FINAL SUPPLEMENT ANALYSIS FOR

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CONTINUED OPERATIONOF THE PANTEX PLANT AND ASSOCIATED STORAGE OF NUCLEAR WEAPONS COMPONENTS HAZARDOUS WASTE TREATMENT AND PROCESSING FACILITY

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(January 2000)

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SUMMARY

In September 1999, Pantex completed construction of the Hazardous Waste Treatment and Processing Facility (HWTPF, Bldg 16-18) and a Liquid Processing Facility (Bldg 16-18A). The design of the HWTPF differed in several ways from the proposal in the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* (EIS) approved in November 1996. This Supplement Analysis (SA) shows that although the HWTPF design differed from the 1996 EIS specifications, the environmental impact due to this change would be negligible. The SA recommends that neither a supplemental *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* to address the design changes, nor a new EIS or further NEPA documentation, is required.

Some of the design changes included the construction of separate Liquid Processing Facility to process flammable liquids, elimination of forklift airlocks and overhead hoists from the main HWTPF, the handling of classified material, the elimination of a shipping dock at 16-18, and construction of a ramp connecting 16-18 and adjacent Building 16-16, the RCRA Hazardous Waste Staging Facility (HWSF), for waste movement. *(See Appendix A for history of the design development of the HWTPF).*

Instead of housing solvent/liquid recycling processes in the HWTPF, as stated in the November 1996 EIS, a separate Liquid Processing Facility would be built about 85 feet away from the southeast corner of the main HWTPF.

Current design of the HWTPF also proposes elimination of the forklift airlocks and overhead hoists, which were proposed in the final EIS. They were eliminated since it was decided not to use Mobile Treatment Units (MTU's). The forklift airlocks and overhead hoists were strictly required to handle MTUs and decontaminate them. The HWTPF design specifications were addressed and considered in the approved EIS, and the newly-constructed HWTPF meets those specifications.

INTRODUCTION

Purpose of this Document

This SA is submitted according to the requirements for determining the need for a supplemental EIS (10 CFR 1021.314) in DOE's regulations for NEPA implementation. The analysis will discuss the circumstances that are pertinent to deciding whether or not to prepare a supplemental EIS for the *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components*. The SA specifically addresses the issue of housing liquid processes in a separate building, the elimination of forklift airlocks and overhead hoists from the main HWTPF, the handling of classified material, and the construction of a ramp instead of a shipping dock.

EIS Background

The final EIS was approved in November 1996. In the EIS, it was proposed that a single HWTPF would be built and it would include a flammable liquid processing area. A Fire Hazard Analysis (FHA) was prepared in November 1996 by an outside contractor. It was based on the Title I design of the HWTPF facility, with a single building (as proposed in the EIS) that included flammable liquid processing and an automatic CO_2 fire-suppression system. In a December 1996 review of the FHA, Pantex Fire Protection Engineering (FPE) suggested building a separate facility to process flammable liquids. Construction of a separate liquid processing building would not affect the analysis in the EIS since there would not be any additional environmental impact except in case of fire. Environmental impact due to fire response to the building would be different due to lack of an automatic suppression system, but this impact would be negligible because of the small size of the building (542 ft^2), its distance from the playas that would limit any runoff, and use of foam by the Fire Department to suppress the fire. Although the Liquid Processing Facility will have fewer air emission controls than the HWTPF (such as HEPA filters and negative air pressure), it would have almost no impact since the solvent recycling process uses a closed loop to recover vapors. The only time vapor emissions would occur is during the pumping of the recovered solvent when the vent valve would be kept open. These emissions should be minimal since the solvent would be pumped when it is cooled down to 100° F, at which time the vapor pressure would be about 0.02 psi. No respiratory protection will be required.

The EIS also stated that forklift airlocks and overhead hoists would be provided to the HWTPF. The forklift airlocks and overhead hoists were required for loading/unloading and decontamination of MTUs. Although a decision was made by DOE/AL to eliminate use of MTUs before the final EIS was published, the decision was subject to approval by the regulatory agencies. Absence of forklift airlocks and overhead hoists would not affect the analysis in the EIS since they were solely intended for MTUs, which were eliminated in the subsequent scoping of the scaled-down facility.

Separate Liquid Processing Facility

The purpose of the FHA was to investigate the fire safety attributes of the HWTPF with respect to the Fire Protection Design Criteria Manual for Pantex Plant (FPDCM). This publication references several mandatory fire protection criteria including National Fire Protection Association (NFPA) Codes and Standards, the Uniform Building Code (UBC), and DOE Order 5480.7a. The FHA includes a qualitative and quantitative review of building features, facility operations, fire protection systems, credible fire scenarios, damage and recovery potential, and life safety considerations. These issues are addressed in accordance with DOE Order 5480.7a Section 9.a (3), Fire Hazard Analysis.

Following is a timeline of FHA and its findings:

11-96 FHA based on Title I Design, single HWTPF includes flammable liquid processing.

The EIS stated that HWTPF will be protected by an automatic fire suppression system, alarms, emergency lighting, and fire extinguishers. (Volume II - Appendixes, H.3.3.4, Health and Safety, p. H-7). The architect-engineering (A-E) firm proposed installation of a CO_2 system as the automatic fire suppression system for the main HWTPF building. In December 1996 comments to the A-E firm, the Pantex Fire Protection Engineering Section of the Risk Management Department suggested constructing a separate liquid processing building while denying the approval of the CO_2 fire-suppression system for the solvent reclamation area in the main building of the HWTPF. The FPE was concerned about a potential health hazard posed to employees from discharge of the CO_2 system due to an accident, during testing of the system, or from discharge during fire response.

The building is classified as Special Purpose Industrial, Ordinary Hazard in accordance with NFPA 101-28-1.4.1, 1994 Edition.

10-97 FHA based on Title II Design, separate liquid processing facility (16-18A).

The A-E redesigned the HWTPF with a separate building for processing flammable liquids as suggested by the FPE in its December 1996 comments. The FHA was completed on October 27, 1997, as part of Title II engineering services and was based on review of project design criteria Revision 1. This FHA is based on a 21,448 ft^2 main HWTPF, a separate 542 ft^2 Liquid Processing Facility, an enclosed ramp connecting 16-16 and 16-18, and a separate hazardous liquid storage building.

estimates are calculated at $268,000. It would not be protected by a suppression system since the FPDCM exempts structures valued at less than $1,000,000 from providing automatic suppression. Also, NFPA 101 and UBC do not require automatic suppression for this type of occupancy. Instead of an automatic suppression system, fire extinguishers for types A, B, and C would be provided in accordance with NFPA 10. Manual pull stations at each exterior door and a combination fire alarm bell strobe unit would also be provided.

The FHA states, "The biggest single fuel load is processing of combustible and flammable liquids, and for this reason, it has been moved from the main HWTPF (16-18) to a separate building, Liquid Processing Facility (16-18A)."

The FHA has determined that a ramp would provide a 2-hour fire separation between 16-16 and 16-18, which meets UBC requirements. The ramp structure is not intended to store commodities, but it is intended to serve as an access way for forklift traffic. It would be constructed of noncombustible materials.

Elimination of Forklift Airlocks and Overhead Hoists

No forklift airlocks or overhead hoists would be installed in the HWTPF, as stated in the EIS. In the current design, the whole building would be under negative pressure. Also, the rooms where Low Level Waste (LLW) and Mixed Waste (MW) operations would occur would be under the most negative pressure to force the flow of air from the uncontaminated area to the contaminated area. Personnel anterooms are still part of the design. Absence of forklift airlocks and overhead hoists would not affect the analysis in the EIS since they were solely intended for MTU's that were eliminated in the subsequent scoping of the scaled-down facility.

The EIS states, "The bays would contain individual airlocks with sloped access. The airlocks would contain a 4.5-metric ton (5-ton) overhead hoist, two overhead automatic doors (measuring, at a minimum, 4.3 meters [14 feet] in width by 4.3 meters [14 feet] in height), and would be HEPA filtered and have an interlocked alarm that would sound if more than one door was opened at a time." (Battelle, 1995:20-21).

The document which was prepared by Battelle Memorial Institute, Columbus, Ohio, titled "Reference Document for the Hazardous Waste Treatment and Processing Facility" (Battelle, 1995), was originally the draft of the Environmental Assessment for the HWTPF. This document is cited in the EIS on pp. 4-16, Section 4.3.2.2 and on pp. H-2 and H-6 of Appendix H. The first paragraph of Section H.3 states, "The draft reference document for the HWTPF and the Conceptual Design Report for the HWTPF provide in-depth environmental information concerning the construction and operation of the HWTPF." (Battelle, 1995, DOE, 1995). These documents have been extensively used in the following project description and are not cited repeatedly.

Page 20 of the reference document discusses the bays that would be constructed for treatment and processing of wastes in MTUs. After the EIS was approved, DOE decided not to build MTUs because of concerns regarding cost, decontamination problems, co-mingling of waste streams from different sites, and several other issues such as permitting. The forklift airlocks and overhead hoists were associated with the MTUs, although forklifts would still be used between 16-16 and 16-18.

Hoists were required to load unload MTUs. The airlocks would be equipped with two overhead, automatic doors a minimum of 14-ft wide by 14-ft high. A 5-ton overhead hoist would be located in each airlock. In the airlocks, the MTUs would be decontaminated and packaged unpackaged. (Battelle, 1995: Section 2.2.1.4, pp. 20 & 21)

Classified Material

- The facility will be equipped with alarmed doors to protect classified material. Although, the EIS does not specifically mention processing of classified materials, it does state that the proposed facility would modernize, consolidate, and expand existing waste operations capabilities (pp. 4-16, Para 4.3.2.2). Thus, Waste and Environmental Management Department's current operations processing classified material would be moved from Buildings 12-42 and 11-9 South to the HWTPF.

- Processing of classified materials would include sorting, sampling, packaging, repackaging components, and pulverizing classified documents using disintegrators. Classified materials include components which would be processed to meet requirements of the DOE Nevada Test Site. Use of paper disintegrators would eliminate the predominant use for the classified paper incinerator, and would eliminate the associated air emissions from the incinerator.

- Changes in the combustible loading will be addressed in an amended FHA. It would be completed prior to use of paper disintegrators in the HWTPF

- Trace quantities of plutonium may be present in some wastes (generated from non-routine, unplanned event) in 16-18; however, the total quantity of plutonium contained in all wastes in the facility would not exceed 8 grams. Cumulative plutonium quantities would be administratively controlled to ensure that the limit is not exceeded to maintain the building classification as Category 3 per DOE Standard 1027-92

Ramp instead of Shipping Dock

- Rather than construct a separate shipping and receiving area for the HWTPF, all waste containers would be received in HWSF (16-16), and would be moved through an enclosed ramp connecting the two buildings (16-16 and 16-18). All waste would be received at the HWSF, and, except for flammables, would be moved through the ramp to the HWTPF for processing. All flammables would be

delivered directly from flammable storage areas to the Liquid Processing Facility.

- The shipping dock was eliminated for 16-18 to save money as there was a major funding reduction for HWTPF since the EIS was prepared. Since 16-16 and 16-18 are adjacent, only the shipping dock for 16-16 is needed. The ramp would have minimum impact on the environment as it would involve use of forklifts to move containers from 16-16 to 16-18. The EIS already states that forklifts would be used to move material within the building.

- The FHA has determined that the ramp would provide a 2-hour fire separation between 16-16 and 16-18, thus meeting UBC requirements. The ramp structure is not intended to store commodities, but it is intended to serve as an access way for forklift traffic. It would be constructed of noncombustible materials.

- NEPA coverage for construction of the ramp falls under two categorical exclusions as described in 10 CFR 1021, Implementing Procedures, Appendix B, Section B1.15, "Siting, construction (or modification), and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible)," and Section B2.5, "Safety and environmental improvements of a facility, including replacement and upgrade of facility components, that do not result in significant change in the expected useful life, design capacity, or function of the facility and during which operations may be suspended and then resumed."

CONCLUSIONS

The separate Liquid Processing Facility will have minimal additional environmental impacts from response during fire and solvent recycling activities. In fact, it will enhance the safety of personnel working in the main HWTPF since the major fire hazard would be removed from the main building.

The elimination of forklift airlocks and overhead hoists will have no environmental impact since they were required only for MTUs. Safety and health concerns have been reduced by the deletion of the MTUs and associated requirements.

The addition of classified material processing also will have minimal impact since the small trace quantity of plutonium will be managed administratively to maintain the building classification as Category 3 per DOE Standard 1027-92.

The construction and operation of the ramp connecting the HWTPF and the HWSF will have no environmental impact. The ramp will meet all fire codes and only a slight increase of air emissions will result from the use of forklifts during the movement of waste.

The changes in the design of the HWTPF do not adversely impact the environment; rather the changes enhance the safety and health of the workers. See the attached chart for comparisons.

RECOMMENDATION

Based on the analysis of the criteria presented in this supplement analysis, it is recommended that neither a supplemental *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components* to address the design changes, nor a new EIS or further NEPA documentation is required.

2-4-00
Date

J.M. Bernier
Acting AAO Area Manager

Concur:

AAO Area Counsel

APPENDIX A

History of the Design Development of the HWTPF

Following is the history of the design development of the HWTPF which led to the elimination of MTU's and the suggestion of constructing a separate liquid processing facility:

Before 1992 **RCRA Land Disposal Restrictions (LDR) prohibited storage of mixed waste except to facilitate treatment or disposal**

- Due to lack of commercial disposal facilities to treat and dispose of Low Level Mixed Waste (LLMW), DOE sites could not meet the LDR storage prohibitions.

10/92 **Federal Facility Compliance Act (FFCA) was signed into law**

- Required DOE to prepare plans for developing the required treatment capacity for mixed waste for all DOE sites.

04/93 **The Interim Mixed Waste Inventory Report (IMWIR)**

- Published by DOE, provided inventory information on a waste-stream-by-waste stream basis for each DOE site
- Provided an inventory of all mixed waste stored or generated, or expected to be generated over the next five years at each DOE site
- Provided a national inventory of mixed waste treatment capacities and technologies.

10/93 **Conceptual Site Treatment Plan (CSTP)**

- Identified treatment options and capacities for treating Pantex LLMW
- Included range of treatment options for universe of potential mixed waste
- Proposed development of in-house treatment technologies, due to lack of commercial treatment and disposal capacity for certain LLMW. Also, DOE/AL proposed use of the Mobile Treatment Units (MTUs) for these new technologies due to lack of volume of LLMW to justify individual onsite facilities. MTUs were to serve various DOE/AL sites.

03/94 **Albuquerque Mixed Waste Treatment Plan**

- DOE/AL directed Pantex to use Mobile Treatment Units (MTUs) using several different treatment technologies.

08/94 **Draft Pantex Plant Site Treatment Plan Compliance Plan (DSTP)**

- Identified preferred options for treating LLMW, whenever possible, as well as proposed schedules for construction capacity

- Proposed use of various technologies for MTU's in HWTPF as directed by DOE AL. (DSTP - Section 3.0 - p. 14, Section 3.1.8 - p. 21, Section 3.2 - p. 22).

04/95 **Reference Document for the HWTPF, Battelle Columbus (Draft of HWTPF EA)**

- Discussed use of MTU's (Section 4.0)

- Assumed MTU's would be used and proposed two bays to be built in the HWTPF for MTU's

- Proposed the use of airlocks and hoists (5-ton overhead) inside airlocks for the MTU's

- Required hoists to load/unload MTU's. The airlocks would be equipped with two overhead, automatic doors, a minimum of 14-ft wide by 14-ft high. A 5-ton overhead hoist would be located in each airlock

- Required that the MTU's would be decontaminated and packaged unpackaged in the airlocks (Section 2.2.1.4, pp. 20 & 21)

- Regarding airlocks and overhead hoist, the Reference Document states:

  "Each bay would be equipped with an air- or electrically-operated bridge crane with a 5-ton capacity that would span the length and width of the bay. The bays would be HEPA-filtered at the intake to the HVAC system. The bays would have the appropriate monitors and alarms to alert personnel to the presence of airborne radioactive or chemical hazards. The bays' utilities to be used by the MTUs would include electrical, compressed air, process makeup water, steam, vacuum, and chilled water systems.

  Individual airlocks would allow direct delivery of the MTU modules to the appropriate bay. The airlocks would be required to have sloped access with regulated sumps. The airlocks would be equipped with two overhead, automatic doors a minimum of fourteen feet wide by fourteen feet high; these areas would be HEPA-filtered. The doors would be interlocked to alarm if more than one is open simultaneously. A 5-ton overhead hoist would be located in each airlock.

In the airlocks, the MTUs would be decontaminated and packaged unpackaged. MTUs would be closely examined for hazardous or radioactive material prior to packaging. If such material is present, the units would be decontaminated in these areas. Either pressurized steam or pressurized water would be provided in these areas."

01/96 **Baseline Change Proposal (BCP) Number 3.1.6.6-96-CR007, Project 92-D-172, BCP AL96007, Field BCP Number A-34:2**

- Reduced the Total Estimated Cost (TEC) from $14,900,000 to $6,000,000 and reduces the scope of the project per BCP AL96006
- Incorporated the use of MTUs to treat low-level radioactive mixed waste per direction of DOE/AL
- Deleted capability to sanitize and demilitarize weapon components.

03/96 **Criteria for Architect/Engineering firms (A/Es) to bid on HWTPF Design (Revision 1)**

- Included MTUs. (Project No. 92-D-172, EW-30106)

03/96 **Draft Environmental Impact Statement (EIS) issued for public comments**

- Reduced funding for the project (January 1996), however, the design was not changed and MTUs were not deleted.

04/96 **Cancellation of the MTUs**

- DOE AAO informed MHC about cancellation of the procurement of the Pantex Plant MTUs due to newly available commercial facilities, concerns with multi-state regulatory approvals, and liability issues. The cancellation of MTUs was subject to approval by the Texas Natural Resource Conservation Commission (TNRCC), the U.S. Environmental Protection Agency (EPA) and all other affected parties and stakeholders.

11/96 **Final EIS and the Continued Operation of the Pantex Plant**

- EIS used Battelle 1995 document as a reference for the operation and required treatment technologies for HWTPF
- Proposed Action included Appendix H (H.3.7, p. H-11) - a scaled-down version of the HWTPF alternative at an estimated cost of $5 million. MTUs still were not eliminated from consideration due to the pending approval by various regulatory agencies and stakeholders' concerns.

12/96 **Pantex Fire Protection Department Comments on the Title I Fire Hazards Analysis**

- Disapproved the CO_2 fire-suppression system design for the solvent recovery area in the main HWTPF

- Recommended building a separate facility for liquid/solvents processing.

07/97 **Technical clarification, Field BCP Number A-34:4A**

- The previously approved BCP (BCP A-34:2) for this project establishes the current baseline stated that MTUs would be utilized in the facility.

10/97 **FHA for HWTPF based on the Title II Design**

- Assumed MTUs would not be used. A separate liquid processing building and a ramp connecting 16-16 and 16-18 would be used

- Classified the current HWTPF as Special Purpose Industrial, Ordinary Hazard, in accordance with NFPA 101-28-1.4.1, 1994 Edition

- Classified the separate Liquid Processing Facility as Special Purpose, High Hazard Industrial in accordance with National Fire Protection Association (NFPA) 101-28-1.4.1, 1994 Edition. The processing of combustible and flammable liquids presents the greatest single fuel load, and it has been moved from the main HWTPF to a separate building, the Liquid Processing Facility.

- Classified the Liquid Processing Facility as Special Purpose, High Hazard Industrial, in accordance with NFPA 101-28-1.4.1, 1994 Edition. It was classified as Industrial (F-1) in accordance with the UBC provisions. Both Maximum Credible Fire Loss (MCFL) and Maximum Possible Fire Loss (MPFL) estimates were calculated at $268,000. It would not be protected by a suppression system.

COMPARISONS BETWEEN EIS AND CURRENT HWTPF DESIGN
January 2000

EIS Statements about HWTPF	Current Design of HWTPF	Environmental Impact
HWTPF will house solvent/liquid recycling processes	Separate Liquid Processing Facility (16-18A) constructed for solvent/liquid recycling processes	Reduced potential for fire in HWTPF. Increased safety for workers in HWTPF.
Automatic Fire Suppression System in HWTPF including solvent/liquid recycling process area	Automatic wet-pipe sprinkler system designed for main building. Fire extinguishers for types A, B, and C provided in separate Liquid Processing Facility.	If 16-18A burns, biggest fuel load is away from main building. Fire loss is much less than if housed in main building. Increased safety for workers in HWTPF.
HWTPF designed with forklift airlocks and overhead hoists to accommodate Mobile Treatment Units (MTUs)	No MTUs, therefore, no forklift airlocks or overhead hoists	Reduced potential for worker accidents, spills, and contamination since no hoisting operations will take place.
Shipping dock receiving area for 16-18 included	Enclosed ramp constructed between 16-16 and 16-18 included in design to serve as access for forklift traffic. Elimination of shipping dock receiving area for 16-18. Will access the shipping dock in 16-16 and use new ramp. All waste would be received at 16-16. Flammables would be delivered directly from flammable storage areas to 16-18A.	Reduced potential for spills and accidents. Ramp will meet all fire codes. Slight increase of air emissions due to the use of forklifts during the movement of waste from the adjacent 16-16
Flammable Liquid Storage Building included	Flammable Liquid Storage Building deleted from design. Flammable liquids to be stored in two separate HAZ-STOR type buildings located approximately 60 ft from 16-16. Construction of these two buildings was addressed in a revision to the NRD for "Update of RCRA Hazardous Waste Staging Facility: Building 16-16," 2-12-97.	Increased safety for workers in HWTPF since operations would have duplicated those near Bldg. 16-15
Five additional employees required.	No increase in employment	No environmental impact
3.96 million liters of wastewater would be generated annually	0.96 million liters of wastewater would be generated annually.	Reduced projected impact on Plantex wastewater system. Within bounds of EIS.
No storage of classified material	Current design equips facility with alarmed doors to protect classified material	Processing of classified material is currently handled at other locations on the site. Within bounds of EIS

No mention of plutonium in description of proposed HWTPF	Trace quantities of plutonium may be present in some wastes (generated from a non-routine, unplanned event). Total quantity of Pu contained in all wastes in the facility would not exceed 8 grams. Cumulative plutonium quantities would be administratively controlled to ensure the limit is not exceeded to maintain the building classification as Category 3 per DOE Standard 1027-92	Within bounds of EIS
SAR was required for 16-16 (Hazardous Waste Staging Facility)	FSAR not required for 16-18 or 16-18A. HWTPF would operate under an approved Process Safety Hazards Analysis and Management Self Assessment (MSA). Lower hazard facility than first design. A Health and Safety Plan (HASP), meeting the requirements of 29 CFR 1910.120, would be developed and implemented for the facility. HASP meets DOE Orders 5480.1B and 5483.1A. The HASP and Process Hazard Analysis (PHA) will meet MIC and S/RID requirements for Hazards Analysis	No impact to the environment.