



Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

01-0000236

JAN 31 2001

RECEIVED
01 FEB -6 PM 3:22
DNF SAFETY BOARD

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, N.W.
Suite 700
Washington, D.C. 20004

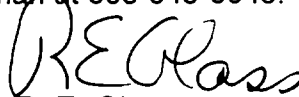
Dear Mr. Chairman:

Consistent with the Department's implementation plan (IP) for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, Revision 1, the following provides information regarding outstanding commitments due through December 2000 and the commitments currently due during January 2001. The Department proposes closure of those commitments indicated as complete.

- Commitment 4.2.2, "Technical Business Practice (TBP) Guidance on expectations & documentation of weapon response"—This commitment is a follow-on to the published Development & Production Manual (D&P) Chapter 11.8, "Integration of Weapon Response into Authorization Bases at the Pantex Plant" published October 24, 2000, in response to commitment 4.2.1. The TBP was intended to provide further guidance on expectations for the evaluation and documentation of weapon response to potential accident environments and stimuli. While it was the Department's intent to release a new TBP, it was found that the guidance would be better suited as an Appendix to the original chapter. Therefore, Appendix A, "Evaluation and Documentation of Weapon Response Information" was developed by a cross-organizational team including members from the laboratories, the Pantex Management & Operating Contractor (M&O), and the Department. A final product was submitted for Standing Management Team approval. The revision to D&P Chapter 11.8 that includes the Appendix was published on January 30, 2001. A complete chapter is enclosed. Publication of the revision that includes the Appendix A represents completion of this commitment.
- Commitment 4.2.4, "Assessment of the Unreviewed Safety Question (USQ) Process"—This commitment is a follow-on from the original approved implementation plan actions associated with commitment 5.3.1. The purpose of this commitment is to assess the adequacy of the Pantex M&O actions and the effectiveness of the USQ process used at the Pantex Plant upon the completion of the transition of the USQ process to line management and personnel. Enclosed is the completed assessment, which represents completion of this commitment.

- Commitment 4.2.5, "Revision #2 to the Integrated Safety Management (ISM) Authorization Basis Manual"—Status of this October commitment was provided to the Board through the Department's letter dated October 31, 2000. The revision has been completed, all reviews have been completed and resulting comments resolved. The final Revision #2 to the ISM Authorization Manual is enclosed and represents completion of this commitment.
- Commitment 4.3.1, "DOE-approved BIO Module on Fire Protection and associated TSR and Develop a resource-loaded schedule for implementation of improved TSR controls for fire protection"—Status of this October commitment was provided to the Board through the Department's letter dated October 31, 2000, and during the briefing to the Board on December 7, 2000. The Safety Evaluation Report (SER) associated with the module and TSR is being re-written to address the comments received during its review cycle. It is anticipated the final will be complete within the next 45 days.
- Commitment 4.3.5, "Additional DOE-Approved TSR controls derived from the NES Master Studies"— Status of this November commitment was provided to the Board through the Department's letter dated November 30, 2000, and during the briefing to the Board on December 7, 2000. The Amarillo Area Office (AAO) and the Pantex M&O Contractor are working to derive an acceptable TSR for approval. The next draft is due to AAO within 30 days. Upon receipt and appropriate review and comment resolution, the Department will submit an approved TSR to the Board.
- Commitment 4.3.7, "Plan for Transportation Carts"-- The Department provided a partial delivery of this commitment through its letter to the Board dated October 31, 2000, by submitting Phase I of the project plan. On December 7, 2000, a summary status was provided during the Department's briefing to the Board. Enclosed is the complete and approved "Enhanced Transportation Cart Project Plan, Phase II. Submission of Phase I on October 31, 2000, and submission of enclosed Phase II, represents completion of this commitment.
- Commitment 4.4.2, "Revisions to DOE Orders 452.1, 452.2, and DOE-STD-3015 issued"— Status of this November commitment was provided to the Board through the Department's letter dated November 30, 2000, and during the briefing to the Board on December 7, 2000. Currently, Orders 452.1B and 452.2B along with their associated "Statutory Necessity Findings" have been forwarded to the Office of Management and Administration (MA) for action. Publication is contingent upon approval by the Deputy Secretary. DOE-STD-3015 is in process of resolving the 174 comments received.

If you have any questions, please contact me at 505-845-6050, or have your staff contact Dan Glenn at 806-477-3182 or Karen Boardman at 505-845-6045.



R. E. Glass
Manager

Enclosures (4)

cc w/enclosure

Defense Nuclear Facilities Safety Board

625 Indiana Avenue, NW

Suite 700

Washington, DC 20004

Attn: J. McConnell, DNFSB Staff

Ann: W. Andrews, DNFSB Staff

M. Whitaker, S-3.1, HQ

D. Beck, DP-20, HQ

SEPARATION

PAGE

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

1.0 PURPOSE

The purpose of this chapter is to define the methodology for developing and applying weapon response information to the process of identifying and classifying controls for nuclear explosive operations (NEO) at the Pantex Plant. This chapter applies to the development and maintenance of hazard analyses and control documentation at Pantex related to work on nuclear weapons or nuclear weapon components.

2.0 POLICY

It is U.S. Department of Energy (Department) policy that the risk of NEOs should be sufficiently defined in the authorization basis documentation and that an effective control set be established to prevent or mitigate hazards resulting in a residual risk that is deemed acceptable by the approval authority.

3.0 DEFINITIONS

See Section 11, Chapter 11.0

3.1 Control Classification Evaluation Guidelines:

Consequence and frequency values that the hazard analyst evaluates against to determine the adequacy of the selected controls. The guidelines are not indications of acceptable risk, but are used as a benchmark for comparison.

Note: The frequencies below are all based on a conservative assumption of 1000 operations per system occurring per year. The guidelines are as follows:

- **IND:** Inadvertent Nuclear Detonation shall be controlled to a frequency less than 1×10^{-8} /year without respect to radioactive material dispersal consequences.
- **HED/D or HEVR:** High Explosive Violent Reaction or high explosive deflagration/detonation (see note in HED/D definition) shall be controlled to a frequency less than 1×10^{-7} /year without respect to radioactive material consequences.
- **Radiological Release:** Hazardous events with offsite exposure greater than 25 rem CEDE shall be controlled to a frequency less than 1×10^{-6} /year. Hazardous events with onsite exposure greater than 100 rem CEDE shall be controlled to a frequency less than 1×10^{-6} /year.
- **Worker Safety:** Hazardous events, other than standard industrial hazards, that result in a worker fatality or serious injury (permanent disability, loss of limb, etc.) shall be controlled to a frequency less than 1×10^{-6} /year

RECEIVED
01 FEB -6 PM 3:22
DNE SAFETY BOARD

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

- When the above have been met, the hazard analyst shall determine if there are any other controls that should be selected based on their significant contribution to defense-in-depth. This evaluation does not have a frequency or consequence guideline..

4.0 HAZARDOUS EVENT IDENTIFICATION, CONTROL IDENTIFICATION, WEAPON RESPONSE, AND CONTROL CLASSIFICATION

An effective and defensible control set to reduce the risk of NEOs is established through the process of hazardous event identification, control identification, weapon response determination, and control classification. Refer to Figure 11.8-1.

4.1 Hazardous Event Identification

The laboratories will identify the required parameters (for example: drop height, weight of object, heat flux, distance from heat source, etc., to the surface of the NE or NE component) for the insults that will be used in describing the hazardous events. The development of the parameters will allow the Hazard Analysis Task Team (HATT) to 'roll-up' events that have the same configuration and insult. Additionally, the parameters will ensure the HATT provides the necessary and sufficient information to the laboratories in requesting weapon responses (see section 4.4 below).

Hazardous events (weapon configuration, insult, and consequence) include those that result from the internal hazards of the weapon as identified in the Weapon Safety Specification and the hazardous events that can occur during operations on a weapon. Hazardous events are listed in a hazard table. Existing hazard tables should be referenced to support the identification of the hazardous events to support completeness and to reduce required resources.

Hazardous insult and associated configuration combinations that cannot result in a weapon response are identified in a Weapon Safety Specification (WSS) screening table included in the WSS and are not required to be listed as a hazardous event in the hazard analysis. The WSS screening table shall include the weapon configuration and the insult parameters as well as rationale (or reference to appropriate and defensible documentation) for determining no weapon response. Refer to Table 11.8-1 for an example of a WSS Screening Table.

Hazardous events that have been identified, analyzed, and controlled at the site or facility level are discussed in the Hazard Analysis Report with reference

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	--	-----------------

to the applicable section of the site or facility AB document, but are not listed in the hazard analysis. Any weapon specific controls relied upon in the facility AB must be included in the HAR and Technical Safety Requirement (TSR) for the weapon program. The information provided must include the evaluation of how the control meets the safety function derived from the analysis.

Hazardous events will include the frequency of the event and the maximum potential consequence. The frequency of the event will be based on 1000 operations per system per year unless a different rate is justified based on the actual planned operations.

4.2 Identify Reasonable Potential Controls

The identification of potential controls for hazardous events starts with the HATT/Project Team (PT) listing possible defense in depth features that could be later selected as controls. These features can be either engineered or administrative in nature.

4.3 Derive Controls

Controls are selected based on the frequency and maximum consequence of the uncontrolled hazardous event. The minimum number of controls selected should be based on the Target Level of Controls (TLC) criteria identified in Chapter 11.5 or the Control Classification Evaluation Guidelines. To follow the principle of first eliminating the hazard (i.e. remove the insult from the NE), controls are derived without consideration of weapon response.

To apply the Control Classification Evaluation Guidelines, the uncontrolled event frequency and maximum consequences are used. Then as controls are selected, the effectiveness of the control is determined. This effectiveness evaluation considers the reliability and availability of the control. The effectiveness evaluation determines the conditional probability that the control will fail. The justification for the control effectiveness is documented. The conditional probability of the control failing is multiplied by the event frequency to determine the new controlled event frequency. If multiple controls are applied, the controls must be independent in order to multiply the conditional probability of failure for each control. This process continues until either the Control Classification Evaluation Guidelines are met or until no additional controls can be identified.

4.4 Weapon Response Uncontrolled Scenarios

The HATT shall evaluate hazardous events to determine which events have a weapon response that cannot be screened based on laboratory provided WSS

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

screening tables. The weapon configuration and insult parameter for each selected event is documented in a weapon response request. The HATT forwards the weapon response request to the Project Team for review and approval consistent with *Appendix A—Evaluation and Documentation of Weapon Response Information*. The design agency project team members will ensure all scenarios are appropriately addressed. All the scenarios requiring a response are to be provided to both Sandia National Laboratories (SNL) and the appropriate physics laboratory.

The laboratories develop a conditional probability using empirical data, expert judgment and analyses as required, with associated documentation that forms the basis for the weapon response in accordance with Appendix A. For hazardous events that can result in more than one weapon response, the conditional probability for each weapon response is provided. The conditional probability, as a minimum, is identified as a range of: anticipated, unlikely, extremely unlikely, beyond extremely unlikely, or sufficiently unlikely (See *Table 11.8-2—Conditional Probability Table*).

The laboratories will identify the conservative assumptions (e.g., which inherent weapon characteristics [e.g., IHE, bomb case] were credited) used in developing the weapon response in the Weapon Response Bases Document that supports entries in the Summary Weapon Response Table (see Appendix A). This information should also include pertinent assumptions and initial conditions utilized to develop the weapon response that may affect Pantex operating procedures, tooling, or other controls.

The HATT in consultation with the PT may conservatively assign a conditional probability of one (1) if they deem a lower probability estimate is not necessary. In this case, weapon response for these events will not be evaluated or documented.

4.5 Weapon Response Controlled Scenarios

When the controls identified in section 4.3 are mitigators that reduce the severity of the insult (e.g., HE can rim guard mitigates the mechanical insult to the HE), a new weapon response will need to be determined. If the parameters of the insult, considering the controls, are within those identified in the WSS screening table, then a reference to the WSS screening table will be made to justify that there is no weapon response. For all other hazardous events, the new insult parameters will be provided to the laboratories for a new weapon response evaluation. The process identified in section 4.4 above is followed using the newly identified mitigated results.

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	--	-----------------

4.6 Classify Controls

The controls identified in Section 4.3 above will be classified as Technical Safety Requirement (TSR) or Important to Safety. The frequency of the event for control classification will be the uncontrolled frequency from Section 4.1 times the conditional probability of the weapon response from Section 4.4. This frequency will be used to determine the required TSR controls using either the TLC criteria or the Control Classification Evaluation Guidelines

To apply the Control Classification Evaluation Guidelines, the event frequency as identified above (i.e., considering weapon response) and maximum consequences are used. Then as controls are applied, the conditional probability of the control failing is multiplied by the event frequency to determine the new controlled event frequency. This process continues until either the Control Classification Evaluation Guidelines are met or until all controls identified in Section 4.3 have been applied.

All controls applied to meet TLC or the Control Classification Evaluation Guidelines are classified as TSRs. All controls not classified as TSR will be classified as Important to Safety. TSR controls are further developed in a TSR document while Important to Safety Controls are not included in the TSR. All controls are listed in the HAR/BIO and are required to be flowed-down into implementing documents.

Inherent weapon characteristics (e.g., IHE, bomb case, etc.) are not to be identified as controls in the AB documents. If a weapon design feature (e.g., strong-link) is credited in developing the weapon response can exist in both "safe" and "unsafe" states, then verification of the "safe" state is required to be a TSR control.

4.7 Residual Risk

A discussion of the residual risk is provided to demonstrate that the hazard is adequately controlled for each hazardous event. If the TLC or Control Classification Evaluation Guidelines are met, a simple statement to that effect will be provided.

If the TLC or Control Classification Evaluation Guidelines cannot be met, a more detailed discussion of the residual risk is required. The residual risk discussion may include:

- A discussion of the limitations associated with the development of the weapon response. The laboratories may be contacted to provide information related to weapon response development and how the

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

weapon response provides a conservative value. This may include identifying a conditional probability value or smaller range instead of the probability bins identified in section 4.4. Additionally, this may include a discussion of the distribution and mean value of the weapon response.

- A discussion of the actual effectiveness of some of the selected controls may be used to compare to the assumed effectiveness of administrative controls and engineered features as defined in D&P Chapter 11.5, TLC. Note that this discussion is only applicable to those events that used the TLC criteria for evaluation.
- A discussion of weapon safety design features and their contribution to reduction of risk. The respective laboratories will provide a discussion of the additional reduction in event frequency that **may** be provided by the weapon safety design feature. In addition, the laboratories will provide a defensible estimate with known limitations of the risk reduction provided by the weapon design feature(s). This is to ensure that the Department approval authority has the best information possible before accepting the residual risk.

5.0 RESPONSIBILITIES

5.1 Project Team

1. Approves the weapon response request.
2. Approves the classification of controls

5.2 Laboratories

1. Establish the weapon insult parameters to be used in hazard event identification.
2. Develop a WSS screening table for each weapon and include this table in the Weapon Safety Specification.
3. Develop a process for establishing and documenting the justification for weapon response that meets the needs of the Pantex Plant Operating Contractor.
4. Develop and document uncontrolled and mitigated weapon response in accordance with Appendix A
5. Provide input to residual risk justification when a discussion on weapon safety features is needed (section 4.7).

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

5.3 Hazard Analysis Task Team

1. Identifies the hazardous events associated with the nuclear explosive operation.
2. Identifies potential controls for each hazardous event.
3. Develops the insult parameters for each hazardous event.
4. Presents the weapon response request to the Project Team for approval.
5. Derives the controls for each hazardous event.
6. Develops new insult parameters for hazardous events with control that provide a mitigative function.
7. Classifies the derived controls.
8. Develops the residual risk conclusion for each hazardous event.
9. Supports HAR and TSR development and coordination

5.4 Pantex Plant Operating Contractor

1. Concurs that the process for establishing/documenting the weapon response basis meets their needs.
2. Determines the suitability of the weapon response basis for inclusion into the authorization basis.

6.0 RESPONSIBLE ORGANIZATION

WPD is responsible for this chapter.

7.0 REFERENCES

1. Development and Production Manual Chapter 2.8, "Technical Business Practice System"
2. Development and Production Manual Chapter 8.3, "Quality and Product Acceptance"
3. Development and Production Manual Chapter 11.4, "Authorization Basis for Pantex Plant Nuclear Explosive Operations"
4. Development and Production Manual Chapter 11.5, "Target Level of Controls"
5. Technical Business Practice 301, Methods of Definition
6. Technical Business Practice 404, Engineering Authorization System

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

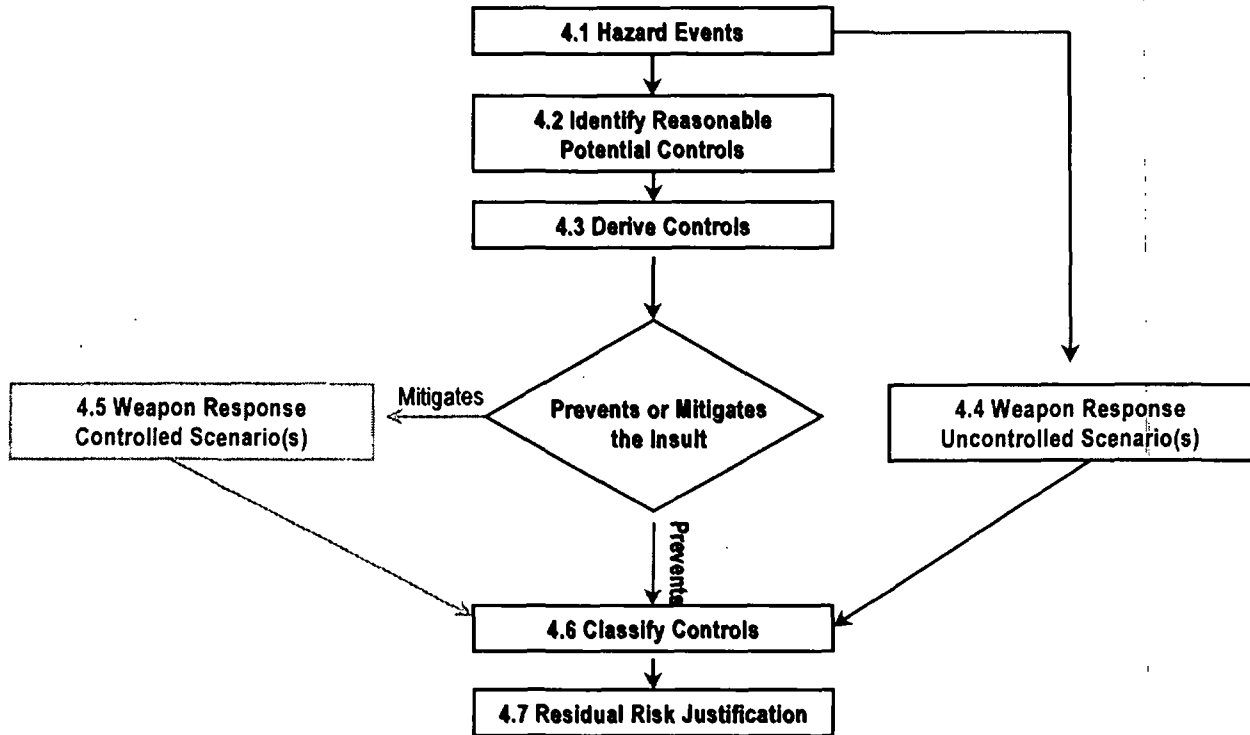


Figure 11.8-1: Weapon Response Process Flow:

Table 11-8-1: WSS Screening Table Example

Ref. #	Weapon Configuration	Affected Component	Insult Category	Insult Parameters	Comments
1	In Shipping Container	Main Charge HE	Mechanical Impact	300 lb. Object Falls 20 ft.	
2	In Shipping Container	Main Charge HE	Mechanical Drop	SC dropped 6 ft right side up	
3	Full up Weapon	Main Charge HE	Mechanical Impact	300-lb. object falls 20 ft.	
4	Full up Weapon	Main Charge HE	Mechanical Drop	Weapon dropped 6 ft. right side up	

Table 11.8-2: Conditional Probability Table

A – Anticipated	$10^{-2} < p \leq 10^0$
U – Unlikely	$10^{-4} < p \leq 10^{-2}$
EU – Extremely Unlikely	$10^{-6} < p \leq 10^{-4}$
BEU – Beyond Extremely Unlikely	$10^{-6} \geq p$
SU – Sufficiently Unlikely	$10^{-7} \geq p$ HEVR, $10^{-8} \geq p$ IND

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

APPENDIX A –EVALUATION AND DOCUMENTATION OF WEAPON RESPONSE INFORMATION

A.1 GENERAL

Provide the expectations for the execution of Steps 4.4 and 4.5 of *Figure 11.8-1, "Weapon Response Process Flow"* (Section 4.4 and 4.5). Each of the following sub-steps below is numbered 4.X. where the X is either 4 or 5.

This process applies to the development and maintenance (i.e., life cycle) of the authorization basis documents.

Step 4.X.1—Request Weapon Response

The process is initiated when the Pantex M&O contractor forwards the hazard analysis to the Design Agency and requests weapon response. The Hazard Analysis must be under Pantex M&O configuration control at the time of the request.

General Engineering Documentation consistent with TBP-301 that may be entered into the Engineering Authorization System consistent with TBP-404, is created to formally document the Pantex M&O request to the Design Agencies. Any changes to the Hazard Analysis that could impact the weapon response must be re-submitted to the Design Agency for a weapon response determination.

Step 4.X.2—Develop and Document Weapon Response

Based on the formal request and the Hazard Analysis Document, the Design Agencies develop the weapon response for each scenario in the hazard analysis. The laboratory deliverables to the Pantex M&O contractor to be included in the Pantex safety basis documentation are:

1. Summary Weapon Response Table (See *Table 11.8-3*);
2. Hazard Analysis Event To Weapon Response Table Cross Reference if applicable* (See *Table 11.8.5*); and,
3. Weapon Response Bases Document (See *Attachment 1*).

*Note: Item 2 is not required if a cross-reference to the applicable hazardous events within the hazard analysis is included in the *Summary Weapon Response Table* (see *Table 11.8-4*)

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Summary Weapon Response Table

The Summary Weapon Response Table summarizes the weapon response by weapon configuration and insult. Each entry in the Summary Weapon Response Table can cover multiple entries in the hazard analysis. Each entry in the Summary Weapon Response Table will include the following information at a minimum:

- a. Unique Number
- b. Applicable hazardous events number *
- c. Weapon configuration
- d. Weapon Environment (type of insult)
- e. Parameters of insult
- f. Initial Conditions and Assumptions for each Unique Number
- g. Frequency of consequence for each type of weapon response: IND, HEVR, Burning Dispersal, Mechanical Release of Radiological Material, Worker Safety

Weapon Response Bases Document

The Design Agencies will document the bases for each entry in the Weapon Response Summary Table. The *Bases Document (See Attachment 1)* will be maintained and controlled by the Design Agencies. The Bases Document will provide the rationale for the weapon response and will reference any pertinent analyses, tests, literature, etc. used in developing the weapon response. Most importantly, the Bases Document will provide the rationale on how the initial conditions and assumptions were used in developing the weapon response. It is the Department's expectation that all reference information used to support the Weapon Response Bases Documents(s) this information (including all reference documents) is accurate and available to support the Safety Basis Review Team review of the officially submitted authorization basis documentation (HAR/TSR, BIO/TSR).

Step 4.X.3—Weapon Response Review and Approval

The Design Agencies will conduct a review of the Weapon Response Summary Table, Cross-Reference Tables if applicable, and the Bases Document prior to release. This review will be in accordance with the Design Agencies internal quality assurance process. The Design Agency review is to verify the completeness and accuracy of the information and to form the bases for the laboratory official submittal.

Prior to acceptance, the Pantex M&O will review the Bases Document to ensure that the information required to support the authorization basis

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	--	-----------------

development has been provided. The laboratories shall provide weapon response documentation to the M&O contractor that has been integrated between the applicable laboratories to the extent practicable in order to preclude internal inconsistencies and to gain efficiencies wherever possible.

Note: During the development and documentation of the Summary Weapon Response Tables and Bases Documents, the Design Agencies may provide draft weapon response information to the Pantex M&O contractor to support initial derivation and classification of controls (See Sections 4.3 and 4.6). This draft weapon response information will be maintained under Design Agency configuration control. The draft information submittal will identify the revision of the Hazard Analysis used to develop the weapon response and the revision of the weapon response provided.

Step 4.X.4—Issuing Weapon Response Information

The Design Agency will formally transmit the Weapon Response Summary Document to the Pantex M&O contractor. This submittal will be through General Engineering Documentation (GED) consistent with TBP-301 that may be entered into the Engineering Authorization System consistent with TBP-404. The information will include a reference to the Summary Weapon Response Table, a reference to the Bases Document, and a summary of the review process that was used in verifying the weapon response information.

Step 4.X.5 Incorporation of Weapon Response Information

The Pantex M&O contractor will revise the hazard analysis document to incorporate the weapon response information as formally transmitted by the Design Agency. For each hazardous event that required a weapon response, a reference to the associated entry in the Summary Weapon Response Table that applies to that event will be entered in the hazard analysis table.

The Pantex M&O contractor will provide information copies of the hazard analysis with the incorporated weapon response information to the Design Agencies.

Based on the GED from the Design, the Pantex M&O contractor will complete the Authorization Basis development process. At Milestone III, the Design Agencies provide an Engineering Release to formally document their concurrence with the incorporation of the weapon response information as described within D&P Manual Chapter 11.4, "Authorization Basis for Pantex Plant Nuclear Explosive Operations".

Development and Production Manual

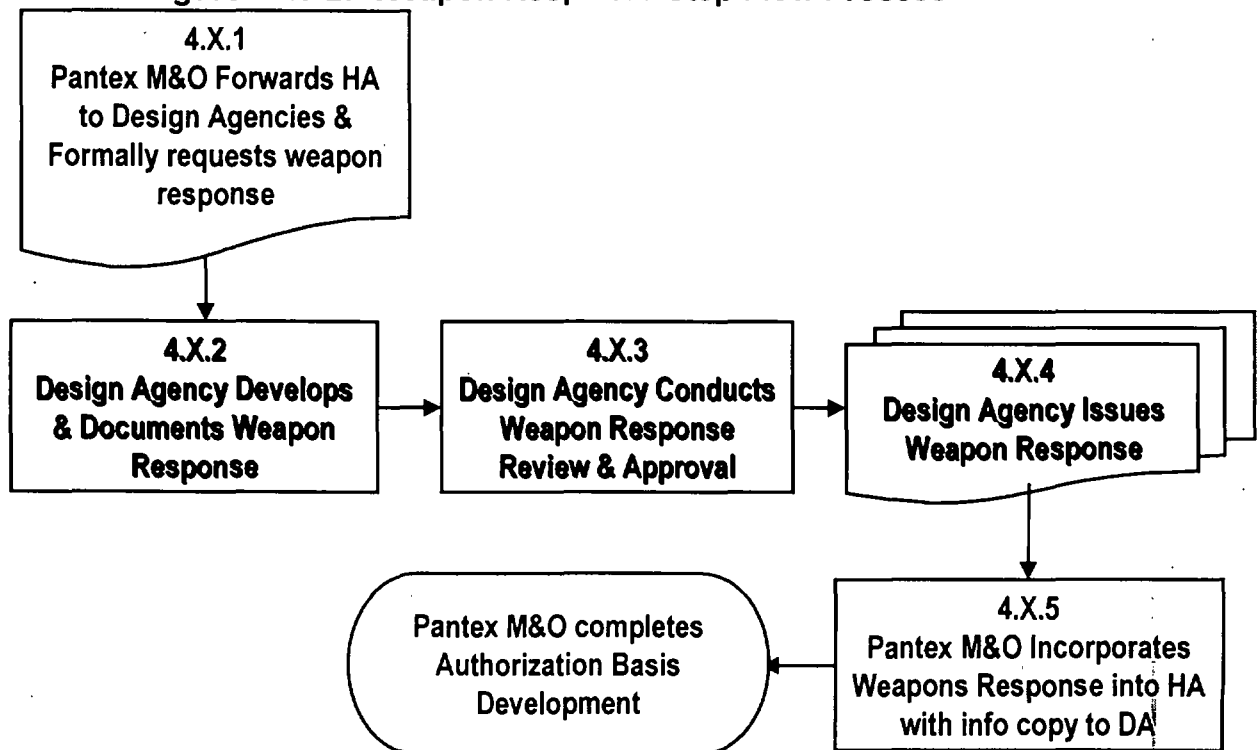
AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Note: In order to preclude extensive, last minute reviews, the Design Agencies will work with the Pantex M&O to ensure accuracy of the weapon response information within the tables prior to Milestone III.

A.2 Weapon Screening Table

For weapon response information provided in the Screening Table identified in Section 4.4 that is to be included in the Weapon Safety Specification (WSS), the Bases Document requirements of Step 4.X.2 and the review process of Step 4.X.3 apply. However, instead of issuing a separate GED, the weapon response information is provided in the WSS in accordance with *Table 11-8-1, "WSS Screening Table."*

Figure 11.8-2: Weapon Response Step Flow Process



Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Table 11-8-3: Sample Summary Weapon Response Table

Microsoft Excel - 11-8-2RuleXRef

Next Previous Zoom Print... Setup... Margins Page Break Preview Close Help

WooBxx Rules Table
Version A

Rule	Environment	Configuration	Insult	Initial Conditions and/or Assumptions	IND	HEVR	HEBD	WS	Rad	PuFire
1.1.1.01	Mechanical-Impact	SC	Blunt object < 250 ft-lbs		S	S	S	S	S	
1.1.1.02	Mechanical-Impact	SC	Blunt object < 10000 ft-lbs		SU	SU	SU	SU	SU	
1.1.1.03	Mechanical-Impact	WANB	Sharp object < 20 ft-lbs		S	S	S	A	A	
1.1.1.04	Mechanical-Impact	WANB	Flexible object < 200 ft-lbs		S	S	S	S	EU	
1.1.1.05	Mechanical-Impact	WANB	Assuming blunt object > 5000 ft-lbs		BEU	A*	A*	A*	A	
1.1.1.06	Mechanical-Impact	PP+FSA+Iso	Blunt object < 12 ft-lbs		S	S	S	S	S	
1.1.1.07	Mechanical-Impact	PP+FSA+Iso	Sharp object < 20 ft-lbs		S	S	S	A*	A*	
1.1.1.08	Mechanical-Impact	PP+FSA+Iso	Assuming blunt object > 5000 ft-lbs		BEU	A*	A*	A*	A	
1.1.1.09	Mechanical-Impact	PP+FSA	Blunt object < 12 ft-lbs		S	S	S	S	S	

Last Updated: 1/5/01

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Table 11.8-4: Sample Summary Weapon Response Table with Cross-Reference to Hazardous Events in the Hazard Analysis

Microsoft Excel - 11-8-2RuleXRef

Next Previous Zoom Print... Setup... Margins Page Break Preview Close Help

Workbook Rules Table X-Reference
Version A

Hazard Event Ref. #	Rule	Environment	Configuration	Insult	Initial Conditions and/or Assumptions	IND	HEVR	HEBD	WS	Rad	PuFire
E.1.01- E.1.04	1.1.1.01	Mechanical-Impact	SC	Blunt object < 250 ft-lbs		S	S	S	S	S	
E.1.10- E.1.12 & E.1.14	1.1.1.02	Mechanical-Impact	SC	Blunt object < 10000 ft-lbs		SU	SU	SU	SU	SU	
E.1.05- E.1.08	1.1.1.03	Mechanical-Impact	WANB	Sharp object < 20 ft-lbs		S	S	S	A	A	
E.1.07- E.1.09- E.1.25	1.1.1.04	Mechanical-Impact	WANB	Flexible object < 200 ft-lbs		S	S	S	S	EU	
E.2.35 E.1.40- E.1.46	1.1.1.05 1.1.1.06	Mechanical-Impact Mechanical-Impact	WANB PP+FSA+Iso	Assuming blunt object > 5000 ft-lbs Blunt object < 12 ft-lbs		BEU S	A* S	A* S	A* S	A S	
E.1.101- E.1.104- E.1.200	1.1.1.07	Mechanical-Impact	PP+FSA+Iso	Sharp object < 20 ft-lbs		S	S	S	A*	A*	
E.1.03 E.2.04	1.1.1.08 1.1.1.09	Mechanical-Impact Mechanical-Impact	PP+FSA+Iso PP+FSA	Assuming blunt object > 5000 ft-lbs Blunt object < 12 ft-lbs		BEU S	A* S	A* S	A* S	A S	
E.3.10- E.3.15	1.1.1.10	Mechanical-Impact	PP+FSA	Blunt object < 20 ft-lbs		S	S	S	A*	A	

Last Updated: 1/5/01

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Table 11.8-5: Sample Cross-Reference Table

Microsoft Excel - 11-8-2RuleXRef

Next Previous Zoom Print... Setup... Margins Page Break Preview Close Help

Wxx/Bxx X-Reference Table Version A

Hazard Event Ref. #	Rule
E.1.01	1.1.1.01
E.1.02	1.1.1.01
E.1.03	1.1.1.01
E.1.04	1.1.1.01
E.1.05	1.1.1.03
E.1.06	1.1.1.03
E.1.07	1.1.1.04
E.1.08	1.1.1.08
E.1.09	1.1.1.04
E.1.10	1.1.1.10

Last Updated: 1/18/01 1

Preview: Page 1 of 1

Development and Production Manual

AL 56XB, Rev. 1, Change 39	Date 1/30/01	Title: Integration of Weapon Response into Authorization Bases at the Pantex Plant	Chapter 11.8
----------------------------------	-----------------	---	-----------------

Attachment 1: Sample Weapon Response Basis Document

1.1.1.01 Mechanical Impact of a Blunt Object < 250 ft-lbs. (SC)

Initial Conditions

The initial conditions are a weapon in an undamaged closed container with all of the appropriate container inserts.

Assumptions

The container is constrained such that it will not move (crushing impact).

Response

Based on applicable test data^{1,2} and modeling of impacts into the shipping container^{3,4} it was determined that this insult would not provide any threat to the weapon inside the container for the specific scenarios listed due their geometry, velocity and mass. Other impacts less than 250 ft-lbs. must be evaluated on a case by case basis to determine response. Impacts beyond the initial conditions and assumptions must be evaluated on a case by case basis.

IND = S - No reaction of the HE.

HEVR = S - Impactor does not reach the HE.

HEBD = S - No thermal insult.

PU fire = S - No thermal insult.

Worker Safety = S - Weapon does not contribute to worker safety hazards.

Rad = S - No damage to applicable components.

References:

1. "WXX/HXXXX Sled Test", LA-XXX, May 1996
2. "WXX/HXXXX Drop Test", SAND - XXX, July 1994
3. Memo report from ...
4. "Weapon Response Models for the WXX Weapon System Safety Assessment", LA-CR-...

SEPARATION

PAGE

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: JAN 31 2001

REPLY TO
ATT. OF: AAO:ABS:NPG

SUBJECT: Submittal of the Unreviewed Safety Question Program Assessment in Response to DNFSB Recommendation 98-2 Commitment 4.2.4

TO: Richard E. Glass, Manager, Albuquerque Operations Office

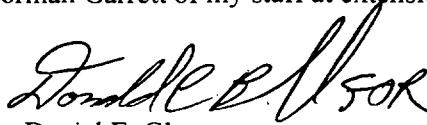
Reference: Transmittal, Richardson/Conway, *Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant (Board Recommendation 98-2)*, dated September 25, 2000

In the revised implementation plan to meet the Defense Nuclear Facility Safety Board (DNFSB) Recommendation 98-2, Commitment 4.2.4 (Reference 1), the Department of Energy (DOE) committed to perform an assessment of the Mason & Hanger Corporation (MHC) Unreviewed Safety Question (USQ) program. The assessment was performed to determine if MHC completed the transition of the USQ process to line management and personnel and assess the effectiveness of the USQ program at Pantex. This commitment is due to the DNFSB by the end of January 2001. The National Nuclear Security Administration (NNSA) Amarillo Area Office (AAO) has completed the assessment of the MHC USQ program.

NNSA/AAO has determined that the USQ program as implemented by MHC at the Pantex Plant has made some progress but is still maturing. MHC has made progress toward transferring ownership of the USQ program to line management and line organization, however, the transfer is not complete. NNSA/AAO has determined that there are areas for improvement in the program as implemented at Pantex.

In April 2001, BWXT Pantex will be required to submit the USQ procedure to NNSA/AAO for review and approval as required by Part 830, Nuclear Safety Management Rule. NNSA/AAO will review and comment on the submitted procedures to insure compliance with the requirements of the 830 Rule. NNSA/AAO will continue to assess the USQ program on a continuing basis and will perform a formal assessment in November 2001 to verify program compliance and improvements in USQ quality.

If you have any questions, please contact Norman Garrett of my staff at extension 3128.



Daniel E. Glenn
Area Manager

Attachment
See Page 2 for cc

DNFSB SAFETY BOARD
01 FEB -6 PM 3:22
RECEIVED

NNSA AAO

Report for the

AAO Assessment for the

Pantex Plant Unreviewed Safety Question Program

Pantex Plant, Amarillo, TX
January 23 - 25, 2000

Confirmed to be Unclassified

By: *L Swindell, SST/AAO*

(Authorized Derivative Classifier)

1/31/01

Signature Page

Three Amarillo Area Office Subject Matter Experts and one Support Contractor assisted the Team in the performance of this Assessment. The experts concurred in the general comments and conclusions of this report.

Robert Young
NNSA/AAO
Authorization Basis Staff



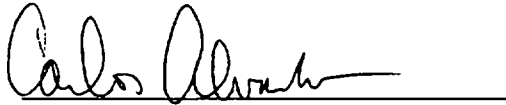
Date 1/31/01

Brian Jones
NNSA/AAO
Facility Representative



Date 01/31/01

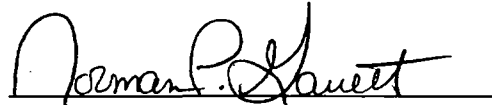
Carlos Alvarado
NNSA/AAO
Facility Representative



Date 1/31/01

Approved By:

Norman P. Garrett
NNSA/AAO
Authorization Basis Staff



Date 1/31/01

Table of Contents

Executive Summary	4
Introduction	5
Scope of Assessment	5
Checklists and Form 2's	7
Attachment A - Comments from NNSA Contractor	54

Executive Summary

The National Nuclear Security Administration (NNSA) Amarillo Area Office (AAO) Assessment of the Pantex Plant Unreviewed Safety Question (USQ) program was conducted January 23 - 25, 2001. The assessment was conducted using the approved Assessment Plan. The assessment was to judge the operating contractor's effectiveness in implementation of the DOE/AAO commitment to resolve issues raised by the Defense Nuclear Facility Safety Board (DNFSB) Recommendation 98-2.

The specific core requirements reviewed and the review approach were documented in the Plan of Action and included in this report as five Functional Area Checklists.

As a result of a Westinghouse Safety Management Systems review of the operating contractors USQ program the decision was made to transition responsibility of much of the USQ program to line management to better and more efficiently operate the program. The operating contractor developed an implementation plan to accomplish the upgrades. While progress has been made in upgrading the program further improvements are required.

The Assessment identified 12 findings. The current Mason & Hanger Corporation (MHC) USQ program does not fully comply with the DOE/AAO 98-2 commitment to the DNFSB. Primary ownership for the implementation of the USQ process has not been fully transferred to the appropriate facility line management and organizations. The MHC procedure and manual are written to show that the authority for the program is with line management; however, in practice, the line management has not been properly trained to perform USQs and the personnel performing the USQs are only matrixed to line management. In addition, the procedures implementing the USQ program do not fully meet the intent of DOE Order 5480.21. The current procedures are not reviewed and approved by DOE, however, the contractor procedures are required by the new 10 CFR 830 Rule to be approved by NNSA. The current procedures allow screens of proposed activities to be documented with only a signature. These screens include preliminary screens against applicable authorization basis documents. Many of the USQs reviewed did not contain sufficient information for the reviewers to draw the same conclusion as the evaluators. There is no procedure defining the Categorical Exclusion, however, our review indicates that a definition of the process is necessary. The review team found the current categorical exclusions are; written against activities that do not require an exclusion, written against activities which should not be excluded, and in many cases lacking sufficient information to allow the reviewer to draw the same conclusion as the evaluator. The training of personnel is still in process. While many personnel have received training, line management and line organizations have not been trained to perform USQs evaluations. As a result, the facility managers must rely on matrixed personnel to perform the evaluations and the same managers are not qualified to verify the results. The qualification tracking system is not used to identify the personnel who are qualified to perform USQs.

The overall program is maturing. Many of the USQ's and Categorical Exclusions reviewed did not contain sufficient information for the reviewers to understand the issue described in the evaluation or to draw the same conclusion as the evaluators. However, the review team did find two examples of good USQs written following the last change to the USQ procedure and implementation of the new USQ training. In addition, the personnel performing the USQs understand the current procedure and are the subject matter experts for the areas evaluated.

NNSA AAO Assessment of the Unreviewed Safety Question

1. **Introduction**

This document defines the AAO process which will be utilized to assess the Unreviewed Safety Question program at the Pantex Plant. The assessment is in response to the commitment made to the DNFSB in response to Recommendation 98-2. NNSA/AAO performed a general review of the site USQ program to verify that the program is in compliance with the commitment to the DNFSB recommendation. The review team assessed the adequacy of the Contractor's program, the overall effectiveness of the USQ process, and verified the transition of the responsibility for implementation of the USQ program to line management. In addition, the assessment team reviewed the Pantex Plant Categorical Exclusions. The team leader will route the completed attached checklists through the ABS Manager to the Area Manager for final approval signifying that the USQ process as required by DOE Order 5480.21 has been properly implemented and the commitments to the DNFSB are complete.

2. **Scope of Review**

The scope of this Assessment falls within the purview of AAO Procedure 110.2.1, *Amarillo Area Office Assessment Program*. The lines of inquiry will include the procedures, training and qualifications, transfer of program ownership to line management, categorical exclusions, and program implementation. The Core Requirements and Review Approach used in the Criteria, Review and Approach Documents (CRAD) and are not intended to restrict the scope of the review, but establish the minimum review requirements.

3. **Assessment Evaluation**

Using the checklists, the Assessment Team evaluated the five function areas of Procedures, Training and Qualification, Transfer of Program Ownership, Categorical Exclusions, and Implementation. All documents reviewed, personnel interviews, and associated findings and observations were documented in the attached checklists and Form 2's.

The assessment identified 12 findings. The findings below:

PC 1-1 The Pantex USQ Program implementing procedures do not fully meet the DOE Order 5480.21 requirements for basic screening and secondary screening.

T&QC 2-1 a) All technical personnel have not completed safety evaluation training that qualifies them sufficiently to meet the provisions described in 5480.21 section 7.d.

T&QC 2-1 b) There is no qualification card to document individual qualification requirements and accomplishment.

T&QC 2-1 c) The site training tracking system provides no mechanism for identifying the personnel qualified to perform USQ evaluations.

T&QC 2-2 The USQ Evaluator qualification requirements do not address expertise with the authorization basis.

TPOC 3-1 Primary ownership for the implementation of the USQ process has not been transferred to the appropriate facility line management and line organizations as required by the DOE/AAO commitment to DNFSB Recommendation 98-2.

CEC 4-1 a) The USQ procedures provide minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate potential exclusions.

CEC 4-1 b) Categorical exclusions are being written for activities that should not be considered under the USQ process.

CEC 4-1 c) Categorical exclusions are being written for activities that should remain under the USQ process.

CEC 4-1 d) The same generic hazard and accident discussion is provided in nearly every Categorical Exclusion and USQE, regardless of it's relevance to the issue being evaluated.

CEC 4-1 e) The discussion provided in many of the Categorical Exclusion evaluations is insufficient either to fully understand the connection between the document being evaluated and the AB or to conclude that the AB cannot be impacted by changes to it.

IC 5-1 & 2 a) The detail provided in many negative screens/evaluations is insufficient to support the conclusion that the AB is not impacted by the proposed change.

CHECKLIST 1 - 1

<p style="text-align: center;">DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM FUNCTIONAL AREA: PROCEDURES</p>
--

1. CORE REQUIREMENT:

Verify that formal procedural guidance has been established for implementing the requirements of DOE Order 5480.21 for proposed physical and procedural changes, tests and experiments to DOE nuclear facilities. At a minimum the procedural guidance should:

- a. define the purpose of the procedure,
- b. set forth the procedure's applicability,
- c. provide definitions of appropriate terms, including those in the Order,
- d. include screening criteria, as appropriate, and the basis for their application,
- e. include detailed guidance on what must be considered and evaluated when performing or reviewing a safety evaluation,
- f. define the qualifications needed and responsibilities of personnel performing and reviewing safety evaluations; and
- g. include documentation requirements for each USQ determination.

2. REVIEW APPROACH:

The Assessment Team members will review the Contractor procedures that implement the requirements of DOE Order 5480.21 and applicable portions of DOE Order 452.2A. The contents of the procedures shall be assessed against the requirements for procedural guidance presented in DOE Order 5480.21 and 452.2A.

3. DOCUMENTS REVIEWED:

- DOE Order 5480.21, Unreviewed Safety Questions, dated December 24, 1991
- Plant Standard, STD-3014, Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions, Issue 12, dated November 3, 2000
- MNL-207300, Unreviewed safety Question (USQ)/Nuclear Explosive Safety (NES) Process, Revision 4, dated November 6, 2000

4. INTERVIEWS CONDUCTED:

- MHC Authorization Basis Group

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

The Pantex Plant offers a unique challenge for a USQ Program. Since nuclear material and nuclear explosives are transported over a large area of the plant, and because the plant deals with large quantities of energetic material (i.e. explosives) which can have far reaching effects, the population of activities that could have an effect on nuclear/nuclear explosive facilities and operations is quite large. This is not emphasized in STD-3014 nor NML-207300, and the scope of these procedures (nuclear buildings and nuclear explosive operations) is not broad enough to ensure all appropriate inputs are evaluated.

Section 2 of MNL-207300 states (in part): “Actions taken in response to safety analysis upgrade requirements, such as new DOE Nuclear safety requirements and Nuclear Explosive Safety Rules (NESRs), are treated as separate upgrade activities that do not impact the current or interim AB.” This statement conflicts with DOE Order 5480.21 ¶ 10.d and may lead to the incorrect belief that new information need not be evaluated for the existing authorization basis.

The DOE Order specifically allows two types of prescreens to limit the number of proposed actions that require written safety evaluations. The two areas the Order addresses are changes which are inconsequential (i.e. spelling or typographical corrections such as defined in III-4-b. of Order) and categorical exclusions. The procedure, STD-3014 defines a prescreen as screening to determine if a proposed change to a facility or operation has an effect on the authorization basis for the facility or operation. The prescreen is further broken down into Level A and Level B prescreens.

The Level A and Level B Prescreening process in MNL-207300 and STD-3014 do not include the input conditions from DOE Order 5480.21 ¶ 10.b (i.e. changes to the facility, changes to procedures, or new tests or experiments) in the screening process.

The Level A and Level B Prescreening process in MNL-207300 and STD-3014 does not include all of the screening criteria required by DOE Order 5480.21 (e.g. Prior USQ Safety Evaluations and some elements of Inconsequential Changes). The Manual also includes criteria that are not covered in the order DOE Order 5480.21 (see ¶ 3.1.1.7 of MNL-207300 - determination if the proposed activity will introduce new hazards, increase existing hazards, or impact a control).

The Level A and Level B Prescreening process in MNL-207300 and STD-3014 does not require sufficient documentation. Chapter III ¶ 4.a of DOE Order 5480.21 states: “DOE finds that it is acceptable to use screening criteria to limit the number of proposed actions for which written safety evaluations must be performed, provided the reasons for exclusion are documented and well supported.” The Level A prescriber is qualified to verify that the change is an inconsequential change as defined in the Order. The performance of the prescreen is documented by only a signature on a change package. The Level B prescriber is allowed to perform a screen of the proposed activity against the establish safety basis documentation and screen out further evaluation without written justification. The Level B prescreen is documented on the change request form with a signature indicating that no further USQ action is required. The Level B prescreen results in an undocumented and unreviewed PX-2630 Part 2 safety screen.

DOE Order 5480.21 refers to inconsequential procedural changes as spelling errors, typographical errors, grammatical changes, clarifications, or addition of notes or references. MNL-207300 defines an Insignificant Change [¶ 6(kk)] as: “A change that has no impact on safety class or safety significant systems.” Per MNL-207300, if a change is insignificant, no further evaluation (i.e. addressing the seven questions) is required. The recognized method for determining impacts on the authorization basis (including determining impacts on safety class/safety significant systems) is to address the seven questions.

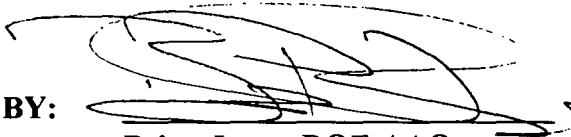
The Order allows Categorical Exclusion prescreens to be performed. However, there is no specific procedural guidance provided to govern the performance of the Categorical Exclusions. As noted in the evaluation of the current Categorical Exclusions, many activities have been screened that should not have been included in the program and other activities have been inappropriately excluded. Categorical Exclusions will be addressed in Checklist 4.

7. FINDINGS:


The Pantex USQ Program implementing procedures do not meet the DOE Order 5480.21 requirements for basic screening and secondary screening. The Level A prescreen process as implemented does not provide documentation of or tracking of inconsequential changes through the USQ Group. The Level B prescreen process as implemented results in an undocumented and unreviewed safety screen.

8. RECOMMENDATIONS:

Revise the Pantex USQ Program to match applicable Order requirements. This may be required to meet new 10CFR830 rule.

9. **ASSESSED BY:**  **DATE:** 01/31/01
Brian Jones, DOE-AAO

 **DATE:** 1/31/01
Norman Garrett, DOE, AAO

10. **REVIEWED/
APPROVED BY:**  **DATE:** 1/31/01
Team Leader, DOE-AAO

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: PC	Criteria Number: 1	Finding Number: 1	Date: 1/30/01
--------------------------------	------------------------------	-----------------------------	-------------------------

Issue:




The Pantex USQ Program implementing procedures do not meet the DOE Order 5480.21 requirements for basic screening and secondary screening.

Requirement:

Reference(s) (specific as to section):

Discussion:

The Pantex USQ Program implementing procedures do not meet the DOE Order 5480.21 requirements for basic screening and secondary screening. The Level A prescreen process as implemented does not provide documentation of or tracking of inconsequential changes through the USQ Group. The Level B prescreen process as implemented results in an undocumented and unreviewed safety screen.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Norman Garrett
Assessed by:  Norman Garrett	Date: 1/31/01
Date: 1/31/01	Date: 1/31/01

CHECKLIST 1 - 2

**DOE REVIEW OBJECTIVES AND CRITERIA
ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION
PROGRAM
FUNCTIONAL AREA: PROCEDURES**

1. CORE REQUIREMENT:

Verify that formal procedural guidance has been established for implementing the requirements of DOE Order 5480.21 for proposed physical and procedural changes, tests and experiments to DOE nuclear facility. At a minimum the procedural guidance should:

- a. define the purpose of the procedure,
- b. set forth the procedure's applicability,
- c. provide definitions of appropriate terms, including those in the Order,
- d. include screening criteria, as appropriate, and the basis for their application,
- e. include detailed guidance on what must be considered and evaluated when performing or reviewing a safety evaluation,
- f. define the qualifications needed and responsibilities of personnel performing and reviewing safety evaluations; and
- g. include documentation requirements for each USQ determination.

2. REVIEW APPROACH:

The Assessment Team members will review the Contractor procedures that implement the requirements of DOE Order 5480.21 and applicable portions of DOE Order 452.2A. The contents of the procedures shall be assessed against the requirements for procedural guidance presented in DOE Order 5480.21 and 452.2A.

3. DOCUMENTS REVIEWED:

- DOE Order 5480.21, dated 12-24-91, Unreviewed Safety Question
- 10 CFR Part 830, Nuclear Safety Management, Final Rule, published in the January 10, 2001, Federal Register
- MNL-207300, Revision 4, dated November 6, 2000, Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process
- STD-3014, Issue 12, dated November 3, 2000, Nuclear Facilities and Nuclear Explosive Operation Unreviewed Safety Questions

4. INTERVIEWS CONDUCTED:

- None

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

DOE Order 5480.21, Section 9.a(1) require DOE Program Secretarial Offices approval of contractor documentation implementing the requirements of the order. Section 9.e(2) requires Heads of Field Organizations to approve documentation prepared by the contractor demonstrating compliance with the order. In August 1997, AAO established the policy that the AAO would no longer approve MHC USQ procedures. The Assessment Team saw evidence that AAO has reviewed and commented on the contractor USQ procedure changes.

10 CFR Part 830, Nuclear Safety Management, Final Rule, require that contractors responsible for a hazard category 1, 2, or 3 DOE existing nuclear facility must submit for DOE approval a procedure for its Unreviewed Safety Question (USQ) process by April 10, 2001. Pending DOE approval of the USQ procedure, the contractor must continue to use its existing USQ procedure. If the existing procedure already meets the requirements of Section 830.203, the contractor must notify DOE by April 10, 2001 and request that DOE issue an approval of the existing procedure.

7. FINDINGS:

None

8. RECOMMENDATIONS

The contractor should request DOE approval of their USQ procedures consistent with the schedule set forth in 10 CFR 830.203. DOE should review and approve the contractors USQ procedure. The DOE review should include a detailed review to insure that the revised procedure meets all the requirements of the 10 CFR 830 Rule. In addition, DOE should insure, to the maximum extent possible, that the procedure provides clear direction on what activities must be included in the USQ process. Some examples of activities that should be address in the procedure in addition to procedure and tooling changes are; all aspects of computer software (both commercial and locally generated) used to perform nuclear related activities, all modifications unless clearly non-nuclear, explosive operations which may affect nuclear facilities, and evaluation of replacement parts that are not like-for-like replacements.

9. ASSESSED BY: Norman Garrett DATE: 1/31/01
Norman Garrett, DOE-AAO

10. REVIEWED/
APPROVED BY: Norman Garrett DATE: 1/31/01
Team Leader, DOE-AAO

CHECKLIST 2 - 1

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: TRAINING AND QUALIFICATION

1. CORE REQUIREMENT:

Verify that the Contractors training and qualification program meets the requirements of DOE Order 5480.21 and DOE Order 452.2A for performance of safety evaluations.

Verify that training materials for performance of safety evaluations are consistent with the requirements of DOE Order 5480.21 and DOE Order 452.2A.

Determine whether the Contractor has adequate personnel qualified to perform safety evaluations, that personal performing safety evaluations were qualified at the time the evaluation was performed, and personnel have adequate knowledge to perform safety evaluations.

2. REVIEW APPROACH:

The Assessment Team members will validate that; the training program meets the requirements of the referenced Orders, adequate personnel are qualified to perform safety evaluations, personnel performing safety evaluations have adequate knowledge to perform safety evaluations, and that personnel the performed a safety evaluation had the appropriate qualifications with the evaluation was performed by a combination of document reviews and interviews of personnel.

3. DOCUMENTS REVIEWED:

- DOE 5480.21, Unreviewed Safety Questions
- MHC Plant Standard STD-3014, Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions
- MHC MNL-207300, Rev. 4, Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process for the Pantex Plant, Amarillo, Texas
- MHC Training Records and Certification List for Level A & Level B prescreeners at Pantex
- List of personnel completing Course 00517.17 - USQD

- List of personnel completing Course 00517.18 - Level A Prescreen
- List of personnel completing Course 00517.19 - Level B Prescreen
- 517.17 Unreviewed Safety Question Qualification Course
- 517.18 USQ Prescreen Level A Course
- 517.19 USQ Prescreen Level B Course

4. INTERVIEWS CONDUCTED:

- Authorization Basis Staff, Weapons and Facility/Site Engineers
- Authorization Basis Staff, USQ Program
- 1 Program Engineering Business Group Leader
- 1 Weapons Operations Department Training Coordinator

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

The qualification program consists of three levels of qualification, Level A Prescreen, Level B Prescreen, and USQD. Qualified USQ Prescreeners are plant personnel who have completed the Level A or Level B prescreen training course and are authorized to perform the prescreens. Qualified USQ Evaluators are plant personnel who have completed the USQ training and meet the other applicable qualification requirements listed in the definition section of the USQ Manual. The only way to determine who is qualified to perform a USQD is to contact the USQ Program personnel. The USQ Program group has committed to updating all the information in the site-wide training tracking system to identify the personnel qualified to perform a USQ evaluations. There is currently no qualification card to document the qualification process.

Four members of the Authorization Basis staff, two in weapons programs and two in site/facilities were interviewed to determine the level of understanding of the program requirements. All personnel interviewed understood the training and qualification requirements. Each member interviewed was a subject matter expert in the area they performed USQ evaluations. These personnel are matrixed to the line organizations and are not involved in the day to day operations of the respective facilities or processes.

MHC training records indicate that numerous line managers have not received training qualifying them to perform Level A or B USQ prescreens. Clear-cut criteria for identifying the personnel who should receive pre-screening training have not been provided to the line organizations. There are currently no Facility Managers or personnel in line organizations qualified as USQ Evaluators at Pantex. DOE Order 5480.21 states in Section 7.d "The USQ review process should be integrated into all technical aspects of

the contractor organization responsible for design, engineering, maintenance, inspection, operations, and assessment of the nuclear facility or activity.” The current level of integration of personnel into all technical aspects consists of personnel in the Authorization Basis group matrixed to the line organizations.

7. FINDINGS:

All technical personnel have not completed safety evaluation training as specified in the requirements of 5480.21 section 7.d.

There is no qualification card to document individual qualification requirements and accomplishment.

The site training tracking system provides no mechanism for identifying the personnel qualified to perform USQ evaluations.

8. RECOMMENDATIONS:

The contractor should complete USQ training for all technical personnel.

Complete and implement a qualification card establishing and documenting individual qualification requirements and accomplishment.

9. **ASSESSED BY:** Carlos Alvarado **DATE:** 1/31/01
Carlos Alvarado, DOE-AAO

Norman Garrett **DATE:** 1/31/01
Norman Garrett, DOE-AAO

10. **REVIEWED/
APPROVED BY:** Norman Garrett **DATE:** 1/31/01
Team Leader, DOE-AAO

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: T&QC	Criteria Number: 2	Finding Number: 1a	Date: 01/30/01
---------------------------	-----------------------	-----------------------	-------------------

Issue:

All technical personnel have not completed safety evaluation training that qualifies them sufficiently to meet the provisions described in 5480.21 section 7.d.

Requirement:

Reference(s) (specific as to section):

Discussion:

DOE Order 5480.21 states in Section 7.d "The USQ review process should be integrated into all technical aspects of the contractor organization responsible for design, engineering, maintenance, inspection, operations, and assessment of the nuclear facility or activity. The current level of integration of personnel into all technical aspects consists of personnel in the Authorization Basis group matrixed to the line organizations.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by: <u>Carlos Alvarado</u> Carlos Alvarado	Approved by: <u>Norman Garrett</u> Norman Garrett
Assessed by: <u>Norman Garrett</u> Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: T&QC	Criteria Number: 2	Finding Number: 1b	Date: 01/30/01
----------------------------------	------------------------------	------------------------------	--------------------------

Issue:

There is no qualification card to document individual qualification requirements and accomplishment.

Requirement:

Reference(s) (specific as to section):

Discussion:

Complete and implement a qualification card establishing and documenting individual qualification requirements and accomplishment. There is currently no method to determine how personnel attain qualification.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by: <u>Carlos Alvarado</u> Carlos Alvarado	Approved by: <u>Norman Garrett</u> Norman Garrett
Assessed by: <u>Norman Garrett</u> Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: T&QC	Criteria Number: 2	Finding Number: 1c	Date: 01/30/01
----------------------------------	------------------------------	------------------------------	--------------------------

Issue:

The site training tracking system provides no mechanism for identifying the personnel qualified to perform USQ evaluations.

Requirement:

Reference(s) (specific as to section):

Discussion:

The only way to determine who is qualified to perform a USQD is to contact the USQ Program personnel. The USQ Program group has committed to updating all the information in the site-wide training tracking system to identify the personnel qualified to perform a USQ evaluations.

HIS FINDING CLOSED DURING THE ASSESSMENT.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by: <u>Carlos Alvarado</u> Carlos Alvarado	Approved by: <u>Norman Garrett</u> Norman Garrett
Assessed by: <u>Norman Garrett</u> Norman Garrett	
Date: 1/31/01	Date: 1/31/01

CHECKLIST 2- 2

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: TRAINING AND QUALIFICATION

1. CORE REQUIREMENT:

Verify that the Contractors training and qualification program meets the requirements of DOE Order 5480.21 and DOE Order 452.2A for performance of safety evaluations.

Verify that training materials for performance of safety evaluations are consistent with the requirements of DOE Order 5480.21 and DOE Order 452.2A.

Determine whether the Contractor has adequate personnel qualified to perform safety evaluations, that personnel performing safety evaluations were qualified at the time the evaluation was performed, and personnel have adequate knowledge to perform safety evaluations.

2. REVIEW APPROACH:

The Assessment Team members will validate that; the training program meets the requirements of the referenced Orders, adequate personnel are qualified to perform safety evaluations, personnel performing safety evaluations have adequate knowledge to perform safety evaluations, and that personnel who performed a safety evaluation had the appropriate qualifications when the evaluation was performed by a combination of document reviews and interviews of personnel.

3. DOCUMENTS REVIEWED:

- Unreviewed Safety Questions Qualification Course 517.17
- USQ Prescreen Level A Course 517.18
- USQ Level B Prescreen Course 517.19
- STD-3014 Issue 12, "Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions"
- MNL-207300 Revision 4, "Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process"

- PX-USQE-00-CX-01, Categorical Exclusion of Business and Management Procedures, Standards and Manuals.
- PX-USQE-00-CX-15, Categorical Exclusion of Standard 7-0809.15, "Non Destructive Evaluation Radiography Safe Operating Requirements," and Procedure P7-0821.4, "Linear Accelerator Operations in Building 12-84, Bays 1 and 10".
- PX-USQE-01-0013-A, Change Request number 49151 for NEOP N56-250168-R, Issue O
- PX-USQE-01-0048-A, Task PM 4529 Transport Cover 056-2-280
- PX-USQE-01-0281-A, Change Request 50175
- PX-USQE-01-0390-A, N56-250168-R W56 Dismantlement (U)
- PX-USQE-00-1539-A, N87-250441-LEP, CR48736
- PX-USQE-01-0122-A, Restart of manifold operations following lightning warnings (U)
- Training Report for USQD Evaluators, Course 517.17

4. INTERVIEWS CONDUCTED:

- AB USQ Section Engineer

5. ACTIVITIES OBSERVED:

- None.

6. DISCUSSION:

Everyone who signed as a USQ Evaluator on the reviewed USQEs was a trained evaluator per the training report, with the exception of the evaluator for PX-USQE-00-CX-15. It appears that this evaluator was a contractor who had limited authority to perform USQEs.

The material in the training courses matches MNL-207300 and STD-3014.

MNL-207300 contains the following requirements for USQ Evaluators:

- Successful completion of a bachelors degree in engineering or related science/technology, six months 10 CFR 50.59 or DOE Order 5480.21 experience, one year work experience at Pantex, and training in the Pantex USQ Program; or
- Four years equivalent experience with 10 CFR 50.59 or DOE Order 5480.21 experience, one year work experience at Pantex, and training in the Pantex USQ Program (successful completion of formal training required by the "Training Program Description"); or

- Any employee within Authorization Basis Development and Management who does not meet all of the above requirements may complete safety evaluations at the discretion of the Authorization Basis Development and Management Business Group Manager.


The last bullet above should require a minimum qualification (i.e. be a qualified evaluator per the Pantex program). Also, the bullets above do not address familiarity with the authorization basis as a prerequisite for performing USQ Evaluations. Per discussions with ABD&M personnel, evaluations are assigned to the evaluator most familiar with the authorization basis for the subject issue. The qualification program for Level A and Level B Prescreeners was not evaluated.


7. FINDINGS:

The USQ Evaluator qualification requirements do not address expertise with the authorization basis.

8. RECOMMENDATIONS

Revise the training program to define what authorization basis "areas" evaluators are qualified to evaluate. The training program for Level A and B Prescreeners should also be evaluated.

9. **ASSESSED BY:**  **DATE:** 1/31/01
Brian P. Jones, DOE-AAO

10. **REVIEWED/
APPROVED BY:**  **DATE:** 1/31/01
Team Leader, DOE-AAO

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: T&QC	Criteria Number: 2	Finding Number: 2	Date: 01/30/01
----------------------------------	------------------------------	-----------------------------	--------------------------

Issue:

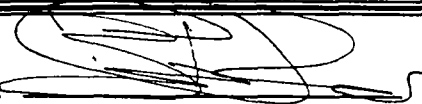

The USQ Evaluator qualification requirements do not address expertise with the authorization basis.

Requirement:

Reference(s) (specific as to section):

Discussion:

The current qualification requirements in the USQ manual address education requirements, experience in performing either 10 CFR 50.59 evaluations or DOE 5480.21 evaluations, and general clause that anyone acceptable to management may be qualified. However, the qualification requirements do not address familiarity with the authorization basis as a prerequisite for performing USQ Evaluations.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones Date: 1/31/01	Approved by:  Norman Garrett Date: 1/31/01

CHECKLIST 3 -1

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: TRANSFER OF PROGRAM OWNERSHIP

1. CORE REQUIREMENT:

Verify that the contractor has transferred primary responsibility, authority, and accountability for the direction and management of the USQ process to facility line management as required by the DOE/AAO DNFSB Recommendation 98-2 commitment.

2. REVIEW APPROACH:

The Assessment Team members will verify that the primary responsibility, authority, and accountability for the direction and management of the USQ process has been transferred to the appropriate facility line management as required by the Implementation Plan developed to address DNFSB Recommendation 98-2 through document review and personnel interviews.

3. DOCUMENTS REVIEWED:

- DOE 5480.21, Unreviewed Safety Questions
- MHC Plant Standard STD-3014, Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions
- MHC MNL-207300, Rev. 4, Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process for the Pantex Plant, Amarillo, Texas
- DOE Implementation Plan for DNFSB Recommendation 98-2, dated April 22, 1999
- DOE Revised Implementation Plan for DNFSB Recommendation 98-2, dated September 25, 2000
- MHC Authorization Basis Task Force Report, dated May 20, 1999
- MHC Authorization Basis Task Force Project Plans, dated June 23, 1999
- MHC Manual, MNL-207300, Revision 4, dated November 6, 2000, Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process
- MHC Plant Standard, STD-3014, Issue 12, dated November 3, 2000, Nuclear Facilities and Nuclear Explosive Operation Unreviewed Safety Questions

4. INTERVIEWS CONDUCTED:

- Authorization Basis Staff, Weapons and Facility/Site Engineers
- Authorization Basis Staff, USQ Program
- 2 Facility Managers
- 3 Assistant Facility Managers
- 2 Program Engineers
- 1 Nuclear Safety Engineer
- 1 Program Engineering Business Group Leader
- 1 Maintenance Department Manager
- 1 Maintenance Department Work Control Manager
- 2 AB Document Custodians

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

MHC developed a project plan to address the findings of the Authorization Basis Task Force (ABTF) associated with authorization basis work for nuclear explosive operations. The project plan addresses the ABTF finding and addresses the DNFSB 98-2 recommendation to get line management and line organizations involved in the USQ process. A corrective action plan was developed that identified those actions needed to get line management (e.g., Tooling, Tester, Systems and Program Engineers) to perform the initial screening of new/modified tools and procedures when there is a possible connection to the authorization basis. Briefly, these actions included revising procedures, developing training on the new process, and training personnel.

The review team found that the contractor has met the intent of the corrective actions. Line management and line organizations are now involved in prescreening procedure changes to determine if the produce could affect the authorization basis envelope. However, the team does have some concerns with the maturity of the USQ process and the extent of line management and line organizations involvement in the process.

MHC Plant Standard STD-3014, Nuclear Facility and Nuclear Explosive Operations, was approved by the MHC General Manager and the MHC Technical Advisor, not the cognizant MHC line manager for Nuclear Facilities and Nuclear Operations.

No formal mechanism exists for Facility Managers, Production Managers and Program Engineers to track or receive notifications regarding completed USQ Evaluations.

USQ originators do not receive updates or final status of USQ Evaluations until the final evaluation is completed and routed for signature by the Authorization Basis Development and Management Directorate. Facility managers do not currently have guidance/training on accessing the OPTIX database containing final USQ Evaluations.

As discussed in STD-3014, AB custodians are matrixed to Facility and Production Managers. Based on interviews with Facility and Production Managers, these “matrixed” individuals were viewed as the USQ program owners. It was also noted during interviews that these “matrixed” individuals did not visit nuclear facilities frequently enough.

Based on interviews with line managers, it appears that established priorities for USQEs were not clearly communicated to them and that their input in the process is limited, although MHC STD-3014 assigns responsibility for establishing the priority for USQEs to the Operations Directorate.

There are currently no Facility Managers who are Qualified USQ Evaluators at Pantex. All positive Facility Manager prescreens must be submitted for USQ Evaluation by Authorization Basis Development and Management (ABD&M) personnel.

7. FINDINGS:

Primary ownership for the implementation of the USQ process has not been transferred to the appropriate facility line management and line organizations as required by the DOE/AAO commitment to DNFSB Recommendation 98-2. While the contractor has made significant progress in response to the commitment, the current USQ process is still maturing and substantial progress is needed in order to meet the intent of both DOE 5480.21 and the commitment to the DNFSB for line management ownership of the USQ process.

8. RECOMMENDATIONS

The assessment team recommends consideration be given to placing more of the USQ program responsibility on line management (e.g., Tooling, Tester, Systems and Program Engineers, etc.). Line management should have the best understanding of the component, system or facility and, therefore, should be able to better document the proposed activity to be evaluated. Likewise, line management should be expected to have a thorough understanding of the potential impacts of proposed changes on the safety envelope.

9. ASSESSED BY: Carlos Alvarado DATE: 1/31/01
Carlos Alvarado, DOE-AAO

Norman Garrett DATE: 1/31/01
Norman Garrett, DOE-AAO

10. REVIEWED/
APPROVED BY: Norman Garrett DATE: 1/31/01
Team Leader, DOE-AAO

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: TPOC	Criteria Number: 3	Finding Number: 1	Date: 01/30/01
----------------------------------	------------------------------	-----------------------------	--------------------------

Issue:

Primary ownership for the implementation of the USQ process has not been transferred to the appropriate facility line management and line organizations as required by the DOE/AAO commitment to DNFSB Recommendation 98-2.

Requirement:

Reference(s) (specific as to section):

Discussion:

Primary ownership for the implementation of the USQ process has not been transferred to the appropriate facility line management and line organizations as required by the DOE/AAO commitment to DNFSB Recommendation 98-2. While the contractor has made significant progress in response to the commitment, the current USQ process is still maturing and substantial progress is needed in order to meet the intent of both DOE 5480.21 and the commitment to the DNFSB for line management ownership of the USQ process.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by: <u>Carlos Alvarado</u> Carlos Alvarado	Approved by: <u>Norman Garrett</u> Norman Garrett
Assessed by: <u>Norman Garrett</u> Norman Garrett	
Date: 1/31/01	Date: 1/31/01

CHECKLIST 4 - 1

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: CATEGORICAL EXCLUSIONS

1. CORE REQUIREMENT:

Verify that the Contractor has properly applied the use of categorical exclusions as a screening criteria as defined in DOE Order 5480.21. Verify that any categorical exclusions taken included a detailed evaluation why the exclusion is acceptable.

2. REVIEW APPROACH:

The Assessment Team members will review the Contractor categorical exclusions to verify that the exclusions are appropriate and properly documented. The review may be conducted by document reviews and personnel interviews.

3. DOCUMENTS REVIEWED:

- PX-USQE-00-CX-01, Categorical Exclusion of Business and Management Procedures, Standards and Manuals.
- PX-USQE-00-CX-15, Categorical Exclusion of Standard 7-0809.15, "Non Destructive Evaluation Radiography Safe Operating Requirements," and Procedure P7-0821.4, "Linear Accelerator Operations in Building 12-84, Bays 1 and 10".
- PX-USQE-00-CX-22, Categorical Exclusion of Portions of Manual 133747, *Procurement Manual*.
- PX-USQE-00-CX-23, Pantex Manual MNL-240176, *DOE Explosives Safety Manual - Pantex Version*.
- PX-USQE-00-CX-24, Request for categorical exclusion of W76 and W88 Configuration 3 and 4 Nuclear Explosive Like Assemblies (NELAs), processing activities and procedures (including future changes and procedures) reference DOE Supplemental Directive AL.452.2A.
- PX-USQE-00-CX-25, Listing of Tooling Drawings that are Candidates for Non-USQ
- PX-USQE-00-CX-26, Categorical Exclusion of Internal Operating Procedures (IOP) for Transportation and Staging Operations Department

- PX-USQE-00-CX-27-A, Request for categorical exclusion of W76 MC2912, W88 Primary Test Bed QU2042 processing activities and procedures (including future changes and procedures_ reference DOE Supplemental Directive AL.452.2A
- PX-USQE-00-CX-28, Categorical Exclusion for placing Administrative Internal Operating Procedures for Facility Business Group on the *List of Previously Evaluated Documents (non-USQ list)*.
- PX-USQE-00-CX-29, Categorical Exclusion of Internal Operating Procedures (IOP) for Transportation and Staging Operations Department
- PX-USQE-01-CX-01, Categorical Exclusion of Administrative Manuals for the Facilities Business Group
- PX-USQE-01-CX-02, Listing of Tooling Drawings that are Candidates for Non-USQ
- PX-USQE-01-CX-05-A, Request for a Categorical Exclusion for Technical Procedures and Temporary Instructions (TIs) covering the Leak checking, Backfilling, Sampling, and Accelerated Aging of Inert, Explosive, and Source Material containers in Non-Nuclear Facilities.
- STD-3014, *Nuclear Facilities and Nuclear Explosive Operation Unreviewed Safety Questions*, Issue 12, dated November 3, 2000
- MNL-207300, *Unreviewed Safety Question (USQ)/Nuclear Explosive Safety (NES) Process*, Revision 4, dated November 6, 2000,

4. INTERVIEWS CONDUCTED:

- None

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

PX-USQE-00-CX-01, Categorical Exclusion for hundreds of “routine business and management documents.” The USQE states: “This categorical exclusion addresses routine business and management procedures, standards, manuals and similar documents that govern many plant-wide activities, but which cannot produce a physical or procedure change that will impact the authorization basis.” Some of the procedures listed [e.g. STD-1875, “Software Quality Life Cycle”; IOP-IMD0019, “Change Management for the Central Computer Facility”; IOP-B3112, “Ordering Liquid Nitrogen for Zone 12 (South) MAA”; STD-0144, “Periodic Document Review] do not appear to be routine business and management documents and appear to be documents that, if revised, should be evaluated for effects on the authorization basis.

PX-USQE-00-CX-15, Categorical Exclusion for two Radiography procedures. The USQE states: "This categorical exclusion is based on the evaluation that (the two procedures) do not affect the AB." The procedures clearly affect the authorization basis since the RadSafe system discussed in one of the procedures is a Limiting Condition for Operation in the Building 116 TSR, and operation of radiation generating devices is mentioned in Administrative Control 5.6.11 of the Site Wide TSRs. This USQE does not mention these ties to the authorization basis, nor does it explain why changes to these procedures would not affect the Authorization Basis.

PX-USQE-00-CX-22, Categorical Exclusion of Portions of Manual 133747, *Procurement Manual*. Based on the information provided, this exclusion appears to be justified.

PX-USQE-00-CX-23 - Excludes Pantex Plant Manual 240176 (except Chapter VI, Section 4.2) from USQ process. The exclusion of all but one section of the Pantex version of the DOE Explosives Safety Manual appears to be inappropriate. This determination was made based on the comparison the Pantex version of the DOE Explosives Safety Manual to a single administrative control in the TSRs, which happens to be a duplicate of Chapter VI, Section 4.2, *Required Level of Protection*. This exclusion does not account for the potential changes that may occur in Pantex Plant Authorization Basis documents as a result of a change to the manual. The evaluation provides no discussion of the other requirements from the DOE-ESM that may be credited (padded work surfaces, two-person handling requirements, etc.), either implicitly or explicitly, in any of the other AB documents, such as the HARs and ABCDs.

PX-USQE-00-CX-26 - Excludes six procedures from USQ. Of the six, four are outside the scope of the USQ process and two do not contain sufficient information to verify that exclusion is warranted. With the exception of IOP-B-1844, *Tracking Inventory in Zone 4*, the conclusion that these activities have no potential to impact the AB appears to be correct. The explanation provided for IOP-B-1844 lacks sufficient information to make a determination as to whether or not it has the potential to impact the AB.

PX-USQE-00-CX-27-A - Appears to exclude two weapons components from USQ process. It does not contain sufficient information to verify that exclusion is warranted.

PX-USQE-00-CX-28 - Excludes 19 procedures from USQ. Of the 19, at least four are outside the scope of the USQ process. The conclusion that these procedures have no potential to impact the AB is inadequately supported. In many cases, such as IOP-FO-3163, *Cash Registers and Food Management Systems*, the procedures should not have even been considered for USQ review. In other cases, such as IOP-FO-1021, *Adherence, Use, and Improvement of Work Documents*, which covers, among other things, determining the work document level of use and verifying the current issue of a work document, there is insufficient information to conclude that there is no potential to impact the AB.

PX-USQE-00-CX-29 - Excludes two procedures from USQ. The description does not contain sufficient information to verify that exclusion is warranted.

PX-USQE-01-CX-02 - Excludes the tooling drawings used for molds in the Plastics Shop, BLDG 12-16. This Categorical Exclusion excludes Mold Drawings for use in the Plastics Shop. It is acknowledged that these drawings will not affect the Authorization Basis. The argument submitted in section 11 to justify the exclusion states that "The molded piece does not have the ability to impact the AB." However, the components constructed using the molds can affect the Authorization Basis depending on the part and where it is used. It is also acknowledged that many non-nuclear facilities have the potential to affect nuclear facilities, by either direct or indirect means, therefore, the fact that a facility is non-nuclear, in and of itself, is not adequate as screening criteria. The potential impacts on nuclear facilities must be explicitly addressed.

PX-USQE-01-CX-05-A - Excludes 20 procedures from the USQ process. The basis of the exclusion appears to be that the procedures are used in non-nuclear facilities. Since these facilities are not included in the list of Pantex facilities in the USQ/NES program scope contained in Appendix A of MNL-207300, some explanation as to their potential to impact nuclear facilities needs to be provided. The exclusion must clearly show that performance of the procedures can have no effect on an item or component that could be returned to a nuclear explosive facility or that a test in the facilities listed could not affect an external nuclear facility.

All of the Categorical Exclusion evaluations rely on boiler plate rationale, which in most cases has no bearing on the actual evaluation. The boiler plate discussion is used in hazards/accident discussions and express the generic site-wide hazards and accidents. Each evaluation should discuss only those hazards and accident scenarios associated with the evaluation.

7. **FINDINGS:**


There appears to be a fundamental misunderstanding of the categorical exclusion process. Categorical exclusions, as discussed in DOE 5480.21, are merely a screening mechanism intended to limit the number of proposed activities for which written safety evaluations must be performed. Screening criteria are intended to be applied to those items, which enter into the USQ process, but for which a detailed safety evaluation is not needed. The MHC USQ procedures provides minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate potential exclusions. Categorical exclusions are being written for activities which should not be considered under the USQ process. Categorical exclusions are being written for activities which should remain under the USQ process.

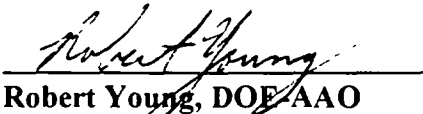
The same generic hazard and accident discussion is provided in nearly every Categorical Exclusion and USQE, regardless of it's relevance to the issue being evaluated. In order to be meaningful, these discussions need to focus on the hazards and accidents that are potentially influenced by the item being evaluated.

The discussion provided in many of the USQEs is insufficient, either to fully understand the connection between the document being evaluated and the AB or to conclude that the AB cannot be impacted by changes to it.

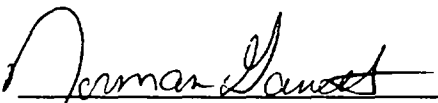
8. RECOMMENDATIONS:

MNL-207300 should be revised to include a descriptive process for processing categorical exclusions

9. **ASSESSED BY:**  **DATE:** 01/31/01
Brian Jones, DOE-AAO

 **DATE:** 1/31/01
Robert Young, DOE-AAO

 **DATE:** 1/31/01
Norman Garrett, DOE-AAO

10. **REVIEWED/
APPROVED BY:**  **DATE:** 1/31/01
Team Leader, DOE-AAO

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: CEC	Criteria Number: 4	Finding Number: 1a	Date: 01/30/01
---------------------------------	------------------------------	------------------------------	--------------------------

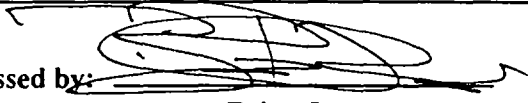
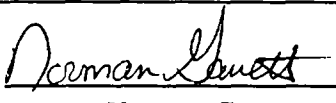
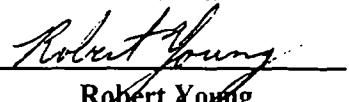
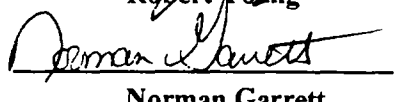
Issue:

CEC 4-1 a) The USQ procedures provides minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate potential exclusions.

Reference(s) (specific as to section):

Discussion:

There appears to be a fundamental misunderstanding of the categorical exclusion process. Categorical exclusions, as discussed in DOE 5480.21, are merely a screening mechanism intended to limit the number of proposed activities for which written safety evaluations must be performed. Screening criteria are intended to be applied to those items, which enter into the USQ process, but for which a detailed safety evaluation is not needed. Most of Categorical Exclusions reviewed for this evaluation were performed for activities which are not subject to the USQ process, as defined in MNL-207300. In addition, MNL-207300, provides minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate them against.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Norman Garrett
Assessed by:  Robert Young	
Assessed by:  Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: CEC	Criteria Number: 4	Finding Number: 1b	Date: 01/31/01
---------------------------------	------------------------------	------------------------------	--------------------------


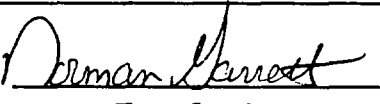

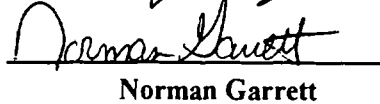
Issue:

Categorical exclusions are being written for activities which should not be considered under the USQ process.

Reference(s) (specific as to section):

Discussion:

There appears to be a fundamental misunderstanding of the categorical exclusion process. Categorical exclusions, as discussed in DOE 5480.21, are merely a screening mechanism intended to limit the number of proposed activities for which written safety evaluations must be performed. Screening criteria are intended to be applied to those items, which enter into the USQ process, but for which a detailed safety evaluation is not needed. The MHC USQ procedures provides minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate potential exclusions. Categorical exclusions are being written for activities which should not be considered under the USQ process. Categorical exclusions are being written for activities which should remain under the USQ process.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Team Leader
Assessed by:  Robert Young	
Assessed by:  Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: CEC	Criteria Number: 4	Finding Number: 1c	Date: 01/31/01
---------------------------------	------------------------------	------------------------------	--------------------------

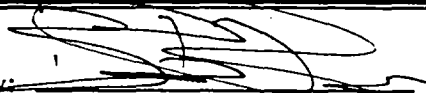

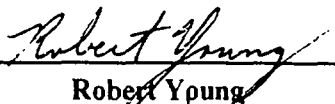
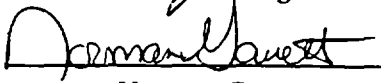
Issue:

Categorical exclusions are being written for activities which should remain under the USQ process.

Reference(s) (specific as to section):

Discussion:

There appears to be a fundamental misunderstanding of the categorical exclusion process. Categorical exclusions, as discussed in DOE 5480.21, are merely a screening mechanism intended to limit the number of proposed activities for which written safety evaluations must be performed. Screening criteria are intended to be applied to those items, which enter into the USQ process, but for which a detailed safety evaluation is not needed. The MHC USQ procedures provides minimal guidance with regard to items that are potential candidates for categorical exclusion or criteria to evaluate potential exclusions. Categorical exclusions are being written for activities which should not be considered under the USQ process. Categorical exclusions are being written for activities which should remain under the USQ process.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Team Leader
Assessed by:  Robert Young	
Assessed by:  Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: CEC	Criteria Number: 4	Finding Number: 1d	Date: 01/31/01
---------------------------------	------------------------------	------------------------------	--------------------------

Issue:

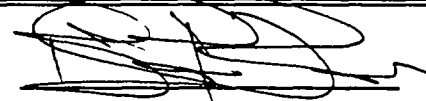
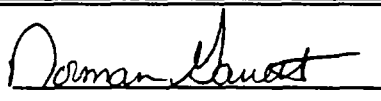
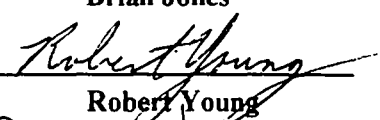
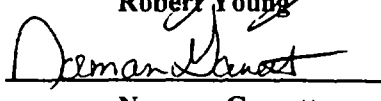
The same generic hazard and accident discussion is provided in nearly every Categorical Exclusion and USQE, regardless of it's relevance to the issue being evaluated.

Requirement:

Reference(s) (specific as to section):

Discussion:

The same generic hazard and accident discussion is provided in nearly every Categorical Exclusion and USQE, regardless of it's relevance to the issue being evaluated. In order to be meaningful, these discussions need to focus on the hazards and accidents that are potentially influenced by the item being evaluated.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Team Leader
Assessed by:  Robert Young	
Assessed by:  Norman Garrett	
Date: 1/31/01	Date: 1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: CEC	Criteria Number: 4	Finding Number: 1e	Date: 01/30/01
---------------------------------	------------------------------	------------------------------	--------------------------

Issue:


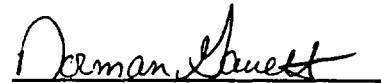
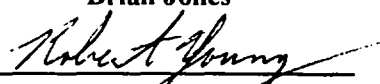
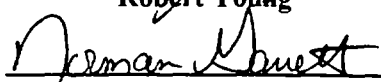
The discussion provided in many of the USQEs is insufficient, either to fully understand the connection between the document being evaluated and the AB or to conclude that the AB cannot be impacted by changes to it.

Requirement:

Reference(s) (specific as to section):

Discussion:

The discussion provided in many of the USQEs is insufficient, either to fully understand the connection between the document being evaluated and the AB or to conclude that the AB cannot be impacted by changes to it.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones	Approved by:  Team Leader
Assessed by:  Robert Young	
Assessed by:  Norman Garrett	
Date: 1/31/01	Date: 1/31/01

CHECKLIST 5 - 1

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: IMPLEMENTATION

1. CORE REQUIREMENT:

At the Review Team's discretion, select a random sampling of facility, system, and weapons specific Safety Evaluations. Select examples of safety evaluations from the categories listed below.

Changes in the facility as described in the safety analysis report. Focus on significant modifications implemented to the facility or a specific system.

Changes to procedures as described in the safety analysis report. Focus on significant changes to procedures but also select approved procedure changes awaiting implementation. Choose a variety of safety evaluations for changes in procedure from categories such as operations, engineering, maintenance, administrative controls, and health physics.

Tests or experiments not described in the safety analysis report. Focus on safety evaluations for tests performed but also review approved safety evaluations of tests planned for the future.

Review safety evaluation applicability determinations for which the Contractor determined safety evaluations in accordance with the Order 5480.21 were not required. Choose the number and variety of such evaluations to allow a representative sample.

2. REVIEW APPROACH:

The Assessment Team members will perform a document review of selected safety evaluations to determine the overall adequacy of the analysis. The reviewers will insure the safety analysis is a complete document that allows the reviewer to draw the same conclusions as the initial reviewer. The reviewers will assess the quality, appropriateness, and consistency of the analysis.

3. DOCUMENTS REVIEWED:

Software

- PX-SES-97-328, RAMS Software Alarm Setpoints
- PX-USQE-00-285A, CR#44897
- PX-USQE-00-286A, Change Request # 44898
- PX-USQE-00-741-A, Software Modifications made to the Sealed Insert Imaging Station
- PX-USQE-00-990-A, Revise software reference in STD-9045
- PX-USQE-01-0348-A, Facility 12-116 Weight and Leak Check System (WALS) Pit Operations, P7-0470
- PX-USQE-01-0359-A, Software Patch for LP2000 system

Tooling/Tester W-56 and W87 Programs

- PX-SES-99-065, 12-116 HEPA Filter Upgrade
- PX-SES-99-274, Disassembly fixture (056-2-145)
- PX-SES-99-290, N56-210221-R (ED99-197) NEEP
- PX-SES-99-445, N56-210221-R (REF ED-516A)
- PX-SES-99-507, Plant Standard 3366, CR#11399
- PX-USQE-00-456-A, Support Puller (056-2-238B) Modification
- PX-USQE-00-1027-A, W56 Dismantlement (U) N56-250168-R Change Request
- PX-USQE-00-1295-A, NEEP EO 00-496 Issue A
- PX-USQE-01-0087-A, Task PM 4526 Cable Cover 056-2-279
- PX-USQE-01-0184-A, Evaluation of Support Screws for Case Removal NEEP ED 00-620
- PX-USQE-01-0390-A, N56-250168-R W56 Dismantlement (U)
- PX-USQD-99-071-A, Use of New Tooling for W87 Operations
- PX-USQE-00-531-A, TPCR# 46092, N7-0931-POI
- PX-SES-99-475, NEEP ED99-579, Issue A
- PX-SES-99-132, W87 Neutron Generator Gauging
- PX-USQE-01-0344-A, Disassembly and Rebuild of W87, NEEP ED00-669
- PX-USQD-97-055-A, W87 Balancer Product of Inertia Fixture Welded joints
- PX-USQE-00-1264-A, MC4545 Assembly W87 CR #46683

4. INTERVIEWS CONDUCTED:

- None

5. ACTIVITIES OBSERVED:

- None

6. DISCUSSION:

Software

PX-SES-97-328, RAMS Software Alarm Setpoints - Screened as Negative. Evaluation completed in 12/97. The evaluation involves the modification of the Radiation Alarm Monitoring System (RAMS) computer-based software alarm setpoints. The evaluation states that the RAMS is "a Category B critical safety system that protects the worker." However, the description states that the software alarm path and setpoint is not considered critical or part of the safety envelope. In addition, the description states that the part is considered defense-in-depth in accordance with written correspondence from the system engineer. The discussion concludes that a statement must be added to the CSSM, must be approved by DOE, and is also an inconsequential change. The discussion does not support the contention that the CSSM is inconsequential (typographical, etc.) nor does it make clear how an alarm setpoint for a radiation monitoring system (listed as critical safety system that protects the worker) is not part of the critical features.

PX-USQE-00-285A, CR#44897 - Screened as Negative. Evaluation completed in 1/00. The evaluation appears to be for a software change. The description does not contain sufficient information for a reviewer to understand the change or to determine whether or not the change could affect the related weapon program safety basis.

PX-USQE-00-286A, Change Request # 44898 - Screened as Negative. Evaluation completed in 1/00. The evaluation appears to be for a software change. The description does not contain sufficient information for a reviewer to understand the change or to determine whether or not the change could affect the related weapon program safety basis.

PX-USQE-00-741-A, Software Modifications made to the Sealed Insert Imaging Station - Screened as Negative. Evaluation completed in 4/00. The description does not contain sufficient information for a reviewer to fully understand the change and understand all elements that the preparer evaluated the change against.

PX-USQE-00-990-A, Revise software reference in STD-9045 - Screened as Negative. Evaluation completed in 6/00. The description does not contain sufficient information for a reviewer to fully understand the change and understand all elements that the preparer evaluated the change against.

PX-USQE-01-0348-A, Facility 12-116 Weight and Leak Check System (WALS) Pit Operations, P7-0470 STD-9045 - Screened as Negative. Evaluation completed in 1/01. This USQD resulted from the Weighing and Leak Check Facility DOE Readiness Assessment. The conclusion of the USQD clearly indicates that the Preparer did not understand the issue. The Facility Manager issued a Memorandum written to file to clarify what the conclusion should say. It is not clear that the USQD was evaluated against the facility authorization basis. The Conclusion only indicates that the Technical Safety

Requirements were referenced. The USQD should be revised to indicate what was evaluated and how it was evaluated.

PX-USQE-01-0359-A, Software Patch for LP2000 system - Evaluated as not a Unreviewed Safety Question and within MHC authority to make the changes. Evaluation completed in 1/01. The evaluation displays a clear understanding of the modification to be made to the LP2000 computer system, the expected results of the modification, and the impacts on the facility authorization basis.

Tooling/Tester W-56 and W87 Programs

PX-SES-99-065, 12-116 HEPA Filter Upgrade - Screened as Negative. Evaluation completed in 11/98. The evaluation justified the replacement of Industrial Grade HEPA filters with Nuclear Grade HEPA filters. This SES was listed against the W56 program in the USQ database but is actually for Building 12-116. The final conclusion, following a reasonable discussion, is that the replacement of the filters is routine maintenance and therefore should be a categorical exclusion. However, the qualification of the component should be fully evaluated under the USQ program and declared an equivalent replacement part.

PX-SES-99-274, Disassembly fixture (056-2-145) - Screened as Negative. Evaluation completed in 4/99. A new tool was developed to use on the W56. The Safety Evaluation Screen contains a detailed description in the conclusion section, however, the description does not contain an adequate discussion to support the conclusion drawn. The description establishes that the original tool will fail prior to damaging the weapon. The accident analysis referenced appears to be based on the maximum pressure that the original tool can apply. The information presented for the new tools appears to indicate that procedural controls are required to prevent exceeding the limits evaluated in the accident analysis. The final evaluation makes it clear that procedural controls are required to prevent damage to the weapon. The final evaluation does not indicate that the tool may fail in such a way as to prevent damage to the weapon. The final conclusion is that the new tool cannot apply more pressure than the original tool and, therefore, will have no impact on important to safety, safety-related, safety class, or safety significant systems. The discussion does not support this conclusion nor does it address the margin of safety or failure modes of the new tool.

PX-SES-99-290, N56-210221-R (ED99-197) NEEP - Screened as Negative. Evaluation completed in 4/99. This is a new procedure to perform a new process as a result of the development of a new tool. The evaluation does not strictly evaluate the procedure against the appropriate authorization basis documentation. The change is justified as "inconsequential" based on the same justification used in PX-SES-99-274.

PX-SES-99-445, N56-210221-R (REF ED-516A) - Screened as Positive. Evaluation completed in 7/99. The discussion in the conclusion section does not support the conclusion drawn. The discussion does not provide adequate information related to the

tooling change to fully describe the changes, what the changes may do, and what analysis is required.

PX-SES-99-507, Plant Standard 3366, CR#11399 - Screened as Negative. Evaluation completed in 9/99. This is a revision to Plant Standard 3366. The revision was the result of a DOE requirement, a revision of D&P Manual, Chapter 11.7. The determination that this is a negative USQD is not supported by a comparison to any authorization basis documentation

PX-USQE-00-456-A, Support Puller (056-2-238B) Modification - Screened as Negative. Evaluation completed in 3/00. The USQE evaluates a modification to a tool used for the W56. The discussion describes the two pieces on the tool drawing that was modified. The modification resulted in an equivalent (apparently in fit, form, and function) part. The conclusion drawn was that since the parts were equivalent to the original part, no modification was made. The evaluation should have shown that the fit, form, and function were the same and that the new part would not change any of the analysis for the parts. The conclusion that no modification was made (after two parts were modified) is invalid.

PX-USQE-00-1027-A, W56 Dismantlement (U) N56-250168-R Change Request - Screened as Negative. Evaluation completed in 6/00. No comments on USQD.

PX-USQE-00-1295-A, NEEP EO 00-496 Issue A - Screened as Negative. Evaluation completed in 8/00. The discussion does not adequately describe the subject of the USQE. The discussion does not state if this is a new procedure or a revision, does not describe the changes to the procedure if a revision was made or describe the purpose of the procedure, if it is a new procedure, and does not describe how the change/new procedures affect the authorization basis. The reader cannot make the same determination as the author that the USQD is negative.

PX-USQE-01-0087-A, Task PM 4526 Cable Cover 056-2-279 - Screened as Negative. Evaluation completed in 10/00. No comments.

PX-USQE-01-0184-A, Evaluation of Support Screws for Case Removal NEEP ED 00-620 - Screened as Negative. Evaluation completed in 11/00. It is unclear if the USQD was performed against the added screws or the procedure change that implements the additional screws. The discussion references the USQD which originally authorized the use of four screws. The discussion does not provide sufficient information to allow a reviewer to come to the same conclusion as the author.

PX-USQE-01-0390-A, N56-250168-R W56 Dismantlement (U) - Screened as Negative. Evaluation completed in 1/01. No Comments.

PX-USQD-99-071-A, Use of New Tooling for W87 Operations - Evaluated as not a Unreviewed Safety Question and within MHC authority to make changes. Evaluation completed in 7/99. The conclusion that the proposed change would not represent a USQ

was well supported. The change was compared to the accident scenarios and controls developed in the HAR and ABCD and appropriately determined to have no impact. Discussion was in sufficient detail to understand the change and its impact on the existing AB with minimal superfluous information.

PX-USQE-00-531-A, TPCR# 46092, N7-0931-POI - Screened as Negative. Evaluation completed in 3/00. Although the conclusion is probably correct (no impact on the AB), this evaluation lacks sufficient supporting information. For example, the justification for concluding that the issue could be screened from the USQ process in block #5 was "The subject issue involves revising procedure N7-0931-POI in accordance with Technical Procedure Change Request #46092. The procedure was evaluated against the Technical Safety Requirements for Pantex Facilities (TSRs) and programmatic Activity Based Controls Documents (ABCDs)." The only information as to what the change involved was provided in the conclusion. The conclusion discusses a global change involving the replacement of the WES Protector with the WES Cover (different part numbers) that had previously been evaluated, a change in the assembly cart number, and other changes to provide clarification for the technician. The change is then deemed "inconsequential per STD-3014 and MNL-207300." Since inconsequential changes are limited to editorial and typographical errors and additional information provided for clarification purposes, more discussion of the part replacement evaluated previously needs to be provided. If the previous USQ involved more than correcting a part number, the conclusion should be insignificant rather than inconsequential.

PX-SES-99-475, NEEP ED99-579, Issue A - Screened as Negative. Evaluation completed in 8/99. Although the conclusion may be correct, this screen lacks sufficient supporting information. As noted in the "detailed description of issue" this screen involved a NEEP that incorporated the use of the 1 x 24 Web Sling in Building 12-60, Bay 2. Although the discussion provided in the conclusion section notes the CSSM requirement for hoist isolation devices designed to standoff 4 kV, no mention is made of the isolation capability of the 1 x 24 Web Sling being incorporated in the NEEP. Since the issue was deemed inconsequential, it is left to the reader to assume that the Web Sling meets this requirement.

The issue was deemed inconsequential because it "does not alter the intent or method of accomplishing the intent of the procedure as noted in the BIO or affect any safety commitments or controls in the W87 ABCD." Since inconsequential changes are limited to editorial and typographical errors and additional information provided for clarification purposes, more discussion of the incorporation of the 1 x 24 Web Sling in the NEEP is needed. If the the NEEP change involved more than correcting a part number, the conclusion should have been insignificant rather than inconsequential.

PX-SES-99-132, W87 Neutron Generator Gauging - Screened as Positive. Evaluation completed in 1/99. This SES contains two different copies of page 2 of the PX-2629. The first, dated 1/5/99, concludes (correctly, based on the discussion provided) that the unpacking operation is within the AB and a USQ is not required. The second, dated 1/6/99, based on the same information, concludes that the activity represents a new operation and a USQD is required, resulting in the initiation of USQE-99-32. No additional follow-up was performed as USQ-99-32 was subsequently canceled by the originator.

PX-USQE-01-0344-A, Disassembly and Rebuild of W87, NEEP ED00-669 - Screened as Insignificant. Evaluation completed in 12/00. The review included all of the relevant documents (BIO, TSRs, W87 HAR and ABCD). The conclusion that the change is insignificant is probably correct; however, the discussion provided is insufficient to support this conclusion.

PX-USQD-97-055-A, W87 Balancer Product of Inertia Fixture Welded joints - Evaluated as Negative. Evaluation completed in 11/97. This evaluation was performed upon the discovery, through ultrasonic testing, that the weld joints were less than the specified thickness. The AB documents reviewed were the BIO and CSSM. The relevant accident scenarios were adequately determined. However, insufficient information was provided to support the conclusion that the margin of safety was not reduced. The discussion provided simply stated that there was no explicit margin of safety for the welds and that calculations showed that the assembly screws would continue to be the limiting component. Since the weld, at least implicitly, must have provided some safety margin, the safety margin is reduced if the weld is of less than specified thickness. The evaluation should have made some determination as to whether or not this reduction was significant.

PX-USQE-00-1264-A, MC4545 Assembly W87 CR #46683 - Screened as Negative. Evaluation completed in 7/00. As noted in the conclusion, the issue incorporates revised tooling requirements for identifying scribe lines on the forward and aft potting adapters. This is due to an additional scribe line added to the indicators. The issue was considered "inconsequential" because it did not alter the intent or method of accomplishing the intent of the controls listed in the W87 ABCD. No discussion of the relevant controls was provided. Since inconsequential changes are limited to editorial and typographical errors and additional information provided for clarification purposes, this would appear to be the wrong conclusion. Based on the limited discussion provided, the addition of another scribe line to both adapters resulted in a procedure change, which did not (insufficient information provided) result in an impact on the AB. As defined in MNL-207300, this would be an insignificant change.

In many cases the assessment team was not able to evaluate USQEs and Categorical Exclusions reviewed due to insufficient information in the evaluations. There appears to be some improvement in the content of the evaluation over time, however most of the evaluations reviewed still require significant work to be stand alone documents.

The WALs Readiness Assessment (RA) identified a problem with a computer software package used to control portions of the WALs process. The program generated computer screens that, when used as the operating procedure directed, became a portion of the operating procedure. The portions of the procedure generated by the program did not receive a USQ evaluation with the operating procedure. During the WALs RA it was established that the software package would have been evaluated as a component part of the overall system. Based on the appearance of USQ evaluations made for changes to computer software, the conclusion can be reached that personnel are aware of the requirement to perform USQ reviews for changes. However, based on the limited number of evaluations and the type changes evaluated, it is not apparent that all computer packages that should be evaluated are in fact being evaluated.

7. FINDINGS:

The detail provided in many negative screens/evaluations is insufficient to support the conclusion that the AB is not impacted by the proposed change. As defined in MNL-207300, reviewing prior USQD/Es is part of the review process for proposed activities. In addition, USQDs are part of the AB until the AB is updated. Therefore, it is essential that sufficient detail be provided.

8. RECOMMENDATIONS

MHC should reinforce through the initial qualification process and continuing training process the necessity to make each USQ evaluation a stand alone document. Each USQ should have sufficient documentation and detail that someone technically competent but not familiar with the activity can draw the same conclusion as the Evaluator.

9. **ASSESSED BY:** Robert Young **DATE:** 1/31/01
Robert Young, DOE-AAO

Norman Garrett **DATE:** 1/31/01
Norman Garrett, DOE-AAO

10. **REVIEWED/
APPROVED BY:** Norman Garrett **DATE:** 1/31/01
Team Leader, DOE-AAO

CHECKLIST 5-2

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: IMPLEMENTATION

1. CORE REQUIREMENT:

At the Review Team's discretion, select a random sampling of facility, system, and weapons specific Safety Evaluations. Select examples of safety evaluations from the categories listed below.

Changes in the facility as described in the safety analysis report. Focus on significant modifications implemented to the facility or a specific system.

Changes in procedures as described in the safety analysis report. Focus on significant changes to procedures but also select approved procedure changes awaiting implementation. Choose a variety of safety evaluations for changes in procedure from categories such as operations, engineering, maintenance, administrative controls, and health physics.

Tests or experiments not described in the safety analysis report. Focus on safety evaluations for tests performed but also review approved safety evaluations of tests planned for the future.

Review safety evaluation applicability determinations for which the Contractor determined safety evaluations in accordance with the Order 5480.21 were not required. Choose the number and variety of such evaluations to allow a representative sample.

2. REVIEW APPROACH:

The Assessment Team members will perform a document review of selected safety evaluations to determine the overall adequacy of the analysis. The reviewers will ensure the safety analysis is a complete document which allows the reviewer to draw the same conclusions as the initial reviewer. The reviewers will assess the quality, appropriateness, and consistency of the analysis.

3. DOCUMENTS REVIEWED:

- RPT-SAR-199801, "Technical Safety Requirements for Pantex Facilities"
- RPT-HAR-255442, "W56 Hazards Analysis Report"
- ABC-W56-266929, "W56 Dismantlement Activity Based Controls Document"
- PX-USQE-01-0013-A, Change Request number 49151 for NEOP N56-250168-R, Issue O
- PX-USQE-01-0048-A, Task PM 4529 Transport Cover 056-2-280
- PX-USQE-01-0281-A, Change Request 50175
- PX-USQE-01-0390-A, N56-250168-R W56 Dismantlement (U)
- PX-USQE-00-1539-A, N87-250441-LEP, CR48736
- PX-USQE-01-0122-A, Restart of manifold operations following lightning warnings (U)

4. INTERVIEWS CONDUCTED:

- None.

5. ACTIVITIES OBSERVED:

- None.

6. DISCUSSION:

PX-USQE-01-0013-A, Change Request number 49151 for NEOP N56-250168-R, Issue O, Screened as Negative, Evaluation completed 10/00. This USQE evaluated addition of the following note to a W56 disassembly procedure:

"Note: If burrs are on the nylon pushing tool, and does not allow the raising of the plunger, a brass screw driver may be used to remove the burrs."

This USQE concluded (in the Part II screening) that this was an insignificant change "as it involves a procedure change that does not alter the intent or the method of accomplishing the intent of an ABCD controlled procedure." There are four concerns with this USQE:

- (1) This note contains an action step (use brass screwdriver to remove burrs).
- (2) This change appears to alter the method of accomplishing the intent of the procedure by introducing a screwdriver into the process. There is no discussion in the USQE of any current use of the screwdriver.
- (3) The HAR evaluates the drop of the nylon pushing tool onto the weapon. The drop of the screwdriver should logically also be evaluated and documented in the USQE.

(4) Removing burrs could be considered a tooling design change. There is no discussion in the USQE on why it is not.

PX-USQE-01-0048-A, Task PM 4529 Transport Cover 056-2-280 - Screened as Negative. Evaluation completed in 11/00. This USQE evaluates a new preventive maintenance procedure for a W56 Transport Cover. The W56 Transport Cover is called out as a design feature in the W56 ABCD and there is an in-service inspection to verify the W56 Transport Cover is in place when the nuclear explosive is installed in the Transportation Cart. The USQE considered that this was an insignificant change, but this does not meet the definition of an Insignificant Change in MNL-207300.

PX-USQE-01-0281-A, Change Request 50175 - Screened as Negative. Completed in 12/00. This USQE evaluated a change to a W56 dismantlement procedure that involved adding additional hand tools and cleaning solution to the process, as well as adding a clarification note on the use of compressed air. The USQE states that the "subject issue does not affect any of the controls identified in the W56 ABCD, but the limit on the cleaning solution probably has to do with combustible loading, which is mentioned in Administrative Control 5.6.3 (Fire Protection Program) of the Site Wide TSRs, which is referenced in the W56 ABCD. Also, the USQE considered this an insignificant change, which is a misapplication of allowed DOE screening criteria in DOE Order 5480.21 and additional evaluation is appropriate.

PX-USQE-01-0390-A, N56-250168-R W56 Dismantlement (U) - Screened as Negative. Completed in 01/01. This USQE evaluated a change to a W56 dismantlement procedure that involved modification of a piece of tooling (Seal Tester). The USQE concluded that the "subject issue is within the scope of the AB and is considered to be insignificant... The subject issue does not affect any of the controls identified in the W56 ABCD for which credit is taken to reduce the risk of operations." No other USQE exists that evaluates the tooling modification, and the insignificant change screening is not appropriate for a tooling modification.

PX-USQE-00-1539-A, N87-250441-LEP, CR48736 - Screened as Negative. Completed in 10/00. This USQE evaluated a W87 procedure change that added load deflection measurements. Also, the USQE considered this an insignificant change, which is a misapplication of allowed DOE screening criteria in DOE Order 5480.21 and additional evaluation is appropriate. Note, that per the writeup, the subject change may have been covered by a prior negative USQE and could have been screened out of further evaluation.

PX-USQE-01-0122-A, Restart of manifold operations following lightning warnings (U) - Screened as Negative. Completed in 10/00. This USQE evaluated a new procedure written to restart manifold operations for a specific W87 unit that appear to have been interrupted by lightning warnings. Also, the USQE considered this an insignificant change, which is a misapplication of allowed DOE screening criteria in DOE Order 5480.21 and additional evaluation is appropriate.

In many cases the assessment team was not able to evaluate USQEs and Categorical Exclusions reviewed due to insufficient information in the evaluations. There appears to be some improvement in the content of the evaluation over time, however most of the evaluations reviewed still require significant work to be stand alone documents. The majority of the evaluations reviewed were written prior to the program upgrade completed in August 2000.

7. FINDINGS:

The detail provided in many negative screens/evaluations is insufficient to support the conclusion that the AB is not impacted by the proposed change. As defined in MNL-207300, reviewing prior USQD/Es is part of the review process for proposed activities. In addition, USQDs are part of the AB until the AB is updated. Therefore, it is essential that sufficient detail be provided.

8. RECOMMENDATIONS

MHC should reinforce through the initial qualification process and continuing training process the necessity to make each USQ evaluation a stand alone document. Each USQ should have sufficient documentation and detail that someone technically competent but not familiar with the activity can draw the same conclusion as the Evaluator.

9. ASSESSED BY:



Brian P. Jones, DOE-AAO

DATE:

01/31/01

**10. REVIEWED/
APPROVED BY:**



Team Leader, DOE-AAO

DATE:

1/31/01

READINESS REVIEW FINDING FORM

FORM 2

Objective Number: IC	Criteria Number: 5	Finding Number: 1 & 2	Date: 1/30/01
--------------------------------	------------------------------	---------------------------------	-------------------------

Issue:

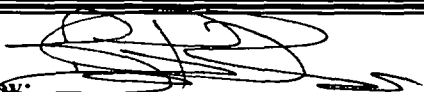

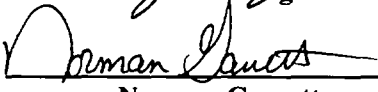

The detail provided in many negative screens/evaluations is insufficient to support the conclusion that the AB is not impacted by the proposed change.

Requirement:

Reference(s) (specific as to section):

Discussion:

The detail provided in many negative screens/evaluations is insufficient to support the conclusion that the AB is not impacted by the proposed change. As defined in MNL-207300, reviewing prior USQD/Es is part of the review process for proposed activities. In addition, USQDs are part of the AB until the AB is updated. Therefore, it is essential that sufficient detail be provided.

Finding Designation: Prestart _____ Poststart _____	Observation _____
Assessed by:  Brian Jones  Robert Young  Norman Garrett Date: 1/31/01	Approved by:  Norman Garrett Date: 1/31/01

Attachment A

Additional Report Comments from DOE Contractor

The following Checklists in the Functional Areas of Procedures, Transfer of Program Ownership, Categorical Exclusions, and Implementation have been attached for completeness. This assessment was performed by Omicron. DOE/AAO contracted with Omicron to perform an ongoing review of the USQ procedure and Categorical Exclusions in August 2000. Omicron updated their assessment of the procedure and the Categorical Exclusions and performed an assessment of various USQs to support the NNSA/AAO USQ Assessment. The conclusions reached by Omicron fully supports the NNSA/AAO conclusions. In addition, Omicron has performed a detailed assessment of the MHC procedure against the DOE Order 5480.21 requirements which are included as recommendations for action for BWXT Pantex.

CHECKLIST 1 - 1A

<p style="text-align: center;">DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM FUNCTIONAL AREA: PROCEDURES</p>
--

1. CORE REQUIREMENT:

Verify that formal procedural guidance has been established for implementing the requirements of DOE Order 5480.21 for proposed physical and procedural changes, tests and experiments to DOE nuclear facilities. At a minimum the procedural guidance should:

- a. define the purpose of the procedure,
- b. set forth the procedure's applicability,
- c. provide definitions of appropriate terms, including those in the Order,
- d. include screening criteria, as appropriate, and the basis for their application,
- e. include detailed guidance on what must be considered and evaluated when performing or reviewing a safety evaluation,
- f. define the qualifications needed and responsibilities of personnel performing and reviewing safety evaluations; and
- g. include documentation requirements for each USQ determination.

2. REVIEW APPROACH:

The Assessment Team members will review the Contractor procedures that implement the requirements of DOE Order 5480.21 and applicable portions of DOE Order 452.2A. The contents of the procedures shall be assessed against the requirements for procedural guidance presented in DOE Order 5480.21 and 452.2A.

3. DOCUMENTS REVIEWED:

As part of the tabletop review and field assessment, the following Pantex procedural guidance was identified, collected, and reviewed:

- STD-3014, *Nuclear Facility and Nuclear Explosive Operations Unreviewed Safety Question*, 7/27/00 and 11/3/00 versions.
- MNL-207300, *Unreviewed Safety Question/Nuclear Explosive Safety (NES) Process for the Pantex Plant*, 11/6/00.

- PX-4633, *New Information Processing Form*,
- PX-2630, *Unreviewed Safety Question Evaluation*
- *Safety Basis Database Process*, AB-0001, 11/22/00
- *Review of the Pantex Authorization Basis Change Control Process*, WSMS, August 1998.
- Project Plan for the Unreviewed Safety Question Program Upgrade, Rev. 0, January 29, 1999.
- STD-3075, *Authorization Basis Review, Approval, and Change Control*, 1/16/01
- STD-3073, *Implementation of Authorization Basis Changes*, 11/16/01
- STD-9045, *Change Control for Class 1 Facility Related SSCs*, 6/15/00
- STD-3071, *Development and Revision of Authorization Basis Documents*,
- MNL-PTX-25543, *Pantex Plant Integrated Safety Management Authorization Basis Manual*, 10/13/00 and 12/22/00 versions

4. INTERVIEWS CONDUCTED:

- USQ Program Section Manager
- Authorization Basis Engineer
- Modifications Engineer
- System Engineering

5. ACTIVITIES OBSERVED:

During the baseline and implementation tabletop reviews several comments and issues were identified (to be discussed in the next section). Based on these comments and issues, additional documentation was obtained, personnel was interviewed (listed in Section 4, above), and further examples that illustrate the understanding of the USQ process and the implementation of the requirements identified in the Pantex Standards, Manual, and implementing procedures were collected, reviewed, and discussed.

These included additional Pantex guidance on AB documentation and equipment/activities change control procedures identified in Section 3 above, new versions of procedures previously evaluated during the Phase I Baseline Assessment tabletop review (i.e., STD-3014 and Manual 207300). As part of the field assessment, personnel from the USQ Program Section Organization (under the AB program), were interviewed to evaluate their knowledge of the existing USQ procedural guidance, and assess more accurately the adequacy of the USQ program within Pantex. Under the existing guidance the USQ Program Section Organization still retains the majority of the responsibilities for USQ evaluations and guidance.

Pantex Site USQ Intranet Web Site was visited, in this site all existing USQE, CEs, and other AB documents formally issued to DOE for review are posted and available for review.

6. DISCUSSION:

MHC implements the requirements of DOE 5480.21, *Unreviewed Safety Questions*, and DOE O 452.2A, (for changes to the orders required authorization basis documents) *Safety of Nuclear Explosive Operations* for the Pantex site through the following documents:

- Plant Standard STD-3014, *Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions*;
- Manual-207300, Revision 3, *Unreviewed Safety Question/Nuclear Explosive Safety (NES) Process for the Pantex Plant Amarillo, Texas*; and
- PX-2630, *Unreviewed Safety Question Evaluation*, November 2000
- PX-4633, *New Information Processing Form*, November 2000
- STD-9045, *Change Control for Class 1 Facility Related SSCs*, 6/15/00
- PX-2630, *Unreviewed Safety Question Evaluation*
- *Safety Basis Database Process*, AB-0001, 11/22/00
- Standing Order FD00-05, 9/14/00

DOE/AAO's review of the MHC-USQ process procedures focused on the faithful implementation of the pertinent requirements of DOE Orders 452.2A and 5480.21, with specific emphasis to the requirements contained within (1) paragraph 8(a) of DOE 5480.21, which requires the development of an implementing procedure to implement the provisions of the order and (2) Chapter III, paragraph 5.0 which provides amplification of the above referenced requirement as follows:

- a. Contractors are required to develop procedures that provide detailed guidance for the performance and review of USQ determinations. At a minimum, the procedures shall define the purpose of the procedure; set forth the procedure's applicability; provide definitions of appropriate terms, including those set forth in this Order; include screening criteria, as appropriate, and the basis for their application; include detailed guidance on what must be considered and evaluated when performing or reviewing a safety evaluation; define the qualifications needed and responsibilities of personnel performing and reviewing safety evaluations; and include documentation requirements for each USQ determination.
- b. The purpose of the procedure should reflect the purpose of the Order and its implementation as defined herein. The applicability of the procedure should set forth the facility(s) to which it applies and the types of change processes to which it applies (e.g., use-as-is nonconformances, corrective actions for violations, procedural changes, and facility changes). If desired, the contractor may elect to develop separate implementing procedures for procedural changes versus facility and administrative changes. If this option is selected, each procedure should provide enough guidance to permit its independent use.
- c. Contractors are expected to provide detailed guidance and instructions on how to perform a safety evaluation. This guidance should include, at a minimum, the information provided in Chapter IV of this guidance document, refined to include the specifics of the

applicable facility. Instructions and a worksheet similar to that provided in Attachment I to this Order are recommended. Again, this information should be adapted to each facility's specific circumstances and needs.

d. The implementing procedures should address the personnel qualifications needed in order to perform or review a safety evaluation. This includes required educational background, years and/or types of work experience, knowledge of the facility, understanding of DOE requirements, and familiarity with the facility authorization basis. Specific responsibilities of those performing or reviewing safety evaluations should be clearly defined.

e. Documentation requirements should also be discussed in the USQ implementing procedures. They should identify the level of detail necessary to document performance of the safety evaluation and conclusions reached; a list of references relied upon to reach this conclusion as well as guidance for the retention of records should also be included. Other items cited for inclusion in the implementing procedures are self-explanatory.

Collectively, the above referenced documents provide and describe the MHC approach/process for the review, preparation, documentation, and approval for nuclear safety and NES authorization basis (AB) safety evaluations (SEs). The procedures provide detailed instructions for performing: (1) prescreens, (2) Safety Evaluation Screens (SES), (3) Unreviewed Safety Question Determinations (USQDs), and (4) identifying categories of proposed activities that can be Categorically Excluded from the USQ process described therein. As such, collectively, the above listed documents not only comply with the requirements of DOE Order 5480.21 and DOE O 452.2A, but the minimum core requirements defined in Section 1 of this functional area, with a few exceptions.

In addition to evaluating the adequacy of the above referenced directives, DOE/AAO's review included assessing the historical significance of the Westinghouse Safety Management Solutions (WSMS) audit recommendations of the Pantex authorization basis change control process, and the actions taken to address the recommendations of such evaluation with respect to improvement or upgrade of the USQ documentation.

The Pantex Site USQ Intranet Web Site is an outstanding tool that allows USQ preparers, reviewers, and auditors access to all approved USQ related documents. This tool was put in place in August 2000, and demonstrates the Pantex commitment to the improvement of the USQ process and creating a database library of AB documents available to the Pantex and DOE community.

7. FINDINGS:

Following is a list of general comments and findings associated with the tabletop review of USQ Standards, Manuals, and Procedures; along with the field assessment of knowledge of the responsibilities, implementation of the USQ Program Section and line organizations

personnel with respect to the procedural guidance in the above identified standards, manuals, and procedures.

General Comments/Findings

The process articulated within the subject documents presents a process that is based on DOE 5480.21. Although, these documents describe a sound management process that includes the requisite checks and balances to ensure a competent review of proposed changes, many elements of this process may not be easily implemented because MHC's AB documents may not facilitate the identification of key safety SSCs (i.e., safety-related and important-to-safety SSCs) as well as key parameters used in the Order to identify changes to the "margin of safety" (i.e., safety limits and limiting control settings). As presented the effective implementation of the MHC USQ/NES paradigm in "real-time" may be overly optimistic at this time.

The USQ Manual is intended to be a "flowdown" from the STD-3014. As such, it is important that all terms be defined consistently so that implementation of the STD's requirements can be achieved effectively through the Manual. In many cases terms are defined differently or different terms are used entirely across the STD and the Manual (i.e., authorization basis, as-found condition, discovery condition, new information, operational event, and safety related). Either the STD or the Manual needs to be revised to present a more consistent approach to the USQ/NES process. (Note: Deficiencies pursuant to specific terms that are germane to both the STD and the Manual are discussed under the aegis of the Manual-207300's Specific Requirements because the list of terms within the Manual is more comprehensive than that contained within the STD.)

The existing standards, manual, and procedures only allow a limited transition of USQ responsibilities to line organizations; thus, line organizations have not incorporated USQ guidance needed to take overall ownership of the program (see Functional Area No. 3, Transfer of Program Ownership, for further discussion).

Specific

Plant Standard STD-3014

Section 3 – The narrative contained within this procedure is not articulated to a level of detail commensurate to complement the information contained within Appendices A through D. For example, Appendix B discusses a "Level A Prescreen" and a "Level B Prescreen;" however, neither of these prescreens are discussed or defined within the body of the procedure.

Section 5 – The definition of safety-related should be defined in terms of safety-class or safety-significant (MHC collectively refers to these SSCs as "critical safety equipment"). Moreover, this term is not used in the Manual.

Manual-207300

Section 2, 3rd paragraph - DOE 5480.21, Ch III, paragraph b(3) identifies a potential USQ condition when new requirements are issued. The statement in this paragraph should be changed to reflect this requirement.

Pg. 21, Section 3.1.2.1, step B, 2nd paragraph – SSCs that impact the safety function of a safety SSC are, by definition, safety SSCs as well. The guidance contained in this paragraph should be revised because it is an inappropriate example and actually describes a potential inadequacy of the safety analysis (PISA).

Pg. 24, Section 3.1.4.2, 2nd paragraph – Minimal uncertainty should be defined quantitatively. In many cases PRA analyses are not reliable to one order of magnitude; hence, the criteria included within this paragraph may be overly simplistic.

Pg. 24, Section 3.1.4.2, 3rd paragraph – DOE 5480.21, Ch IV paragraph 3(e) states that changes within a frequency bin may increase the probability of an occurrence if there is clearly a discernable increase in trend. The procedure should be revised to reflect this requirement.

Paragraph 6(f) – The definition of authorization basis should be expanded to include the DOE O 452.2A documents such as: HARs, NESS, NESRs, and ABCDs.

Paragraph 6(ii) – Based on the definition of Important-to-Safety it is not clear what the relationship of an “important-to-safety” SSC is to “critical safety equipment.”

Paragraph 6(oo) – The relationship of a JCO to a USQ should be included within this definition.

Paragraph 6(ss) – The definition of “limiting control setting” (LCS) should be removed because MHC’s AB documents do not define LCSs.

Paragraph 6(ww) – The definition of “safety limit” (SL) should be removed because MHC’s AB documents do not define SLs.

Paragraph 6(uu) - Although the definition of “margin of safety” is faithful to the DOE 5480.21 definition, it is not clear how the “margin of safety” is identified within MHC’s ABs.

Paragraph 6(fff) – The reference to DOE 5489.21 should be changed to DOE 5480.21.

Paragraph 6 (gggg) – It is not clear why the first two qualifications can be overridden by the fact that the reviewer is administratively assigned to the Authorization Basis Development and Management Business Group. The 3rd criteria should be changed to

state that this reviewer's work would be performed under the direction of the Business Group Manager rather than at the Manager's discretion.

Appendix C – The example provided to demonstrate the concept of “margin of safety” is not applicable to the Pantex plant. Moreover, Pantex TSRs neither includes safety limits (SLs) nor limiting control settings (LCSs).

Appendix D, III, Frequency – These discussions are inconsistent (i.e., an increase in 10% or less as used in the text) with the statements contained within pg. 24, Section 3.1.4.2, 2nd paragraph (see comment number 3 above) which references a one order of magnitude change in frequency as being an appropriate “trigger point” as an increase in the probability of an event. Moreover, DOE 5480.21 uses the phrase “clearly discernable change” and does not use a quantitative margin of change to define the “clearly discernable change”. Furthermore, given the fact that most frequency estimates in AB documents at Pantex are qualitative, it may be difficult to discern an increase of 10%.

Initial evaluation of other identified documents seems to be consistent with the latest revision of the STD-3014 and USQ Manual (e.g., STD-9045), with a few exceptions. For example, while the USQ Process Manual does not require an USQ evaluation (USQE) of a change in the Design Change Proposal (DCP) prior to System Engineering and Configuration Change Control Board (CCCB) review, the Standing Order FD00-05 does. Such inconsistencies need to be fixed to avoid confusion.

Further detail evaluations of these documents will be conducted immediately after the new M&O transition. It seems that line organizations for the most part have not incorporated the requirements of STD-3014 or the USQ Manual into their own procedures for change control or similar documents.

USQ Program Upgrade in Response of the Review of the Pantex Authorization Basis Change Control Processes Recommendations by WSMS

A project plan for the USQ program upgrade in response to the WSMS “Review of the Pantex Authorization Basis Change Control Processes” recommendations was submitted by Mason and Hanger (M&H) to DOE/AAO for funding on January 29, 1999.

A total of eight recommendations were provided, these recommendations were to be implemented in two phases. Implementation of some of the recommendations is still pending additional funding. Several of the recommendations pointed to the need to upgrade of the then existing USQ procedures, training, and overall USQ process, in particular revisions to STD-3014, the USQ Process Manual, and other related documents (i.e., STD-9045), and the guidance provided therein. With respect to the functional area covered by this checklist (Standards, Manual, and Procedures related to the USQ program), newly revised STD-3014 (November 2000), USQ Manual 207300 (November 2000), STD-9045 (June 2000), PX-2630 (November 2000), and PX-4633 (November) have been updated to incorporate most of the recommendations identified by WSMS. A new AB Organization procedure, “Safety Basis Database Process”, AB-0001, November

2000 has also been written to provide guidance on updating changes to the Safety Basis Database (SBDB) including the use of USQ evaluations (PX-2630), and pre-screening evaluations in support of USQ evaluations. Other remaining recommendations deal with other functional areas being evaluated in this DOE/AAO assessment.

Pantex Site USQ Intranet Web Site needs to be continued and supported as a tool, to provide USQ preparer and reviewers alike, a list of up today approved USQ evaluations and AB documentation library. As indicated in the previous section, this is a major improvement in the USQ implementation and upgrade process, worth mentioning. This Web Site along with the new procedure on the Safety Basis Database Process AB-0001, 11/22/00 will provide an outstanding tool on the implementation of the USQ requirements and AB documentation control.

In conclusion, a significant effort has been made with respect to creating and updating existing USQ standards, manuals, and procedures that will comply with the requirements of the DOE Orders 5480.21 and 452.2A, and core requirements identified in Section 1 of this functional area, a few upgrades to such documents are needed, with respect to additional guidance and full transfer of USQ responsibilities to line organizations (to be further discuss under another functional area). Most of the concerns with the existing documents are those related to issues identified in the comments in this section.

8. RECOMMENDATIONS:

Upgrade the existing documents to reflect the comments provided in Section 7 above, and incorporate changes into STD-3014 and USQ Manual that will reflect full transfer responsibilities to line organizations (see Functional Area No. 3, Transfer of Program Ownership for further discussions).

CHECKLIST 3 -1A

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: TRANSFER OF PROGRAM OWNERSHIP

1. CORE REQUIREMENT:

Verify that the contractor has transferred primary responsibility, authority, and accountability for the direction and management of the USQ process to facility line management as required by the DOE/AAO DNFSB Recommendation 98-2 commitment.

2. REVIEW APPROACH:

The Assessment Team members will verify that the primary responsibility, authority, and accountability for the direction and management of the USQ process has been transferred to the appropriate facility line management as required by the Implementation Plan developed to address DNFSB Recommendation 98-2 through document review and personnel interviews.

3. DOCUMENTS REVIEWED:

The following documents were collected and reviewed to determine if the primary responsibility and accountability for the direction of the USQ process has been transferred to the line organizations in charge of the changes and modifications being proposed:

- STD-3014, *Nuclear Facility and Nuclear Explosive Operations Unreviewed Safety Question*, 7/27/00 and 11/3/00 versions.
- MNL-207300, *Unreviewed Safety Question/Nuclear Explosive Safety (NES) Process for the Pantex Plant*, 11/6/00.
- PX-4633, *New Information Processing Form*,
- PX-2630, *Unreviewed Safety Question Evaluation*
- *Safety Basis Database Process*, AB-0001, 11/22/00
- STD-3075, *Authorization Basis Review, Approval, and Change Control*, 1/16/01
- STD-3073, *Implementation of Authorization Basis Changes*, 11/16/01
- STD-9045, *Change Control for Class 1 Facility Related SSCs*, 6/15/00
- STD-3071, *Development and Revision of Authorization Basis Documents*,
- MNL-PTX-25543, *Pantex Plant Integrated Safety Management Authorization Basis Manual*, 10/13/00 and 12/22/00 versions

4. INTERVIEWS CONDUCTED:

- Authorization Basis Staff, Weapons and Facility/Site Engineers
- Authorization Basis Staff, USQ Program
- Facility Managers
- Program Engineers

5. ACTIVITIES OBSERVED:

Tabletop review of existing USQ guidance (i.e., documents identified in Section 3 of this functional area), and previously prepared USQ evaluations; along with interview of personnel previously identified.

6. DISCUSSION:

Tabletop reviews of the STD-3014, the USQ manual, and other identified standards and procedures identified in Section 3 of this functional area clearly indicate the responsibilities of the various organizational Management, Operational, Support, ES&H, and Applied Technology directorates; along with the AB/USQ Support Section under the AB Development and Management (ABD&M) business group, with respect to the USQ program and its implementation. However, the guidance of the Standard and USQ Manual still is not clear with respect to the full transfer of responsibilities for the USQ process, and it seems to leave most of the responsibilities under the AB/USQ Support Section.

In most cases, line organization have been relegated to perform USQ pre-screenings, providing Subject Matter Experts (SMEs), special evaluations, and overall technical support. However, the majority of the USQ responsibility with respect to full evaluations, CEs, and other activities related to the USQ program seem to be under the AB/USQ Support Section. This was even more clear, during the tabletop of USQ evaluations, CEs, USQ screens, along with field assessment and interviews with line organization personnel and the USQ program section personnel, that the transfer of the responsibilities has not fully taken place to the line organizations.

Line organization responsibility at this point lies with the generation of the change package and pre-screening of the USQ only. Line personnel seem to be only trained and certified to perform pre-screens, they are not trained or responsible for actual USQ evaluations. That is, unlike the guidance in the STD-3014 and USQ Manual, the AB/USQ Support Section and ABD&M Business Group are not only responsible for assigning AB custodians, USQ oversight, and support to Facility and Production Managers, but the actual USQ evaluations, CEs, Discoveries and PISA resolutions.

7. FINDINGS:

Currently, the bulk of the USQ responsibilities still lie with the AB/USQ Support Section (under the AB Department). Line organizations have not been able to implement the limited responsibilities identified in the STD-3014 or the USQ Manual. The major complaint is related to the lack of resources to implement such requirements at the line organization level. As stated previously, their responsibilities with respect to the USQ process is very limited at best, i.e., conducting pre-screens and preparing the Design Change Proposals (DCP) or other change packages to be made.

8. RECOMMENDATIONS

Responsibilities for USQ evaluations by line organizations need to be extended in the existing Standard and USQ Manual to include full USQEs and involvement in CEs. Line organizations need to update their procedures for change control packages to include the evaluation of the USQ covering the proposed change. Such evaluations need to be conducted by individuals within the line organizations not responsible for the project itself.

Line organizations need to become more involved in USQ evaluations of their own generated packages. Adequate resources within the line organizations need to be identified and applied to ensure compliance with the DNFSB commitments on transfer of responsibilities for the USQ process. Training needs to be extended beyond preparation of pre-screens, to ensure that line organizations can conduct USQ evaluations, process discoveries and PISAs within their purview.

CHECKLIST 4 - 1A

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION³ PROGRAM

FUNCTIONAL AREA: CATEGORICAL EXCLUSIONS

1. CORE REQUIREMENT:

Verify that the Contractor has properly applied the use of categorical exclusions as a screening criteria as defined in DOE Order 5480.21. Verify that any categorical exclusions taken included a detailed evaluation why the exclusion is acceptable.

2. REVIEW APPROACH:

The Assessment Team members will review the Contractor categorical exclusions to verify that the exclusions are appropriate and properly documented. The review may be conducted by document reviews and personnel interviews.

3. DOCUMENTS REVIEWED:

As part of this assessment all categorical exclusions for the calendar year 2000 were reviewed (see attachment #1, for title/subject of all CEs reviewed). Documents referred by such CEs were collected and reviewed to assess the adequacy of the CEs. Following is a list of such documents:

- PX-USQE-00-CX-12- Attachment A, Fire Department Categorical Exclusions, Author Unknown
- All Categorical Exclusions (CEs) 00-CX-01 through 29, and 01-CX-01, 01-CX-02, and 01-CX-05
- IP-SJ-0629, Fire Department Response to Fires or Fire Alarms, 9/1/98
- IP-SJ-0640, Fire Department Hazardous Material Program and Response to Hazardous Material Releases, 6/16/00
- STD-9513, Response to Hazardous Material Releases, 9/21/00
- IP-SJ-1008, Fire Department Evacuation Drill Program, 5/22/00

4. INTERVIEWS CONDUCTED:

- AB USQ Group

5. **ACTIVITIES OBSERVED:**

The Pantex Site USQ Intranet Web Site was accessed to determine the CEs that have been formally submitted to DOE for review. Additional information to support the CEs was obtained during the field assessment of this functional area (see Section 6 below)

6. **DISCUSSION:**

Background

DOE Pantex provided the DOE/AAO Assessment Team an early package that contains several groups of documents identified by MHC for Categorical Exclusions (CE) at the Pantex operations; this package included CEs prepared for the calendar year 2000 (to September 2000). Additional CEs for 2000/2001 were obtained with the help of the USQ Intranet Web Site.

The groups were developed by MHC in accordance with the USQ Upgrade Project Plan and were evaluated under the MHC Pantex Unreviewed Safety Question Evaluation (USQE) process, as developed in procedures Pantex STD-3014 and Pantex MNL-207300 referenced above. During the months of September DOE/AAO conducted a tabletop review of the USQEs prepared and submitted to DOE for review at that time, and the list of subject documents to verify the appropriateness of the evaluations to determine whether the work scope meets the requirements against DOE Order 5480.21. The early package contained USQEs numbered from CX-01 through CX-21.

Review Criteria

The DOE/AAO Assessment Team review of the MHC CEs groups focused on the proper implementation of the pertinent requirements of DOE Order 5480.21, *Unreviewed Safety Questions*, and the application to the USQ process used by MHC. The review placed specific emphasis on DOE 5480.21 sections 10.a, 10.b, and 10.c and the Scope of application defined in the Order, Section 3. As stated in the Order, the USQ process is defined as being applicable only to nuclear facilities. In particular, the DOE Order permits the operator to evaluate specific items or procedures for categorical exclusion against the existing Authorization Basis (AB). CE items are those items, which have been determined to have no significant safety and are exempt from the USQ process. It is generally understood that items that are not explicitly included or implied in the AB are exempt from the USQ process.

As each CE package only contained a list of documents, the categorical exclusion assessment (as part of the tabletop review) was based on the assumed subject material of the document (e.g., document title, associated program application, such as routine maintenance, etc.). The document was also evaluated to determine if it was subject to a nuclear facility or to a safety-related program as identified in the AB.

Review Comments

Consideration should be given to restate the definition in Item I, *Categorical Exclusions*, in the procedure MNL-207300 to ensure that the USQ process is only applicable to the entities covered under the AB and for nuclear facilities. For example, in many cases the documents listed in the MHC USQE packages are not relevant to the Pantex AB, as such, they are not applicable to the USQ process.

A properly developed prescreening process in the MHC - USQE procedure (per Section 10.b of DOE 5480.21) would allow for a quick determination that an item is exempt from the USQ process, as opposed to the long and lengthy evaluation currently prescribed, which could lead to a misapplication of the process. One method to consideration to rectify this concern would be to apply a procedure category definition box on the cover page of each procedure, which clearly identifies the use of the procedure. The box would be part of the procedure development process and would provide the user/developer instant knowledge on the document for its intended purpose.

It is not clear that Categorical Exclusions (CE) could be applied to the activities or changes covered by a few of the USQE packages, some of these activities correspond to nuclear facilities or NES activities that are clearly covered by safety control identified in AB documents for such facilities or activities. Additional information is needed to complete the assessment of the application of CE to such activities/changes.

The attached table provides a summary assessment of the individual MHC-USQE packages provided in September of 2000 for DOE/AAO review (00-CX-00 through 00-CX-21).

7. FINDINGS:

After the initial review of the CEs (00-CX-01 through 00-CX-21), further review of selected documents to support these CEs, collection and review of the rest of the CEs completed during the calendar year 2000, and the few completed and submitted to DOE/AAO for review, the following conclusions can be made:

In some cases, the USQ/NES process has been unnecessarily applied to activities/changes that are inherently beyond the scope of the process. The USQ program section personnel feel that such application is warranted given the scrutiny of the DOE reviews. However, it is the DOE/AAO assessment team opinion that such evaluations indicate, the need for pre-screening guidance for CEs, to help alleviate the spenditure of resources in areas that may be clearly outside the USQ process (e.g., non-nuclear facilities or activities), and thus allowing such resources to be used in other areas that may need more support.

Application of CEs to some of the proposed activities/changes is highly questionable, based on the information provided in the USQEs, in most cases additional information was required to make such determination, e.g., CX-12, CX-13, CX-15, etc. This points to the

lack of proper documentation provided by early CEs; that is, the first set of the CEs (i.e., up to 00-CX-21) in most cases lacked the adequate documentation to allow a reviewer to come to the same conclusion. Example of this was 00-CX-12, in which additional information was needed, along with separate technical justification for the CE (not included in the CE evaluation). It is important to indicate that newer CE evaluations do show an improvement of the quality of the documentation and overall adequacy of the evaluation.

Based on the review of the 00-CX-12 package and associated reference documents, it seems clear that at least the procedure on Fire Department Response to Fires and Fire Alarms (IOP-SJ-0629) should not have been categorically excluded. Even though, the procedure does not impact surveillance activities associated with fire suppression SSCs (covered by TSRs), it does identify specific remedial actions with respect to “activation of installed fire protection systems” if explosives are assumed to be burning (Warning identified in Section 3.2.4 of such procedure). By categorically excluding this procedure, fire department personnel may mistakenly change the response to such conditions without having to perform an USQ evaluation.

8. RECOMMENDATIONS:

Even though, noticeable improvements are seen in the latest CEs, additional improvements can be made to the CE evaluations, following are some recommendations that need to be considered:

Additional guidance on CEs needs to be provided to prevent the evaluation of changes or modifications clearly outside the scope of the USQ process, thus saving valuable resources for more needed evaluations

It seems that once again the USQ Program Section is completely responsible for the CEs evaluations. Even though, such support is highly desirable due to their expertise, line organization involvement needs to be included as part of such evaluations. Many of the CEs reviewed and evaluated did not indicate line organization involvement in the assessment (at least formally).

It is clear from the interviews and tabletop reviews, that it is not the intend of the CE to include controls that may impact safety; however, it is highly advisable that any procedure that deals with safety programs covered by TSRs and that may include controls (preventive or mitigative actions) that could potentially impact the outcome of a scenario (fire response to explosives on fire), that such procedures be excluded from the CE list.

Further independent review of the CEs identified in this assessment as needing further information, needs to take place by the contractor and DOE/AAO after the new M&O transition takes place.

USQE	Subject/issue	Comments/Remarks
None	Upgrade Project - List of Potential Non-Safety Basis (SB) Procedures	In particular almost all of these documents in this list are not safety-related and are not enveloped by the AB. They are clearly outside the scope of the DOE 5480.21 USQ process; thus, no categorical exclusion is required.
CX-01	1) Routine business and management documents list (List in Attachment)	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-02	1) Routine chemical (non-nuclear documents (List in Attachment)	Additional information is needed. The subject procedures identified in this USQE merit categorical exclusion listing as defined in DOE 5480.21 except for 1) STD-344, and 2) STD-3486. These STDs appear to be elements covered under the Emergency Response Program, TSR Administrative Controls, section 5.6.15 and includes the associated program procedures. The PANTEX AC does not establish any specific controls or identify specific elements of the ERP. Insufficient information was provided in the CE USQE for these two procedures to determine if they merit CE.
CX-03	1)Procedures for preparation of materials for disposal (List in Attachment)	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-04	1) Routine HE (non-nuclear) documents (List in Attachment)	No categorical exclusion is required; documents are outside the scope of DOE 5480.21 USQ process. These documents are not safety related.
CX-05	1) Routine standard industrial activity documents (List in Attachment)	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-06	1)Routine non-nuclear safety documents (List in Attachment)	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-07	1) B61 test bed assembly and disassembly, and component reacceptance activities, only in Buildings 12-86 and 12-42. 2) Select procedures for the same activities (List in Attachment).	Additional information is needed. The subject procedures identified in this USQE may merit categorical exclusion as defined in DOE 5480.21. Buildings 12-86 and 12-42 (excluding north vault) are not included in the AB. However, it must be clear that although these procedures apply to test beds, the same activities can also apply to live weapons. The subject procedures must be applicable <i>only</i> to test assemblies as stated.
CX-08	1) Engineering walkdown activities. 2) Parts of <i>Walkdown Process Manual</i>	Additional information is needed. The subject procedures identified in this USQE merit categorical exclusion listing as defined in DOE 5480.21 except for 1) STD-

USQE	Subject/issue	Comments/Remarks
	(MNL00033) except Sections 3.3 (a) and (b).	344, and 2) STD-3486. The walkdowns include activities that may involve nuclear facilities.
CX-09	Routine maintenance activities, such as calibration, refurbishment replacement with equivalent component, and housekeeping.	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-10	1) Routine support and maintenance activities for Information Technology Services.	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-11	1) Select Security Forces procedures and STDs (List in Attachment)	Additional information is needed. No categorical exclusion is required, these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related, except possibly for procedures: IOP-SJ 0456, STD-7-5000, STD-7-5638.1, STD-7-5650, and STD-4841 which appear to be procedures that are general safety requirements procedures. However, there is insufficient information provided in the USQE to determine if these particular procedures merit CE.
CX-12	1) Fire Department procedures (List in Attachment).	Additional information is needed. It is assumed that the Fire Department is an element of the Fire Protection Program, TSR Administrative Controls, Section 5.6.3 and includes the associated program procedures. Normally credit is taken for a FD response as a defense-in-depth feature. The PANTEX AC has a control that includes "establishes and maintaining Fire Department Response criteria". A CE cannot be assumed applicable for these procedures, as they are important in the performance of the stated AC.
CX-13	1) Selected ESH&Q procedures, standards, and manuals (List in Attachment).	Additional information is needed. It is assumed that the listed ESH&Q documents in this CE are elements of either the Quality Assurance Program, the Emergency Response Program, and the Procedures Program, TSR Administrative Controls, sections 5.6.1.4, 5.6.15, and 5.6.17, respectively, and includes the associated program procedures. The PANTEX AC does not establish any specific controls or identify specific elements of these AC programs. A CE is assumed applicable for the procedures except for P7-0050, and P70034 where insufficient information was provided in the USQE for these procedures to determine if they merit CE.

USQE	Subject/issue	Comments/Remarks
		Both of these procedures can apply to nuclear explosive activities.
CX-14	1) Readiness assessment activities. 2) The associated STDS and Manual (List in Attachment).	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-15	1) Std 7-0809.5, <i>Non Destructive Evaluation Radiography Safe Operating Requirements</i> . 2) Procedure P7-0821.4, <i>Linear Accelerator Operations in Building 12-84, Bays 1 and 10</i> .	These procedures may apply to Building 12-84, which is a nuclear facility. Bay 10 is covered by a JCO and by a SER. The LINAC is a radiation hazard that is covered under TSR AC 5.6.11(4). These procedures cannot be CEs per the AB. Also there was insufficient detail provide in the USQE to merit such determination.
CX-16	Safeguards Department procedures and standards for routine 1) serial verification program, 2) tampering indicating device, 3) facility physical inventory program, 4) physical count program, 5) daily admin check program (List in Attachment).	Additional information is needed. These documents merit CE <i>only if</i> it is certain that they are applicable to mockups and not applicable to real weapons activities. If they are applicable in the dual role then they involve nuclear facilities and/or activities and do not merit CEs. Also there was insufficient detail provide in the USQE to merit such determination.
CX-17	Select Emergency Management procedures and standards (List in Attachment).	These procedures are covered under the Emergency Response Program elements, TSR AC section 5.6.15. Also as such, they also involve actions that may involve the nuclear facilities. Most of these procedures merit CE except for EPP-1004, EPP-1011, EPP-1012, EPP-6001, EPP-8001, EPP-8004. These specific procedures appear pertinent to facilitating and supporting a proper defense in depth measure to protect the workers and public. These procedures should be evaluated for the impacts to the ERP. Normally the ERP is identified as a control to mitigate accident scenarios. Also there was insufficient detail provide in the USQE to merit such determination for these specific procedures.
CX-18	1) B61 JTA assembly, testing, and disassembly in Building 12-104	No categorical exclusion is required; documents are outside the scope of DOE 5480.21 USQ process. These documents are not safety related.

USQE	Subject/issue	Comments/Remarks
	(mockups). 2) Select procedures for the same activities (List in Attachment)	
CX-19	Routine activities by general craft and professional skills 1) custodial in the Material Access Area, 2) grounds and yard work, 3) movement of office or real property in or out of a facility or zone, and 4) VIP and official tours.	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.
CX-20	1) IOP-FO-1049 and STD-5016 [except Sections 3.2.1 (10) and (11), 3.2.2, 3.2.4, and App. E]	The subject procedures identified in this USQE merit categorical exclusion listing as defined in DOE 5480.21
CX-21	Plant Telephone Services routine support and maintenance activities.	No categorical exclusion is required; these documents are outside the scope of DOE 5480.21 USQ process and are not safety-related.

CHECKLIST 5-1A

DOE REVIEW OBJECTIVES AND CRITERIA ASSESSMENT FOR THE PANTEX PLANT UNREVIEWED SAFETY QUESTION PROGRAM

FUNCTIONAL AREA: IMPLEMENTATION

1. CORE REQUIREMENT:

At the Review Team's discretion, select a random sampling of facility, system, and weapons specific Safety Evaluations. Select examples of safety evaluations from the categories listed below.

Changes in the facility as described in the safety analysis report. Focus on significant modifications implemented to the facility or a specific system.

Changes in procedures as described in the safety analysis report. Focus on significant changes to procedures but also select approved procedure changes awaiting implementation. Choose a variety of safety evaluations for changes in procedure from categories such as operations, engineering, maintenance, administrative controls, and health physics.

Tests or experiments not described in the safety analysis report. Focus on safety evaluations for tests performed but also review approved safety evaluations of tests planned for the future.

Review safety evaluation applicability determinations for which the Contractor determined safety evaluations in accordance with the Order 5480.21 were not required. Choose the number and variety of such evaluations to allow a representative sample.

2. REVIEW APPROACH:

The Assessment Team members will perform a document review of selected safety evaluations to determine the overall adequacy of the analysis. The reviewers will ensure the safety analysis is a complete document which allows the reviewer to draw the same conclusions as the initial reviewer. The reviewers will assess the quality, appropriateness, and consistency of the analysis.

3. DOCUMENTS REVIEWED:

As indicated in Section 2 above, several randomly selected design packages, USQEs and pre-screens were selected for review and evaluation. These included:

- DCP-9900144, *Replacement of Detronics Batteries*, PX-2881 Form, 12/8/00
- DS-IOP-1049H, *Worker Order Instructions for 12-104 Replacement of Batteries on La March Equipment*, 12/07/00
- *Install Waterflow Switch and Bell in Office and Breakroom*, 12-104, No. 97012991, 9/25/98.
- PX-SES-99-544, *Fire Alarm and Public Address Circuit Routing*, Patricia Walsh, 9/21/99
- DCP-9900033, *Fire Alarm Replacement*, 2/18/98
- USQD for FPU, *email from Kari Hamarick to John Jennings*, 9/15/99
- PX-USQE-00-1332A, *Adding Flammable and Lighting Control to N87-250538*, Brenda Davis, 9/28/00
- PX-USQD-99-053-A, *Capping Den Shower Drains/Cell Gap Issue*, Patricia Walsh, 5/6/99
- *Pre-Screen to Change to STD-1040*, W. Crumpler, 9/13/00
- PX-USQD-98-005-A, *Relocate Fire System Batteries*, Julie Kaczmareck, 4/11/97
- PX-USQE-01-0152, *Remove Existing Pressure Pump From the Sprinkler Riser in 12-58 Equipment Room*, Waseem Khan, 9/28/00
- PX-USQE-01-0365-A, *Offsite Transportation Certificate (OTC) Discovery Condition*, Patricia Walsh, 11/14/00
- PX-USQE-01-0396, *Unbonded Penetration Discovery Condition*, David Nester, 11/14/00
- PX-USQE-01-1375-A, *Lightning JCO and BIO Discovery Condition or PISA*, David Nester, 9/28/00
- PX-USQE-01-0220-A, *Change to the TSR Containing the LCO 3.4.6, Deluge Fire Suppression (UV Detector Activation)*, Steve Ufford, 9/28/00
- PX-USQE-00-871A, *UV Reactivation Construction Project: Panel Modifications*, Jeff Hancock, 4/11/00
- PX-USQE-00-791A, *Installation of Drop Nipples for Deluge Nozzles*, Blause Brooks, 4/11/00
- PX-USQE-01-0303-A, *Bay 1 through 8: Replace the Existing 65 AH batteries (total of six) with four 75 AH batteries*, William Crumpler 11/14/00
- PX-USQE-00-CX-12- Attachment A, *Fire Department Categorical Exclusions*, Author Unknown
- USQD for FPU, *email from Kari Hamarick to John Jennings*, 9/15/99
- PX-USQE-00-1332A, *Adding Flammable and Lighting Control to N87-250538*, Brenda Davis, 9/28/00
- PX-USQD-99-053-A, *Capping Den Shower Drains/Cell Gap Issue*, Patricia Walsh, 5/6/99
- *Pre-Screen to Change to STD-1040*, W. Crumpler, 9/13/00

- PX-USQD-98-005-A, *Relocate Fire System Batteries*, Julie Kaczmareck, 4/11/97
- PX-USQE-01-0152, *Remove Existing Pressure Pump From the Sprinkler Riser in 12-58 Equipment Room*, Waseem Khan, 9/28/00
- PX-USQE-01-0365-A, *Offsite Transportation Certificate (OTC) Discovery Condition*, Patricia Walsh, 11/14/00
- PX-USQE-01-0396, *Unbonded Penetration Discovery Condition*, David Nester, 11/14/00
- PX-USQE-01-1375-A, *Lightning JCO and BIO Discovery Condition or PISA*, David Nester, 9/28/00
- PX-USQE-01-0220-A, *Change to the TSR Containing the LCO 3.4.6, Deluge Fire Suppression (UV Detector Activation)*, Steve Ufford, 9/28/00
- PX-USQE-00-871A, *UV Reactivation Construction Project: Panel Modifications*, Jeff Hancock, 4/11/00
- PX-USQE-00-791A, *Installation of Drop Nipples for Deluge Nozzles*, Blause Brooks, 4/11/00
- PX-USQE-01-0303-A, *Bay 1 through 8: Replace the Existing 65 AH batteries (total of six) with four 75 AH batteries*, William Crumpler 11/14/00
- PX-USQE-00-CX-12- Attachment A, *Fire Department Categorical Exclusions*, Author Unknown

Also specific standards and manuals covering changes to AB documents, change control, and safety related SSCs were collected and reviewed. These standards included:

- STD-9045, *Change Control for Class 1 Facility Related Structures, Systems, and Components*, 6/15/00
- STD-3073, *Implementation of Authorization Basis Changes*, 1/16/01
- STD-3075, *Authorization Basis Review, Approval, and Change Control*, 1/16/01
- STD-3014, *Nuclear Facility and Nuclear Explosive Operations Unreviewed Safety Questions*, 11/3/00
- MNL-207300, *Unreviewed Safety Question (USQ) Nuclear Explosive Safety (NES) Process*, 11/6/00
- STD-3071, *Development and Revision of Authorization Basis Documents*, 1/15/01

4. INTERVIEWS CONDUCTED:

During both baseline and implementation assessment of the adequacy of the USQEs performed to support both facility and nuclear weapon operations changes, personnel in charge of the USQ program section and member staff, AB Department, and USQ evaluators in line organization were contacted and interviewed. These individuals included:

Authorization Basis USQ Personnel
 Modifications Engineer
 System Engineer

5. **ACTIVITIES OBSERVED:**

No actual facility or nuclear weapon operations were observed.

6. **DISCUSSION:**

The requirements found in the STD-3014, USQ Manual, and other standards identified in Section 3 of this functional area, seem to be adequately implemented to proposed change packages, with a few exceptions noted during previous functional areas (i.e., transfer of responsibilities and CEs) and findings in Section 7 of this functional area.

A list of all 1998-2000 fire alarm/suppression related DCPs was obtained and a few random change package were evaluated, these included:

- DCP 97012991, Installation of a Waterflow Switch of the Suppression Systems, 9/25/98
- DCP 9900144, Replace Detronics Batteries, 9/6/00

Also a list of 2000 and 2001 USQEs for W87 was obtained, a random USQE was selected for further assessment. Other randomly selected USQEs were also identified and evaluated (See list in Section 3 of this functional area).

Initially a "tabletop" review of the application of the MHC's protocols to assess the adequacy and application of the USQE to change packages was performed. A field assessment/audit of MHC's USQ process that included interviews of the Pantex USQ Program Section organization, and selected line organizations USQ responsible individuals, and a field assessment of the adequacy of randomly selected USQ evaluations, against the original proposed modifications and changes. It was noticed that during these tabletop reviews of USQEs, that the lack of thorough documentation of the proposed change and rational for answering each of the USQ questions resulted in being able to quickly come to the same conclusions that the USQ. Only, after significant review of the original change package and understanding of the AB documents, agreement on the overall conclusions can be reached.

During the field assessment and interviews it was clear as indicated during the discussion of previous functional areas (i.e., transfer of responsibilities, and CEs), that ownership of the USQ process lies within the USQ Program Section of the AB Organization, the line organizations are only responsible for the preparation of pre-screens for change packages. During the review of the standards and manuals identified in Section 3, design change packages, and USQEs, it was noticed that while the change control process is somewhat mature for facility changes, still has a long way to go for nuclear explosive activities.

Major modifications to facility SSCs are not entered formally into the USQ process, they seem to be directly submitted to DOE for review and approval without a formal USQE and sometimes recording. Also, it seems that there is some concerns about the use of USQEs for

draft reports and changes, while the line organizations do not feel that such evaluations are necessary at such early stages of the reports, other organizations having oversight of such changes feel very strongly about the implementation of USQE at the early stages of such medications. This illustrates the need for further guidance and training with respect to the implementation of USQEs to change packages and draft reports.

With respect to the implementation of CEs for changes to SSCs, at least the process seems to be applied correctly, with a few exceptions noticed in the functional area under CE. In the sense that CEs are not applied to changes to SSCs or changes in which safety controls are being impacted.

7. FINDINGS:

Random review of the USQE packages, indicate that early (prior to year 2000) USQEs lack documentation to allow an independent reviewer to conclude that the overall conclusions of the USQEs are correct. Later USQEs (2000-2001) seems to be improving with respect to documentation and overall evaluation.

A change control process similar to that for facilities needs to be quickly implemented for nuclear weapons operations.

The lack of concise and thorough evaluation of hazards and potential accident scenarios in facility AB documentation at Pantex creates a challenge for USQ evaluators to correctly assess the existence of a positive or negative USQ (answering of the seven questions in the USQE). That is, it is relatively hard to assess if the proposed changes will increase the frequency, consequences, or the margin of safety documented in the existing facility AB documents.

With respect to discoveries (USQE-01-0396 and USQE-01-0365), it seems that at least for the USQEs reviewed that the evaluations are adequately documented and the conclusions seem to be consistent with the found/discovery condition. The USQE for a nuclear explosive operation, i.e., USQE-00-1332A for W87 on adding flammable and lighting controls to N87-250538 lack documentation to support the conclusion that the proposed change is an “insignificant change” to the procedure. That is, the author needs to concentrate in providing a rational for the conclusions reached, instead of just checking the Yes or No boxes in the USQE.

8. RECOMMENDATIONS

- All facility and nuclear explosive operation changes must enter the USQ process formally, including major DCPs
- USQEs need to continue enhancing the documentation and rational provided to support the overall conclusion, instead of limiting pretty much to checking the boxes Yes or No. This will allow independent reviewers to come to the same conclusions.

- As previously indicated in the transfer of responsibilities, the line organizations need to be drawn in the USQE and if possible have them prepare the USQE themselves.
- A significant effort needs to be made to improve the current facility AB to allow USQ evaluators to judge the potential for an USQ, by providing a more comprehensive and quantitative evaluation of hazards, controls/adequacy, and frequency/consequences of evaluation basis accidents.

S E P A R A T I O N

P A G E

United States Government

Department of Energy

memorandum

RECEIVED
 01 FEB -6 PM 3:23
 DNF SAFETY BOARD
 DNF SAFETY BOARD

Albuquerque Operations Office
 Amarillo Area Office

DATE: JAN 19 2001

REPLY TO
ATT. OF: AAO:ABS:NPG

SUBJECT: Final Submittal of Enhanced Transportation Cart Project Plan in Response to DNFSB Recommendation 98-2 Commitment 4.3.7

TO: Richard E. Glass, Manager, Albuquerque Operations Office

Reference:

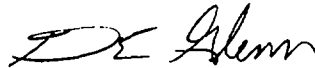
- 1) Transmittal, Richardson/Conway, *Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant (Board Recommendation 98-2)*, dated September 25, 2000
- 2) Letter, Glass/Conway, *DNFSB Recommendations Five Deliverables Due in October*, dated October 31, 2000

In the revised implementation plan to meet the Defense Nuclear Facility Safety Board (DNFSB) Recommendation 98-2, Commitment 4.3.7 (Reference 1), the Department of Energy (DOE) committed to deliver a plan to design, fabricate and use transportation carts to protect partially assembled nuclear weapons. This commitment was due to the DNFSB by the end of October 2000. On October 31, 2000 (Reference 4), the Amarillo Area Office (AAO) submitted to the DNFSB the Phase I Project Plan for the Enhanced Transportation Cart (ETC). AAO conditionally approved this project plan as a partial submittal. The Phase I project plan included the Work Breakdown Structure and the work activities that are required to accomplish the design, fabrication, and fielding of the carts but did not provide an actual schedule to accomplish this task. AAO tasked Mason & Hanger Corporation (MHC) to provide a revision to the project plan to fully satisfy the 98-2 Commitment 4.3.7. AAO has received and approved the revised project plan. The Phase II project plan includes a detailed project schedule for development and fielding of the ETC. This schedule fields the ETC for nuclear explosive partial assemblies in November 2002 and the ETC for physic packages in November 2003. AAO has tasked MHC to aggressively pursue improvements to the schedule to obtain production carts as soon as practical.

The design, fabrication, and implementation of the ETC is a complex task utilizing a variety of inputs. The Project Team consists of engineers and scientists from MHC, DOE AAO, and the three national laboratories. The actual design function of the ETC will be performed by MHC. A conceptual design has been completed which utilizes two carts. ETC 1 will be used to transport the various partial assembly configurations of the weapons systems in the active stockpile (B61, B83, W62, W76, W78, W80, W84, W87, and W88).

ETC 2 will be used to transport the physics packages of the weapons systems in the active stockpile. Two programs will not be considered for use with a new cart, the W56 and W79. Both programs are scheduled to be completed in the near term. The B53 is not currently considered for any transportation activity. The national laboratories will provide weapons response for the systems that are transported in the carts and provide other design analysis as required. The laboratories are also providing analysis for the systems scheduled for near term completion which will be not transported in an ETC. The project plan includes the analysis activities required to insure transportation of W56 and W79 partial assemblies can be performed within established guidelines. Fabrication of both the prototype and production carts will be competitively bid. MHC and the national laboratories will perform the acceptance testing for the proof-of-concept prototype cart. MHC will perform all receipt inspections of production carts. The Pantex Plant authorization basis documents will be revised prior to production use of the carts.

If you have any questions, please contact Norman Garrett of my staff at extension 3128.



Daniel E. Glenn
Area Manager

2 attachments

cc:

K. Boardman, DOE-AL/WPD

cc: w/o attachment

D. Brunell, AAO

K. Waltzer, AAO

N. Garrett, AAO

L. Eppler, MHC

File: 01-006npg.

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: JAN 19 2001

REPLY TO
ATT. OF: AAO:ABS:NPG

SUBJECT: Approval of Pantex Plant Enhanced Transportation Cart Preliminary (Phase II) Project Plan

TO: Larry L. Eppler, Senior Technical Advisor, Mason & Hanger Corporation (MHC)

Reference: Letter, Eppler/Brunell, *Pantex Plant Enhanced Transportation Cart Preliminary (Phase II) Project Plan*, dated January 17, 2001

The Amarillo Area Office (AAO) has reviewed the subject transmittal and approves the transmittal. This revision of the project plan includes the compressed schedule as discussed during the December 21, 2000 meeting between Mason & Hanger Corporation (MHC) and the Amarillo Area Office. AAO believes that further reductions in schedule lengths can be achieved throughout the Enhanced Transportation Cart development and fielding cycle. MHC is tasked with aggressively pursuing improvements in the cycle to allow fielding a production transportation cart as early as August 2002.

Please provide your analysis of the impact of refining the Enhanced Transportation Cart development and fielding cycle schedule to reduce the time required to deliver the production carts as early as August 2002 and notify this office, in writing, within five (5) working days, if your analysis reveals that the cost impact is of a magnitude that requires revision to a Work Authorization Directive (WAD) or contract line item. In your analysis, please review other WADs and provide a recommendation(s) of work that could be delayed, with impacts, to allow for shortening the development and fielding cycle.

If you have any questions, please contact Norman Garrett of my staff at extension 3128.


Donald C. Brunell
Authorization Basis Staff Manager

cc:
K. Waltzer, 12-36
N. Garrett, 12-36

File: 01-005.npg

**Pantex Plant
Enhanced Transportation Cart
Preliminary (Phase II)
Project Plan**



**Rev. G
January 18, 2001**

Prepared by:

**AB Development & Management Business Group
Mason & Hanger Corporation
a Subsidiary of
Day & Zimmerman, Inc.**

Change History

REVISION	DATE	SUMMARY
<i>A</i>	<i>October 2000</i>	<i>Original Issue (Phase I)</i>
<i>B</i>	<i>October 2000</i>	<i>Technical Advisor Review Comments Incorporation (Phase I)</i>
<i>C</i>	<i>October 2000</i>	<i>DOE/AAO Review Comments Incorporation (Phase I)</i>
<i>D</i>	<i>January 2001</i>	<i>Upgrade Plan with Compressed Schedule and Resources (Phase II)</i>
<i>E</i>	<i>January 2001</i>	<i>Incorporation of MHC Internal Review Comments (Phase II)</i>
<i>F</i>	<i>January 2001</i>	<i>Incorporation of DOE Review Comments (Phase II)</i>
<i>G</i>	<i>January 2001</i>	<i>Incorporation of DOE Review Comments (Phase II)</i>

Table of Contents

1.	Introduction	3
1.1	Project Scope	3
1.2	Background and Prior-Years Effort	4
1.3	FY2001 and FY2002 Planned Effort	5
1.4	Out-Years Planned Effort	47
2.	Project Cost	48
3.	Risk Assessment	49
4.	Project Control and Reporting	50
4.1	Change Control	50
4.2	Reporting	50
5.	Project Schedule	51
5.1	Deliverables and Milestones	51
5.2	Project Tasks	53
	Appendix A, ETC Project Schedule	54

1. Introduction

The purpose of the Transportation Module is to identify and evaluate all hazards and established controls for all transportation activities between cells and bays in Zone 12, transportation in Zone 4, and transportation between Zone 4 and Zone 12, including loading and unloading operations. The facilities evaluated in the Transportation Module include the ramps, corridors, docks and roads. The Transportation Module is to be written in three phases. Phase One covers the transportation of full-up Nuclear Explosives Assemblies in shipping configuration. Phase Two includes the transportation of all partial configurations. Phase Three will cover the shipment of Nuclear Material.

As part of the second phase, an Enhanced Transportation Cart (ETC) will be designed, fabricated and utilized as a control in the transportation of nuclear explosives not in full-up shipping containers (UU Packages). The ETC will be designed from criteria developed from environments in the existing hazards analysis, *Pantex Plant Transportation BIO Hazards Analysis For Weapons in Ultimate User (UU) Shipping Configurations*, RPT-SAR-292268, August, 2000.

The ETC Project addresses known weaknesses in the design of carts used to transport partially assembled nuclear weapons (partial assemblies). Partial assemblies are the primary assembly of a nuclear weapon (i.e., the pit and the main explosive charge), which are not in the full-up weapon configurations. These assemblies are commonly moved in the ramps between bays and cells in MHC designed transport carts.

The project plan will be developed in four phases. Phase One is the Preliminary Plan (Phase I), which develops the Work Breakdown Structure (WBS) and define the activities and durations for accomplishing the work. Phase Two will revise the Preliminary Plan to include the project schedule and costs. Phase Three will be the update of the plan based on the Conceptual Design Report (CDR). Phase Four will be to update the plan using the information in the Final Design Report (FDR).

1.1 Project Scope

The scope of the ETC Project Plan is to prepare a conceptual design, prototype test, prepare final design, fabricate and incorporate the ETC into operations. Following incorporation, a Nuclear Explosives Safety Study, Technical Assist, Contractor Readiness Assessment and DOE Readiness Assessment will be conducted to ensure readiness and complete the

implementation. The scope of the project also includes the effort to develop, maintain and update the ETC Project Plan including project management and status reporting.

The project effort is divided into five components in the WBS: (1) project management including developing and updating the project plan, (2) establish the ETC design criteria, (3) design and procure the ETC, (4) qualify weapons configurations, which will not use the ETC, and (5) incorporation of the ETC into operations at Pantex. Each area will be separately addressed by this plan.

1.2 Background and Prior Years Effort

In FY1999 a Transportation Project Team (PT) was formed to develop the Transportation BIO Upgrade Module at Pantex. The PT will upgrade the existing Basis for Interim Operations (BIO) with a hazard analysis and derived common controls for transportation activities. Development of the BIO will implement the Integrated Safety Process (ISP) through co-development by stakeholder organizations including the DOE, the Management and Operating Contractor, and National Design Agency technical and weapon specialists. The expectations of upgrading the BIO using ISP are to: (a) provide a more accurate definition of the basis for safe operations, (b) correct existing deficiencies, (c) identify common controls, (d) provide Nuclear Explosives Safety Study input, and (e) improve the overall quality of the safety documentation for these transportation activities.

Specifically, for the ETC, the PT will be used to provide a forum for requesting weapon responses to environments seen by the ETC, review design criteria of the ETC, review designs of the ETC, and provide assistance in resolving issues. The PT provides input to the development of the project plan in order to ensure that the schedule is developed in accordance with available resources.

In March 1999, a Transport Cart Upgrade Project Presentation provided Mason and Hanger Corporations (MHC) management and DOE with four transport cart modification options. The presentation was modified to address comments by the Standing Management Team for the BIO Upgrade Projects. This presentation and the subsequent DOE direction are the basis for these elements of the project plan.

Design option 1 was selected to immediately address lightning protection hazards associated with the transportation of weapon assemblies in other than full-up configurations. The tasks for Design option 1 are included in the Lightning Protection Project Plan. Design option 4a of the project was selected to address a more comprehensive list of natural phenomena and

operational hazards (i.e., lightning strike, thermal, forklift puncture/crush, tornado missile impact, and gas cylinder impact) associated with partial assembly transportation in the ramps as defined in the hazards analysis for transportation of weapons. Design option 4a tasks are addressed in this project plan.

To date the following effort towards the project plan has been accomplished:

- Completion of the draft of the design criteria and submission to the PT,
- Determination that two different types of ETC are required, (ETC I and ETC II)
- Decision of which configurations cannot be put into an ETC,
- Draft conceptual design drawing of ETC I.

1.3 FY2001 and FY2002 Planned Effort

The FY2001 and FY2002 effort includes development and revision of the Project Plan, approval of the ETC design criteria, completion of the CDR and Preliminary Design Report (PDR) for both ETCs, preliminary design of the ETCs, procurement of the prototypes for testing, procurement of ETCs for use on the line, and implementation of ETCs. Not all programs will use the ETC immediately. The schedule to implement the ETC will be in the FDR upgrade to this plan and will base implementation on the current Integrated Weapon Assembly Plan (IWAP).

1.3.1 ETC Project Plan

The ETC project plan will be developed in four phases. Phase One will develop the WBS and define the activities for accomplishing the work. For each activity the scope, input, deliverable, duration and responsibility will be described. Phase Two revises the plan to include milestones, costs and the project schedule. Phase Three updates the plan based on the CDR. Phase Four revises the plan according to the information in the FDR.

The FY2001 deliverables for the TSR implementation are:

- Complete the Preliminary Plan, Phase I (10/31/00)
- Complete the Preliminary Plan, Phase II (01/16/01)
- Complete the CDR revision to the Project Plan (05/14/01)
- Complete the FDR revision to the Project Plan (08/22/01)

The specific tasks for the ETC Project Plan are as follows:

Note: The activity numbers correspond to the WBS number.

1.1.1 Preliminary Plan (Phase I)

1.1.1.1 Draft Preliminary Plan (Phase I)

Scope: Provide a project plan with scopes, activities, durations and responsible individuals.
Input: Work Breakdown Structure and Project Team Commitments
Deliverables: Project Plan
Duration: 7d
Responsibility: Transportation BIO Project Manager
Cost: \$ 5,367

1.1.1.2 Preliminary Plan (Phase I) Review

1.1.1.2.1 Project Team Review of Preliminary Plan (Phase I)

Scope: Project Team Review of the preliminary plan to determine if scopes, durations and responsibility for activities are correct. Laboratories will provide the durations for activities in which they have responsibilities.
Input: Draft Preliminary Plan (Phase I)
Deliverables: Review Comments and Durations
Duration: 4d
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0

1.1.1.2.2 DOE Review of Preliminary Plan (Phase I)

Scope: DOE Review of the preliminary plan to determine if scope, durations and responsibility for activities are correct and meet DNFSB expectations.
Input: Draft Preliminary Plan (Phase I)
Deliverables: Review Comments
Duration: 4d
Responsibility: DOE/AAO
Cost: \$ 0

- 1.1.1.2.3 Incorporation of Review Comments from Review of Preliminary Plan (Phase I)
Scope: Incorporate Review Comments from DOE and Project Team Review. Include the updated durations for activities. Submit the final plan to DOE.
Input: Draft Preliminary Plan (Phase I) and Review Comments
Deliverables: Final Preliminary Plan (Phase I)
Duration: 2d
Responsibility: Transportation BIO Project Manager
Cost: \$ 731
- 1.1.2 Preliminary Plan (Phase II)
- 1.1.2.1 Critical Path Schedule
- 1.1.2.1.1 Draft Preliminary Plan (Phase II)
Scope: Provide a project plan with scopes, activities, durations, milestones, resource requirements, costs and responsible individuals. Submit the plan to the laboratories and DOE.
Input: Preliminary Plan (Phase I)
Deliverables: Draft Preliminary Project Plan (Phase II)
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 4,209
- 1.1.2.1.2 Provide External Resource Loading of Preliminary Plan (Phase II)
Scope: Provide changes to milestones from draft preliminary plan to ensure laboratory support is available to meet commitments.
Input: Draft Preliminary Plan (Phase II)
Deliverables: Changes to Milestones
Duration: 10d
Responsibility: DOE, LLNL, LANL, Sandia
Cost: \$ 0

1.1.2.1.3 Update Preliminary Plan (Phase II)

Scope: Provide a project plan with scopes, activities, durations, milestones, resource requirements, costs and responsible individuals.

Input: Draft Preliminary Plan (Phase II) and Changes to Milestones

Deliverables: Updated Preliminary Plan (Phase II)

Duration: 15d

Responsibility: Transportation BIO Project Manager

Cost: \$ 2,104

1.1.2.2 Preliminary Plan (Phase II) Review

1.1.2.2.1 Project Team Review of Preliminary Plan (Phase II)

Scope: Project Team Review of the preliminary plan to determine if scopes, durations milestones and responsibility for activities are correct. Laboratories will provide changes to the milestones if necessary for activities in which they have responsibilities.

Input: Updated Preliminary Plan (Phase II)

Deliverables: Review Comments and Durations

Duration: 13d

Responsibility: LLNL, LANL, Sandia

Cost: \$ 0

1.1.2.2.2 Incorporation of Review Comments from Review of Preliminary Plan (Phase II)

Scope: Incorporate Review Comments from Project Team Review. Include the updated durations for activities. Submit the final plan to DOE.

Input: Updated Preliminary Plan (Phase II) and Review Comments

Deliverables: Final Preliminary Plan (Phase II)

Duration: 3d

Responsibility: Transportation BIO Project Manager

Cost: \$ 2,104

- 1.1.2.2.3 DOE Review of Preliminary Plan (Phase II)
- Scope: DOE Review of the final preliminary plan to determine if scope, durations and responsibility for activities are correct and meet DNFSB expectations.
- Input: Updated Preliminary Plan (Phase II)
- Deliverables: Review Comments
- Duration: 10d
- Responsibility: DOE/AAO
- Cost: \$ 0
- 1.1.3 CDR Revision to Project Plan
- 1.1.3.1 Critical Path Schedule
- 1.1.3.1.1 Draft CDR Plan
- Scope: Provide a project plan with scopes, activities, durations, milestones, resource requirements, costs and responsible individuals based on results of approved conceptual design. Submit the plan to the laboratories and DOE.
- Input: Preliminary Plan (Phase II) and Approved CDR
- Deliverables: Draft CDR Project Plan
- Duration: 20d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 35,056
- 1.1.3.2 CDR Plan Review
- 1.1.3.2.1 Project Team Review of CDR Plan
- Scope: Project Team Review of the CDR plan to determine if scopes, durations milestones and responsibility for activities are correct. Laboratories will provide changes to the milestones if necessary for activities in which they have responsibilities.
- Input: Draft CDR Plan
- Deliverables: Review Comments and Milestones
- Duration: 15d
- Responsibility: LLNL, LANL, Sandia
- Cost: 0

1.1.3.2.2 DOE Review of CDR Plan

Scope: DOE Review of the preliminary plan to determine if scope, durations and responsibility for activities are correct and meet DNFSB expectations.

Input: Draft CDR Plan

Deliverables: Review Comments

Duration: 15d

Responsibility: DOE/AAO

Cost: \$ 0

1.1.3.2.3 Incorporation of Review Comments from Review of Preliminary Plan (Phase II)

Scope: Incorporate Review Comments from DOE and Project Team Review. Include the updated durations for activities. Submit the final plan to DOE.

Input: Draft CDR Plan and Review Comments

Deliverables: Final CDR Plan

Duration: 10d

Responsibility: Transportation BIO Project Manager

Cost: \$3,656

1.1.4 Final Design Revision to Project Plan

1.1.4.1 Critical Path Schedule

1.1.4.1.1 Draft Final Design Plan

Scope: Provide a project plan with scopes, activities, durations, milestones, resource requirements, costs and responsible individuals based on results of approved final design. Submit the plan to the laboratories and DOE.

Input: CDR Plan and Approved Final Design

Deliverables: Draft Final Design Project Plan

Duration: 20d

Responsibility: Transportation BIO Project Manager

Cost: \$35,056

1.1.4.2 CDR Final Plan Review

1.1.4.2.1 Project Team Review of Final Design Plan

Scope: Project Team Review of the draft of the Final Design Plan to determine if scopes, durations milestones and responsibility for activities are correct. Laboratories will provide changes to the milestones if necessary for activities in which they have responsibilities.

Input: Draft Final Design Plan

Deliverables: Review Comments and Milestones

Duration: 15d

Responsibility: LLNL, LANL, Sandia

Cost: \$ 0

1.1.4.2.2 DOE Review of Final Design Plan

Scope: DOE Review of the preliminary plan to determine if scope, durations and responsibility for activities are correct and meet DNFSB expectations.

Input: Draft Final Design Plan

Deliverables: Review Comments

Duration: 15d

Responsibility: DOE/AAO

Cost: \$ 0

1.1.4.2.3 Incorporation of Review Comments from Review of Final Design Plan

Scope: Incorporate Review Comments from DOE and Project Team Review. Include the updated durations for activities. Submit the final plan to DOE.

Input: Draft Final Design Plan and Review Comments

Deliverables: Final Design Plan

Duration: 10d

Responsibility: Transportation BIO Project Manager

Cost: \$ 3,656

1.3.2 Establish ETC Design Criteria

The activities associated with establishing the ETC design criteria are developing the criteria, obtaining a review of the criteria from the PT and DOE, and receiving approval of the criteria from the DOE.

The FY2001 deliverables for the ETC design criteria are:

- Develop the ETC Design Criteria (10/18/00)
- Conduct Project Team Review of the ETC Design Criteria (11/08/00)
- Approval of ETC Design Criteria (12/22/00)

The specific tasks for establishing the ETC design criteria are as follows:

Note: The activity numbers correspond to the WBS number.

1.2.1 Establish ETC Design Criteria

1.2.1.1 Develop ETC Design Criteria

1.2.1.1.1 Develop ETC Design Criteria

Scope: Develop ETC Design Criteria using bounding events from all HA environments. **Assumption: No new events will arise during the development of the TBIO that will require design criteria changes.**

Input: Hazard Analysis

Deliverables: ETC Design Criteria

Duration: 11d

Responsibility: Transportation BIO Project Engineer

Cost: \$ 5,484

1.2.1.2 Review and Approval of ETC Design Criteria

1.2.1.2.1 Project Team Review of ETC Criteria

Scope: Present to Project Team the Draft ETC Design Criteria. Project Team review of the Draft ETC Design Criteria and submission of review comments.

Input: Draft ETC Design Criteria

Deliverables: Review Comments

Duration: 15d

Responsibility: DOE, LLNL, LANL, Sandia

Cost: \$ 0

1.2.1.2.2 Incorporation of Comments from Review of ETC Design Criteria

Scope: Incorporate Review Comments from Project Team Review. Submit the ETC Design Criteria to DOE for approval.

Input: Draft ETC Design Criteria and review Comments

Deliverables: ETC Design Criteria

Duration: 10d

Responsibility: Transportation BIO Project Engineer

Cost: \$ 3,656

1.2.1.2.3 Approval of ETC Design Criteria

Scope: Review and approve ETC Design Criteria. Provide letter to Transportation BIO Project Manager. **Assumption: Completion of Conceptual Design will complete 20 days after approval of ETC Design Criteria and preliminary Faraday cage analysis. No changes to ETC Design Criteria after approval will occur.**

Input: ETC Design Criteria

Deliverables: Approval Letter

Duration: 20d

Responsibility: DOE/AAO

Cost: \$ 0

1.3.3 ETC Design and Procurement

An evaluation of configurations led to the decision that only two types of ETCs would be pursued. The first, ETC I would contain the partial configurations for all warheads except the dismantlement programs. ETC I will consist of a transporter, assembly platform and an inter-fixture to hold the weapon. The second, ETC II, would be designed to transport the physics packages.

The ETC design and procurement phase includes the effort to design and procure both ETC I and ETC II. The design phase will consist of a CDR, PDR and FDR. After the approval of the design criteria and the preliminary Faraday cage analysis, the Conceptual Design Report will be completed.

After approval of the CDR, the preliminary design phase will begin. To support the proof-of-concept testing the transportation carts, 2 prototypes for each ETC type will be fabricated and tested to ensure design criteria are met. The completion and approval of the PDR will allow MHC to procure the prototypes for testing.

An additional 3 transportation carts would be fabricated with the 2 prototypes in order to support line activities for one program. The effort to put these carts into operation is defined in Section 1.3.5 of this plan.

The test results and any design modifications will be put into the FDR. Approval of the FDR will allow MHC to procure the production quantities of the ETCs.

The FY2001 and FY2002 deliverables for the implementation of controls for Partial Units are:

- Complete CDR for ETC I (03/09/01)
- Approve CDR for ETC I (06/12/01)
- Complete PDR for ETC I (06/19/01)
- Approve PDR for ETC I (09/27/01)
- Initiate Procurement of ETC I Prototype (07/12/01)
- Complete CDR for ETC II (11/02/01)
- Approve CDR for ETC II (02/13/02)

- Complete PDR for ETC II (01/23/02)
- Approve PDR for ETC II (05/23/02)
- Initiate Procurement of ETC II Prototype (02/27/02)

The specific tasks for the ETC design and procurement are as follows:

Note: The activity numbers correspond to the WBS number.

1.2.2 ETC Design and Procurement

1.2.2.1 Full-ups and Partial Configurations

1.2.2.1.1 Conceptual Design

1.2.2.1.1.1 Establish Configurations to be put into ETC I

Scope: Qualify configurations that cannot be feasibly placed in an ETC and present/submit results to DOE for review and approval. Receive DOE concurrence.
Assumption: The list of configurations to put into the ETC will not increase.

Input: List of configurations moved in ramps

Deliverables: List of configurations to be put into ETC I

Duration: 5d

Responsibility: Transportation BIO Project Manager

Cost: \$ 7,588

1.2.2.1.1.2 Develop CDR

1.2.2.1.1.2.1 Generate Conceptual Design

Scope: Generate conceptual design for ETC I. **Assumption: Preliminary Faraday cage analysis does not cause a complete redesign of the ETC.**

Input: List of configurations to be put into ETC I and ETC Design Criteria and preliminary Faraday cage analysis

Deliverables: Conceptual Design Drawings

Duration: 30d

Responsibility: Tooling Design

Cost: \$ 53,640

- 1.2.2.1.1.2.2 Determine Cost/Schedule of Designing/Procuring ETC I
Scope: From Conceptual Design Drawings determine the cost of ETC I and revise schedule for completing design, testing, procurement and receiving of items.
Input: Conceptual Design Drawings
Deliverables: Cost/Schedule
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 8,292
- 1.2.2.1.1.2.3 Prepare CDR
Scope: Develop draft of CDR
Input: Conceptual Design Drawings and Cost/Schedule
Deliverables: Draft CDR
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 26,926
- 1.2.2.1.1.3 Perform Preliminary Faraday Cage Review
Scope: Perform preliminary Faraday cage analysis of ETC I based on draft conceptual design drawings. Provide results to Transportation BIO Project Manager
Input: Draft Conceptual Design Drawings
Deliverables: Preliminary Faraday Cage Analysis
Duration: 15d after receiving the draft conceptual design drawings
Responsibility: Sandia
Cost: \$ 0

-
- 1.2.2.1.1.4 CDR Review and Approval
- 1.2.2.1.1.4.1 MHC Internal Review of CDR
- 1.2.2.1.1.4.1.1 Perform MHC Review of CDR
- Scope: Perform an MHC internal review of the CDR for ETC I. This review will include AB, Operations, Engineering, ESH and other personnel as needed to verify safety and operability of ETC I
- Input: Draft CDR
- Deliverables: Review Comments
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 0
- 1.2.2.1.1.4.1.2 Incorporation of Comments from MHC Review of CDR
- Scope: Incorporate Review Comments from MHC review of CDR. Make design modifications as necessary. Submit revised CDR to Project Team for review.
- Input: Draft CDR and Review Comments
- Deliverables: Updated CDR
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- cost: \$ 3,954
- 1.2.2.1.1.4.2 External Review of CDR
- 1.2.2.1.1.4.2.1 Perform External Review of CDR
- Scope: Perform an project team review of the CDR for ETC I. This review will include DOE and project team.
- Input: Updated CDR
- Deliverables: Review Comments
- Duration: 15d
- Responsibility: DOE, LLNL, LANL, Sandia
- Cost: \$ 0
-

- 1.2.2.1.1.4.2.2 Incorporation of Comments from External Review of CDR
Scope: Incorporate Review Comments from external review of CDR. Make design modifications as necessary. Submit revised CDR to Project Team for sign off.
Input: Updated CDR and Review Comments
Deliverables: CDR
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 3,953
- 1.2.2.1.1.4.2.3 Sign off CDR by Project Team
Scope: Present CDR to Project Team and receive Project Team signatures. Submit to DOE and SMT.
Input: CDR
Deliverables: CDR with Project Team Signatures
Duration: 20d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0
- 1.2.2.1.1.4.2.4 DOE/SMT Review of CDR
Scope: Present CDR to SMT with Project Team Sign off. Receive SMT and DOE comments. **Assumption: SMT will be scheduled and attended during the time frame of the project schedule.**
Input: CDR with Project Team signatures
Deliverables: Review Comments
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: 0

- 1.2.2.1.1.4.2.5 Incorporation of DOE/SMT Review of CDR Comments
Scope: Incorporate Review Comments from DOE/SMT review of CDR. Make design modifications as necessary. Obtain Project Team concurrence.
Input: Review Comments
Deliverables: Baseline CDR
Duration: 25d
Responsibility: DOE
Cost: \$ 9,884
- 1.2.2.1.1.4.2.6 DOE/SMT Approval of CDR
Scope: Present CDR to SMT with Project Team Sign off. Receive SMT and DOE approval. DOE prepare letter to proceed with final design.
Input: Baseline CDR
Deliverables: Approval Letter from DOE
Duration: 10d
Responsibility: DOE
Cost: \$ 0
- 1.2.2.1.2 Final Design and Testing
- 1.2.2.1.2.1 Preliminary Design
- 1.2.2.1.2.1.1 Preliminary Design Report (PDR)
- 1.2.2.1.2.1.1.1 Generate Preliminary Design
Scope: Generate preliminary design for ETC I. **Assumption: Faraday cage analysis and weapon responses do not cause a major redesign of the ETC.**
Input: Baseline CDR, Faraday Cage Analysis and Weapon Response
Deliverables: Design Drawings
Duration: 45d
Responsibility: Tooling Design
Cost: \$ 55,987

- 1.2.2.1.2.1.1.2 Determine Cost/Schedule of Designing/Procuring ETC I
Scope: From Design Drawings determine the cost of ETC I and revise schedule for completing design, testing, procurement and receiving of items.
Input: Preliminary Design Drawings
Deliverables: Cost/Schedule for Project Plan Change
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 8,292
- 1.2.2.1.2.1.1.3 Prepare Draft PDR
Scope: Develop draft of Final Design Report
Input: Design Drawings and Cost/Schedule
Deliverables: Draft PDR
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 26,926
- 1.2.2.1.2.1.1.4 Perform Faraday Cage Analysis
Scope: Perform Faraday cage analysis of ETC I based on design drawings. Provide results to Project Manager
Input: Design Drawings
Deliverables: Faraday Cage Analysis
Duration: 15d
Responsibility: Sandia
Cost: \$ 0
- 1.2.2.1.2.1.1.5 Perform Weapon Response
Scope: Analyze Weapon Response of ETC I based on design drawings. Provide results to Transportation BIO Project Manager
Input: Design Drawings
Deliverables: Weapon Response
Duration: 80d after receiving the preliminary design drawings
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0

-
- 1.2.2.1.2.1.1.6 Perform MHC Review of PDR
- Scope: Perform an MHC internal review of the PDR for ETC I. This review will include AB, Operations, Engineering, ESH and other personnel as needed to verify safety and operability of ETC I
- Input: Draft PDR
- Deliverables: Review Comments
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 0
- 1.2.2.1.2.1.1.7 Incorporation of Comments from MHC Review of PDR
- Scope: Incorporate Review Comments from MHC review of PDR. Make design modifications as necessary. Submit revised PDR to Project Team for review.
- Input: Draft PDR and Review Comments
- Deliverables: Updated PDR
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 3,954
- 1.2.2.1.2.1.1.8 Perform External Review of PDR
- Scope: Perform an project team review of the PDR for ETC I. This review will include DOE, project team, Tri-Lab personnel. **Assumption: External review does not cause a major redesign of the ETC.**
- Input: Updated PDR
- Deliverables: Review Comments
- Duration: 15d
- Responsibility: DOE, LLNL, LANL, Sandia
- Cost: \$ 0

- 1.2.2.1.2.1.1.9 Incorporation of Comments from External Review of PDR
Scope: Incorporate Review Comments from external review of PDR. Make design modifications as necessary. Submit revised PDR to Project Team for sign off.
Input: Updated PDR and Review Comments
Deliverables: PDR
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 3,954
- 1.2.2.1.2.1.1.10 Sign off PDR by Project Team
Scope: Present PDR to Project Team and receive signatures. Submit to DOE and SMT. **Assumption: Project Team Meeting will be scheduled and attended during the time frame of the project schedule.**
Input: PDR
Deliverables: PDR with Project Team Signatures
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0
- 1.2.2.1.2.1.1.11 DOE/SMT Review of PDR
Scope: Present PDR to SMT with Project Team Sign off. Receive SMT and DOE comments. **Assumption: SMT will be scheduled and attended during the time frame of the project schedule.**
Input: PDR with Project Team signatures
Deliverables: Review Comments
Duration: 10d
Responsibility: DOE
Cost: \$ 0

- 1.2.2.1.2.1.1.12 Incorporation of DOE/SMT Review of PDR Comments
Scope: Incorporate Review Comments from DOE/SMT review of PDR. Make design modifications as necessary.
Input: Review Comments
Deliverables: PDR for Prototype Fabrication
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 5,930
- 1.2.2.1.2.1.2 Test of Prototype
- 1.2.2.1.2.1.2.1 Develop Test Plan
Scope: Develop Test Plan to test prototypes of ETC. Inputs will be from MHC and Laboratories
Input: Design Criteria and PDR
Deliverables: Prototype Test Plan
Duration: 90d
Responsibility: Tooling Design
Cost: \$ 205,459
- 1.2.2.1.2.1.2.2 Perform Prototype Tests and Prepare Report
Scope: Perform test on prototypes as defined in prototype test plan and prepare report of test results
Input: Prototype Test Plan
Deliverables: Test Results
Duration: 20d
Responsibility: Tooling Design
Cost: \$ 114,144
- 1.2.2.1.2.1.2.3 Perform Prototype Tests and Prepare Report
Scope: Perform test on prototypes as defined in prototype test plan and prepare report of test results
Input: Prototype Test Plan
Deliverables: Test Results
Duration: 20d
Responsibility: LANL, LLNL, SNLA
Cost: \$ 0

1.2.2.1.2.1.2.3 Incorporation of Prototype Test Results

1.2.2.1.2.1.2.3.1 Modify ETC I Design Based on Prototype Test Results

Scope: Modify design of ETC I based on prototype test results.
Input: PDR and Prototype Test Results. **Assumption: Prototype test results, Faraday Cage Analysis and Weapon Response do not cause a major redesign of the ETC.**
Deliverables: FDR
Duration: 30d - 20d after Faraday cage analysis and weapon responses
Responsibility: Tooling Design
Cost: \$ 44,669

1.2.2.1.2.1.2.3.2 Perform Faraday Cage Analysis

Scope: Perform Faraday cage analysis of ETC I based on design modifications after prototype testing. Provide results to Transportation BIO Project Manager. **Assumption: Faraday cage analysis does not cause a major redesign of the ETC.**
Input: FDR
Deliverables: Faraday Cage Analysis
Duration: 15d
Responsibility: Sandia
Cost: \$ 0

1.2.2.1.2.1.2.3.3 Perform Weapon Response

Scope: Analyze Weapon Response of ETC I based on design modifications after prototype testing. Provide results to Transportation BIO Project Manager. **Assumption: Weapon Response does not cause a major redesign of the ETC.**
Input: FDR
Deliverables: Weapon Response
Duration: 30d
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0

- 1.2.2.1.2.1.2.3.4 Receive Engineering Release
Scope: Provide Engineering Release for use of ETC
Input: Preliminary Design Report
Deliverables: Engineering Release
Duration: 15d
Responsibility: LANL, LLNL, Sandia
Cost: \$ 0
- 1.2.2.1.2.2 Procurement of ETC I
- 1.2.2.1.2.2.1 Develop Specifications for ETC I
Scope: Develop procurement specifications for prototype of ETC I
Input: FDR
Deliverables: Procurement Specifications
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 16,452
- 1.2.2.1.2.2.2 Request Bids for Procurement of ETC I
Scope: Release Bid package for procurement of prototype of ETC I
Input: Procurement Specifications
Deliverables: Bid Package
Duration: 10d
Responsibility: Tooling Design
Cost: \$ 13,654
- 1.2.2.1.2.2.3 Award Contract for Procurement of ETC I
Scope: Award contract to fabricate 2 ETC I prototypes.
Input: Proposals
Deliverables: Contract
Duration: 10d
Responsibility: Tooling Design
Cost: \$ 11,378

- 1.2.2.1.2.2.4 Fabricate ETC I
Scope: Fabricate 5 ETC I prototypes. **Assumption: Only 5 carts will be needed for testing and implementation on single program.**
Input: Contract and Specifications
Deliverables: 5 ETC I prototype carts
Duration: 50d
Responsibility: Tooling Design
Cost: \$ 200,000
- 1.2.2.1.2.2.5 Receive and Inspect ETC I Prototypes
Scope: Perform R&I of ETC I Prototypes. Send one cart to Sandia.
Input: 2 ETC I Prototypes
Deliverables: 1 ETC Prototype to Pantex and 1 ETC Prototype to Sandia
Duration: 5d
Responsibility: Tooling Design
Cost: \$ 4,540
- 1.2.2.1.2.3 Update Hazard Analysis
- 1.2.2.1.2.3.1 Update Hazard Analysis
Scope: Add ETC hazards analysis to Hazard Analysis Report
Input: ETC Design and Weapon Response
Deliverables: Updated Hazard Analysis
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 5,930

- 1.2.2.1.3 Procurement of Additional ETC I
- 1.2.2.1.3.1 Develop Specifications for Procurement of Additional ETC I
Scope: Develop procurement specifications for additional ETC I
Input: FDR
Deliverables: Procurement Specifications
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 17,791
- 1.2.2.1.3.2 Request Bids for Procurement of Additional ETC I
Scope: Release package for procurement of additional ETC I
Input: Procurement Specifications
Deliverables: Bid Package
Duration: 10d
Responsibility: Tooling Design
Cost: \$ 11,378
- 1.2.2.1.3.3 Award Contract for Procurement of Additional ETC I
Scope: Award contract to fabricate additional ETC I.
Input: Proposals
Deliverables: Contract
Duration: 10d
Responsibility: Tooling Design
Cost: \$ 6,827
- 1.2.2.1.3.4 Fabricate Additional ETC I
Scope: Fabricate Additional ETC I.
Input: Contract and Specifications
Deliverables: ETC I
Duration: 90d
Responsibility: Tooling Design
Cost: \$ 800,000

-
- 1.2.2.1.3.5 Receive and Inspect Additional ETC I
Scope: Perform R&I of Additional ETC I.
Input: ETC I
Deliverables: ETC I for line use
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 4,540
- 1.2.2.2 Physics Packages
- 1.2.2.2.1 Conceptual Design
- 1.2.2.2.1.1 Establish Configurations to be put into ETC II
Scope: Qualify configurations that cannot be feasibly placed
 in an ETC and present/submit results to DOE for review
 and approval. Receive DOE concurrence.
 **Assumption: The list of configurations to put into
 the ETC will not increase.**
Input: List of configurations moved in ramps
Deliverables: List of configurations to be put into ETC II
Duration: 5d
Responsibility: Transportation BIO Project Manager
Cost: \$ 9,040
- 1.2.2.2.1.2 Develop CDR
- 1.2.2.2.1.2.1 Generate Conceptual Design
Scope: Generate conceptual design for ETC II. **Assumption:
 Preliminary Faraday cage analysis does not cause a
 major redesign of the ETC.**
Input: List of configurations to be put into ETC II and ETC
 Design Criteria and Preliminary Faraday Cage Analysis
Deliverables: Conceptual Design Drawings
Duration: 20d
Responsibility: Tooling Design
Cost: \$ 55,644
-

- 1.2.2.2.1.2.2 Determine Cost/Schedule of Designing/Procuring ETC II
Scope: From Conceptual Design Drawings determine the cost of ETC II and revise schedule for completing design, testing, procurement and receiving of items.
Input: Conceptual Design Drawings
Deliverables: Cost/Schedule
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 8,292
- 1.2.2.2.1.2.3 Prepare CDR
Scope: Develop draft of CDR
Input: Conceptual Design Drawings and Cost/Schedule
Deliverables: Draft CDR
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 23,279
- 1.2.2.2.1.3 Perform Preliminary Faraday Cage Review
Scope: Perform preliminary Faraday cage analysis of ETC II based on draft conceptual design drawings. Provide results to Transportation BIO Project Manager
Input: Draft Conceptual Design Drawings
Deliverables: Preliminary Faraday Cage Analysis
Duration: 15d
Responsibility: Sandia
Cost: \$ 0

-
- 1.2.2.2.1.4 CDR Review and Approval
- 1.2.2.2.1.4.1 MHC Internal Review of CDR
- 1.2.2.2.1.4.1.1 Perform MHC Review of CDR
- Scope: Perform an MHC internal review of the CDR for ETC II. This review will include AB, Operations, Engineering, ESH and other personnel as needed to verify safety and operability of ETC II
- Input: Draft CDR
- Deliverables: Review Comments
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 0
- 1.2.2.2.1.4.1.2 Incorporation of Comments from MHC Review of CDR
- Scope: Incorporate Review Comments from MHC review of CDR. Make design modifications as necessary. Submit revised CDR to Project Team for review.
- Input: Draft CDR and Review Comments
- Deliverables: Updated CDR
- Duration: 10d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 3,954
- 1.2.2.2.1.4.2 External Review of CDR
- 1.2.2.2.1.4.2.1 Perform External Review of CDR
- Scope: Perform an project team review of the CDR for ETC II. This review will include DOE and project team.
- Input: Updated CDR
- Deliverables: Review Comments
- Duration: 15d
- Responsibility: DOE, LLNL, LANL, Sandia
- Cost: \$ 0
-

- 1.2.2.2.1.4.2.2 Incorporation of Comments from External Review of CDR
Scope: Incorporate Review Comments from external review of CDR. Make design modifications as necessary. Submit revised CDR to Project Team for sign off.
Input: Updated CDR and Review Comments
Deliverables: CDR
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 7,907
- 1.2.2.2.1.4.2.3 Sign off CDR by Project Team
Scope: Present CDR to Project Team and receive Project Team signatures. Submit to DOE and SMT.
Input: CDR
Deliverables: CDR with Project Team Signatures
Duration: 20d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0
- 1.2.2.2.1.4.2.4 DOE/SMT Review of CDR
Scope: Present CDR to SMT with Project Team Sign off. Receive SMT and DOE comments. **Assumption: SMT will be scheduled and attended during the time frame of the project schedule.**
Input: CDR with Project Team signatures
Deliverables: Review Comments
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0

- 1.2.2.2.1.4.2.5 Incorporation of DOE/SMT Review of CDR Comments
 Scope: Incorporate Review Comments from DOE/SMT review of CDR. Make design modifications as necessary. Receive Project Team concurrence of changes. Submit revised CDR to DOE/SMT for approval.
 Input: Review Comments
 Deliverables: Baseline CDR
 Duration: 25d
 Responsibility: DOE
 Cost: \$ 9,884
- 1.2.2.2.1.4.2.6 DOE/SMT Approval of CDR
 Scope: Present CDR to SMT with Project Team Sign off. Receive SMT and DOE approval. DOE prepare letter to proceed with final design.
 Input: Baseline CDR
 Deliverables: Approval Letter from DOE
 Duration: 10d
 Responsibility: DOE
 Cost: \$ 0
- 1.2.2.2.2 Final Design and Testing
- 1.2.2.2.2.1 Preliminary Design
- 1.2.2.2.2.1.1 Design Report
- 1.2.2.2.2.1.1.1 Generate Preliminary Design
 Scope: Generate preliminary design for ETC II. **Assumption: Faraday cage analysis and weapon responses do not cause a major redesign of the ETC.**
 Input: Baseline CDR, Faraday Cage Analysis and Weapon Response
 Deliverables: Design Drawings
 Duration: 25d
 Responsibility: Tooling Design
 Cost: \$ 55,987

- 1.2.2.2.1.1.2 Determine Cost/Schedule of Designing/Procuring ETC II
Scope: From Design Drawings determine the cost of ETC II and revise schedule for completing design, testing, procurement and receiving of items.
Input: Design Drawings
Deliverables: Cost/Schedule for Project Plan Change
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 8,292
- 1.2.2.2.1.1.3 Prepare Draft PDR
Scope: Develop draft of Final Design Report
Input: Design Drawings and Cost/Schedule
Deliverables: Draft PDR
Duration: 15d
Responsibility: Transportation BIO Project Manager
Cost: \$ 26,926
- 1.2.2.2.1.1.4 Perform Faraday Cage Analysis
Scope: Perform Faraday cage analysis of ETC II based on design drawings. Provide results to Transportation BIO Project Manager
Input: Design Drawings
Deliverables: Faraday Cage Analysis
Duration: 30d
Responsibility: Sandia
Cost: \$ 0
- 1.2.2.2.1.1.5 Perform Weapon Response
Scope: Analyze Weapon Response of ETC II based on design drawings. Provide results to Transportation BIO Project Manager
Input: Design Drawings
Deliverables: Weapon Response
Duration: 80d
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0

- 1.2.2.2.1.1.6 Perform MHC Review of PDR
Scope: Perform an MHC internal review of the PDR for ETC II. This review will include AB, Operations, Engineering, ESH and other personnel as needed to verify safety and operability of ETC II
Input: Draft PDR
Deliverables: Review Comments
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0
- 1.2.2.2.1.1.7 Incorporation of Comments from MHC Review of PDR
Scope: Incorporate Review Comments from MHC review of PDR. Make design modifications as necessary. Submit revised PDR to Project Team for review.
Input: Draft PDR and Review Comments
Deliverables: Updated PDR
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 3,954
- 1.2.2.2.1.1.8 Perform External Review of PDR
Scope: Perform an project team review of the PDR for ETC II. This review will include DOE and the project team.
Assumption: External review does not cause a major redesign of the ETC.
Input: Updated PDR
Deliverables: Review Comments
Duration: 15d
Responsibility: DOE, LLNL, LANL, Sandia
Cost: \$ 0

- 1.2.2.2.1.1.9 Incorporation of Comments from External Review of PDR
Scope: Incorporate Review Comments from external review of PDR. Make design modifications as necessary. Submit revised PDR to Project Team for sign off.
Input: Updated PDR and Review Comments
Deliverables: PDR
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 3,954
- 1.2.2.2.1.1.10 Sign off PDR by Project Team
Scope: Present PDR to Project Team and receive signatures. Submit to DOE and SMT. **Assumption: Project Team Meeting will be scheduled and attended during the time frame of the project schedule.**
Input: PDR
Deliverables: PDR with Project Team Signatures
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0
- 1.2.2.2.1.1.11 DOE/SMT Review of PDR
Scope: Present PDR to SMT with Project Team Sign off. Receive SMT and DOE comments. **Assumption: SMT will be scheduled and attended during the time frame of the project schedule.**
Input: PDR with Project Team signatures
Deliverables: Review Comments
Duration: 10d
Responsibility: Transportation BIO Project Manager
Cost: \$ 0

-
- 1.2.2.2.1.1.12 Incorporation of DOE/SMT Review of PDR Comments
Scope: Incorporate Review Comments from DOE/SMT review of PDR. Make design modifications as necessary.
Input: Review Comments
Deliverables: PDR for Prototype Fabrication
Duration: 15d
Responsibility: DOE
Cost: \$ 5,930
- 1.2.2.2.1.2 Test of Prototype
- 1.2.2.2.1.2.1 Develop Test Plan
Scope: Develop Test Plan to test prototypes of ETC. Inputs will be from MHC and Laboratories
Input: Design Criteria and PDR
Deliverables: Prototype Test Plan
Duration: 90d
Responsibility: Tooling Design
Cost: \$ 205,459
- 1.2.2.2.1.2.2 Perform Prototype Tests and Prepare Report
Scope: Perform test on prototypes as defined in prototype test plan and prepare report of test results.
Input: Prototype Test Plan
Deliverables: Test Results
Duration: 30d
Responsibility: Tooling Design
Cost: \$ 114,144
- 1.2.2.2.1.2.3 Perform Prototype Tests and Prepare Report
Scope: Perform test on prototypes as defined in prototype test plan and prepare report of test results.
Input: Prototype Test Plan
Deliverables: Test Results
Duration: 30d
Responsibility: LANL, LLNL, SNLA
Cost: \$ 0
-

1.2.2.2.1.2.3 Incorporation of Prototype Test Results

1.2.2.2.1.2.3.1 Modify ETC II Design Based on Prototype Test Results

Scope: Modify design of ETC II based on prototype tests .
Input: PDR and Prototype Test Results. **Assumption: Prototype test results, Faraday Cage Analysis and Weapon Response do not cause a major redesign of the ETC.**
Deliverables: Draft FDR
Duration: 30d
Responsibility: Tooling Design
Cost: \$ 44,669

1.2.2.2.1.2.3.2 Perform Faraday Cage Analysis

Scope: Perform Faraday cage analysis of ETC II based on design modifications after prototype testing. Provide results to Transportation BIO Project Manager. **Assumption: Faraday cage analysis does not cause a major redesign of the ETC.**
Input: Draft FDR
Deliverables: Faraday Cage Analysis
Duration: 15d
Responsibility: Sandia
Cost: \$ 0

1.2.2.2.1.2.3.3 Perform Weapon Response

Scope: Analyze Weapon Response of ETC II based on design modifications after prototype testing. Provide results to Transportation BIO Project Manager. **Assumption: Weapon Response does not cause a major redesign of the ETC.**
Input: FDR
Deliverables: Weapon Response
Duration: 30d
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0

- 1.2.2.2.1.2.3.4 Receive Engineering Release
Scope: Provide Engineering Release for use of ETC
Input: Preliminary Design Report
Deliverables: Engineering Release
Duration: 15d
Responsibility: LLNL, LANL, Sandia
Cost: \$ 0
- 1.2.2.2.2 Procurement of ETC II
- 1.2.2.2.2.1 Develop Specifications for Procurement of ETC II
Scope: Develop procurement specifications for ETC II
Input: FDR
Deliverables: Procurement Specifications
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 16,452
- 1.2.2.2.2.2 Request Bids for Procurement of ETC II
Scope: Release Bid package for procurement of ETC II
Input: Procurement Specifications
Deliverables: Bid Package
Duration: 30d
Responsibility: Tooling Design
Cost: \$ 13,654
- 1.2.2.2.2.3 Award Contract for Procurement of ETC II
Scope: Award contract to fabricate 2 ETC II
Input: Proposals
Deliverables: Contract
Duration: 25d
Responsibility: Tooling Design
Cost: \$ 11,378

- 1.2.2.2.2.4 Fabricate ETC II
Scope: Fabricate 5 ETC II. **Assumption: Only 5 carts will be needed for testing and implementation on single program.**
Input: Contract and Specifications
Deliverables: 5 ETC II prototype carts
Duration: 90d
Responsibility: Tooling Design
Cost: \$ 100,000
- 1.2.2.2.2.5 Receive and Inspect ETC II
Scope: Perform R&I of ETC II Prototypes. Send one cart to Sandia.
Input: 2 ETC II
Deliverables: 1 ETC II to Pantex and 1 ETC II to Sandia
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 4,540
- 1.2.2.2.2.3 Update Hazard Analysis
Scope: Add ETC hazards analysis to Hazard Analysis Report
Input: ETC Design and Weapon Response
Deliverables: Updated Hazard Analysis
Duration: 15d
Responsibility: Transportation BIO Project Engineer
Cost: \$ 5,930
- 1.2.2.2.3 Procurement of ETC II
- 1.2.2.2.3.1 Develop Specifications for Procurement of Additional ETC II
Scope: Develop procurement specifications for Additional ETC II
Input: FDR
Deliverables: Procurement Specifications
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 17,791

- 1.2.2.2.3.2 Request Bids for Procurement of Additional ETC II
Scope: Release Bid package for procurement of Additional ETC II
Input: Procurement Specifications
Deliverables: Bid Package
Duration: 25d
Responsibility: Tooling Design
Cost: \$ 11,378
- 1.2.2.2.3.3 Award Contract for Procurement of Additional ETC II
Scope: Award contract to fabricate Additional ETC II.
Input: Proposals
Deliverables: Contract
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 6,827
- 1.2.2.2.3.4 Fabricate Additional ETC II
Scope: Fabricate Additional ETC II.
Input: Contract and Specifications
Deliverables: ETC II
Duration: 90d
Responsibility: Tooling Design
Cost: \$ 400,000
- 1.2.2.2.3.5 Receive and Inspect Additional ETC II
Scope: Perform R&I of Additional ETC II.
Input: ETC II
Deliverables: ETC II for line use
Duration: 15d
Responsibility: Tooling Design
Cost: \$ 4,540

1.3.4 Qualification of Configurations not in the ETC

A determination was made as to what current configurations could be put into an ETC and those that operationally or logistically could not. The following configurations

would not be put into an ETC: B53, W56, W79, B83 Center Case Assembly and B61 Center Case Assembly.

This section of the project plan describes the activities for those configurations not being put into an ETC. For those configurations, weapon responses will be requested for the environments they encounter and a qualification would be made as to the risk of transporting them without the protection of an ETC. Upon determination of the risk, any configurations with high risk would have additional controls applied.

The FY2001 deliverables for the BIO Upgrade for nuclear material are:

- Provide Configurations of Assemblies not in ETC for Weapon Response (03/19/01)
- Provide Weapon Response (07/12/01)
- Resolve High Risk Issues (09/14/01)

The specific tasks for qualification of configurations not in the ETC are as follows:

Note: The activity numbers correspond to the WBS number.

1.2.3 Configurations not in ETC

1.2.3.1 Provide Configurations of Assemblies not in ETC

Scope: Provide Laboratories with the environments and configurations of weapons not in ETC.

Input: ETC Design Criteria (From WBS 1.2.1.2.3)

Deliverables: List of configurations not in ETC and bounding environments configurations will experience

Duration: 15d

Responsibility: Transportation BIO Project Engineer

Cost: \$ 0

- 1.2.3.2 Provide Weapon Response for Configurations not in ETC
- Scope: Provide weapon response and credited design features of configurations of weapons not in ETC to the Transportation BIO Project Manager.
- Input: List of configurations not in ETC and bounding environments configurations will experience
- Deliverables: Weapon Response and Credited Design Features
- Duration: 80d
- Responsibility: LLNL, LANL, Sandia
- Cost: \$ 0
- 1.2.3.3 Resolve High Risk Issues
- Scope: For configurations above EGs, determine additional controls needed to reduce frequency of events. Incorporate into BIO.
- Input: Hazard Analysis
- Deliverables: Additional controls or recommendations to accept risk and BIO update
- Duration: 45d
- Responsibility: Transportation BIO Project Manager
- Cost: \$ 62,791

1.3.5 Incorporation of ETC into Operations

The implementation of the ETC and will be accomplished through the development of a detailed implementation plan. The major activities involved in the implementation of the ETC are included below. The ETC will be implemented on a program by program basis until all configurations have been covered. The steps below will be repeated for each weapon program.

The FY2002 deliverables for the development of the implementation plan for nuclear material controls are:

- Incorporate ETC I into line activities for one program (12/31/01)
- Develop Implementation Plan in accordance with IWAP (12/31/01)

The specific tasks for the ETC Project Plan are as follows:

Note: The activity numbers correspond to the WBS number. "X" in WBS indicates for each weapon program.

1.2.4 Incorporate ETC and High Risk Controls into Operations (Done by Weapons Program)

1.2.4.X.1 Revise Operations Documents

1.2.4.X.1.1 Revise AB Documents

Scope: Revise Authorization Basis Documents (Transportation BIO, Lightning BIO, TSR, ABCD and HAR) to include ETC. This effort includes AB Department internal review.

Input: Revised Hazards Analysis, Transportation BIO and Weapon Response

Deliverables: Revised AB Documents

Duration: 17d

Responsibility: Transportation BIO Project Engineer

Cost: \$ 23,215

1.2.4.X.1.2 Review AB Documents

Scope: Review Authorization Basis Documents (Transportation BIO, Lightning BIO, TSR, ABCD and HAR). This effort includes a parallel review by CRS, ABCCC, DOE and Laboratories

Input: Revised AB Documents

Deliverables: AB Documents Review Comments

Duration: 15d

Responsibility: Transportation BIO Project Manager

Cost: \$ 0

- 1.2.4.X.1.3 Resolve AB Document Review Comments
Scope: Resolve CRS, ABCCC, DOE and Laboratory review comments to the Authorization Basis Documents (Transportation BIO, Lightning BIO, TSR, ABCD and HAR) which include the ETC.
Input: Review Comments
Deliverables: Comment Resolutions
Duration: 9d
Responsibility: Transportation BIO Project Manager
Cost: \$ 12,290
- 1.2.4.X.1.4 Revise AB Documents
Scope: Revise Authorization Basis Documents (Transportation BIO, Lightning BIO, TSR, ABCD and HAR) to include comment resolutions in 1.2.4.X.1.3. This includes ABCCC approval.
Input: Comment Resolutions
Deliverables: Revised AB Documents
Duration: 10d
Responsibility: Transportation BIO Project Engineer
Cost: \$ 13,656
- 1.2.4.X.1.5 Develop IER
Scope: Develop IER based on revised AB documents prepared in 1.2.4.X.1.4
Input: Revised AB Documents
Deliverables: IER
Duration: 5d
Responsibility: LANL, LLNL, SNLA
Cost: \$ 0

-
- 1.2.4.X.1.6 Develop SER
Scope: Develop SER based on revised AB documents prepared
 in 1.2.4.X.1.4
Input: Revised AB Documents
Deliverables: SER
Duration: 5d
Responsibility: DOE
Cost: \$ 0
- 1.2.4.X.1.7 Revise Procedures
Scope: Revise Operations Procedures to include ETC and High
 Risk Controls
Input: Revised Transportation BIO and Revised AB
 documents
Deliverables: Revised Procedures
Duration: 34d
Responsibility: Program Manager
Cost: \$ 38,880
- 1.2.4.X.1.8 Training Personnel
Scope: Train personnel on revised procedures and new
 transportation controls
Input: Revised Procedures
Deliverables: Updated training matrix and training records
Duration: 8d
Responsibility: Program Manager
Cost: \$ 9,148
- 1.2.4.X.1.9 Conduct Technical Assist Validation
Scope: Conduct Technical Assist Validation to ensure controls
 are in procedures, personnel trained and equipment
 modifications meet BIO/TSR/ABCD requirements.
Input: BIO, TSRs, ABCD, procedures and training records.
Deliverables: Technical Assist Report
Duration: 8d
Responsibility: Weapons Program Manager
Cost: \$ 52,183
-

- 1.2.4.X.1.10 Conduct Contractor Readiness Assessment
Scope: Conduct Contractor Readiness Assessment to ensure controls are in procedures, personnel trained and equipment modifications meet requirements.
Input: CRADs
Deliverables: CRA Report
Duration: 5d
Responsibility: Weapons Program Manager
Cost: \$ 35,582
- 1.2.4.X.1.11 Conduct NESS
Scope: Conduct NESS on ETC and Transportation Controls
Input: SIID
Deliverables: NESS Report
Duration: 10d
Responsibility: Operations Directorate
Cost: \$ 148,224
- 1.2.4.X.1.12 Change Authorization Agreement
Scope: Change Authorization Agreement to include update AB documents
Input: List of Updated AB Documents
Deliverables: Updated Authorization Agreement
Duration: 10d
Responsibility: AB Department Manager
Cost: \$ 4,252
- 1.2.4.X.1.13 Conduct DOE Readiness Assessment
Scope: Conduct Contractor Readiness Assessment to ensure controls are in procedures, personnel trained and equipment modifications meet BIO/TSR/ABCD requirements
Input: CRA Report
Deliverables: RA Report
Duration: 10d
Responsibility: DOE
Cost: \$ 27,629

1.4 Out-Years Planned Effort

Work will continue on the implementation of the ETC beyond FY2002. This effort will entail implementation of ETC I and II on a program by program basis in accordance with a plan based on the IWAP and approved by DOE.

2. Project Costs

A total cost of \$3,390,278 will be required to complete the FY2001 and FY2002 work as defined in the plan. A summary is presented in the Table 1 below.

<i>WORK BREAKDOWN STRUCTURE SECTION</i>	<i>FY2001 AND FY2002 COSTS</i>
<i>1.3.1 ETC Project Plan</i>	<i>\$ 91,940</i>
<i>1.3.2 Establish ETC Design Criteria</i>	<i>\$ 9,140</i>
<i>1.3.3 ETC Design and Procurement</i>	<i>\$ 2,855,845</i>
<i>1.3.4 Qualification of Configurations not in the ETC</i>	<i>\$ 62,791</i>
<i>1.3.6 Incorporation of ETC into Operations</i>	<i>\$ 365,060</i>
<i>TOTAL</i>	<i>\$ 3,384,776</i>

3. Risk Assessment

Project risks and mitigation strategies are identified in Table 2 below:

PROGRAM RISKS	MITIGATION STRATEGY	RISK
<i>Some of the technical work involves the use of contractor supplied personnel. A decision to move personnel to another project would require retraining of replacement personnel.</i>	<i>Although the loss of contractor personnel is not always in the control of MHC, efforts will be made for the subcontractor to notify ASAP about the personnel change and provide replacements as early as possible to start the retraining effort.</i>	<i>Low</i>
<i>Nonstandard hazard analysis techniques would cause increased time in conducting hazard analysis.</i>	<i>Most of the hazard analyses have been conducted on full-up units and it is not expected that new techniques will be used. If new techniques are required, MHC will provide that knowledge through the use of subcontractors.</i>	<i>Low</i>
<i>Funding cutbacks could reduce effort.</i>	<i>The project plan is designed and costed at each task. If reductions in funding are identified, DOE will be notified and approval obtained of scope changes.</i>	<i>Medium</i>
<i>Implementation costs could exceed initial estimates.</i>	<i>High cost items will be handled on a case by case basis. Change control will be handled as defined in the plan.</i>	<i>Medium</i>
<i>Several tasks of the project plan are being done by agencies out of MHC control. The output of this work is usually the input of the next task. If tasks are not completed on time, the milestones could be delayed.</i>	<i>The outside agencies of concern are National Laboratories and DOE. This project plan is being written to provide as much lead time as possible to task managers and get concurrence on the schedule and output. Additionally, MHC will work closely with outside agencies and report the result of delays as soon as they are known.</i>	<i>High</i>
<i>The transportation cart design cannot support all design requirements.</i>	<i>Submittal of design to DOE for approval would include residual risk estimates.</i>	<i>High</i>
<i>Original schedules provided in the plan for the implementation of controls phase of the project are based on current knowledge. It is with certain surety that these initial implementation schedules will not be correct.</i>	<i>Original schedules for implementation of controls were done for budget and scheduling purposes. The development of an implementation plan is included in the project and it will be incorporated into the plan when approved. This will allow NESSs and Readiness Assessments to be planned with greater accuracy.</i>	<i>High</i>

4. Project Control and Reporting

4.1 Change Control

Changes to any assumption defined in this plan will result in a change to the baseline of the plan. Change Control Requests will be submitted as necessary. Change approval authority for program and project activities is outlined in Table 4 below.

<i>MILESTONE</i>	<i>CHANGE APPROVAL AUTHORITY</i>
<i>Level 1</i>	<i>AAO - Scope/Milestones/Budget</i>
<i>Level 2</i>	<i>MHC Senior Technical Advisor - Scope/Milestones/Budget</i>
<i>Level 3</i>	<i>MHC Program Manager - Scope/Milestone/Budget</i>

Level 1 milestones are those which are tasks assigned to agencies outside the control of MHC. Level 2 milestones are those tasks, which are within MHC but outside the control of the MHC Program Manager. Those tasks within the control of the MHC Program Manager are Level 3 milestones. All changes to Level 1 scope, schedule and budget activities will be submitted to DOE and documented formally. Change requests will provide, at a minimum, a justification and impact to schedule, scope and/or budget. MHC will maintain a change control log which tracks and retains all levels of change requests (approved or not) to the project. No changes can be approved by one level, which affect a higher level milestone.

4.2 Reporting

Reports will be issued to the MHC Senior Technical Advisor by the 15th of the preceding month that provide the status of the project. The report will provide current status and issues. Variance reports will be issued whenever the following thresholds are exceeded:

- Cost variances of greater than 10% estimates
- Schedule variances of greater than 14 days to MHC controlled milestones
- Changes to scope as identified in the project plan

Project and/or program level emerging issues will be raised and discussed within the agenda of the existing biweekly AAO ABS and MHC interface meeting.

5.0 Project Schedules

5.1 Deliverables and Milestones

A summary of deliverables and milestones is presented in Table 5 below.

<i>DELIVERABLE/MILESTONE</i>	<i>RESPONSIBLE ORGANIZATION</i>	<i>DATE</i>
<i>1.3.1 ETC Project Plan</i>		
<i>Complete Preliminary Plan, Phase I</i>	<i>MHC</i>	<i>10/31/00</i>
<i>Complete Preliminary Plan, Phase II</i>	<i>MHC</i>	<i>01/16/01</i>
<i>Complete CDR Revision to the Project Plan</i>	<i>MHC</i>	<i>05/14/01</i>
<i>Complete the FDR Revision to the Project Plan</i>	<i>MHC</i>	<i>08/22/01</i>
<i>1.3.2 Establish ETC Design Criteria</i>		
<i>Develop the ETC Design Criteria</i>	<i>MHC</i>	<i>10/18/00</i>
<i>Conduct Project Team Review of the ETC Design Criteria</i>	<i>LANL, LLNL, SNLA</i>	<i>11/08/00</i>
<i>Approve ETC Design Criteria</i>	<i>DOE</i>	<i>12/22/00</i>
<i>1.3.3 ETC Design and Procurement</i>		
<i>Complete CDR for ETC I</i>	<i>MHC</i>	<i>03/09/01</i>
<i>Perform Preliminary Faraday Cage Review for ETC I</i>	<i>SNLA</i>	<i>02/23/01</i>
<i>Perform External Review of CDR for ETC I</i>	<i>LANL, LLNL, SNLA</i>	<i>04/30/01</i>
<i>Approve CDR for ETC I</i>	<i>DOE</i>	<i>06/12/01</i>
<i>Complete PDR for ETC I</i>	<i>MHC</i>	<i>06/19/01</i>
<i>Perform Faraday Cage Review for ETC I</i>	<i>SNLA</i>	<i>07/11/01</i>
<i>Perform External Review of PDR for ETC I</i>	<i>LANL, LLNL, SNLA</i>	<i>08/29/01</i>

<i>DELIVERABLE/MILESTONE</i>	<i>RESPONSIBLE ORGANIZATION</i>	<i>DATE</i>
<i>Approve PDR for ETC I</i>	<i>DOE</i>	<i>09/27/01</i>
<i>Initiate Procurement of ETC I Prototypes</i>	<i>MHC</i>	<i>07/12/01</i>
<i>Perform Prototype Test for ETC I</i>	<i>LANL, LLNL, SNLA, MHC</i>	<i>12/18/01</i>
<i>Perform Weapon Response for ETC I</i>	<i>LANL, LLNL, SNLA</i>	<i>03/20/02</i>
<i>Receive Engineering Release for ETC I</i>	<i>LANL, LLNL, SNLA</i>	<i>04/11/02</i>
<i>Receive and Inspect ETC I Prototypes</i>	<i>MHC</i>	<i>11/16/01</i>
<i>Receive and Inspect Additional ETC I for Implementation</i>	<i>MHC</i>	<i>11/20/02</i>
<i>Complete CDR for ETC II</i>	<i>MHC</i>	<i>11/02/01</i>
<i>Perform Preliminary Faraday Cage Review for ETC II</i>	<i>SNLA</i>	<i>10/19/01</i>
<i>Perform External Review of CDR for ETC II</i>	<i>LANL, LLNL, SNLA</i>	<i>01/02/02</i>
<i>Approve CDR for ETC II</i>	<i>DOE</i>	<i>02/13/02</i>
<i>Complete PDR for ETC II</i>	<i>MHC</i>	<i>01/23/02</i>
<i>Perform Faraday Cage Review for ETC II</i>	<i>SNLA</i>	<i>03/06/02</i>
<i>Perform External Review of PDR for ETC II</i>	<i>LANL, LLNL, SNLA</i>	<i>04/25/02</i>
<i>Approve PDR for ETC II</i>	<i>DOE</i>	<i>05/23/02</i>
<i>Initiate Procurement of ETC II Prototypes</i>	<i>MHC</i>	<i>03/27/02</i>
<i>Perform Prototype Test for ETC II</i>	<i>LANL, LLNL, SNLA, MHC</i>	<i>10/30/02</i>
<i>Perform Weapon Response for ETC II</i>	<i>LANL, LLNL, SNLA</i>	<i>02/03/03</i>
<i>Receive Engineering Release for ETC I</i>	<i>LANL, LLNL, SNLA</i>	<i>12/13/02</i>

<i>DELIVERABLE/MILESTONE</i>	<i>RESPONSIBLE ORGANIZATION</i>	<i>DATE</i>
<i>Receive and Inspect ETC II Prototypes</i>	<i>MHC</i>	<i>09/17/02</i>
<i>Receive and Inspect Additional ETC II for Implementation</i>	<i>MHC</i>	<i>11/03/03</i>
<i>1.3.4 Qualification of Configurations not in the ETC</i>		
<i>Provide Configurations of Assemblies not in ETC</i>	<i>MHC</i>	<i>03/19/01</i>
<i>Provide Weapon Response for Assemblies not in ETC</i>	<i>LANL, LLNL, SNLA</i>	<i>07/12/01</i>
<i>Resolve High Risk Issues</i>	<i>MHC</i>	<i>09/14/01</i>
<i>1.3.5 Incorporation of ETC into Operations</i>		
<i>Develop IER</i>	<i>LANL, LLNL, SNLA</i>	<i>09/28/01</i>
<i>Develop SER</i>	<i>DOE</i>	<i>09/28/01</i>
<i>Incorporate ETC 1 into line activities for one Program</i>	<i>MHC</i>	<i>12/31/01</i>
<i>Develop Implementation Plan in Accordance with JWAP</i>	<i>MHC</i>	<i>12/31/01</i>

5.2 Project Schedule

A project schedule is provided in Appendix A of the Plan.

Appendix A

ETC Project Schedule

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost	2000												2001												2002												2003											
						J	A	S	O	N	O	D	E	F	M	A	M	J	J	A	S	O	N	O	D	E	F	M	A	M	J	J	A	S	O	N	O	D	E	F	M	A	M	J	J	A	S	O	N	O	D	E	
1.2 ETC Design/Build																																																					
1.2.1 Establish ETC Design Criteria																																																					
ETRN0190	Develop ETC Design Criteria	11	03OCT00	18OCT00	5,484.0																																																
ETRN0200	Project Team Review of ETC Criteria	1E	19OCT00	08NOV00	0.00																																																
ETRN0210	Incorporation of Comments From Review of ETC	1C	09NOV00	22NOV00	3,656.0																																																
ETRN0220	Approval of ETC Design Criteria	2C	27NOV00	22DEC00	0.00																																																
1.2.2 ETC Design and Procurement																																																					
1.2.2.1.1 Conceptual Design																																																					
1.2.2.1.1.1 Establish Configurations to be put into ETC I																																																					
ETRN0230	Establish Configurations to be put into ETC I	5	03OCT00	10OCT00	7,588.4																																																
1.2.2.1.1.2 Develop CDR																																																					
ETRN0240	Generate Conceptual Design and Analysis	3C	15DEC00	02FEB01	53,640.0																																																
ETRN0250	Determine Cost/Schedule of Designing/Procuring E	1C	05FEB01	16FEB01	8,292.0																																																
ETRN0260	Prepare CDR	1E	19FEB01	09MAR01	26,925.6																																																
1.2.2.1.1.3 Perform Preliminary Faraday Cage Review																																																					
ETRN0270	Perform Preliminary Faraday Cage Review	1E	05FEB01	23FEB01	0.00																																																
1.2.2.1.1.4 CDR Review and Approval																																																					
ETRN0280	Perform MHC Review of CDR	1C	12MAR01	23MAR01	0.00																																																
ETRN0290	Incorporation of Comments from MHC Review	1C	26MAR01	06APR01	3,953.6																																																
ETRN0299	Conduct Project Team Meeting	0	09APR01		0.00																																																
ETRN0300	Perform External Review of CDR	1E	09APR01	30APR01	0.00																																																
ETRN0310	Incorporation of Comments from External Review	1C	01MAY01	14MAY01	3,953.6																																																
ETRN0319	Conduct Project Team Meeting	0		14MAY01	0.00																																																
ETRN0320	Sign off CDR by Project Team	2C	15MAY01	12JUN01	0.00																																																
ETRN0330	DOE/SMT Review of CDR	1C	13JUN01	26JUN01	0.00																																																
ETRN0340	Incorporation of DOE/SMT Review of CDR	2E	27JUN01	01AUG01	9,884.0																																																
ETRN0350	DOE/SMT Approval of CDR	1C	02AUG01	15AUG01	0.00																																																

Start Date 02AUG00
 Finish Date 03NOV03
 Data Date 03OCT00
 Run Date 18JAN01 08 20



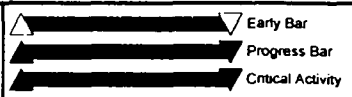
ETC2
 Mason Hanger/Day Zimmerman
 Enhanced Transportation Cart BIO
 Classic Schedule Layout

Sheet 2 of 6

Date	Revision	Checked	Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost	2000												2001												2002												2003																																			
						N			D			J			F			M			A			M			J			J			A			S			O			N			D			J			F			M			A			M			J			J			A			S			O		
1.2.2.1.2 Final Design and Testing																																																																													
1.2.2.1.2.1 Preliminary Design																																																																													
ETRN036	Generate Preliminary Design and Analysis	45	12MAR01	14MAY01	55,987.2																																																																								
ETRN037	Determine Cost/Schedule of Designing/Procuring	10	15MAY01	29MAY01	8,292.0																																																																								
ETRN038	Prepare Draft PDR	15	30MAY01	19JUN01	26,925.6																																																																								
ETRN039	Perform Faraday Cage Analysis	15	20JUN01	11JUL01	0.00																																																																								
ETRN040	Perform Weapon Response	80	20JUN01	12OCT01	0.00																																																																								
ETRN041	Perform MHC Review of PDR	10	12JUL01	25JUL01	0.00																																																																								
ETRN042	Incorporation of Comments from MHC Review of PD	10	26JUL01	08AUG01	3,953.6																																																																								
ETRN0425	Conduct Project Team Meeting	0	09AUG01		0.00																																																																								
ETRN043	Perform External Review of PDR	15	09AUG01	29AUG01	0.00																																																																								
ETRN044	Incorporation of Comments from External Review	10	30AUG01	13SEP01	3,953.6																																																																								
ETRN0445	Conduct Project Team meeting	0		13SEP01	0.00																																																																								
ETRN045	Sign off PDR by Project Team	10	14SEP01	27SEP01	0.00																																																																								
ETRN046	DOE/SMT Review of PDR	10	28SEP01	12OCT01	0.00																																																																								
ETRN047	Incorporation of DOE/SMT Review of PDR	15	15OCT01	02NOV01	5,930.4																																																																								
1.2.2.1.2.2 Procurement of ETC 1																																																																													
ETRN04	Develop Test Plan	90	12JUL01	16NOV01	205,459.2																																																																								
1.2.2.1.2.3 Component Development																																																																													
ETRN04	Perform Prototype Test & Prepare Report	20	19NOV01	18DEC01	114,144.0																																																																								
ETRN04	Perform Prototype Test & Prepare Report	20	19NOV01	18DEC01	0.00																																																																								
1.2.2.1.2.4 Component Integration																																																																													
ETRN05	Modify ETC I Design Based On Prototype	30	19DEC01	06FEB02	44,668.8																																																																								
ETRN05	Perform Faraday Cage Analysis	15	07FEB02	27FEB02	0.00																																																																								
ETRN05	Perform Weapon Response	30	07FEB02	20MAR02	0.00																																																																								
ETRN06	Receive Engineering Release	15	21MAR02	11APR02	0.00																																																																								
1.2.2.1.2.5 Procurement of ETC 1																																																																													
ETRN0530	Develop Specifications for ETC 1 Procurement	15	12JUL01	01AUG01	16,452.0																																																																								
ETRN0540	Request Bids for Procurement of ETC 1	10	02AUG01	15AUG01	13,653.0																																																																								
ETRN0550	Award Contract for Procurement of ETC 1	10	16AUG01	29AUG01	11,378.0																																																																								
ETRN0560	Fabricate ETC 1	50	30AUG01	09NOV01	200,000.0																																																																								
ETRN0570	Receive and Inspect ETC I	5	12NOV01	16NOV01	4,539.0																																																																								

Start Date 02AUG00
 Finish Date 03NOV03
 Data Date 03OCT00
 Run Date 18JAN01 08 20






ETC2
 Mason Hanger/Day Zimmerman
 Enhanced Transportation Cart BIO

Date	Revision	Checked	Approved

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Budgeted Cost	2000												2001												2002												2003																																			
						N			D			E			F			M			A			M			J			J			A			S			O			N			D			E			F			M			A			M			J			J			A			S			O		
1.2.2.1.3 Update Hazard Analysis																																																																													
ETRN0680	Update Hazard Analysis	15	12APR02	02MAY02	5,930.4																																																																								
1.2.2.1.3 Procurement of Additional ETC I																																																																													
ETRN0690	Develop Specifications for Procurement	15	03MAY02	23MAY02	17,791.2																																																																								
ETRN0700	Request Bids for Procurement of ETC I	10	24MAY02	07JUN02	11,378.0																																																																								
ETRN0710	Award Contract for Procurement of ETC I	10	10JUN02	21JUN02	6,826.6																																																																								
ETRN0720	Fabricate ETC I	90	24JUN02	30OCT02	800,000.0																																																																								
ETRN0730	Receive and Inspect ETC I	15	31OCT02	20NOV02	4,539.6																																																																								
1.2.2.2.1 Conceptual Design																																																																													
1.2.2.2.1.1 Establish Configurations to be put into ETC II																																																																													
ETRN0740	Establish Configurations to be put into ETC II	10	16AUG01	29AUG01	9,040.4																																																																								
1.2.2.2.1.2 Develop CDR																																																																													
ETRN0750	Generate Conceptual design	20	30AUG01	27SEP01	55,644.0																																																																								
ETRN0760	Determine Cost/Schedule of Designing/Procuring	10	28SEP01	12OCT01	8,292.0																																																																								
ETRN0770	Prepare CDR	15	15OCT01	02NOV01	23,278.0																																																																								
1.2.2.2.1.3 Perform Preliminary Faraday Cage Review																																																																													
ETRN0780	Perform Preliminary Faraday Cage Review	15	28SEP01	19OCT01	0.00																																																																								
1.2.2.2.1.4 CDR Review and Approval																																																																													
ETRN0790	Perform MHC Review of CDR	10	05NOV01	16NOV01	0.00																																																																								
ETRN0800	Incorporation of Comments from MHC Review of CDR	10	19NOV01	04DEC01	3,953.6																																																																								
ETRN0800	Conduct Project Team Meeting	0	05DEC01		0.00																																																																								
ETRN0810	Perform External Review of CDR	15	05DEC01	02JAN02	0.00																																																																								
ETRN0820	Incorporation of Comments from External Review	10	03JAN02	16JAN02	7,907.2																																																																								
ETRN0820	Conduct Project Team Meeting	0		16JAN02	0.00																																																																								
ETRN0830	Sign off CDR by Project Team	20	17JAN02	13FEB02	0.00																																																																								
ETRN0840	DOE/SMT Review of CDR	10	14FEB02	27FEB02	0.00																																																																								
ETRN0850	Incorporation of DOE/SMT Review of CDR Comments	25	28FEB02	04APR02	9,884.0																																																																								
ETRN0860	DOE/SMT Approval of CDR	10	05APR02	18APR02	0.00																																																																								
1.2.2.2.2 Final Design and Testing																																																																													
1.2.2.2.2.1 Preliminary Design																																																																													
ETRN0870	Generate Preliminary Design and Analysis	25	05NOV01	11DEC01	55,987.2																																																																								

Start Date 02AUG00
 Finish Date 03NOV03
 Data Date 03OCT00
 Run Date 18JAN01 08:20

 Early Bar
 Progress Bar
 Critical Activity

ETC2

Mason Hanger/Day Zimmerman

Enhanced Transportation Cart BIO

Classic Schedule Layout

Sheet 4 of 6

Date	Revision	Checked	Approved

