



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

JUN 29 2001

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 for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, Revision 1, enclosed is the implementation plan (IP) for improved Technical Safety Requirement (TSR) controls for fire protection at the Pantex Plant. This submittal represents closure of 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." The DOE-approved BIO Module and TSR were provided to the Board through the Department's letter dated February 28, 2001. The Department has received the DNFSB's June 21, 2001, letter on this issue. We will provide a briefing on the technical issues raised in the letter and Staff Issue Report, along with plans to implement the Fire BIO and the expected impacts on other programs and activities.

The following provides information regarding the outstanding commitments due through June 2001.

- Commitment 4.3.3, "DOE-approved BIO Module for On-Site Transportation and associated TSR and DOE-approved Implementation Plan for On-site Transportation Controls" -- This commitment is carried over from 5.6.3#3 within the original IP, and was due in February 2001. The purpose of this commitment is to improve the existing site-wide TSR controls for on-site transportation of nuclear explosives at the Pantex Plant. As previously reported, the full-up module is expected to be complete by September 2001.
- Commitment 4.3.7, "Plan for Transportation Carts" -- This is a new commitment as a result of the revised IP, and was due in October 2000. 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. The Board was provided Phase II of the project plan through a letter dated January 31, 2001. In a April 30, 2001, letter, the Department said it planned to provide a revised plan which addresses the Board's concerns as outlined in their letter to the Department dated May 2001. The Department is close to completing the revised plan, which is expected to be provided to the Board in July 2001.

- Commitment 4.3.10, "Conceptual Design Report (CDR) for Fire Alarm System Replacement" and Commitment 4.3.11, "Defense Programs Authorization of Title I for Fire Alarm System Replacement" -- These are two new commitments as a result of the revised IP, and were due in April 2001 and June 2001, respectively. The purpose of these commitments is to design a fire alarm system to replace the existing system since a number of the necessary components to upgrade and maintain the existing system are no longer available. The status of these commitments was provided within a letter from the Assistant Deputy Administrator for Military Application and Stockpile Operations to the Board, dated June 15, 2001. The letter explains how the intent of the commitments is being met through a series of expense funded projects rather than a line item project.
- Commitment 4.4.2, "Revisions to DOE Orders 452.1, 452.2, and DOE-STD-3015 issued" -- This commitment is carried over from 5.4.2 & 5.5.1 within the original IP, and was due in November 2000. The DOE-STD-3015 was published February 2001; a revised version is being coordinated with the Board staff. Both draft Orders were submitted to the DOE Field Management Council on April 18, 2001. Due to concerns raised on all new or revised Orders by the Office of General Counsel regarding responsibilities within the National Nuclear Security Administration, the two Orders are expected to complete the administrative processes for publication no earlier than August 2001.
- Commitment 4.4.3, "Revisions to Albuquerque Operations Office (AL) Supplemental Directives 452.1 and 452.2 issued and Impact Analysis and DOE-approved Implementation Plan (as required)" -- This commitment is carried over from 5.4.2 and 5.5.1 within the original IP, and was due in February 2001. The purpose of this commitment is for AL to issue revisions to its supplemental directives to align with the changes to DOE Orders 452.1, 452.2, and DOE-STD-3015 and invoke applicability of the revised directives through the existing contract structure for the Pantex Plant. The Pantex M&O contractor will then provide an impact analysis and an implementation plan, if warranted, to achieve compliance with the new requirements. Upon completion of commitment 4.4.2, AL will publish its corresponding Supplemental Directives and request the impact analysis. The contractor has 30 days to deliver the impact analysis and if warranted, their implementation plan.
- Commitment 4.4.4, "Revisions to Nevada Operation Office (NV) Supplemental Directives 452.1 and 452.2 issued and Impact Analysis and DOE-approved Implementation Plan (as required)" -- This commitment is carried over from 5.4.2 and 5.5.1 within the original IP, and was due in February 2001. The purpose of this commitment is for NV to issue revisions to the NV Orders to align with the changes to DOE Orders 452.1, 452.2, and DOE-STD-3015 and invoke applicability of the revised directives through the existing contract structure for the Nevada Test Site. The management and operating contractor and the design laboratories will then provide an impact analysis and implementation plan, if warranted, to achieve compliance with the new requirements. Pursuant to the Department's directive

process, a supplemental directive cannot be published until the corresponding order has been issued. Upon completion of commitment 4.4.2, NV will publish its corresponding Supplemental Directives and request the impact analysis. The contractor and design labs have 30 days to deliver impact analyses and if warranted, implementation plans.

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

Enclosure

cc w/enclosure:

Defense Nuclear Facilities Safety Board

625 Indiana Avenue, NW

Suite 700

Washington, DC 20004

Attn: J. McConnell, DNFSB Staff

Attn: W. Andrews, DNFSB Staff

~~W. Whitaker, S-3-1, HQ~~

D. Beck, DP-20, HQ

bcc w/enclosure:

T. Evans, DP-22, HQ

M. Mikolanis, S-3.1

M. Reaka, AAO/PWT

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D. Glenn, AAO

D. Brunell, AAO

K. Boardman, WPD

S. Schwartz, WPD, AL

D. Ruddy, BWXT

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: JUN - 8 2001

REPLY TO
ATTN OF: AAO:ABS:KEW

SUBJECT: Approval of Implementation Plan for the Fire Basis for Interim Operation (FBIO) Controls

TO: Dennis R. Ruddy, President & General Manager, BWXT Pantex LLC

Ref: Letter Ruddy/Glenn, Submittal of Revised Fire Protection Basis for Interim Operation (FBIO) Controls Implementation Plan, dated April 18, 2001

The reference implementation plan (IP) is approved with the condition that the IP must be revised to identify when the Technical Safety Requirement associated with the ultra-violet activated deluge suppression systems will be implemented.

The following issues are not required to be addressed in the FBIO IP, however, you are requested to evaluate the concerns and address the results of your evaluation, as well as any actions you deem appropriate, in a report to me within 30 days of the date of this memorandum.

Implementation of the Technical Safety Requirements derived from the FBIO analysis must be complete to support the W78 weapons program. It does not appear the FBIO IP will support that requirement. Please describe the actions you intend to take to assure the new TSRs related to controlling fire hazards will be implemented for the W78 program.

The IP indicates actions to revise operating procedures and complete equipment modifications to implement the FBIO controls will be finished in a time frame that extends from August 2001 to November 2001. However, the first contractor readiness assessment (which is required to permit operation under the FBIO controls) does not occur until 2002. It is unclear why readiness assessments cannot begin more quickly to facilitate an earlier implementation of FBIO controls.

Questions in regard to these matters should be referred to Karl Waltzer at extension 3148.


Dan Glenn
Area Manager

cc:
D. Beck, DP-20
K. Boardman, DOE-AL/WPD
R. Glass, DOE-AL
C. Durham, BWXT
L. Eppler, BWXT
D. Brunell, 12-36
D. Schmidt, 12-36
K. Waltzer, 12-36



P.O. Box 30020 Amarillo, Texas 79120 806/477-3000

APR 18 2001

Mr. Daniel E. Glenn, Area Manager
Amarillo Area Office
U.S. Department of Energy
Amarillo, TX

Subject: Submittal of Revised Fire Protection Basis for Interim Operation (FBIO) Controls Implementation Plan

- Ref:
- 1) B.J. Pellegrini ltr to D.E. Glenn, subject: "Submittal of Revised Fire Protection Basis for Interim Operation Implementation Plan", dated December 15, 2000
 - 2) D.C. Brunell ltr to B.J. Pellegrini, subject: "Pantex Plant Fire Protection Basis for Interim Operations (BIO) Controls Implementation Plan", dated January 8, 2001
 - 3) D.E. Glenn ltr to D.R. Ruddy, subject: "Approval of the Fire Protection Basis for Interim Operation", dated February 27, 2001

Dear Mr. Glenn:

The purpose of this letter is to submit the revised FBIO Controls Implementation Plan. The FBIO and associated Technical Safety Requirements (TSRs) were submitted and approved. The FBIO controls Implementation plan was disapproved.

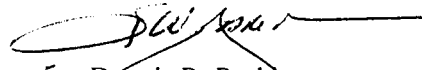
This revision to the Implementation Plan includes a substantial acceleration in the schedule of controls implementation, incorporates proposed resolutions to the comments in reference (2), and specifically addresses comments in reference (3).

Some actions in the Implementation Plan are in progress, including enabling the Ultra-violet (UV) detector activation of deluge, the use of combustibles carts, and the overall reduction of the quantity of combustibles in the production bays and cells. The Implementation Plan assumes an approval date of April 30, 2001. A Change Control Request (CCR) that will transfer the required funding to the Implementation Project will be approved by April 30, 2001, so that procurement action can start to hire an outside contractor to support Fire Protection Engineering on the critical path of the project.

Robin Madison is the Project Sponsor for this project and is available to answer questions at (806) 477-7719. Jim Stevens is the Project Manager for FBIO Controls Implementation. He is available to brief your staff on the details of the plan at your convenience.

If you have any questions, please contact Robin Madison of my staff at (806) 477-7719.

Very truly yours,



Dennis R. Ruddy
Dennis R. Ruddy
General Manager

dlc

Attachment: As Stated

cc: D.C. Brunell, DOE/AAO, 12-36A
J.M. Conti, DOE/AAO, 12-36A
R.E. Phillips, DOE/AAO, 12-28
D.B. Ryan, DOE/AAO, 12-28
D.D. Schmidt, DOE/AAO, 12-36A
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C.R. Durham, Engineering, 12-6
V.T. Hughes, Quality Assurance, 12-6D
R.M. Madison, RTBF Programs, 12-69A
C.J. Moore, Infrastructure, 12-6D
J.J. Noon, SS&EO, 12-36B
G.E. Pool, Planning/Scheduling & Integration, 12-69A
L.K. Trent, Health, Safety, & Quality, 12-6D
L.L. Eppler, AB, 12-127
J. Stevens, RTBF Programs, 12-69B
P.B. Jones, AB, 12-127
File copy

PANTEX PLANT

FIRE PROTECTION BASIS FOR INTERIM OPERATION TECHNICAL SAFETY REQUIREMENTS CONTROLS IMPLEMENTATION PLAN

Issue H

BWXT Pantex

DOE Pantex Plant, Amarillo, Texas

April 12, 2001

**BWXT PANTEX
PANTEX PLANT**

Fire BIO TSR Controls
Implementation Plan

Approval Signatures:



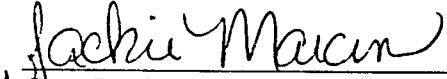
Robin Madison
RTBF Programs Director

4/12/01
Date



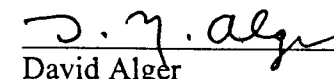
John Clayton
DSW Programs Director

4/12/01
Date



Gary Pool
Integrated Planning Director

4-12-01
Date




David Alger
Operations Division Manager

4/12/01
Date



Cheri Moore
Infrastructure Division Manager

4/12/01
Date



Carl Durham
Engineering Division Manager

4/12/01
Date



Virgil Hughes
Quality Division Manager

4/12/01
Date



John Noon
Safeguards, Security & Emergency Operations
Division Manager

4/16/01
Date

TABLE OF CONTENTS

1.	Executive Summary	4
2.	Background	5
3.	Scope of Implementation	6
4.	Implementation Organization	6
5.	Implementation Strategy/Approach	7
6.	Implementation Process	11
7.	Implementation Verification	20
8.	Responses to DOE/AAO Concerns and Comments	21
9.	Summary Schedule and Major Milestones	23
10.	Summary Cost Estimate	24
11.	Assumptions and Risks	26
12.	Production Impacts	27
13.	Change Control	29
14.	Appendices	29

1. Executive Summary

The Fire Protection Basis for Interim Operation (Fire BIO) Technical Safety Requirements (TSR) revision controls implementation will be managed as a formal project. A dedicated full time project manager is assigned to Fire BIO TSR controls implementation. A senior manager, the Director of Readiness & Technical Basis Facilities (RTBF) Programs, is assigned as the project sponsor. The project has an approved charter and an approved scope. A project team has been selected and assigned in the project charter. Senior management milestone reviews will be conducted to assure cost, schedule, and quality objectives are being met.

The project scope implements the TSR controls for fire protection developed by the Fire BIO, and incorporates the comments of the Fire BIO Safety Evaluation Report (SER).

The strategy assures provisions of the Fire BIO TSR controls are incorporated in facilities and operating processes, using a two prong approach. Facility Managers, Weapon Process Engineers, and operating personnel will update operating procedures to incorporate TSR controls, and Fire Protection Engineers will update systems design descriptions (SDDs) to incorporate TSR controls.

The strategy to take TSR credit for the controls is to conduct Contractor Readiness Assessments (CRAs) to confirm that the applicable controls are flowed into procedures, standards, surveillances, and training. The CRAs will be conducted by "operating program" which includes the weapon programs, special purpose facilities, staging facilities, and ramps and corridors. It is expected that the Department of Energy/Amarillo Area Office (DOE/AAO) will conduct validations of the CRAs.

As many of the TSR controls as possible will be incorporated in processes and facilities as a high priority. This action will improve the safety posture associated with potential fires as soon as possible. Some of these initial actions include: eliminating unnecessary combustibles, purchasing and installing combustible materials storage carts, and incorporating reasonable stand-off distances. No TSR credit will be taken until a CRA confirms incorporation of the control.

The ultra-violet (UV) detector deluge activation feature is being made fully functional concurrently with the final stages of the Fire BIO approval and the Fire BIO TSR control implementation project initiation. The UV deluge activation feature in some facilities is already functional. Full credit will be taken when the stand-off distances are established.

There are two activities in the project that are the limiting factors in the schedule. The first is the effort to revise the Nuclear Explosive Operating Procedures (NEOPs) and to train technicians on the changes. This activity has a predecessor of performing a Fire Hazards Analysis (FHA) of the weapon process. The second, and most limiting activity, is the effort to validate and revise the controlled drawings for fire suppression systems and fire detection and alarm systems, and to create new controlled drawings for the fire barrier (walls) in all nuclear facilities. The limited available number of qualified Weapon Process Engineers for the NEOP work, and the limited number of security cleared Fire Protection Engineers or contractors for the drawing work drives the completion date of this project.

The project schedule indicates that all weapon programs will be operating under Fire BIO TSR controls by June 2002, special purpose facilities by late July 2002, staging facilities by July 2002, and ramps and corridors by August 2002. The LINAC, mass properties, and vacuum chamber are operating to TSR controls associated with the W88 and W76 programs.

The overall value of the effort to implement the Fire BIO TSR controls is \$6.77M.

2. Background

As part of the Authorization Basis (AB) Upgrade Program, the Operating Contractor developed a Basis for Interim Operations pertaining to fire events at the Pantex site. The Fire BIO was written in accordance with the guidance of DOE-STD-3009-94, *Preparation Guide For U.S. Department Of Energy Nonreactor Nuclear Facility Safety Analysis Reports*, for Chapters 2 through 5.

The fire protection controls implemented by this plan are based on the conclusions documented in the Fire BIO. The controls developed in the Fire BIO confirmed the recommendations of the Fire Protection Project Team in the *Nuclear Explosives Fire Protection Criteria for the Pantex Plant*.

The Fire BIO was developed concurrent with the development and approval of the AB for the W62, W76, and W88 weapon programs. Therefore, varying degrees of implementation of the new fire protection controls are present in each of the weapon program AB documents.

The W62 incorporated the flammable liquid controls and the use of stand-off for process supplies, but did not consider all of the facility combustibles in the FHA.

The W76 included the evaluation of all facility and program combustibles, implementation of the combustible controls and qualified cabinets, and establishment of stand-off distances for all combustibles. However, the W76 did not consider the UV activation of the deluge. Therefore, the stand-off distance for the W76 was based on a combination of heat detectors and operator-activated deluge. A subsequent TSR change added the manual activation of the deluge suppression system to support the stand-off distances.

The W88 weapon-specific AB documents were developed to fully implement the new fire analysis and controls, (with the exception of no combustibles on the floor requirement) and credit the UV activated deluge in developing stand-off distances. A TSR change was required to add the UV detectors as an initiator of the deluge system.

A sub-project to this project addresses the hook-up of the UV activation feature to activate the deluge system. When completed, the UV detectors, heat detectors, and manual activation devices will be capable of activating the deluge. The UV activation feature for the deluge will be in place before crediting UV activation of the deluge system in the TSRs. The inclusion of the UV detectors as a deluge activation device in the TSRs is addressed in this implementation plan.

The Fire BIO and associated TSR change were delivered to the DOE/AAO on June 30, 2000, and resubmitted on October 6, 2000. The Fire BIO included: a Description of Facilities (Chapter 2), an Analysis of Fire-Related Hazards and Accidents (Chapter 3), a description of the critical safety controls (Chapter 4), and Derivation of TSR (Chapter 5). The TSR identified controls including: fire barriers, vegetation control, fire suppression system, separation distance, ignition control, flammable vapor control, and containers. The TSRs included: Limiting Conditions for Operations (LCOs), which described the minimum operability of systems and components, including surveillance requirements; Administrative Controls, including management and procedures; and Design Features, passive characteristics not subject to change by technicians, and associated In-Service Inspections necessary to maintain the assumptions made in the accident analysis.

3. Scope of Implementation

The scope of the Fire BIO TSR Revision Controls Implementation Project is included as Attachment One. In summary, the project scope implements the TSR controls for fire protection developed by the Fire BIO, and incorporates the comments of the Fire BIO SER.

Cost and schedule estimates in this plan are based on the current scope statement. Emergent Fire BIO controls implementation issues will be handled as scope changes, which may affect final schedule and cost.

4. Implementation Organization

Implementation of the Fire BIO TSR revision controls will be managed as a formal project including a project charter, a project plan (this Implementation Plan), a Primavera Project Plan schedule, and milestone reviews by senior management and project team members from major participating departments.

- **Project Sponsor**
Robin Madison, Director of RTBF Programs
- **Project Manager**
Jim Stevens (PMP), RTBF Staff
- **Ultra-violet Detector Deluge Activation Sub-Project Manager**
Steve Ufford, Operations Division
- **Authorization Basis**
Jim Myers, Engineering Division
- **Nuclear Facility Management**
Les Gipson, Operations Division
- **Fire Protection Engineering**
Robert McClary, Infrastructure Division
- **Weapons Operations**
David Rhoten, Operations Division

- Weapon Process Engineering
Terry Montgomery, Engineering Division
- Technical Documents
Steve Young, Infrastructure Division
- Facility and Equipment Repairs and Modification
Dale Stapp, Infrastructure Division
- Nuclear and Nuclear Explosive Operating Procedures
Suzanne Guleke, Engineering Division
- Financial Assistance
Sheila Moore, Infrastructure Division
- Primavera Entry and Management
Jay Roberts, Infrastructure Division

5. Implementation Strategy/Approach

On a high priority basis, the Operations Division will incorporate as many of the Fire BIO TSR Revision Controls as possible in all weapon programs processes and special purpose facilities, before the completion of a CRA. No credit will be taken in the AB for these initial actions, which include eliminating unnecessary combustibles, purchasing and installing combustible materials storage carts, and incorporating reasonable stand-off distances.

The strategy to assure provisions of the Fire BIO TSR controls are incorporated in facilities and operating processes will be a two prong approach. To assure TSR controls are incorporated in operating procedures, Weapon Process Engineers, Facility Managers, and Operations Managers review the process and record necessary actions in Combustible Loading Disposition (CLD) Tables. The tables will be used to assure NEOPs and facility procedures accurately reflect the TSR controls. To assure TSR controls are reflected in operating facilities and safety systems, the Fire Protection Engineers examine facilities and systems and update SDDs and controlled drawings.

Implementation of the Fire BIO TSR controls requires changes to NEOPs, changes to plant standards, changes to facility procedures and pre-operational checks, changes to surveillance procedures and in-service inspections, facility modifications, tooling (storage carts) changes, an analysis of containers used for storage of nuclear material, and training. All these changes will be incorporated in a complicated mix of weapons programs and operating facilities. TSR controls will be carried to shop floor procedures in NEOPS, facility procedures, plant standards, surveillance procedures, in-service inspections, and pre-operational checks.

The strategy of this project is to take TSR credit for the controls after a CRA confirms that the applicable controls have been flowed into procedures, standards, surveillances, and training. The CRAs will be conducted by "operating program" and other identifiable groups:

- Ten Weapon Programs (W56, B61, W62, W76, W78, W79, W80, B83, W87, and W88). Operating bays and cells will be checked with the program. The W76 and W88 are currently operating under Fire BIO controls, but will be re-reviewed to confirm flowdown to the latest revision of TSRs.
- Sealed Insert (SI) program.
- Staging Facilities (Cell 8, vaults, Zone 4 west magazines).
- Special Purpose facilities, including LINAC, Mass Properties, Vacuum Chamber, Manifold Bay, Tritium Bay, Laser gas sampling, Separation Testing, Air Bearing, and Cell 8.
- Transportation in ramps and corridors in the Material Access Area (MAA).
- Others, such as High Pressure Fire Loop, vegetation control, Fire Department response, and bulk fuel trucks.

In this way there will be a CRA of every control in every applicable program and every applicable facility. At the completion of the CRA, credit will be taken for the control.

For purposes of planning and monitoring the Fire BIO TSR revision controls implementation, the numerous controls have been organized in three groups and applied to facilities, and weapons programs in facilities.

5.1. Limiting Conditions for Operations (LCO)

- (a) Deluge systems (including UV, manual, and heat detector activation)
- (b) Wet pipe sprinkler systems
- (c) High Pressure Fire Loop (including fire pumps and water supplies)

5.2. Administrative Controls (ACs)

- (a) Combustible Controls (AC5.6.3.1 - 5.6.3.7)
 - Identify facilities and materials, and verify they are bounded by the analyses
 - Identify combustibles and document in FHA/CLD
 - Eliminate combustible materials, where appropriate
 - Containerize combustible material (carts, cabinets, spill proof/CLD containers)
 - Control of combustible materials (stand-off, document in FHA)
 - Control of transient combustible material (direct control)

- (b) Flammable Liquid Controls (AC 5.6.3.8)
 - Evaluate the use of non-flammable substitute
 - Use Task Exhaust during use of flammable liquids; or drying times and stand-off distances
 - Electrostatic discharge and spark-producing controls invoked
 - Fire Department accompany fuel trucks in the MAA
- (c) Fire Watches and Patrols (AC5.6.3.9)
 - Fire patrol stationed during fire suppression inoperability
 - Fire Watches stationed after 24 hours of inoperability
- (d) Bay Interlock combustible control (AC 5.6.3.10)
 - Bay inner equipment door shall be maintained closed
- (e) Personnel Response (AC 5.6.3.11)
 - Personnel may attempt to extinguish the fire or evacuate the facility
- (f) Control of combustibles outside a facility (AC 5.6.3.12)
 - Control combustibles outside the facility when they could result in the fire barrier failure
- (g) Fire Department Response (AC 5.6.3.13)
 - Fire Department shall respond to a facility fire alarm to assure water flow
- (h) Facility Crane Location (AC 5.6.3.14)
 - Parked to not obstruct UV detectors
- (i) Approved container and storage system program (AC 5.6.9)
 - Approved containers qualified to a maximum facility fire in the facility FHA
- (j) Walker Spotter (AC 5.6.22.19)

5.3. Design Features (DF)

- (a) Fire Barriers (DF1.1- 1.5)
 - Prevent external fires from resulting in internal fires

- (b) Combustible storage carts, cabinets, desks (DF.X1.1)
 - Prevent contents from becoming involved in a fire
- (c) Flammable Liquid Storage Cabinet (DF X.1.2)
 - Control combustible material use in Nuclear Explosive (NE) operations, Nuclear Materials (NM) operations or NE staging by limiting the fuel available for a fire
- (d) Spill Proof Container (DFX1.3)
 - Mitigates the potential quantity of spilled flammable liquid
- (e) Combustible storage container (waste receptacle) (DFX1.4)
 - Container equipped with a lid
- (f) Wet Pipe Suppression System (DF.X2)
 - Spray water on fires to control. Design and installed per National Fire Protection Association (NFPA)
- (g) Deluge Fire Suppression (DFX.3)
 - Mitigate effects of a fire to prevent High Explosive Violent Reactions (HEVR). Designed and installed per NFPA
- (h) High Pressure Fire Loop (DFX.4)
 - Mitigate the effects of a fire to prevent HEVR. Designed and installed per NFPA
- (i) Task Exhaust (DFX.5)
 - Limit the concentration of flammable vapors. Face velocity 150 fpm

The Fire BIO TSR controls do not align specifically with either nuclear facilities or weapon programs. The table in Attachment 2 connects the specific control to specific facilities based on the "operating program" in the facility. The column marked "schedule identifier" indicates which CRA verifies the controls in place in a particular facility and therefore the date "credit" is taken.

6. Implementation Process

6.1. Fire BIO TSR Implementation Project Work Breakdown Structure

- 6.1.1 An upper level work breakdown structure is provided in Attachment 3. All tasks associated with implementing the Fire BIO TSR revision controls have been identified, including the tasks specified in the SER. Each task has been resource estimated by job code and man-hours required. Each task has been aligned to a "deliverable" so that project progress can be monitored. Each deliverable has been "logic" sequenced to the other deliverables that require its completion. The tasks, deliverables, resources, and logic sequences have been loaded into a Primavera project plan.
- 6.1.2 The provisions of the Fire BIO TSR revision will be implemented in 19 steps which are summarized below:
- (a) Incorporate as soon as practical, as many required fire protection actions as possible in all weapons programs and nuclear facilities, including combustibles carts, minimization of combustibles, and containers (on-going and not included in the project plan).
 - (b) Fire Protection Engineering will prepare a training guide and train Facility Managers, Production/Operations Managers, Weapon Process Engineers, and Safety Engineers on performing combustible loading walkdowns in support of CLD reports. (WBS 4.1 and 4.2)
 - (c) Facility Managers, Production/Operations Managers, and Weapon Process Engineers will walkdown each operating program and identify and tabulate the actions and changes needed to implement the control in that operating program in that facility. The tabulated results will be provided to Fire Protection Engineering for review and approval, in the form of a CLD Table. (WBS 4.3 and 4.4)
 - (d) Fire Protection Engineers will update SDDs with the Fire BIO TSR controls. (WBS 4.5) This includes a new SDD for fire barriers and walls of each associated facility.
 - (e) Combustibles storage carts will be purchased and installed. Tooling and testers will be reviewed to assure there is no conflict with Fire BIO TSR controls. (WBS 4.12)
 - (f) Facility Managers will modify facility procedures and pre-operational checks, and Weapon Process Engineers will modify NEOPS to incorporate the provisions of the approved CLD Reports. (WBS 4.6 and 4.8)
 - (g) Six weapon programs (W62, W76, W79, W56, W87, and W88) Activity Based Control Documents will be modified to remove Fire BIO controls and refer to the TSR. (WBS 4.7)

- (h) Surveillance procedures and in-service inspections procedures will be modified to incorporate TSR provisions. (WBS 4.9)
- (i) Plant Standards will be revised to reflect the Fire BIO TSR controls. (WBS 4.10)
- (j) Some facilities will be repaired to correct fire barrier deficiencies. Other Fire BIO TSR related facility modifications will be accomplished. (WBS 4.11)
- (k) Packaging Engineering will evaluate containers to meet Fire BIO TSR controls. (WBS 4.13)
- (l) The UV detectors/deluge activation will be activated. (WBS 4.14)
- (m) Production personnel will be trained on the new NEOPS, facility procedures, plant standards and pre-ops. (WBS 4.15)
- (n) Crafts personnel who work in the MAA will be trained on provisions of the Fire BIO TSRs. (WBS 4.16)
- (o) All Personnel Assurance Program (PAP) personnel will be trained on provisions of the Fire BIO TSR controls, using flexible continuing training. (WBS 4.17)
- (p) Remaining Pantex personnel will be informed of their responsibilities to the Fire BIO TSR controls through "Read and Sign" sheets. (WBS 4.18)
- (q) A Technical Assist (TA) and a CRA will be conducted on each weapon program, each special purpose facility, staging facilities, and ramps. There will also be a CRA of the HPFL controls, vegetation controls, and Fire Department response. (WBS 4.19)
- (r) TSR credit will be taken when the associated program is evaluated by the CRA.
- (s) The DOE may validate the implementation, and Nuclear Explosive Safety Studies may be conducted if determined to be necessary. (WBS 5.1 and 5.2)

6.2. Fire BIO TSR Controls Implementation

- 6.2.1 The Fire BIO TSR controls consist of engineered controls and administrative controls. A listing of the engineered controls and how they will be implemented is contained in the tables in Section 6.5. A listing of the administrative controls and how they will be implemented is contained in Section 6.6.

6.3. Engineered Controls

- 6.3.1 The engineered controls in the Fire BIO TSR revision include active operating systems (including the fire suppression systems and HPFL), and passive design features (containers, storage cabinets, and facility fire barriers). Each active operating system TSR control feature must be periodically verified with a surveillance to assure compliance with the applicable LCO. Each passive design feature must be periodically checked with an In-Service Inspection (ISI) of the attributes of the design feature.
- 6.3.2 Surveillance procedures and ISI procedures have been previously prepared, but will be reviewed to assure compliance with the latest version of the Fire BIO TSR requirements.

Table 1 - Engineered Controls Implementation

Control	Implementation Method	Responsible Organization
Wet Pipe Fire Suppression System (LCO 3.4.1)	Surveillance Requirements, PM System Procedures	Maintenance and Work Control (MWC) and Maintenance Dept (MD)
High Pressure Fire Loop (LCO 3.4.4)	Surveillance Requirements	MWC and MD
Deluge Fire Suppression System (LCO 3.4.6)	PM system Procedure	MWC and MD
Facility Structure as a Fire Barrier (DF 1.1, 1.2, 1.3, 1.4, 1.5)	ISI procedure Plant Standard 4321	MWC and MD Fire Protection Engineering
Combustible Storage Carts/Cabinets/Cabinet Desks (DF X1.1) (ISI)	ISI Procedure	MWC and MD
Flammable Liquid Storage Cabinet (DF X1.2) (ISI)	ISI Procedure	MWC and MD
Spill Proof Container (DF X1.3) (ISI- shiftly inspection)	Pre-op checks	Operations
Approved Combustible Storage Containers (Waste) (DFX1.4) (ISI) Annual	ISI Procedure	MWC and MD
Wet Pipe Fire Suppression System (DF X.2) (ISI) annual	ISI Procedure	MWC and MD
Deluge Fire Suppression System (DFX.3) (ISI) annual	ISI inspection	MWC and MD

Table 1 - Engineered Controls Implementation (Continued)

Control	Implementation Method	Responsible Organization
High Pressure Fire Loop (DF X.4) (ISI)	ISI procedure	MWC and MD
Task Exhaust (DFX.5) (ISI)annual - shiftly	Currently in IOP-D-6242 Pre-op	ESH&Q Operations

6.4. Administrative Controls

6.4.1 Process Fire Hazards Analysis (Combustibles Loading Disposition)

- (a) One of the Administrative Controls (AC) identified for the Fire Protection Program is an FHA. An FHA is required for every process, including staging and storage, and the associated facility. To avoid confusion with Facility FHA, the FHA will be called a CLD. A CLD identifies, evaluates, and disposes the combustible materials associated with an NE or NM Operation.
- (b) A CLD includes:
 - (1) A brief description of the facility and fire suppression system present in the facility.
 - (2) An analysis of the process to identify the type and amount of combustible material involved.
 - (3) Disposition of the combustibles (removal, substitution, relocation, containerization, and elimination thorough evaluation).
 - (4) A determination of stand-off distances needed for each operation performed in the facility.
 - (5) A fire modeling analysis of materials that cannot be eliminated, and associated stand-off distances.
- (c) A CLD of the detail indicated in the preceding list is required for each of 10 weapon programs, the Sealed Insert Program, and various special processes, such as LINAC operations and Laser Sampling.

- (d) A method similar to the approach Pantex uses to verify compliance with the National Electric Code (NEC) will be used. Fire Protection Engineers will train Nuclear Facility Managers and Production Managers/Operations Managers to perform the walkdowns of the weapons process, focusing primarily on combustibles. Data from the walkdowns will be recorded in tabular form, and dispositioned in accordance with the Combustibles Loading Disposition Guide. Fire Protection Engineers will review and approve the results of the walkdowns. The tables will be provided to Weapon Process Engineers as input to develop facility layouts and NEOPS. Technical writers will prepare modifications to the procedures. On completion of procedures and layouts, the weapon program operations will be temporarily suspended for training of technicians and reconfiguring of the bay or cell. Using the NEC walkdown approach to identify process combustibles and combustible controls will provide the highest level of fire protection safety in the shortest amount of time.
- (e) A CLD will be performed on all nuclear explosive operating facilities, all nuclear facilities, all special purpose facilities, all nuclear explosive and nuclear staging facilities, and all Zone 12 MAA ramps and corridors.

6.4.2

System Design Description (SDD) Updates

- (a) In a parallel path with the CLD effort, Fire Protection Engineers will validate and update the Fire Protection Chapter in the SDD, including revising the one-line drawings. In a change from current practice the TSRs have now invoked the nuclear facility walls as fire barriers and a TSR control. As such, the fire barrier must now be controlled in configuration management, which demands that every wall of each nuclear facility must be drawn to show all penetrations and all penetrations must be labeled. Additionally, Fire Protection Engineering must create a new SDD Chapter for Fire Barriers. In the project, this effort will become the limiting path to achieving full compliance with the Fire BIO TSR controls.

Fire Protection Engineering's facility configuration confirmation and SDD updates will be performed in the following facilities:

- (1) Operating Programs
 - 12-44 (2-6)
 - 12-84 (2-9, 11-13, 15-18)
 - 12-85
 - 12-96
 - 12-98
 - 12-99 (1-7)
 - 12-104 (1-15)

(2) Special Purpose Facilities

- 12-41 Paint Bay
- 12-50 Separation Test
- 12-60 (1-3) Mass Properties and Air Bearing
- 12-44-8
- 12-64
- 12-84 (1, 10, 14)
- 12-99 (8-9)
- 12-104-16 Vacuum Chamber

(3) Staging Facilities

- 12-26 Pit Vault
- 12-42 North Vault
- 12-58 (4-5) NM Storage
- 12-60 (4-6)
- 12-66
- Zone 4 West Magazines

(4) Building 12-116 is not addressed in the Fire BIO and is not in the scope of this project.

6.4.3 Administrative Controls Flowdown

- (a) The Administrative Controls in the TSR will be carried in shop floor procedures as indicated in Table 2.
- (b) In the table the term FHA is consistent with the usage of the term in the TSR; it refers to a combination of the CLD Table that the Facility Manager, Production Manager, and Process Engineer develop and the analysis information provided by Fire Protection Engineering.

Table 2 - Administrative Controls

Control	Method of Implementation	Responsible Organization
Fire Protection Program established AC 5.6.3	Elements below	As indicated below
Identification of facilities and affected components and materials AC -5.6.3.1	FHA (CLD) Revise Plant Standard STD-4322 to require Fire Hazard Analysis IAW TSR	FM/PM/PE Fire Protection Engineering Publish by 9/30/01
Identify potentially combustible materials and components AC 5.6.3.2	FHA (CLD) Revise Plant Standard STD-4253 for Flammable Materials	FM/PM/PE Fire Protection Engineering Publish by 9/30/01

Table 2 - Administrative Controls (Continued)

Control	Method of Implementation	Responsible Organization
Eliminate combustible material AC 5.6.3.3	FHA (CLD) Revise Plant Standard STD-4230, Combustibles Loading,	FM/PM/PE Fire Protection Engineering
Containerize combustible material AC 5.6.3.4	FHA (CLD) Revise Plant Standard STD-4230	FM/PM/PE Fire Protection Engineering
Control of exposed combustible material AC 5.6.3.5	FHA (CLD) Revise Plant Standard STD-4230	FM/PM/PE Fire Protection Engineering
Control of transient combustible material AC 5.6.3.6	Revise Plant Standard STD-4230	Fire Protection Engineering
Application of combustible material control (containerization, stand-off, direct control) AC 5.6.3.7	Established in FHA (CLD) Implemented in the NEOP	FM/PM/PE PE
Flammable liquid controls/bulk fuel AC 5.6.3.8	Plant Standard STD-4253 will require Fire Department to escort bulk fuel trucks	Fire Protection Engineering
Fire Watch and Fire Patrol AC 5.6.3.9	Plant Standard STD-4228, Fire Watch	Fire Protection Engineering
Bay interlock combustibles control AC 5.6.3.10	FHA (CLD) Facility Procedure F-750xx	FM/PM/PE
Personnel response/Operator action AC 5.6.3.11	Plant Standard STD-4230	Fire Protection Engineering
Control of combustibles outside a facility/vegetation AC - 5.6.3.12	New Plant Standard Vegetation control	Maintenance
Fire Department response/Water flow AC 5.6.3.13	New Plant Standard	Fire Department
Crane location AC - 5.6.3.14	Facility Procedure F-75001 Facility Manager Facility Layout Bay Pre-operational Check	Facility Manager

Table 2 - Administrative Controls (Continued)

Control	Method of Implementation	Responsible Organization
Approved Container Program AC- 5.6.9	Update Approved Containers Manual	Packaging Engineering
Walker Spotter AC 5.6.22.19	Revise P7-5080	Production Stores Department

FM - Facility Manager
 PM - Production Manager
 PE - Weapon Process Engineer
 CLD - Combustible Loading Disposition
 NEOP - Nuclear Explosive Operating Procedure
 TSR - Technical Safety Requirements

6.5. UV Detector/ Deluge Activation Project

- (a) The UV detectors deluge activation feature is a sub-project of this project. The project is managed in four distinct parts for each applicable facility:

Drawing Development
 Align UV heads
 Activate the UV detectors (flip switch)
 Revise Drawings (Configuration Management)

- (b) Some facilities have already completed the activation of UV detectors. The remaining facilities will be accomplished as indicated in Table 3, UV Activation Schedule.

Table 3. UV Activation Schedule

Facility	Drawing Development Mapping	Align UV heads	Activate - Flip switch	Drawing update Configuration Management
12-99 Bays 2-8	4/27/01	6/7/01	6/9/01	6/13/01
12-84, Bays 9,11-13, 15-20	6/8/01	7/21/01	8/25/01	9/6/01
12-84 Bays 2-8	7/20/01	8/18/01	9/1/01	9/6/01

Table 3. UV Activation Schedule (continued)

12-96	Complete	Complete	Complete	4/3/01
12-85	Complete	4/4/01	Complete	4/6/01
12-104, Bays 1-15	Complete	5/19/01	Complete	6/22/01
12-104, Bays 2,8	Complete	5/19/01	6/19/01	6/22/01
12-98	Complete	Complete	Complete	3/21/01

6.6. The UV deluge activation feature will be in place when the switch is turned to the enable position (flip switch). This feature has been previously assessed in a CRA, and the determination made that future UV activations would be authorized through the use of a PX-3322. A PX-3322 will be used to verify that the features of the UV are in place and that cognizant personnel are fully aware of the enabled UV feature. Further, TSR LCO 3.4.6 will be imposed on the applicable facility, and the Facility Listing (FL) Section of the TSR will be updated to show that UV deluge is applicable for that facility. Surveillance requirements will be performed.

6.7. **Container Evaluation**

- (a) Container evaluation applies only to containers with nuclear material in designated staging facilities (12-26, 12-42 north vault, 12-58 [4-5], 12-66, 12-60 [3-6]).
- (b) Packaging Engineering will review the available FHAs for thermal insults of concern for specific scenarios in which we plan to take credit for a container design feature control, and for available required performance criteria of the container when subjected to these thermal insults. Packaging Engineering will compare the two and attempt to demonstrate that the existing thermal analysis and testing information on the container shows that they will deliver the performance required. The results of these comparisons may lead to:
 - Accepting the existing containers.
 - Ceasing use of the existing containers and replacing with a suitable one.
 - Substitute other controls.

7. Implementation Verification

- 7.1. Fire BIO TSR revision controls involving pre-operational checks, flammable storage cabinets, reduction of combustibles, and activation of UV detectors for deluge have been, and will continue to be incorporated into on-going nuclear and nuclear explosive operations. TSR revision requirements that change NEOPs will be incorporated at one time per operating program, to avoid confusion.
- 7.2. After Fire BIO TSR revision controls are incorporated in facility modifications, equipment or tooling changes, surveillance changes, in-service inspection changes, procedure changes, and operator training, the Operations Division will conduct a Technical Assist of the TSR implementation by weapons program (ten programs including associated facilities and the SI process), and by groups of facilities not specifically associated with a specific program (three sets - special purpose, staging, ramps and corridors).
- 7.3. Active weapons programs will suspend work on War Reserve (WR) weapons, the TA will be conducted using a trainer (or suitable mock-up), and the CRA will immediately follow the TA using the trainer or mock-up. On satisfactory resolution of CRA deficiencies, the program will resume operations on WR units, with credit being taken for the TSR controls. It is anticipated that operations may be suspended for about one week for each active program using this approach. The purpose of the one week operations suspension is to make a clear distinction in shifting from the old NEOP procedures to the new ones, and to clearly define the point when credit is taken for the new TSR controls.
- 7.4. A TA and a CRA will be conducted for each weapons program. It is anticipated that the TA and CRA for the first few programs will cover most of the aspects of programmatic controls and these areas will not have to be examined on follow-on CRAs. Follow-on TAs and CRAs are expected to be substantially narrower in breadth than the first ones.
- 7.5. Verification of the installation of engineering controls and the flowdown of administrative controls to shop floor procedures and technician training will be done with Technical Assists and CRAs. On satisfactory resolution of CRA deficiencies, the General Manager will declare implementation of the Fire BIO and TSR revision controls, and take credit for the TSR controls. The DOE may conduct a DOE validation of the implementation of the TSR controls after each CRA. The necessity for a DOE NESS will be determined by DOE, and is provided for in the plan.
- 7.6. The requirement for a DOE NESS will be determined by DOE Albuquerque at a later time. If a DOE NESS is required, it may be conducted at any time convenient to the DOE on any of the programs or nonweapon specific facilities, observing normal operations (that is, not trainers or mock-ups as the TA and CRA will use).

8. Responses to DOE/AAO Concerns and Comments

8.1. The DOE/AAO has provided comments regarding the Fire BIO Implementation in the Fire BIO SER dated February 27, 2001. In several comments, direction was provided to include specific plans in this Implementation Plan. This section provides specific responses to those comments.

- (a) SER, page 20, paragraph 2.2.5.6 - (mistakenly numbered 2.2.5.5 in the SER) - Slow Heat Combustible controls.

As part of the implementation of the Fire BIO controls, the contractor will provide the analytical basis for meeting the slow heat combustibles controls (involving both combustible controls and fire suppression).

Answer. This analysis has been added as a deliverable in the project plan (WBS 4.7) and will be provided to DOE as a separate report.

- (b) SER, page 22, paragraph 2.3.1.2 - Quick Response Sprinklers

The contractor will complete the comprehensive evaluation to determine where Quick Response Sprinklers will be installed (primarily in special purpose bays), and include this information in the Fire BIO implementation plan.

Answer. Fire Protection Engineering will complete the comprehensive analysis and the analysis has been added as a deliverable in the project plan (WBS 4.7). The plan of action for special purpose bays will identify this as a prerequisite for the CRA.

- (c) SER, page 22, paragraph 2.3.1.3 - Fire Barrier Repairs

As part of the Fire BIO implementation plan, actions to repair deficiencies will be identified and scheduled, or interim combustible controls measures identified.

Answer. This action has been added as two deliverables to the project plan, one for Fire Protection Engineering to identify the deficiencies (WBS 4.5), and one for the Nuclear Facility Manager to request the repair (WBS 4.11). The listing provided by Fire Protection Engineering will be provided to the CRA Team.

- (d) SER, page 23, Paragraph 2.3.1.4 - Surge Suppressors

The upgrade to add surge suppressors to the fire alarm and detection panels for deluge suppression systems (Fire BIO) will be included in the implementation for the Fire BIO.

Answer. The action to add surge suppressors to the panels has been added to the project plan (WBS 4.11) and the Facility Manager will prepare work requests. The installation will be tracked by the project manager; it may not be complete before the associated CRA.

- (e) SER, page 23, Paragraph 2.3.1.5 - Storage Cart Latches
The upgrade to add self-closing latches to storage carts will be included in the Implementation Plan for the Fire BIO.

Answer. This item has been added to the project plan as a deliverable (WBS 4.12.1.2). Fire Protection Engineering will evaluate the feasibility of installing self-closing latches to the existing carts.

- (f) SER, page 23, Paragraph 2.3.1.6 - Approved Container Design Basis Fires
The Fire BIO self-identifies the deficiency (no formal qualitative assessment has been performed to verify that credible facility fires are bounded by transportation fire design basis fires) and commits to establishing maximum facility fire, and evaluating current approved on-site containers as part of implementation.

Answer. This item has been added to the project plan as two items, one for Fire Protection Engineering to define the maximum facility fire (WBS 4.4) and one for Packaging Engineering to evaluate the containers (WBS 4.13). These have been added as predecessors to the CRA of staging.

- (g) SER, page 26, Paragraph 2.4 - Derivation and Development of Technical Safety Requirements
The Fire BIO implementation plan states that AB controlled document revision will be submitted as part of implementation for various facilities or programs, which is acceptable.

Answer. This action has been added to the project plan. (WBS 4.7), and will be a predecessor to the CRA for each applicable program, and included in the Plan of Action for the program CRA.

- (h) SER, page 29, Paragraph 2.2.4.1.13 - Fire Barrier Repairs
As part of implementation, the contractor should establish the controls or repair the barriers in Buildings 12-104 fanroom, 12-26, and 12-58 where unsealed penetrations exist.

Answer. These facility repairs have been added to the project plan (WBS 4.11). The Facility Manager will submit work requests, and Crafts will make the repairs before the CRA for the first weapons program in 12-104, and to the CRA for special purpose bays.

- (i) SER, page 40, Appendix B, item 23 Weapons Related Material.
The Fire BIO should describe all relevant hazards for all weapon programs and then describe which will be addressed under the Fire BIO, and which will be deferred to weapon program analyses.

Answer. The TSR will be clarified to indicate the scope of the hazards considered in the Fire BIO analysis versus the hazards required to be developed in the weapons program specific analysis. (This will be completed during the TSR submission on 6/15/01.) As the weapons specific analyses are performed, the affected material/components will be identified and an evaluation will be performed as if the identified material/components are bounded by the analysis in the Fire BIO (as required by TSR Section 5.6.3.1 of the Fire Protection Program). If not, a specific analysis will be performed. All ongoing weapons programs will be evaluated based on the schedule presented in this IP.

- (j) The SER also directed that some actions be taken before the CRA, of the Fire BIO TSR implementation.

Answer. These actions have been added as unique deliverables in the project plan, have been resource estimated, and have been logic sequenced so that the item is complete before the associated CRA. Each item will be pointed out in the Plan of Action as a prerequisite for the associated CRA so the Assessment Team can evaluate completion.

9. Summary Schedule and Major Milestones

- 9.1. The WBS structure table in Attachment 3 also provides milestone dates for key events in Fire BIO Implementation. The CRA dates correspond to the estimated time when TSR credit will be taken for the control. The table in Attachment 2 makes the connection between program and facility and control.

The table below summarizes the dates of key milestones for "operating programs."

Operating Program	CLD and NEOPS	SDDs /Facility Configuration Confirmation	CRA
Other (Plant-wide)	Not Applicable	Not Applicable	11-21-01
W78	08-28-01	09-19-01	04-17-02
W62	10-09-01	12-10-01	03-19-02
W56	08-28-01	09-19-01	01-08-02
W79	10-09-01	12-10-01	04-03-02
B83	09-06-01	10-15-01	02-19-02
W87	09-18-01	10-15-01	03-05-02
W80	09-18-01	09-19-01	01-22-02
B61	09-26-01	10-10-01	02-05-02
W88	10-29-01	10-30-01	05-01-02
W76	10-09-01	12-10-01	05-15-02
SI	10-29-01	01-30-02	05-30-02
Special Purpose	10-29-01	04-30-02	06-13-02
Staging	Not Applicable	05-01-02	06-27-02
Ramps	Not Applicable	04-03-02	07-12-02

10. Summary Cost Estimate

10.1. The cost estimate for this project is \$6.77M.

10.2. A cost estimate for this project is included in the Summary Primavera Project Plan included as Attachment 4. The Primavera data was entered with job codes and hours for all efforts involved in the project. Recognizing that some departments will support this effort without additional funding, the database was manipulated to remove the costs associated with primarily level of effort exempt employees, such as the Readiness Assessment Group, Industrial Engineering, and Facility Managers. The funding was left as is for bargaining employees and nonexempt employees because their time is accounted for in currently funded projects, and time spent on this project will represent overtime.

10.3. The major cost items in the cost estimate are:

Contract support to Fire Protection Engineering for SDD development -	\$1,383,000
Funding for Operations Division technicians for Fire BIO training - (Includes instructor led training, Technical Assist, CRA)	563,000
Yard Maintenance efforts for vegetation control - (in FY01, not FY02)	237,000
Nuclear Facility Management additional employees - (CLD development, facility procedures, work orders)	307,000
Weapons Process Engineering additional employees - (CLD development, NEOPS)	480,000
Fire Protection Engineering additional employees - (CLD development, Training, Guide, update SDD, CRA)	480,000
Repairs/Modifications to facilities to support Fire BIO requirements - (Fire barrier repairs, move combustible boards, install surge suppressors)	428,000
Project Management - (Project Manager, Project Controller, clerk)	425,000
Vegetation control tractor	250,000
Vegetation, grade and gravel	600,000
Replace wood tooling boxes	468,000

- 10.4. Some of the Fire BIO TSR revision controls implementation are taking place without additional funding. This is being done by exempt personnel working extra hours. Exempt employee participation in the Fire BIO controls implementation will continue without additional funding in the following functional departments :

Industrial Engineering
Authorization Basis Business Unit (and USQs)
Readiness Assessments and Technical Assists
Tooling
Tester Design
Nuclear Explosive Safety (and Centralized Review)

- 10.5. However, some activities will not commence until funding is provided to the project.

- (a) WBS 4.1.1 - Draft the Training Guide to train Facility Managers, Process Engineers, and Operation Managers to perform the combustibles disposition walkdown. Funding is required to hire a contractor. This is the first major step in the project.
- (b) WBS 4.3 - Walkdown facilities and prepare the combustibles disposition report. Funding is required to pay the salaries of two BWXT Nuclear Facility Managers and two BWXT Weapon Process Engineers to perform the walkdowns and write the reports. These four employees have been hired in anticipation of this work.
- (c) WBS 4.5 - Fire Protection Engineering walkdown of facilities to confirm accuracy of SDD. Funding is required to hire a contractor. Also, funding is required for key carriers and PAP escorts.
- (d) WBS 4.3.6 - Revision of NEOPs. Funding is required to pay the salaries of two Weapon Process Engineers to revise the procedures.
- (e) WBS 4.8 - Revision of Facility Procedures. Funding is required to pay the salaries of two BWXT Nuclear Facility Managers to revise the procedures.
- (f) WBS 4.10 - Revision of Fire Protection Engineering Plant Standards (about 10 procedures). Funding is required to hire contract support.
- (g) WBS 4.11 - Modifications to Facilities. Funding is required to pay crafts personnel, including overtime, to perform the work.
- (h) WBS 4.13 - Container Evaluation. Funding is required for contract support to perform container evaluations and prepare reports.
- (i) WBS 4.14 - UV activation. Work on this portion is continuing without funding. However, other important crafts work is being displaced by this effort. Funding should be provided by this project to fund the remainder of the UV activation as a matter of responsible management.
- (j) WBS 4.15 - Production Personnel Training. Funding is required to pay for the overtime required for bargaining personnel to be trained on Fire BIO controls.

- (k) WBS 4.16 - Crafts Personnel Training. Funding is required to pay for the overtime required for bargaining personnel to be trained on Fire BIO controls.
- (l) WBS 4.19 - CRA. Funding is required to pay for approximately one week of production personnel time required to conduct a TA and a CRA. This time should not be charged to the weapons program where they are assigned.

11. Assumptions and Risks

The following assumptions have been made in generating this implementation plan. If changes are required, standard project management techniques for change control will be used to modify scope, deliverables, schedules, and costs.

This project effectively started on February 27, 2001, with the SER approving the Fire BIO. The schedule in this plan is tied to the Contractor Milestone 0 Review of April 11, 2001, DOE approval of this Implementation Plan, and approval of the necessary funding by April 30, 2001. A later approval date will result in a day-for-day delay.

The Institutional Review of the Hughes Report by the Design Agencies will not change the underlying assumptions made in the Fire BIO.

The Institutional Review of the Hughes Report by the Design Agencies will be timely. The SER requires Design Agency concurrence before the first CRA. Delays by the Design Agency could delay the first CRA and Fire BIO safety improvements. In the event of a delay in obtaining Design Agency concurrence, the project manager will request, in writing, that DOE/AAO remove the SER requirement for Design Agency concurrence before the first CRA.

In order to accelerate the schedule to fully implement the Fire BIO TSR controls, a strategy to hire contractors to perform the System Design Descriptions is planned. It is assumed that the hired contractor can provide four teams of two "Q" cleared engineers. It is further assumed that issues regarding PAP escorts and key carriers can be easily resolved. The plan provides funding for escorts, key carriers, and supervisors. It is likely the contractors will not be allowed to enter bays or cells where units are being worked. It is assumed that aggressive management can overcome this potential issue. The backup plan will be to augment the four contractor teams with one BWXT team if necessary, but that may impact the timely completion of CRAs, because we intend to use Fire Protection Engineers on some of the TA and CRA teams.

Repairs to fire barriers are assumed to be relatively minor. An evaluation of fire barrier repairs will be conducted as part of this plan. Repairs that are not minor may conflict with production operations and management will resolve the conflict, with the potential of delays to the Fire BIO Implementation.

It has been assumed that Crafts will not have an emergent large tasking, such as a major lightning bonding effort that takes priority over accomplishing the UV upgrade, facility repairs, and facility modifications. An emergent major tasking imposed on Crafts will require a major reschedule of Fire BIO Implementation efforts.

It has been assumed that the beryllium clean-up effort does not impact or interfere with the Fire BIO Implementation efforts. Facility repairs and modifications could be impacted by beryllium clean-up efforts. Unresolved interferences between Fire BIO implementation project efforts and the beryllium clean-up efforts will be managed by giving priority to the beryllium clean-up project and delaying the Fire BIO Implementation project.

This plan assumes that each weapon program can be suspended for about one week to conduct Fire BIO training, a Technical Assist, and a contractor readiness assessment.

This plan assumes that it is acceptable to DOE to conduct DOE validations (and NES Studies if required) of the Fire BIO TSR implementation after the associated CRA, and during normal operations.

Packaging Engineering will conduct analysis of containers for nuclear material in staging facilities. This project assumes that containers for explosives (A/N cans) or components containing explosives (detonator suitcases) are not included in the evaluation. This project assumes that currently used containers will remain acceptable, and will not have to be replaced. Replacement containers would require additional funding.

The plan assumes that DOE/AAO will approve a Start-up Notification Report that requests that the BWXT General Manager be designated the start-up authority, and that DOE will validate the performance of the CRA.

The plan assumes that UV activation of deluge will be enabled, and that with a PX-3322, the Facility Manager and technicians will place UV deluge activation under TSR control. It assumes that stand-off distances will be invoked at the time of the PX-3322.

12. Production Impacts

12.1. Impacts to Production during Implementation

Weapon program operations and special purpose facility production operations will be suspended for approximately one week during the TA and CRA.

The fire barrier wall drawing and related penetration labeling may cause brief suspensions of production operations while ladders are brought in the bay to label wall penetrations in production bays.

The process to enable the UV deluge activation feature causes a loss of two days of production in each bay or cell while heads are aligned and the switch is turned to enable. In some bays conduit near UV heads must be moved to get the heads aligned which can tie up a bay for an additional shift.

12.2. Impacts after Implementation

Surveillance requirements to annually check the alignment of UV heads, and annual requirements to verify the integrity of the fire wall could remove the bay or cell from production work availability for about two shifts per year.

The Fire BIO TSR controls will impact long term production rates. Experience in implementing the controls gained in the W76 and W88 programs allows some reasonably sound projections of impact to the remaining programs.

Pre-operational checks, stand-off distances, and documentation. The Fire BIO TSR revision controls require controls require some additional checks of stand-off distances by technicians. Administrative control 5.6.3.7 requires that during the pre-operational check the production technicians verify and document that combustibles are containerized or located at stand-off distance. At the end of shift the same administrative controls requires that the production technicians verify and document that combustibles are containerized or located at stand-off distances. Also, at each break, and before leaving the bay or cell for lunch, production technicians must containerize material and/or establish stand-off distances. It is estimated that containerizing, or moving, the material, and documenting it, will reduce production time by about 10 minutes per operating bay per day.

W56 Program. The bay operations will be significantly affected by the 6 ½ foot stand-off distance required in the Fire BIO, and the use of the combustibles carts. New tables and a new bay layout will be necessary. The ability to process the secondary after the primary may not be possible due to the large size of the 6 ½ foot stand-off. The process may require movement of the primary out of the facility immediately following extraction. This could cause the need for additional facilities or process delays awaiting for an open facility. The cell operations area is already cramped. If the 6 ½ foot stand-off is required, the layout will have to be redone.

B61 Program. The B61 Program typically works three or four units in a bay at a time. This allows for quickly shifting the production technicians from one unit to another if a work is interrupted on one unit for technical reasons. The 6 ½ foot stand-off distances that are required in the Fire BIO for unattended bays would require a new floor layout and would preclude working multiple units in a bay. BWXT Engineering Division is developing some solutions that may provide some relief such that two units may be allowed in a bay, but certainly not three or four. The impact will be a need for at least one additional production bay (for the other one or two units). Operating an additional bay will require additional time each day to perform pre-operational checks (about 30 minutes of lost productivity).

Other programs. The anticipated impacts to the W56 and B61 programs above are representative of the impacts that are expected to all programs.

12.3. Impact Mitigation

Some of these impacts can be partially mitigated with more effective utilization of facilities. The Integrated Planning Group will evaluate the production impacts and provide an overall impact to production, which will be provided in the next revision to the project plan. The following SAR upgrade projects will require substantially the same resources as the Fire BIO Implementation. Integrated planning will assure all SAR upgrade projects are entered in one database and use one resource pool so that the impacts of one SAR upgrade project to another can be estimated, as well as all other Directed Stockpile Work (DSW) project work.

13. Change Control

- 13.1. The Fire BIO TSR revision controls Implementation Project Manager will manage all proposed changes to the project formally, keeping all stakeholders informed of potential changes.

Changes in scope will be processed in writing. Needed or desired changes will be formally documented, evaluated for impacts, and submitted to the project sponsor for decision.

Changes in funding, to move money from one WBS section to another, or from one department to another are under the control of the project manager. Needs for additional funding will be processed through routine change control requests.

14. Appendices

Attachment 1 Project Scope Statement

Attachment 2 Excel Table

Attachment 3 Primavera Schedule Printout

Attachment 4 Primavera Cost Printout

Attachment 1

PROJECT SCOPE STATEMENT

**FIRE PROTECTION
BASIS FOR INTERIM OPERATION
TECHNICAL SAFETY REQUIREMENT REVISION
CONTROLS IMPLEMENTATION PROJECT**

Justification

The Fire Protection Basis for Interim Operations (Fire BIO) and the associated Technical Safety Requirements (TSR) revision have been approved by the Department of Energy (DOE) Amarillo Area Office (AAO) in a Safety Evaluation Report (SER) dated February 27, 2001. The engineering and administrative controls specified in the TSR revision should be implemented as soon as possible to reduce the risks of fire in nuclear and nuclear explosive operations.

Objective

The objective of the Fire BIO TSR revision controls implementation project is to fully implement the TSR controls as soon as possible with minimal impact to production line operations.

Project Deliverables

Note: The Fire BIO and the associated TSR revision have been approved by DOE. The Authorization Basis Business Unit is responsible for resolving comments in the SER into the Fire BIO and the TSR. This project will track the completion of SER items.

The Fire BIO TSR Controls Implementation Project Team is responsible for the following deliverables:

- (a) A resource loaded (Primavera) implementation plan, with a proposed schedule, approved by BWXT management, submitted to DOE/AAO by April 15, 2001. There are significant changes needed from the Fire BIO Implementation Plan of December 15, 2000.
- (b) An approved Change Control Request that identifies funding to support the project efforts, by April 30, 2001.
- (c) Facility modifications and repairs required by the Fire BIO TSR revision and the Fire BIO SER, such as fire barrier penetration repairs.
- (d) Ultra-violet detector activation of deluge suppression feature enabled in Fire BIO TSR revision specified facilities.
- (e) Installation of quick response sprinklers in Fire BIO TSR revision specified facilities.

- (f) The installation of lightning surge suppressors in the fire alarm and detection panels for deluge suppression systems as specified in the SER.
- (g) Tooling and container purchases and modifications required by the Fire BIO TSR revision and the Fire BIO SER.
- (h) ABCD revisions, to account for the inclusion of the controls in the Fire BIO TSR, submitted with the analysis of the various programs and facilities.
- (i) A training plan to train technicians and supervisors of nuclear and nuclear explosive operations, and crafts personnel and supervisors of nuclear facility maintenance activities.
- (j) A training plan for all Pantex employees on the applicable provisions of the Fire BIO TSR revision requirements, including personal combustible materials brought into nuclear and nuclear explosive operating areas.
- (k) Completion of the training identified in the training plans above, for at least 90% of the required personnel to meet the final approved schedule.
- (l) NEOPs revised to incorporate the Fire BIO TSR revision controls, including use of flammable liquids, task exhaust, electro-static discharge, storage containers, stand-off distances, and spill-proof containers.
- (m) Nuclear facility surveillance procedures and ISI procedures to support Fire BIO TSR revision controls approved and in place.
- (n) Plant Standards revised to reflect Fire BIO TSR revision controls including Fire Protection Engineering walkdowns, fire watches, fire patrols, vegetation controls, fuel truck escort, and transportation in ramps.
- (o) Nuclear facility procedures modified to include Fire BIO TSR requirements for bay interlock doors and crane parking. (F7-5001, F7-50xx)
- (p) Cabinets and carts, approved in accordance with the Fire BIO TSR revision controls, procured and installed.
- (q) An evaluation of current approved (on-site) nuclear material storage containers for design basis fires as specified in the SER.
- (r) Nuclear and nuclear explosive facilities modified or repaired to meet compliance with the Fire BIO TSR revision controls and the SER comments.
- (s) A Technical Assist of implementation of Fire BIO TSR revision controls, with a written report and a recommendation of readiness to conduct a CRA.

- (t) CRAs of the Fire BIO TSR revision controls implementation, and BWXT General Manager authorization.
- (u) A DOE validation of the Fire BIO TSR revision implementation, and correction of DOE identified deficiencies.
- (v) A DOE NESS of the Implementation of Fire BIO TSR revision controls and correction of identified pre-start findings.
- (w) One generic Fire Protection Engineering evaluation to document the rationale and controls for slow heat concerns (SER).
- (x) Resolution of SER comments of items that must be complete before the Contractor Readiness Assessment including:
 - A revision to the TSR to include other spark producing activities other than Electro-static Discharge (ESD)
 - The inconsistency between Fire BIO accident analysis and TSR controls with regard to credited fire barriers (SER)
 - The comment on 12-66 wetpipe sprinklers
 - The crane parking concern
 - The comment on equipment doors as fire barriers
 - The comment on performing surveillance on UV after returning to service.

Out of Scope Items

High explosive facilities
High explosive and explosive component containers
Facility 12-116
The 12-44 Fire Protection Upgrade Project

Project Completion

The project is complete on resolution of the DOE validation comments and DOE NESS comments.

Robin Madison
Director of RTBF Programs
Project Sponsor

Date

Attachment 3

Activity ID	WBS	Activity Description	Orig Dur	Early Start	Early Finish
Fire Protection BIO					
Total			342	03/28/01	08/08/02
0027	4.01.01	D - Draft Guide (CDG)	10	05/01/01	05/14/01
0028	4.01.02	D - Comments on Draft (Review) (CDG)	3	05/15/01	05/17/01
0029	4.01.03	D - Guide Approval (CDG)	7	05/18/01	05/29/01
0032	4.02.01	D - Needs Analysis (DT)	1	05/01/01	05/01/01
0033	4.02.02	D - POI Combustibles Disposition (DT)	4	05/30/01	06/04/01
0034	4.02.03	D - Pilot Class Conducted (DT)	4	06/05/01	06/08/01
0035	4.02.04	D - POI Revised (DT)	2	06/11/01	06/12/01
0036	4.02.05	D - Training Class Conducted (DT)	5	06/13/01	06/19/01
0037	4.02.06	D - Training Class Received (DT)	5	06/20/01	06/26/01
0040	4.03.01	D - Combustibles Disposition Report for W78	14*	06/27/01	07/17/01
0440	4.03.02	D - Combustibles Disposition Report for W62	14*	08/07/01	08/24/01
0540	4.03.03	D - Combustibles Disposition Report for W56	14*	06/27/01	07/17/01
0640	4.03.04	D - Combustibles Disposition Report for W79	14*	08/07/01	08/24/01
0740	4.03.05	D - Combustibles Disposition Report for B93	14*	06/27/01	07/17/01
0840	4.03.06	D - Combustibles Disposition Report for W87	14*	07/18/01	08/06/01
0940	4.03.07	D - Combustibles Disposition Report for W80	14*	07/18/01	08/06/01
1040	4.03.08	D - Combustibles Disposition Report for B61	14*	07/18/01	08/06/01
1140	4.03.09	D - Combustibles Disposition Report for W88	14*	08/27/01	09/14/01
1240	4.03.10	D - Combustibles Disposition Report for W76	14*	08/07/01	08/24/01
1340	4.03.11	D - Combustibles Disposition Report ALR B/S/ Pgm	14*	08/27/01	09/14/01
1440	4.03.12	D - Combustibles Disposition Report Spec Purpose	14*	08/27/01	09/14/01
1540	4.03.13	D - Combustibles Disposition Report Staging Facs	14*	09/17/01	10/04/01
1640	4.03.14	D - Combustibles Disposition Report Rimps / Corrs	17*	01/11/02	02/04/02
0064	4.04.01	D - FPE Analysis Complete	90	08/24/01	01/10/02
0065	4.04.02	D - FPE Analytical Recommendations	90	08/24/01	01/10/02
0066	4.04.03	D - FPE Analysis Approved	90	08/24/01	01/10/02
0138	4.05.00	D - Contractor Acquisition for Fac Configuration	45*	04/09/01	06/11/01
0069	4.05.01	D - 12-26 Configuration Confirmation	31*	03/19/02	05/01/02
1570	4.05.02	D - 12-41 Configuration Confirmation	57*	10/31/01	01/29/02
1670	4.05.03	D - 12-44 Cells Configuration Confirmation	64*	01/30/02	04/30/02
1770	4.05.04	D - 12-50 Configuration Confirmation	43*	01/17/02	03/18/02

Sheet 1 of 5

**BWXT Pantex
Fire Protection BIO**

Start Date: 02/15/01
 Finish Date: 06/09/02
 Date Date: 03/28/01
 Run Date: 04/16/01 11:09

Legend:
 Early Bar
 Progress Bar
 Critical Activity

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Date	Revision	Checked	Approved

Attachment 3 (continued)

Activity ID	WBS	Activity Description	Orig Dur	Early Start	Early Finish
1870	4.05.05	D - 12-58 Configuration Confirmation	56*	02/08/02	04/29/02
1970	4.05.06	D - 12-60 Configuration Confirmation	62*	10/11/01	01/16/02
2070	4.05.07	D - 12-64 Configuration Confirmation	69*	10/16/01	01/30/02
2170	4.05.08	D - 12-84 Configuration Confirmation	87*	06/12/01	10/15/01
2270	4.05.09	D - 12-98 Configuration Confirmation	55*	09/20/01	12/10/01
2370	4.05.10	D - 12-99 Configuration Confirmation	70*	06/12/01	09/19/01
2470	4.05.11	D - 12-104 Configuration Confirmation	84*	06/12/01	10/10/01
2670	4.05.12	D - Ramps Configuration Confirmation	44*	01/31/02	04/03/02
2770	4.05.13	D - 12-42 Configuration Confirmation	37*	12/11/01	02/07/02
2870	4.05.14	D - 12-85 Configuration Confirmation	49*	08/21/01	10/30/01
2970	4.05.15	D - 12-96 Configuration Confirmation	49*	06/12/01	08/20/01
0075	4.06.01	D - NEOPS Revised W78	29*	07/18/01	08/27/01
3175	4.06.02	D - NEOPS Revised W62	29*	08/27/01	10/05/01
3275	4.06.03	D - NEOPS Revised W56	29*	07/18/01	08/27/01
3375	4.06.04	D - NEOPS Revised W79	29*	08/27/01	10/05/01
3475	4.06.05	D - NEOPS Revised B83	35*	07/18/01	09/05/01
3575	4.06.06	D - NEOPS Revised W87	29*	08/07/01	09/17/01
3675	4.06.07	D - NEOPS Revised W80	29*	08/07/01	09/17/01
3775	4.06.08	D - NEOPS Revised B61	35*	08/07/01	09/25/01
3875	4.06.09	D - NEOPS Revised W88	29*	09/17/01	10/26/01
3975	4.06.10	D - NEOPS Revised W76	29*	08/27/01	10/05/01
4075	4.06.11	D - Procedures Revised Sealed Insert (SI)	29*	09/17/01	10/26/01
4175	4.06.12	D - Procedures Revised Special Purpose Bays	29*	09/17/01	10/26/01
0096	4.07.01	D - ABCD Revised, W62,	26*	08/27/01	10/02/01
0102	4.07.02	D - ABCD Revised W56	25*	07/18/01	08/21/01
0108	4.07.03	D - ABCD Revised W79	25*	08/27/01	10/01/01
0114	4.07.04	D - ABCD Revised W88	25*	09/17/01	10/22/01
0140	4.07.05	D - ABCD Revised W76	25*	08/27/01	10/01/01
0170	4.07.06	D - ABCD Revised W87	25*	08/07/01	09/11/01
0122	4.08.01	D - Facility Procedure Revised W78	13*	07/18/01	08/03/01
4222	4.08.02	D - Facility Procedure Revised W62	13*	08/27/01	09/13/01
4322	4.08.03	D - Facility Procedure Revised W56	13*	07/18/01	08/03/01
4422	4.08.04	D - Facility Procedure Revised W79	13*	08/27/01	09/13/01
4522	4.08.05	D - Facility Procedure Revised B83	13*	07/18/01	08/03/01
4622	4.08.06	D - Facility Procedure Revised W87	13*	08/07/01	08/23/01
4722	4.08.07	D - Facility Procedure Revised W80	13*	08/07/01	08/23/01
4822	4.08.08	D - Facility Procedure Revised B61	13*	08/07/01	08/23/01
4922	4.08.09	D - Facility Procedure Revised W88	13*	09/17/01	10/03/01

Attachment 3 (continued)

Activity ID	WBS	Activity Description	Orig Dur	Early Start	Early Finish
5022	4.08.10	D - Facility Procedure Revised W76	13*	08/27/01	09/13/01
5122	4.08.11	D - Facility Procedure Revised SI Program	13*	09/17/01	10/03/01
5222	4.08.12	D - Facility Procedure Revised Spec Purpose Bays	13*	09/17/01	10/03/01
5322	4.08.13	D - Facility Procedure Revised Staging Areas	13*	10/05/01	10/24/01
5422	4.08.14	D - Facility Procedure Revised Ramps, Corrs, LDs	13*	02/05/02	02/21/02
0175	4.09.01	D - Surveillance / ISI Updated	38*	04/30/01	06/21/01
0195	4.09.02	D - Other Surveillance / ISI	38*	04/30/01	06/21/01
0172	4.10.01	D - Plant Standard 4322	28*	05/16/01	06/25/01
8272	4.10.02	D - Plant Standard 4230, Combustible Loading	28*	05/16/01	06/25/01
8372	4.10.03	D - Plant Standard 4281, Fire Protection Maint	28*	05/31/01	07/10/01
8472	4.10.04	D - Plant Standard 4282, Fire Prot Sys Impairmt	28*	05/31/01	07/10/01
8572	4.10.05	D - Plant Standard 4253, Flammable Material	28*	05/31/01	07/10/01
8672	4.10.06	D - Plant Standard 4321, Fire Prof Assessments	28*	06/14/01	07/24/01
8772	4.10.07	D - Plant Standard New, Vegetation Control	36*	06/14/01	08/03/01
8872	4.10.08	D - Plant Standard New, Fuel Trucks	36*	06/14/01	08/03/01
8972	4.10.09	D - Plant Standard New, Water Flow to Fire Suppr	36*	06/14/01	08/03/01
0160	4.11.01	D - Mod / Repair Facility for W78	26*	07/06/01	08/10/01
5560	4.11.02	D - Mod / Repair Facility for W62	26*	10/04/01	11/09/01
5660	4.11.03	D - Mod / Repair Facility for W56	26*	07/06/01	08/10/01
5760	4.11.04	D - Mod / Repair Facility for W79	26*	10/04/01	11/09/01
5860	4.11.05	D - Mod / Repair Facility for B83	26*	07/23/01	08/27/01
5960	4.11.06	D - Mod / Repair Facility for W87	26*	07/26/01	08/30/01
6060	4.11.07	D - Mod / Repair Facility for W80	26*	10/04/01	11/09/01
6160	4.11.08	D - Mod / Repair Facility for W61	26*	07/26/01	08/30/01
6260	4.11.09	D - Mod / Repair Facility for W88	26*	09/05/01	10/11/01
6360	4.11.10	D - Mod / Repair Facility for W76	26*	08/15/01	09/20/01
6460	4.11.11	D - Mod / Repair Facility for SI Program	26*	11/05/01	12/12/01
6560	4.11.12	D - Mod / Repair Facility for Spec Purpose Bays	26*	02/15/02	03/22/02
6660	4.11.13	D - Mod / Repair Facility for Staging Bays	26*	03/22/02	04/29/02
6760	4.11.14	D - Mod / Repair Facility for Rmps / Corrs / LDs	26*	02/19/02	03/26/02
0183	4.12.01	D - Carts/Cabinets/Eqpt in Place W78	36*	07/06/01	08/24/01
6883	4.12.02	D - Carts/Cabinets/Eqpt in Place W62	36*	08/15/01	10/04/01
6983	4.12.03	D - Carts/Cabinets/Eqpt in Place W56	36*	07/06/01	08/24/01
7083	4.12.04	D - Carts/Cabinets/Eqpt in Place W79	36*	08/15/01	10/04/01
7183	4.12.05	D - Carts/Cabinets/Eqpt in Place B83	47*	07/06/01	09/11/01
7283	4.12.06	D - Carts/Cabinets/Eqpt in Place W87	36*	07/26/01	09/14/01
7383	4.12.07	D - Carts/Cabinets/Eqpt in Place W80	36*	07/26/01	09/14/01
7483	4.12.08	D - Carts/Cabinets/Eqpt in Place B61	42*	07/26/01	09/24/01

Attachment 3 (continued)

Activity ID	WBS	Activity Description	Orig Dur	Early Start	Early Finish
7583	4.12.09	D - Carts/Cabinets/Expt in Place W88	36*	09/05/01	10/25/01
7683	4.12.10	D - Carts/Cabinets/Expt in Place W76	36*	08/15/01	10/04/01
7783	4.12.11	D - Carts/Cabinets/Expt in Place SI Program	36*	09/05/01	10/25/01
7883	4.12.12	D - Carts/Cabinets/Expt in Place Spec Purpose	36*	09/05/01	10/25/01
7983	4.12.13	D - Carts/Cabinets/Expt in Place Staging Bays	13*	09/25/01	10/12/01
8083	4.12.14	D - Carts/Cabinets/Expt in Place Rmps / Cnrs	13*	01/21/02	02/06/02
8097	4.12.15	D - Replace Wood Boxes Used for Tooling Storage	280	04/30/01	06/13/02
0205	4.13.01	D - Pkg Engineers Attend Training	2	06/27/01	06/28/01
0206	4.13.02	D - Compile Fire Resp Test Data for Containers	5	06/29/01	07/06/01
0207	4.13.03	D - Screen Containers Against Design Features	5	07/09/01	07/13/01
0208	4.13.04	D - Update Approved Containers Manual	3	07/16/01	07/18/01
0209	4.13.05	D - Update Procedures Approving Containers	5	07/19/01	07/25/01
0213	4.14.01	D - Mapping Complete	81*	03/28/01	07/20/01
0217	4.14.02	D - UV Heads Aligned	108*	03/30/01	08/30/01
0223	4.14.03	D - Flip Switches	109*	04/02/01	09/04/01
0234	4.14.04	D - Configuration Management Update Drawings	92*	04/30/01	09/07/01
0245	4.15.01	D - Production Personnel Trained W78	11*	08/28/01	09/12/01
8145	4.15.02	D - Production Personnel Trained W62	11*	10/09/01	10/23/01
8245	4.15.03	D - Production Personnel Trained W56	11*	08/28/01	09/12/01
8345	4.15.04	D - Production Personnel Trained W79	11*	10/09/01	10/23/01
8445	4.15.05	D - Production Personnel Trained B83	11*	09/06/01	09/20/01
8545	4.15.06	D - Production Personnel Trained W87	11*	09/18/01	10/02/01
8645	4.15.07	D - Production Personnel Trained W80	11*	09/18/01	10/02/01
8745	4.15.08	D - Production Personnel Trained B61	11*	09/26/01	10/11/01
8845	4.15.09	D - Production Personnel Trained W88	11*	10/29/01	11/12/01
8945	4.15.10	D - Production Personnel Trained W76	11*	10/29/01	11/12/01
9045	4.15.11	D - Production Personnel Trained SI Program	11*	10/29/01	11/12/01
9145	4.15.12	D - Production Personnel Trained Spec Purpose	11*	10/29/01	11/12/01
9245	4.15.13	D - Production Personnel Trained Staging Bays	11*	10/05/01	10/22/01
9345	4.15.14	D - Production Personnel Trained Rmps/Cnrs/LDs	11*	02/05/02	02/19/02
0323	4.16.01	D - MAA Crafts Personnel Trained	16*	08/06/01	08/27/01
0266	4.17.01	D - Continuing Training for M	10	08/06/01	08/17/01
0267	4.17.02	D - M Continuing Training Complete for 90%	30	08/20/01	10/01/01
0270	4.18.01	D - Read and Sign Prepared	10	08/06/01	08/17/01
0271	4.18.02	D - Read and Sign Complete for 90%	30	08/20/01	10/01/01
0274	4.19.01	D - CRA Final Report W78	96*	11/26/01	04/17/02
0281	4.19.02	D - CRA Final Report W62	76*	11/26/01	03/19/02
0282	4.19.03	D - CRA Final Report W56	26*	11/26/01	01/08/02

Attachment 4

Level 1 Deliverable Description	Orig Dur	Rem Dur	%	Early Start	Early Finish	Total Float	Budgeted Cost
BIO Fire Protection Module	372	343	4	02/15/01A	08/09/02	0	6,773,009
+ Basis for Interim Operations							
	371	319	0	02/15/01A	08/08/02	1	1,754,074
+ Implementation Planning							
	9	0	100	03/15/01A	03/27/01A		0
+ Technical Safety Requirements							
	1	0	100	03/15/01A	03/15/01A		0
+ Change Control Request							
	15	15	0	04/09/01	04/27/01	0	0
+ Facility Configuration Confirmation							
	265	265	0	04/09/01	05/01/02	25	1,572,474
+ Combustibles Disposition Guide							
	20	20	0	05/01/01	05/29/01	45	25,165
+ Facility Mod / Repair Requirements							
	201	201	0	07/06/01	04/29/02	27	332,877
+ Surveillance / ISI Procedure Revisions							
	38	38	0	04/30/01	06/21/01	30	107,122
+ Ultraviolet (UV) Detection Requirements							
	115	115	0	03/28/01	09/07/01	83	99,752
+ Training Requirements							
	199	199	0	05/01/01	02/19/02	74	493,781
+ Weapon Program ABCD Revisions							
	67	67	0	07/18/01	10/22/01	98	2,897
+ Plant Standard Revisions							
	56	56	0	05/16/01	08/03/01	0	34,294
+ Combustibles Disposition Report							
	148	148	0	06/27/01	02/04/02	73	630,853
+ Independent Analysis							
	131	131	0	06/27/01	01/10/02	73	89,359
+ Equipment / Tester / Tooling Requirements							
	280	280	0	04/30/01	06/13/02	24	880,557
+ Production Procedure Revisions							
	71	71	0	07/18/01	10/26/01	117	403,932
+ Facility Procedure Revisions							
	147	147	0	07/18/01	02/21/02	73	185,255
+ Contractor / DOE Readiness Assessments							
	212	212	0	10/02/01	08/09/02	0	15,554
+ Safety Evaluation Report (SER) Appendix "A"							
	40	40	0	04/30/01	06/25/01	225	64,974
+ Safety Evaluation Report (SER) Appendix "B"							
	10	10	0	04/30/01	05/11/01	135	80,089