45.5	22.3	107.2	Solid	PK Medium SA	Pb	H3
Debris (continued)	6.6 Heterogeneous Debris	D004-D011	0044319H	1.51	7.3	8.25	39.6	Solid	PK Medium SA	Hg and possibly other metals	from an RMMA
	6.7 Pu-contaminated Debris (Support Material)	D007 D008 F005		0.21	1.0	0.0	0.0	Solid	PK Medium	Solvents and metals	Pu
Volume Total				83.73	402.4	633.90	3,046.5				
Lab Packs	7.1 Lab Packs	D001-3 D005-9 D011	0030001H 0033002H	2.46	11.8	1.67	8.0	Liquid/ Solid	PK Medium	All kinds of possibilities	from an RMMA
		F002-3 F005 P015 P030 P077 P092 P098 P105 U041-188									
Volume Total				2.46	11.8	1.67	8.0				

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 5 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage			5-Year Projections		Physical State	Characterization ¹	Composition	
		RCRA	TNRCC	m ³	barrels	m ³	barrels	HAZ			RAD	
Explosives	8.1 Wastewater Sludge from Explosives	D003	006310IH	0	0	1.95	9.4	Semi-solid/Sludge (not pumpable)	PK Medium	Explosive contaminated solids, DMSO	Suspect Depleted U, Th, H3	
	8.2 Explosives contaminated support material ¹	D003 D005-9 D011 D035 F002-3	0022307H	13.20	63.5	55.74	267.9	Solid	PK Medium	High Explosive Residue, Hg	Suspect Depleted U, Th, H3	
Volume Total				13.20	63.5	57.69	277.3					
Liquid Mercury	9.1 Residual from other treatability groups	D009	0088117H		1 liter	0.0	0.0	Liquid	PK Medium	Mercury	Suspect Depleted U, Th, H3	
	Volume Total					1 liter	0.0	0.0				
Batteries	10.1 Batteries (Demilitarized and Sanitized)	D002-3 D006 D008-9 D011	0079309H	0.05	0.3	1.31	6.2	Solid	PK Medium	Pb acid, Cd, Ag, toxic metals with Hg	Suspect Depleted U, Th, H3	
		Volume Total				0.05	0.3	1.31	6.2			

Table 3-1. Pantex Plant Mixed Waste Streams and Treatability Groupings.
(Sheet 6 of 6)

Treatability Group	Waste Stream	Reference Codes		Waste Quantities Storage		5-Year Projections		Physical State	Characterization ¹	Composition		
		RCRA	TNRCC	m ³	barrels	m ³	barrels			HAZ	RAD	
Compressed Gases	11.1 Aerosol Cans	D001-2		0.00	1 Gal.	0.0	0.0	Solid	PK	Freon, Other Solvents	Suspect Depleted U, Th, H3	
		U002										
		U031										
		U043										
		U075										
		U080										
		U121										
		U220										
		U226-228										
		U239										
Volume Total				1 Gal.	0.0	0.0	0.0					
Grand Total				127.52	612.9	918.53	4,414.1					

¹ - This category describes how the given waste stream is characterized (SA = Sampling & Analysis; PK = Process Knowledge) and provides a characterization confidence level (Low, Medium, High).
² - Mixed waste soils may be generated through future corrective actions. Appropriate treatments for mixed waste soils generated through implementation of environmental restoration activities will be determined following the generation of such waste.
³ - The Pantex Plant is evaluating this waste stream for a more definitive characterization regarding its reactivity (e.g., the applicability of D003). Plans for examination of the explosive contaminated support materials already stored and implementation of better defined procedures are ongoing activities. Through these efforts, much of this waste may be determined to be non-reactive (non-D003) and, if so determined, will be reclassified as waste in one of the waste streams within the Debris Treatability Group.

Table 3-2. Prioritized Technology Options and Required Capacity by Waste Stream

Treatment Group		Preferred Treatment Options		
Treatability Group	Waste Stream	Initial	Intermediate	Final
Organic Liquids	1.1 Paint Waste	Packed Bed Reactor/Silent Discharge Plasma		Stabilization
	1.2 Spent Solvents	Hydrothermal Oxidation		Stabilization
	1.3 Hg Contaminated	Packed Bed Reactor/Silent Discharge Plasma		Stabilization
	1.4 Misc. Organic Liquids	Hydrothermal Oxidation		Stabilization
	1.5 Scintillation Vials	Thermal Desorption (solids/Vermiculite) Packed Bed Reactor/Silent Discharge Plasma (liquids)		Stabilization
Aqueous Liquids	2.1 Waste Water	Evaporative Oxidation		Stabilization
	2.2 Alodine Solution	Plating Skid		Stabilization
	2.3 Rinse Water	Evaporative Oxidation		Stabilization
	2.4 Metal-Cleaning Waste	Plating Skid		Stabilization
Organic Solids	3.1 Process Residual	Thermal Desorption		Stabilization
Inorganic Solids	4.1 Lead Waste	Separating, Surveying, Decontaminating		
	4.2 Burning Grounds Ash	Thermal Desorption	Barium Sulfate Precipitation	Stabilization
Soils	5.1 ER Program Soils	Separating, Surveying	Thermal Desorption	Stabilization

Table 3-2. Prioritized Technology Options and Required Capacity by Waste Stream (continued).

Treatment Group		Preferred Treatment Options		
Treatability Group	Waste Stream	Initial	Intermediate	Final
Debris	6.1 Organic Debris; Solvent-Contaminated Solids	Macroencapsulation		
	6.2 Inorganic Debris; Contaminated Scrap Metal	Macroencapsulation		
	6.3 Inorganic Debris; Lead-Contaminated Waste	Macroencapsulation		
	6.4 Inorganic Debris; Mercury-Contaminated Solids	Macroencapsulation		
	6.5 Heterogeneous Debris (Metals, Solvents, Pb, ³ H, Be)	Macroencapsulation		
	6.6 Heterogeneous Debris (Metals, Hg)	Macroencapsulation		
	6.7 Plutonium Contaminated Debris (Support Materials)	Macroencapsulation		
Lab Packs	7.1 Lab Packs	Separating, Surveying		Stabilization
Explosives	8.1 Waste Water Sludge from Explosives	Burning Ground		
	8.2 Explosives-Contaminated Support Material	Burning Ground		

Table 3-2. Prioritized Technology Options and Required Capacity by Waste Stream (continued).

Treatment Group		Preferred Treatment Options		
Treatability Group	Waste Stream	Initial	Intermediate	Final
Liquid Mercury	9.1 Liquid Mercury (Process Residual)	Amalgamation		
Batteries	10.1 Batteries	Separating, Surveying, Decontaminating		
Compressed Gas	11.1 Aerosol Cans	Separating, Surveying, Decontaminating		

