



99-0001930

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

June 30, 1999

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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 (98-2 Plan) for the Defense Nuclear Facilities Safety Board's (The Board) Recommendation 98-2, nine of the eleven deliverables due in the month of June are enclosed. One (5.4.1) was previously submitted, and we have also completed one July deliverable early (5.3.2b), which is enclosed. Details addressing the one missed deliverable (5.1.4) will be provided via separate correspondence.

1. Deliverable 5.1.2 - Issue Development & Production (D&P) Manual Chapter 11.1, Revision 1. The purpose of this revision was to redefine the roles for the project team members and define the expected relationship among the Department's program managers, the Pantex operating contractor, and the project team. Further review and evaluation of the D&P Chapter 11.1 determined that the best place to institute the stated purpose would be in a revision to Chapter 11.3. As a result, issuance of D&P Manual Chapter 11.3, Revision 1 represents the deliverable to Commitment 5.1.2 of the 98-2 Plan addressing the sub-recommendation concerning Mason & Hanger responsibilities in hazard analyses and control development.
2. Deliverable 5.3.1b - Mason & Hanger (MHC) Authorization (AB) Task Force and Management Action Plan. The action plan represents the deliverable for Commitment 5.3.1b of the 98-2 Plan addressing the sub-recommendation concerning MHC responsibilities in hazard analyses and control development.
3. Deliverable 5.3.2a, 5.4.2a & 5.4.2b -- Issuance of AL SD 452.2A and Submit Recommended Revisions to DOE Orders 452.1A and 452.2A. This directive is consistent with issuance of D&P Manual Chapters 11.6, Coordinated Review Process for Nuclear Explosive Operations (NEO) at the Pantex Plant and 11.7, NEO Change Control Process.

The recommended revisions to DOE Order 452.2 have been submitted as input for DP-20 to use when revising the order. The recommended revisions represent the two perspectives within the Department and provide a basis for final revisions by DP-20. A working group has been established by DP-21 to work through potential order changes with the appropriate field elements.

Issuance of AL SD 452.2A and submission of the recommended revisions to DOE Order 452.2 represent the deliverables for Commitments 5.3.2a, 5.4.2a and 5.4.2b of the 98-2 Plan. These deliverables address the sub-recommendation concerning efficacy of the change control process for nuclear explosive safety and the inappropriate role of NES review members in dictating remedies to concerns they identify.

4. Deliverable 5.3.2b - Revise D&P Manual Chapter 11.4. The purpose of this revision was to provide the expectations for the "USQ" process within the NEO change control process. Upon further review and evaluation of Chapter 11.4 and development of SD 452.2A, it was determined that the NEO Change Control Process would better address the Board's concerns and expectations regarding USQ if the process was defined in its own D&P Manual Chapter 11.7. Therefore, D&P Manual Chapter 11.7 represents the deliverable for Commitment 5.3.2b.
5. Deliverable 5.5.1b - Senior Level Workshop. On June 24, 1999, a workshop was conducted to discuss and review the recommendations for the NES review group structure along with membership and training and qualification standards. A copy of the workshop slides has been provided for your information. Completion of the workshop represents the deliverable for Commitment 5.5.1b.
6. Deliverable 5.8.1b & 5.8.3b - The MHC Strengths, Weaknesses, Opportunity, and Threats (SWOT) for Project Management Skills and Preparing Authorization Basis Compensatory Measure Action Plan. Both SWOT Compensatory Measure Action Plans represent the deliverables for Commitment 5.8.1b and 5.8.3b.
7. Deliverable 5.8.2 - Strengthen skills and experience level of Pantex Team Leads through revised training programs. The training program plan represents the deliverable for Commitment 5.8.2a.

As identified herein, the Department has completed the actions within the commitments represented above and proposes closure of these commitments. If you have any questions, please contact me, or have your staff contact Dan Glenn at 505-665-6028.



R. E. Glass  
Manager

Enclosures  
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<b>Development and Production Manual</b>			
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DELIVERABLE 5.1.2

Contents

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## 1.0 PURPOSE

The purpose of this chapter is to describe the requirements of the Seamless Safety (SS-21) process. The SS-21 process integrates the weapon, facility, tooling (testers & equipment), operating procedures, and personnel to form a safe, efficient, and effective operating environment and is the preferred process for developing weapons assembly and disassembly processes at the Pantex Plant. The intent is to ensure that safety aspects of the weapons processes are considered up front, during the process development phase, not reviewed after completion. This chapter applies to nuclear weapon assembly, disassembly, and associated testing operations performed in the bays and cells at the Pantex Plant. These assembly and disassembly operations include, but are not limited to, those performed during new production, stockpile improvement programs, disassembly and inspection and selected testing for surveillance, builds, rebuilds, and dismantlement activities.

## 2.0 POLICY

It is Department of Energy (DOE) policy that nuclear explosive operations be developed with safety as a primary consideration. A formal process is required to ensure that only efficient, effective, and safe nuclear weapon assembly, disassembly, and associated testing operations are employed. Project Teams are expected to exercise judgment in determining how to apply the requirements contained herein and to develop and implement robust processes for which the safety implications have been considered from the beginning. The objective of each project must be to develop verifiable safety criteria and assembly/disassembly processes that enable operations to be completed safely and predictably.

To the extent possible, the safety criteria must:

1. Prevent the application of unauthorized or unanalyzed energy from sources external to the nuclear weapon, or any component of a nuclear weapon, so as to prevent the release of energy from sources internal to the nuclear weapon. Energy sources include but are not limited to:
  - a. Mechanical energy

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- b. Electrical energy
  - c. Thermal energy
  - d. Electro-mechanical energy
  - e. Potential/kinetic energy (e.g. lifting, transportation, etc.)
  - f. Chemical energy
2. Allow no single-point failure in an operation that could cause:
- a. Energy sources within the weapon, including self-contained energy sources that could have a safety concern, to be activated or released
  - b. Radioactive exposure or contamination above thresholds set in the operating procedures
  - c. Injury to personnel, environment, or public
  - d. Loss of facility operability
3. Mitigate personnel exposure to radiation and hazardous substances to “As Low As Reasonably Achievable” (ALARA) levels. Levels include, but are not limited to:
- a. An operational ALARA goal established by the responsible Health Physicist in coordination with the Project Team and the Pantex ALARA
  - b. OSHA limits
  - c. Those required by specific programs

For those situations where the above safety criteria cannot be met, sufficient controls must be in place to provide confidence that the risk in the operation is acceptable to the DOE.

### 3.0 DEFINITIONS

See Chapter 11.0 for definitions.

### 4.0 RESPONSIBILITIES

#### 4.1 Deputy Assistant Secretary for Military Application and Stockpile Management (DASMASM), DP-20

The DASMASM has overall responsibility for the conduct of nuclear weapons operations. The DASMASM issues periodic P&PDs, setting end-of-fiscal year requirements for weapon quantities in the stockpile and other guidance.

#### 4.2 Manager, AL

The AL Manager is the Authorizing Official (AO) for nuclear explosive operations performed at the Pantex Plant. Prior to authorization, the AL Manager provides the certifications required by DOE Order 452.1A.

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#### 4.3 Director, Weapon Programs Division (WPD)

As the Chair of the Standing Management Team (SMT) and owner of the Integrated Weapons Activity Plan (IWAP), the WPD Director ensures the execution of the Project Team's responsibilities.

#### 4.4 Manager, Amarillo Area Office (AAO)

As the Co-Chair of the SMT and responsible for the development and implementation of the facility authorization basis, the AAO Manager ensures the execution of the Pantex Plant's responsibilities and lessons learned on relevant projects.

#### 4.5 Director, Weapon Surety Division (WSD)

As a member of the SMT, the WSD Director is responsible for planning and execution of the Nuclear Explosive Safety activities that support the resulting Project Plans. The WSD Director is also responsible to obtain approval from the AL Manager and DP-20 for the results of nuclear explosive safety reviews.

#### 4.6 Deputy Assistant Manager, Office of Safety and Safeguards (OSS)

The Deputy Assistant Manager of OSS is responsible for technical support to line management from the Safety Basis Review Team, as well as for performance of independent readiness reviews conducted for the AL Manager.

#### 4.7 Standing Management Team

The SMT will oversee the development and execution of the project and will serve as the Change Control Board for specified requirements and processes. The SMT will define expectations for projects well in advance of execution and will establish measures of success. Specific responsibilities of the SMT are found in Chapter 11.1.

#### 4.8 Pantex Plant

The operating contractor is responsible for leading the Project Team for each weapon system and is responsible for success of the project. The operating contractor also leads the facility authorization basis upgrade projects and supports the resulting Project Plans. Upon approval of the individual Project Plans, the operating contractor must work with the appropriate organizations to assure proper resources are made available across the DOE complex for implementation of the Project Plans.

#### 4.9 Design Agencies

The Design Agencies are responsible for providing a Project Team member for each weapon system and providing technical expertise as required for weapons projects or facility authorization basis upgrade projects, within negotiated resources and priorities. The Design Agencies are also responsible for

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supporting the resulting Project Plans and ensuring proper resources are made available for implementation of the Project Plans. The Design Agencies are also responsible for the preparation and control of the Weapon Safety Specification (WSS).

## 4.10 Project Team

The Project Team (PT) is responsible for the management of the project and accountable for its success. The Project Team is responsible for:

- Development, management, and update of the project plan, including scope, schedule, and resources. Criteria for an acceptable plan appears in Section 11.1, Paragraph 5.1 “Milestone 0 - Project Plan Approval” and Section 11.3, Paragraph 6.1 “Task Direction and Planning Phase”;
- Directing the work of the Task Teams (which are in turn accountable to the PT);
- Declaring readiness to proceed with independent reviews;
- Coordinating and interfacing with all applicable safety and readiness reviews; and
- Providing a timely, accurate, and complete assessment of project status and impacts to the SMT.

PT membership will be composed of one representative from (1) the appropriate physics laboratory, (2) Sandia National Laboratories, (3) DOE/AL, (4) AAO, and (5) MHC. The MHC representative will lead the PT. Each representative will serve as the sole spokesperson for his or her parent organization. Roles and Responsibilities of the participating organizations are defined below.

### 4.10.1 MHC Project Team Lead

The MHC representative will lead the PT and is the ultimate authority for project team action. The PT Lead is responsible for the integration and execution of project tasks being performed by MHC. The PT Lead will work closely with the DOE program engineers to ensure DOE expectations are met. The PT Lead will also ensure the timely integration of expectations and requirements of the cognizant Design Agencies.

The PT Lead has final signature authority over the project plan before MHC transmits the plan to the SMT for review and approval. The PT Lead is responsible for ensuring differences between the project team members are resolved. If differences can not be resolved by the PT Lead, then they can be elevated to the next level of line management or ultimately to the SMT if still unresolved.

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## 4.10.2 DOE Program Engineers

The WPD and AAO will each appoint a program engineer to the PT. The DOE program engineers will fully participate on the PT and will represent the interest of the customer for the success of the project. The program engineers are expected to work closely with the MHC PT Lead to ensure that day-to-day interpretations of DOE program requirements, as well as facility and on-site requirements, are understood. The program engineers will also promote the timely coordination of information and deliverables between the cognizant design laboratories and Pantex Plant.

While the DOE program engineers work closely with the PT Lead, they do not receive direction from the Lead. If there are differences of opinion preventing the concurrence of the DOE program engineers, then these differences will be resolved by the SMT.

## 4.10.3 Design Agency Representatives

The Design Agency Representatives ensure laboratories' expectations and requirements are integrated into the process as early as possible. The representatives are full participants on the PT and contribute to the success of the project. The representatives serve as a single point of contact for all information, expectations, and requirements regarding the design, function and safety of the weapon system.

## 4.11 Task Teams

The PT will utilize Task Teams (TTs), as necessary, for the completion of the approved Project Plan. The TTs consist of technically competent individuals that maintain an expert level of knowledge in topical areas which they are providing advice on, such as Weapons Design, Operating Procedure, Operating Facility, Equipment and Layout, Tooling, Electrical Testers and Hazard Assessment.

## 5.0 REQUIREMENTS

### 5.1 General

The principal requirement is for the PT, and their associated TTs, to fulfill the objective and safety criteria as stated above in Section 2.0. The other requirements include completion and implementation of the Weapon Safety Specification (WSS), Personnel Plan, Operating Procedure, Operating Facility Readiness, Equipment & Facility Layout, Tooling, Hazard Assessment, and the Activity Based Control Document (ABCD).

### 5.2 Weapon Safety Specification



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A WSS shall be consistent with the requirements outlined in D&P Chapter 11.4 and prepared by the cognizant Design Agencies. The WSS needs to incorporate information from design drawings, Baseline Process Flow, Use Control Report, Criticality Report, and Intrinsic Radiation Report. The WSS shall provide as-built information pertaining to the characteristic design features, safety attributes, and hazards for a nuclear weapon configuration or a family of similar nuclear weapon configurations, and safety-critical information to enable development of other documents (e.g., personnel plan, operating procedures, ABCD, Operating Facility Readiness, the updated Facility Safety Basis, HAR, Equipment and Facility Layout, and Tooling).

The Design Agencies shall review and summarize the use-control features of the warhead or bomb consistent with applicable guidelines concerning dissemination of use-control information. When applicable, use-control features shall be incorporated and employed at the earliest practical point in the assembly of a nuclear weapon and removed at the latest practical point in its disassembly.

The Design Agency shall also review past surveillance program data and include pertinent safety related information derived from that review in the WSS. For enduring stockpile weapon systems, the results of continuing surveillance activities must be used to annually update (if required) the WSS to include pertinent safety information. The results of the annual review will be provided to DOE for review.

Archiving is an important facet in the development of each WSS. All information contained in the WSSs is based on best-available information which has been scrutinized by the appropriate staff for correctness.

### 5.3 Personnel Plan

A Personnel Plan shall be generated defining the selection process and training requirements for all personnel involved in hands-on nuclear weapons work or who have direct responsibility for the assembly or disassembly operation, including production technicians, radiation technicians, line supervisors, engineers, and managers. The plan must identify requirements for general weapon training, Personnel Assurance Program, and weapon-specific training. The plan must employ methods to ensure personnel are trained, qualified, and certified before they are allowed to perform nuclear weapons work. The plan needs to incorporate methods to track personnel to ensure their training is maintained and utilize certification verification methods that support the pre-operational check process conducted at the beginning of each shift.

### 5.4 Operating Procedure

An Operating Procedure shall be generated and comprised of a Pre-Operational Checklist, the Nuclear Explosive Operating Procedure (NEOP), sets of modularized source information and the ABCD. The structure of the Operating Procedure information should be modular to allow for easy access to the information. The operating procedure must address normal operations and identified credible deviations and be developed to integrate interactions of the nuclear weapon, personnel, operating

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facility (including layout), equipment, and tooling. The operating procedure has to reflect the technical safety requirements and account for all hazards and hazardous operations that have been identified. The NEOP must be structured so that safety critical information is identified and is controlled to assure that changes to this type of information are thoroughly analyzed and subjected to hazard assessment review before allowing the change.

## 5.5 Activity Based Controls Document

An ABCD shall be generated in accordance with D&P Chapter 11.4 and must describe the integrated set of controls resulting from combining the facility controls with those controls required for a particular nuclear explosive activity or operation. For consistency, the facility controls should be termed "common" controls and the nuclear explosive operations controls "unique" controls. The two must be integrated to describe the set of controls necessary to maintain safety in the operation. The documentation of the controls must be done in the ABCD to facilitate change control and configuration management.

## 5.6 Operating Facility

The operating facility shall be configured and controlled such that only authorized permanent equipment, hoists, mobile equipment, and utility services are allowed for a given nuclear weapon operation. Furthermore, it must be configured to allow facility users to readily determine facility status including operability of safety systems, facility maintenance status, and quantities of Special Nuclear Material (SNM), High Explosives (HE), and other hazardous materials in the facility. The facility configuration will be subject to formal change control processes.

## 5.7 Equipment & Layout

A formal method for selecting equipment and development of the layout requirements for a dedicated facility must be generated. The equipment selection portion of this deliverable is for equipment typically available from commercial sources, but may also include specially designed equipment as required for the weapon-specific operation (e.g., electrical testers, leak detectors, etc.). The equipment must be selected based on need, the established safety criteria, and ergonomics. Its configuration and maintenance requirements must be formally documented. The equipment shall be allowed to enter or exit the operating environment only as authorized. The facility layout must be formally documented and take into consideration the facility configuration, tooling, equipment, and the placement of these items into and out of the operating facility.

## 5.8 Tooling

Tooling shall be designed, utilizing information from the WSS, to mitigate occupational hazards, to prevent insults to the nuclear weapon, and to enable the production technician(s) to perform the assembly or disassembly in an efficient, effective, and safe manner. The tooling design should improve mechanical advantage, control motion, control position, and mitigate accidents caused by

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misinterpretation or incorrect handling. For safety critical operations, the tooling must incorporate fail-safe designs such that a failure cannot occur that compromises safety. If this is not practical, the design must include at least two independent physical safety features or barriers that must fail before experiencing a detrimental consequence.

## 5.9 Hazard Assessment

A formal hazard assessment and Hazard Analysis Report (HAR) shall be performed and published in accordance with D&P Chapter 11.4. The hazard assessment shall be performed concurrent with the process development.

## 5.10 Milestone Reviews

Five formal reviews (i.e. Milestones) shall be conducted by the Project Team, for the Standing Management Team (SMT), to allow the SMT to make assertions as delineated in D&P Chapter 11.1. These reviews shall be the "close-out activities" of the Task Direction and Planning, Concept Development, Preliminary Development, Implementation & Verification, and the Authorization Phases, also known as Milestones 0, 1, 2, 3 and 4. One of the goals of the Milestone reviews is for the Project Team to convince the SMT that the Safety Criteria were adequately addressed. At the same time, the PT shall apprise the SMT of the process development status, trade-off issues, and schedule status. Issues identified at these reviews must be resolved to the satisfaction of the SMT. To allow the project to quickly proceed, the SMT's acknowledgments may be given verbally followed by a documented acknowledgment. The Project Team shall document the results of each Milestone Review including decisions pertaining to safety-critical issues with reference to the SMT's acknowledgments. -

Any changes adversely affecting the scope, schedule or budget of the project as delineated in the Project Plan must be presented to the SMT for consideration as outlined in D&P Chapter 11.2.

## 6.0 PROCESS PHASES

### 6.1 Task Direction and Planning Phase

The first phase is the Task Direction and Planning Phase, where requirements are identified and agreed to by all parties. The phase begins with WPD issuing a weapon-specific tasking letter to the DA's and Pantex Plant. The letter shall state that SS-21 is to be undertaken and shall identify the applicable requirements and schedule that's consistent with the IWAP. The DA's and the Pantex Plant must respond to the tasking letter by preparing resource and personnel estimates needed to support the proposed task, as well as a notice of impact on any existing schedule. The DA's and Pantex shall forward their responses to WPD. A PT is established to develop a project plan to define the task requirements for the supporting TTs. The PT establishes and employs the TTs to develop, implement, review, and verify the following throughout the subsequent phases: 1) the WSS and the applicable safety criteria, 2) an operating procedure, 3) personnel requirements, 4) an operating facility and its safety basis documentation, 5) equipment and layout, 6) tooling, and 7) a HAR.

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At the completion of the Task Direction and Planning Phase, the PT shall have progressed far enough along to allow the SMT to make assertions as delineated in D&P Manual Chapter 11.1, Section 5.1, titled Milestone 0 – Project Plan Approval.

## 6.2 Concept Development Phase

This phase includes the following main elements:

- Review and update of the WSS
- Development of the safety criteria
- Identification of trainer fidelity requirements
- Conducting an assessment for on-going processes
- Initiation of procedures, tooling, hazards assessment, facility selection, equipment and layout
- Completion of a Conceptual Hazards Analysis
- Illustrated process flow that depicts how the tooling interfaces with the unit's various configurations

The WSS shall be reviewed and updated and applicable baseline Safety Criteria identified and developed. Source information for the WSS needs to include the Baseline Process Flow, Archiving Data, Use-Control Report, Criticality Report, and Intrinsic Radiation Report.

During this phase, the functional requirements for a high fidelity trainer must be identified and documented. For weapon systems that have an established, approved and on-going process, a Process Assessment must be conducted to evaluate the need for any improvements. The PT along with the HATT must evaluate the existing processes against the safety criteria and existing safety basis documents.

A Conceptual Hazard Assessment (CHA) on the existing process shall be conducted and completed during this phase. The CHA and the process safety criteria assessment must identify any current process parameters (e.g., tooling, procedures, facilities, training, etc.) that do not meet the safety criteria or do not comply with facility safety basis documents.

At the completion of the Concept Development Phase, the PT shall have progressed far enough along to allow the SMT to make assertions as delineated in D&P Manual Chapter 11.1, Section 5.2, titled Milestone 1 – Acceptance of Conceptual Approach.

## 6.3 Preliminary Development Phase

During this phase, the following items must be completed:

- Detailed process flow

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- Preliminary Hazards Analysis Report
- Baseline operating procedures
- Preliminary ABCD
- Proposed personnel selection, training and qualification plan
- Trainer requirements
- Design and qualification requirements for equipment, tooling, layout and facilities

During the Preliminary Development Phase the PT is responsible for ensuring the TTs are completing each task in a prescribed sequence that contemplates the impact of other tasks evolving in parallel. A significant amount of task team interactions is required in this phase. This phase also requires that each TT establish specifications for subsequent procurement, manufacture, inspection, and/or acceptance of the deliverables. A Preliminary Hazard Assessment (PHA) is performed in this phase to assess the risks associated with the concepts developed in the previous phase.

At the completion of the Preliminary Development Phase, the PT shall have progressed far enough along to allow the SMT to make assertions as delineated in D&P Manual Chapter 11.1, Section 5.3, titled Milestone 2 – Acceptance of Process Flow.

## 6.4 Implementation & Verification Phase

During this phase the following items must be achieved:

- Safety Criteria has been satisfied
- Weapons response analyses have been peer reviewed by the DAs
- Adequate HAR, ABCD and an effective Authorization Basis exist
- Adequate tooling, procedures, equipment and facilities exist
- Positive Verification Tryout has been completed
- Completion of a proposed scope for the Independent Review Team
- Operations personnel are trained and qualified
- Statement of readiness to proceed to independent verification

During the Implementation & Verification Phase, the PT is responsible for ensuring the Safety Criteria has been met and an effective Safety Basis is in place, thus, the SMT can make the assertions delineated in D&P Manual Chapter 11.1, Section 5.4, titled Milestone 3 – Readiness to Proceed to Independent Review.

## 6.5 Authorization Phase

The following items must be completed during this phase:

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- Readiness and Nuclear Explosive Safety Reviews in accordance with DOE Order 452.1, 452.2A and AL SD 452.2A
- Safety Evaluation Report by the Safety Basis Review Team or equivalent
- Authorization Agreement per D&P Manual Chapter 11.4, Section 4.6

During the Authorization Phase, the PT is responsible for ensuring proper disposition of all concerns raised by the independent review teams and, when disagreements exist, presenting technical rationale to the SMT for resolution. At the completion of the Authorization Phase, the PT shall have progressed far enough along to allow the SMT to make assertions as delineated in D&P Manual Chapter 11.1, Section 5.5, titled Milestone 4 – Recommendation to Authorize Operations.

Upon receiving authorization to proceed with operations, the Pantex Plant is responsible, with support from the PT to accomplish the authorized scope of work within the approved controls, schedule and budget. Throughout the lifetime of the operation, the Pantex Plant with the PT support will monitor and evaluate the controls through a single integrated change-control process to ensure the required safety basis is maintained with high confidence throughout the life of the task. The HAR and ABCD will be used for change control subsequent to the authorization to proceed with operations is received.

## 7.0 RESPONSIBLE ORGANIZATION

WPD is responsible for this chapter.

## 8.0 REFERENCES

1. DOE Policy 450.1, Integrated Safety Management
2. DOE Order 5480.23, Safety Analysis Reports for Nuclear Facilities
3. DOE Order 5480.22, Technical Safety Requirements
4. DOE Order 452.1A, Nuclear Explosive and Weapon Surety Program
5. DOE Order 452.2A, Safety of Nuclear Explosive Operations
6. DOE-STD-3009-94, Basis and Methods for Hazard Analysis, Accident Analysis, and TSR Derivation
7. DOE-STD-XXXX-96, Hazard Analysis Reports for Nuclear Explosive Operations
8. EP401110, Integrated Safety Process for Assembly and Disassembly of Nuclear Weapons
9. Guidelines for Hazard Evaluation Procedures, AIChE

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**JUN 25 1999**

Mr. W. S. Goodrum, Area Manager  
USDOE  
Amarillo Area Office  
Amarillo, Texas 79120

Re: Complete Authorization Basis Task Force Management Action Plans


Dear Mr. Goodrum:

The purpose of this letter is to transmit the subject action plans which support the Authorization Basis Task Force final report required by 98-2, Task 5.3.1.2, "Complete Task Force and Management Action Plan".

These plans are considered final, based on the AAO review comments received to date from the draft plans delivered June 21, 1999. All comments were mutually considered to be enhancements which will be incorporated at the next revision.

If you have any questions concerning this matter please contact Jim Angelo of my staff at extension 7401.

Very truly yours,

  
for W.A. Weinreich  
General Manager

bas

Attachments: As stated (2)

cc: R. T. Brock, DOE/AAO, 12-36  
D. D. Schmidt, DOE/AAO, 12-36

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Complete Authorization Basis Task Force Management Action Plans:

- bcc: H. S. Berman, Deputy General Manager, 12-69
- C. J. VanArsdall, Manufacturing, 12-6
- J. C. Yarbrough, E&D, 12-6
- J. W. Angelo, MPD, 12-69
- K. M. Herring, MPD, 12-69
- L. L. Mayes, MPO, 12-69
- J. N. Gilbert, Facilities, 12-5
- J. C. Cantwell, H&S, 12-132
- B. K. Pascal, AISD, 12-106A
- H. A. Woltermann, AT, 11-2

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AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN  
GENERAL MANAGER'S OFFICE  
METHOD TO REINFORCE TRANSITION TO STANDARDS-BASED OPERATIONS  
(25 June 1999)

**Statement of Concern (Global 1)**

The Authorization Basis Task Force (ABTF) identified problems related to the plant culture which has not yet fully transitioned to standards-based operations as a contributing cause to the failure to fully execute Authorization Basis (AB) related activities.

**Statement of Acceptance**

The General Manager's Office accepts the recommendation of the ABTF. This recommendation is consistent with the approach underway to transition to a standards-based process.

**Cause Analysis**

Reference ABTF Final Report

**Generic Implications**

The transition to standards-based operations affects all facets of work at the Pantex site. Successful implementation of these standards-based processes for AB/SB related work will result in safer, more efficient and more consistent work performance. Additionally, this transition will serve as the impetus for a plant-wide move to standards-based systems that will ensure consistent, quality work across the plant.

**Technical Rationale for Corrective Actions**

Standardizing and proceduralizing AB processes provides the foundation to support the transition to a standards-based operating environment. Standardized processes are the basis for training that leads to significantly higher confidence levels in the consistency of work products. Additionally, personnel better understand the expectations for work they are performing. This understanding, coupled with the standardized processes, will serve as the focal point for promoting and effecting culture change.

## Corrective Actions

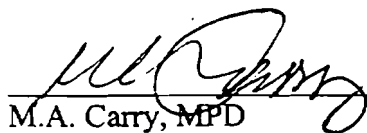
Task	Prerequisite	Due Date	Responsible Individual	Completion Criteria
1. Identify process attributes to be measured	Implement AB/SB and related processes	TBD	Drummond	Senior Management concurrence
2. Develop performance measurement metrics	Task 1	TBD	Drummond	General Manager approval
3. Monitor process performance	Task 1 and 2	TBD	Drummond	Demonstrated performance to established goals over sliding 3 month period

## References

“Authorization Basis Task Force Evaluation of Authorization Basis and Related Activities at Pantex, Final Report”, May 1999

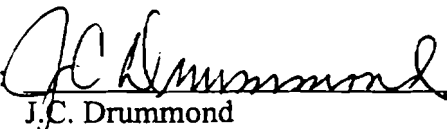
Approvals

Originator:

  
M.A. Carry, MPD

6/25/99  
Date

Responsible Manager:

  
J.C. Drummond

6/25/99  
Date

General Manager:

  
W.A. Weinreich

6/25/99  
Date

AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN  
General Manager's Office  
PROMOTE TEAMING THROUGH ENHANCED ROLES & RESPONSIBILITIES  
21 June 1999

**Statement of Concern**

The ABTF identified the need to establish a corporate culture, which embraces formal processes for developing program scope and accepting and controlling changes that meet the expectations of a standards-based NS and NES integrated AB/SB. There is a need for a centralized authority to facilitate a cultural transformation to promote acceptance and accountability within MHC, the Design Agencies, and DOE. A new culture must embody a management structure with identified authority that functions as a team, which contains a clearly defined hierarchy, and follows the defined "chain of command" for the resolution of all AB/SB activities. The authority of the management structure must include provision for resolving internal and external conflicts between supporting and competing organizations, for all AB/SB activities.

Specifically, in Global Recommendation #2, the ABTF recommended the development of an Action Plan "to enhance roles and responsibilities to further promote a teaming approach between MHC and external entities for resolving issues and conflicts."

**Statement of Acceptance**

The General Manager's Office accepts the need to enhance roles and responsibilities to further promote a teaming approach between the MHC and external entities for resolving issues and conflicts. Acceptance is based upon the knowledge that timely and cost-effective resolution of AB/SB issues must employ a "team" approach between MHC, DOE, Laboratories, and other project/program participants (stakeholders) in resolving conflicts.

**Cause Analysis**

The willingness on the part of Senior Managers, Program/Projects Managers, and other line managers to respond/comply with customer needs/direction has resulted in a culture that is often too aggressive in committing resources to resolve issues and/or conflicts outside of recognized/approved protocols. This has resulted in accepting direction that has not always resulted in focused solutions to problems and has not always achieved a consensus with other stakeholders.

## Generic Implications

All stakeholders have a vested interest in the timely and cost-effective resolution of conflicts and problems, both real and perceived. Effecting and promulgating teaming will eliminate stove piped interests and promote more effective and consistent decision making, with emphasis on safety and value added.

## Technical Rationale for Corrective Actions

The actions to "to enhance roles and responsibilities to further promote a teaming approach between the contractor and external entities for resolving issues and conflicts" should be developed in a "team" environment, comprised of MHC, DOE, Laboratories, and other project/program participants. The actions should lead to an agreed upon protocol and methods for "working together" to meet Pantex Missions.


## Corrective Actions

No	Task	Prerequisite	Due Date	Responsible Individual	Completion Criteria
1	Identify Stakeholders	DOE Agreement to participate	8-17-99	GM	Charter Team & publish Charter
2	Convene Task Team Meetings	Joint MHC & DOE Agenda for 1 <sup>st</sup> Meeting	8-31-99	TBD	Publish Agenda & Schedule Meeting
3	Conduct 1 <sup>st</sup> Meeting	Stakeholder participation	9-15-99	TBD	Publish Minutes/ Action Items
4	Conduct follow-up Team Meetings	Stakeholder participation	9-22 thru 10-20-99	TBD	Publish Minutes/ Action Items
5	Publish Team Recommendations	Stakeholder Sign-Offs	10-27-99	TBD	Published Recommendations
6	Revise Plant Documents	Recommendations accepted by GM	1-30-00	TBD	Memorandum MHC to DOE


## References

"Evaluation of Authorization Basis and Related Activities at Pantex," Final Report, May 1999


**Approvals**

Originator:   
M. A. Carry, Mission Programs

6/25/99  
Date

General Manager:   
W. A. Weinreich, GM

6/25/99  
Date

Division Manager:   
J. Angelo, Mission Programs

6/25/99  
Date



Date: June 23, 1999

From: J. C. Yarbrough      Location: Engineering & Design, 12-6

To: H. S. Berman      Location: General Mgrs. Office, 12-69

Subject: ABTF Recommendation-Global 4

An evaluation of the benefits of a centralized organization for managing, maintaining, and processing changes of the AB/SB has been completed. A centralized organization will be established to perform these functions. The organization will reside within the Engineering and Design Division. The functional elements of this organization are being addressed through the action plan prepared in response to ABTF recommendation Global 5.

This memo serves to close ABTF recommendation Global 4 and documents that the functional elements of the centralized AB/SB organization have been incorporated, and will be tracked, as tasks identified in the action plan responding to ABTF recommendation Global 5.



J. C. Yarbrough, Division Manager  
Engineering & Design



**AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN**  
**ENGINEERING & DESIGN DIVISION**  
**EVALUATING A CENTRALIZED AUTHORIZATION BASIS ORGANIZATION**  
(June 24, 1999)

**Introduction:**

On February 15, 1999, an Authorization Basis Task Force (ABTF) was formed by the General Manager to address the continuing authorization basis issues at the Pantex Plant. The initial purpose of the ABTF was to establish a program plan to improve and standardize the authorization basis for nuclear explosives operations, but was later expanded to address nuclear facility activities and nuclear related programs.

The ABTF membership consisted of a cross section of personnel from across the Pantex Plant and was chaired by the Deputy General Manager. The issues and recommendations from this effort are documented in "Evaluation of Authorization Basis and Related Activities at Pantex" Final Report, dated May 1999.

This action plan addresses the recommendation listed under Section VIII., Summary and Conclusions, titled "Centralized Authorization Basis Organization" and the actions defined as Global 5 and F 4.

**Statement of Concern:**

**Background** (paraphrased from the report):

Currently, authorization basis (AB) work is accomplished in the Risk Management Department. The Department is organized into five functional areas: AB development (both weapons and facilities), Technical Analysis, Unreviewed Safety Question (USQ) Program, Systems Engineering, and Configuration Management (limited). The Department is compartmentalized into set functions. This results in separate approaches for similar AB problems. The approach to AB development is different depending on whether the task is for Sitewide (facilities) tasks, such as the Basis for Interim Operations (BIO) upgrades, or whether it is in support of nuclear explosives operations (weapons). Separate teams are used to develop both types of AB documents. The USQ group provides change control for AB level (DOE approved) documents and proposed activities which could impact the AB. Systems Engineering provides systems and component level support for AB development, operability and maintenance for nuclear facilities, and the Configuration Management group provides controlled AB document distribution and document configuration control. The Risk Management Department takes its business direction from the Missions Program Division, from the Manufacturing Division, and some tasking internally from the Engineering & Design Division.

## **ABTF Recommendations and Approach (paraphrased from the report):**

The ABTF recommends developing a single organization to provide the following focus: establishing, managing and maintaining AB/Safety Basis (SB) documents. The proposed Business Office would ensure that the AB work is focused on valid requirements that have been properly authorized. The AB Organization manager would be the single focal point, within the organization, for AB-related decisions. The approach for AB development would be to use a single system for establishing the AB documents in support of valid customer requirements. The current differences in approach for facility versus nuclear explosives work would be consolidated in the new organization. The two groups, weapons analysis and facilities analysis, would be consolidated into one entity. The methodology for establishing the AB would be the same for any type of AB. The change control process would be integrated with the development effort. For example, the analyst used to create the analysis, which supports the AB, would be used in the change control process for that product. They would be cross-trained in the USQ process and support those products that they helped to develop. Some level-of-effort change control personnel would be required to handle the common issues that are not tied to a specific AB project. The maintenance of the AB/SB, including some of the functions listed below, would be part of the AB Organization. It is envisioned that the AB Organization would accomplish the following functions:

- Perform analysis and identify controls to develop AB (integrating both the Nuclear Safety & Nuclear Explosives Safety worlds).
- Change controls of AB/SB (integrating both USQ and Nuclear Explosives Safety requirements).
- Commitment tracking of the AB/SB safety commitments (central database).
- Configuration management of AB and key SB documents.
- Document Management of controlled AB/SB documents (integrating existing Plant systems).

The ABTF Final Report transmittal letter from W.A. Weinreich to Distribution, subject: Action Plans to Resolve AB/SB Issues, dated June 2, 1999, offers additional clarification on the scope of this action plan: "The Recommended Functional Area/Action Plan Development is presented as two distinct options; the principal difference between these options is the establishment of new organizations to function as 1) a Business Office, and 2) a separate AB Organization to perform a licensing type function for AB/SB activities at the Plant. I believe it is premature to create new organizations at this time; however, I am directing the development of Action Plans in accordance with Recommended Option II, with the stipulation that Mission Programs assume responsibility for the Business Office recommendations and Engineering & Design assume responsibility for developing the plan for the proposed AB Organization."

Associated with the organizational aspects of a single AB organization is the ABTF action F4 listed under Option 2:

"Evaluate the alignment responsibilities for personnel executing safety controlled work to assure that "non-direct" work activities do not overshadow focus of safety attention on "direct" work activities." Additional narrative is provided on Page 25 of the ABTF Final Report, "Evaluate Production Technician (PT) work responsibilities to ensure non-safety related activities are not overshadowing safety-related activities; also, establish a hierarchy of safety controls to ensure PTs are not overburdened with minutia."

The ABTF Final Report also provides Global 5:

"Evaluate and determine the required staffing levels, qualification requirements, and retention strategies to assure the establishment and maintenance of core competencies supporting AB/SB work."

From the above recommendations, the scope of this action plan will be to address the proposed AB Organization, along with Global 5 and F4, with the business office portion of this recommendation, and the process development action items deferred to other action plans.

#### **Statement of Acceptance:**

The following are the key issues from the discussion associated with the ABTF recommendation, along with Global 5 and F4, which will be further developed in this corrective action plan. This plan will focus on evaluating integration of functions in support processes (organization) using the DOE Orders and Standards that direct work in developing and maintaining AB/SB documentation. The activities in this corrective action plan (CAP) will be coordinated with the process CAP efforts (i.e.: performing and documenting hazards analysis, and integrated change control for facilities and weapons processes). Roles, responsibilities and authorities will be defined in this CAP, and will be derived from the processes or methodologies defined in the process CAPs:

- Evaluate developing a centralized AB Organization with a single focus on establishing, managing, and maintaining AB/SB documents;
- Integrating change control organizations for both DOE Orders 5480.21 (facilities, USQ) and 452.2A (weapons, NES);
- Integrating the change control personnel (USQ/NES) with the AB development efforts.
- Global 5 (defined above).
- F4 (defined above).

## Cause Analysis:

The difficulties in developing AB documents have typically resulted from two general issues:

- 1) Failure to adequately develop and use proven project management techniques when developing AB documents. This includes documenting expectations, defining and providing adequate resource requirements, defining and scheduling interim reviews, definition of approval authority, adequate definition of deliverables, and change control of the plan to adjust for scope change or priority shifts with resources.
- 2) Combined with item 1 above, there is a lack of integration, and possibly understanding of the requirements of the weapons and facilities AB requirements.

For the first issue, although not considered specifically in the ABTF, considerable work has been accomplished to develop project plans and use proven techniques to manage these efforts. Arguably, the initial step was to organize the AB activities into a group that supports accountability. The next was to develop project plans for the activities, closely coordinating with the approval authority.

Presently, AB development is performed in the Risk Management Department. The weapons analysis and facilities analysis sections are currently organized as separate groups, and until very recently, reported to an AB Manager. The AB Manager position is currently vacant and the two groups now report to the RMD Department Manager. The AB Manager was responsible for planning, developing, implementing and managing the resource requirements for all Plant AB/SB activities. The AB Manager had two primary directions during his tenure, 1) formally organize the AB development efforts using the rigor of project management techniques; and 2) develop methodology, format and content guides for AB to define key elements required for project management. Both efforts were working in parallel but considerably more progress has been made in developing the project plans for the AB development. The elements to develop the project plans were individually coordinated versus the standardization we are eventually targeting. Progress to date:

- For the facility AB, the initial project plans for the BIO Upgrade Program have just recently received DOE approval. The plans define scope, milestone deliverables, and a project by project coordinated review processes which includes DOE interim review to facilitate AB approval. The current efforts to further refine the projects plans include providing more detailed definition of deliverables (coordinating closely with DOE/AAO), and resource loading the internal and outside contract support resources into the project plans. That effort will be completed in July 1999.

- For the weapons AB efforts, the first under MHC and RMD control was recently completed for the W88 program. The project plan defines the process or methodology, to accomplish the analysis, the resource requirements needed to accomplish the process, including National Laboratory involvement, defines the interim, coordinated reviews with the PT, SBRT and MHC management, and provides detailed limitations and assumptions used to develop the plan. RMD lead the effort to coordinate the methodology and resource requirements with the primary design agency (LANL) and SNL. The process is approximately 4-weeks into the project plan and is ahead of schedule.
- Both the BIO Upgrade Program and the HAR/ABCD project plan efforts are being integrated into the IWAP.

Issue 2 offers unique challenges for the AB organization. Traditionally, Nuclear Explosives Safety (NES) provided approval for weapons operations using an input document (analysis, procedures, process reviews, discussion, etc) in support of a weapons specific NES Study (NESS). The approval to conduct weapons operations in Pantex facilities relied on an input document (similar in content to specific studies, but at a higher level) to support of NES Master Studies (NESMS). The input documents for each were dependent on the approval authority representative, which required very close coordination and frequent adequacy reviews with the representative.

The present initiative is to use the AB documentation developed for the Nuclear Safety Orders (DOE Orders 5480.22/23) as the primary input document to support both the weapons specific NESS and the more generic reviews conducted to support NESMS (along with additional requirements in STD 3015) thereby satisfying both NES and Nuclear Safety (NS) requirements with an integrated AB. The Hazards Analysis Reports (HARs) and Activity Based Controls Document (ABCD) supports the weapons specific NES review and the BIO Upgrade module serves as the primary input document supporting the NESMS. The documents would be maintained using a single change control process, tailored to meet the additional NES change evaluations specified in ALSD 5610.11A, but predominantly the process defined in DOE Order 5480.21.

DOE Order 452.2A offers linkage to the Nuclear Safety Orders 5480.21/22/23 to support this effort. However, there are philosophical differences outside the control of the operating contractor that, at least for the near term, will result in close coordination of the input documents to ensure the expectations are met for both DOE organizations.

Organizationally at Pantex, the MHC NESD personnel currently work with DOE NES to manage the change control process, support adequacy reviews for AB documentation for weapons, and provide an oversight function in the form of independent process reviews (for changes or new processes). For NS issues, including weapons processes, RMD personnel work with DOE and MHC NS and NESD personnel to develop and maintain AB documents. The new initiatives have resulted in uncertainties from both a process perspective as well as organizational roles, responsibilities and authorities (RR&A).

Global 5 was identified in the Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis developed for AB Personnel. An action plan was developed to address each issues and all further actions to address this issue are deferred to that corrective action plan.

The F4 recommendation results from the present work environment and the many forms of documentation used to implement work and/or safety actions or controls for Production Technicians (PTs) and other Plant personnel executing "safety controlled" work at Pantex. This is further compounded by the varying importance level of controls (hierarchy) defined in the AB and other safety related documents.

### **Generic Implications:**

The generic implications of this corrective action plan could result in organizational realignments, for RMD and the NESD groups, to meet the process realignments. Processes will merge and staffing decisions will need to be made when the RR&As for both organizations are finalized. Additionally, incorporating the NESD and USQ personnel as analysts in the AB development effort will impact the present status of both the programs. The work load for change control of the present AB is not anticipated to decline. Therefore, by adding USQ and NES evaluators to the AB development, the staffing levels for those group may be increased.

The evaluation effort to address the recommendation for F4 could result in substantial changes in the work environment and the process to implement AB or safety related controls at Pantex.. If the processes are modified to consolidate implementing documents, flag the hierarchy of the controls in those implementing documents, or substantial modify the work environment in the Nuclear Facilities, there could be considerable Plant-wide involvement (costs) during the implementation effort.

### **Technical Rationale for Corrective Action:**

To fully implement NES and AB requirements within MHC, there needs to be one integrated process. Those personnel would serve as an integral part of the AB development process as an analyst, and then assigned to the program to manage the change control for the process as a change control evaluator (USQ and NES). While the oversight function remains clearly a NES requirement, RR&As must be defined between these organizations and aligned with a coordinated process.

Additionally, the work environment and processes currently defined to implement safety related activities require detailed evaluation to ensure those activities are not overshadowed by non-safety related activities and the hierarchy of safety related controls is clearly defined.

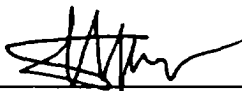
## Corrective Actions:

TASK	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
1. Conduct a review of DOE Orders and Standards directing NES/NS activities for AB development and change control.	8/99	A.G. Papp/ S. Young	A list of Orders and Standards will be developed with a matrix of requirements linked back to the order. (The intent of the matrix would be a high level list of requirements paraphrased from the criteria).
2. Develop recommended Roles, Responsibilities and Authorities (RR&A) for RMD and NESD linked back to criteria. RR&As will be linked to the process developed for the GI CAP.	9/99	A.G. Papp/ S. Young	A jointly prepared list of Roles, Responsibilities and Authorities between RMD and NESD.
3. Coordinate RR&As with respective Division Managers and notify appropriate DOE/AAO counterparts.	9/99	A.G. Papp/ S. Young	Approval by the Division Managers, formally transmitted to the AAO.
4. Develop a proposal for additional staffing or staffing realignments for NESD/RMD.	10/99	A.G. Papp/ S. Young	A jointly prepared proposal for additional or realigned staffing for both RMD and NESD.
5. Evaluate organizing the AB development and management functions into a single organization. Determine staffing levels and qualification requirements which include item 4 above and GI CAP deliverables.	10/99	A.G. Papp/ S. Young/	A memorandum from RMD/NESD Department Managers to E&D/H&S Division Managers documenting the evaluation and providing recommendations and the basis for those recommendations.
6. From Global 5, evaluate retention strategies to maintain AB staffing and staffing levels.			This action is addressed in the CAP developed for the SWOT Analysis for AB personnel.
7. Coordinate proposed organizational changes or staffing changes, as applicable, with respective Division Managers, obtain General Manager approval, and notify appropriate DOE/AAO counterparts.	10/99	A.G. Papp/ S. Young	Approval by the General Manager, formally transmitted to the AAO.
8. Evaluate the explosives operations as the next logical step to integrate deterministic safety functions.	11/99	A.G. Papp/ S. Young	A joint memorandum from RMD/NESD to E&D/H&S Division Managers documenting the evaluation and providing recommendations and the basis for those recommendations.

9.	Coordinate proposed organizational changes or staffing changes, as applicable, with respective Division Managers, obtain General Manager approval and notify appropriate DOE/AAO counterparts.	12/99	A.G. Papp/ S. Young	Approval by the General Manager, formally transmitted to the AAO
10.	Evaluate, in conjunction with Industrial Engineering, the PT work responsibility to ensure non-safety related activities are not overshadowing safety-related activities.	6/00	D. Rhoten/ J. Spanos	Issue a report to affected Division Managers detailing proposed recommendations.
11.	From action 10. above, develop the implementation plan for those recommendations accepted by Division Managers.	8/00	Affected Division Mgrs	Develop and receive approval for an implementation plan to implement the accepted recommendations.



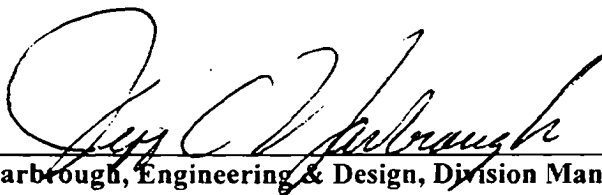
APPROVALS:



Steven L. Young, Risk Management, Department Manager

6/24/99

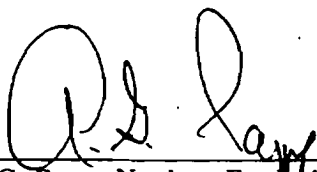
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J. C. Yarbrough, Engineering & Design, Division Manager

6/24/99

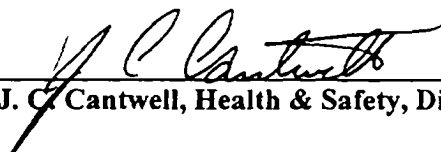
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A. G. Papp, Nuclear Explosive Safety, Department Manager

6/24/99

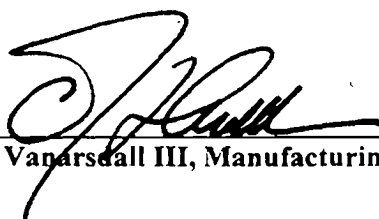
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J. C. Cantwell, Health & Safety, Division Manager

6/24/99

DATE



C. J. Vanarsdall III, Manufacturing, Division Manager

6/24/99

DATE

**AUTHORIZATION BASIS TASK FORCE'S FINAL REPORT  
ACTION ITEMS A1, A1a, A1b, A1c, A1d, F3, G2 ACTION PLAN**

**STATEMENT OF CONCERN:**

Concerns have been expressed as part of the Authorization Basis (AB) Task Force (ABTF) that there needs to be put in place a centralized planning and work control organization that will accomplish the following: Responsible for defining, negotiating, and committing to work scopes (and associated schedules) all plant work (A1); Formalize all requirements for receiving tasking, developing estimates, and committing to work (A1a); Developing a method for determining the need to incorporate proposed changes and establishing line management ownership of the change control process (F3 & G2); Develop a mechanism that allows identification of impacts from workload leveling and reallocation of resources (A1b); Consolidates project/program management functions, organizations, and personnel into one organization to accomplish all plant work (A1c); Complete the development of a standardized planning process for all phases of the project (A1d).

**STATEMENT OF ACCEPTANCE:**

Mission Programs Division (MPD) accepts the responsibility to address the above items and resolve the issues and expectations. The plant intends to approve and implement the Pantex Management Control System (PMCS) to address the above concerns. The plan is currently in its final draft review (copy provided to AAO) and intends to include, as part of PMCS, resolution to each of the above issues. Mission Programs Division will be responsible for PMCS. Specifically, the responsibility is assigned to the current Planning & Work Control (P&WC) group. With the exception of purely financial functions (which will remain under the Chief Financial Officer (CFO)), the intent is for P&WC to develop into an organization capable of performing as described above. Due to the scope and magnitude of the PMCS implementation, the intent is to not initially include construction nor maintenance planning and scheduling within the P&WC organization. However, these Facility Division functions will use the principals of PMCS in conducting their business. Once PMCS is fully implemented, and evaluated, in the rest of the plant a review will be conducted to determine the value added of including the above within P&WC.

**CAUSE ANALYSIS:**

See the ABTF's Final Report.

**GENERIC IMPLICATIONS:**

See the ABTF's Final Report.

**TECHNICAL RATIONALE FOR CORRECTIVE ACTION:**

See the ABTF's Final Report.

**CORRECTIVE ACTIONS:**

<b>Task Number</b>	<b>Task</b>	<b>Completion Date</b>	<b>Responsible Person</b>
1	Review, approve and publish the PMCS final PMCS Manual.	11/26/99	Sonny Mann
2	Identify and procure PMCS software support	10/1/99	John Neusch
3	Identify transition issues for entire project	10/8/99	Bob Barton
4	Install software support system	12/10/99	John Neusch
5	Integrate PMCS software system with existing plant scheduling and financial tools and complete testing	5/1/00	John Neusch
6	Train PMCS Implementation Team on software.	1/1/00	John Neusch
7	Train PMCS Implementation Team on PMCS system	10/15/99	Bob Barton
8	Train Program and Project Managers on PMCS software.	4/28/00	Bob Barton
9.	Train Program and Project Managers on entire PMCS system.(minus software)	11/30/99	Bob Barton
10.	PMCS used to manage work at Pantex (software system fully on line) (pilot)	7/10/00	Bob Barton
11	PMCS used to manage work at Pantex (software system fully on line)	10/01/00	Bob Barton
12	PMCS planning and budget formulation tools used to prepare FY02 budget	10/01/01	Sonny Mann
13	All aspects of PMCS on line at Pantex	10/01/01	Sonny Mann
14	Evaluate performance of PMCS	04/01/02	Jim Angelo
15	Bring Construction planning and work control and Maintenance Planning and Scheduling and Utilities Planning and Scheduling under P&WC	06/01/02	Jim Angelo

**COMPLETION CRITERIA:**

The closure of the above tasks shall be documented by memorandum from the responsible person to the Mission Programs Division Manager

**REFERENCES:**

- "Evaluation of Authorization Basis and Related Activities at Pantex - Final Report," ABTF, May 1999.
- Pantex Management Control System (final draft) dated 17 June, 1999

**APPROVALS:**

Originator: *[Signature]* 6/21/99  
Date

IAA&Q Manager: *[Signature]* 6/21/99  
Date

Manufacturing Division Manager: *[Signature]* 6/21/99  
Date

AT Division Manager: *[Signature]* 6/24/99  
Date

AISD Division Manager: Brenda K. Pascoe 6/25/99  
Date

H&S Division Manager: *[Signature]* 6/24/99  
Date

Facilities Division Manager: *[Signature]* 6/24/99  
Date

Security Division Manager: *[Signature]* 6/24/99  
Date

E&D Division Manager: *[Signature]* 6/22/99  
Date

MP Division Manager: *[Signature]* 6/21/99  
Date

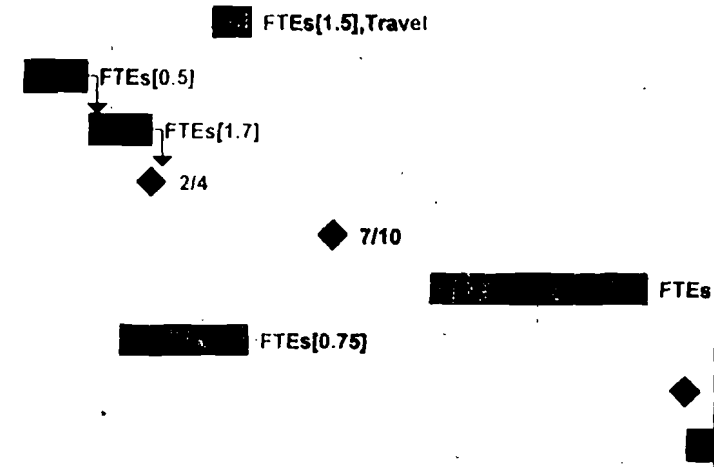
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Task # 2, 4, 5 + 6: 29001117  
Task # 3, 7, 8, 9, 10, 11: 29001118  
Task # 14 + 15: 29001119

# Pantex Management Control System (PMCS) Project

ID	Task Name	Dur	Start	Finish	Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4		
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1	Review Recommended PMCS Process	30d	1/5/99	2/15/99	█ FTEs[0.9]																																			
2	Compare PMCS to Present Plant Practices	44d	2/16/99	4/16/99	█ FTEs[1.25]																																			
3	Suggest Changes to Recommended PMCS Process	45d	2/22/99	4/23/99	█ FTEs[0.9]																																			
4	Revise PMCS Manual	10d	4/23/99	5/6/99	█ FTEs[0.03]																																			
5	Issue Revised PMCS Manual	0d	5/7/99	5/7/99	◆ 5/7																																			
6	Request Assessment/Comment PMCS Revised Manual	1.04d	7/2/99	7/5/99	█ FTEs[0.01]																																			
7	Assess Revised PMCS Process	45d	7/5/99	9/6/99	█ FTEs[1.25]																																			
8	Identify Software to Support PMCS	155d	1/18/99	8/20/99	█ FTEs[2]																																			
9	Procure PMCS Support Software	28.96d	8/23/99	9/30/99	█ FTEs[0.01], Software																																			
10	Submit PMCS Process Assessments/Comments	0d	9/6/99	9/6/99	◆ 9/6																																			
11	Evaluate Assessments/Comments on PMCS Process	15d	9/6/99	9/27/99	█ FTEs[0.5]																																			
12	Identify PMCS Transition Issues	9d	9/27/99	10/8/99	█ FTEs[0.2]																																			
13	Resolve Issues/Comments with PMCS Process	15d	10/8/99	10/29/99	█ FTEs[0.6]																																			
14	Finalize PMCS as Plant's Work Management Process	5d	11/11/99	11/17/99	█ FTEs[0.2]																																			
15	Approve PMCS as Plant-wide Work Management Process	0d	11/18/99	11/18/99	◆ 11/18																																			
16	Update PMCS manual	5.97d	11/19/99	11/26/99	█ FTEs[0.03]																																			
17	Update/Create Standards and Procedures	86d	9/6/99	1/3/00	█ FTEs[7]																																			
18	Announce PMCS System for FY02 Planning	4.01d	11/8/99	11/12/99	█ FTEs[0.04]																																			
19	Train Program/Project Personnel	120d	11/15/99	4/28/00	█ FTEs[0.4]																																			
20	Introduction to PMCS-Principles/Responsibilities	10d	11/15/99	11/26/99	█ FTEs[0.4]																																			
21	Work Plans Development	10d	11/29/99	12/10/99	█ FTEs[0.4]																																			
22	Budget Requirements	10d	1/3/00	1/14/00	█ FTEs[0.4]																																			
23	Managing Performance	10d	3/13/00	3/24/00	█ FTEs[0.4]																																			
24	Change Control	10d	3/13/00	3/24/00	█ FTEs[0.4]																																			
25	Project Management Tools/Aids	10d	3/27/00	4/7/00	█ FTEs[0.4]																																			

# Pantex Management Control System (PMCS) Project

ID	Task Name	Dur	Start	Finish	Timeline																																				
					Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4			Qtr 1			Qtr 2			Qtr 3			Qtr 4			
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	
26	PMCS Support Software Training	25d	3/27/00	4/28/00																																					
27	Install PMCS Support Software	40d	10/18/99	12/10/99																																					
28	Test PMCS Support Software	40d	12/13/99	2/4/00																																					
29	Adopt Software as part of PMCS Business System	0d	2/4/00	2/4/00																																					
30	PMCS used exclusively to Manage Work at Pantex	0d	7/10/00	7/10/00																																					
31	Evaluate PMCS Results	132d	10/2/00	4/3/01																																					
32	Identify Needed Refinements	80d	1/10/00	4/28/00																																					
33	Obtain Approval for Refinements	0d	5/7/01	5/7/01																																					
34	Implement Refinements	18d	5/9/01	6/1/01																																					



**AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN  
ENGINEERING & DESIGN DIVISION  
METHODOLOGY FOR PERFORMING & DOCUMENTING HAZARDS ANALYSIS  
AND  
METHODOLOGY FOR IDENTIFYING & DOCUMENTING CONTROLS  
(24 June 1999)**

**Statement of Concern**

The Authorization Basis Task Force (ABTF) identified a significant deficiency with respect to performing hazards analysis and identifying, documenting, and maintaining controls at the Pantex Plant. Although much "guidance" is contained in a myriad of Department of Energy (DOE) documents, no concise process is defined or established for these tasks. Mason & Hanger Corporation (MHC) must fill the void with its own methodology for conducting hazards analysis, the form & content for documenting the results, the methodology for identifying controls, the criteria for their stratification, the form & content for documenting controls, and a process for maintaining them. The primary focus of these tasks, as identified by the ABTF, is as follows:

- B2 Develop a form, content, and methodology guide for conducting Hazards Analysis.
  - B 2a Develop a methodology for HA that integrates analysis for facilities, nuclear explosive operations, and nuclear processes.
  - B1 Develop a form and content guide that standardizes the format and establishes the criteria for completeness of Hazards Analysis (HA) documentation.
    - B 1a Develop a set of Site-specific, common definitions and terms.
- C 2 Develop and formalize a methodology for identification of controls.
  - C 2b Develop the method to identify controls, select controls, and justify how they prevent or mitigate the accident scenario.
  - C 2c Develop the criteria for determining controls' effectiveness (includes the effectiveness, reliability, and availability) demonstrating how they form an appropriate control set.
  - C 2d Develop a process to validate document integrity and demonstrate that the controls set is properly flowed down from HARs/TSDs/SARs to their respective controls documents.

- C 1 Develop the form & content guide for documenting controls' identification and selection.
  - C 1a Develop a set of Site-specific, common definitions and terms.
  - C 1b Develop the form & content to document each type of control.
  - C 1c Develop the criteria to stratify controls (from TSRs to defense-in-depth controls).
- C2e Develop and formalize the protocol for approval of Plant controls documents and hazards analysis.
  - B 2e Include a Customer Review (reality check) and concurrence (with the proper authority) of the hazards analysis and controls identification and selection results.
- C 3 Enhance the process for formally receiving and resolving comments from internal and external entities (e.g., centralized control).
- Global 3 Gain formal acceptance from DOE for all contractor-developed form, content, and methodology guides, which includes site specific terms and definitions associated with conducting AB/SB work.

### **Statement of Acceptance**

The Engineering & Design Division accepts the need to develop a standard methodology for conducting hazards analysis; providing the form & content for documenting the results; and a methodology for identifying, selecting, stratifying, and documenting controls based on a specific hazards analysis . Included in this task are the necessary aspects of: creating a standard set of terms & definitions (both hazards analysis & controls identification), appropriate criteria for both the hazards analysis process and controls identification areas, the review & approval process (which includes resolution of comments), and a provision to gain customer concurrence with the methodology and criteria.

1. Acceptance of these needs are predicated on the following assumption:

Current funding and FTE levels will not support completion of ABTF corrective actions in a timely fashion while supporting all other Plant priorities. Therefore, current staffing levels within the Risk Management Department must be evaluated to define the impacts



priority projects. Once this has occurred, Risk Management assets will be realigned to accomplish the corrective action plan tasks. Funding needs for the remainder of FY '99 and FY '00 and will fund, at a minimum, FTE salaries, supplies, travel (to benchmark other Sites' activities), and computer hardware/software. FTE support will require 2 FTE for approximately three (3) months and half-time for an additional three (3) months.

- Generic program development will begin after Management approval of this action plan and upon completion of Plant-wide review of the draft DOE handbook for conducting Hazards Analysis and identifying controls (comments due July 2).

### **Cause Analysis**

Root causes were analyzed/determined by the ABTF and reported in the *ABTF Final Report*.

### **Generic Implications**

Generic implications are defined in the *ABTF Final Report*.

### **Technical Rationale**

The technical rationale for these corrective actions is found in the *ABTF Final Report*. However, it is clear that the majority of problems with respect to hazards analysis stem not from knowing "how" to conduct hazards analysis, but rather from the concept of "what" and "how much" to do. The same is true for the controls identification and selection process. Without a formalized process, customers, as well as hazards analysts, do not understand "what" and "how much" is appropriate. Hazards analysis efforts continue to fail because the process is set up to meet individuals' expectations, not a set of standardized criteria. Establishment of an agreed upon methodology for performing the hazards analysis and identifying controls, the criteria for "what" and "how much" to report, as well as refining the review, comment resolution, and approval processes will provide the path for success for both hazards analysis and controls identification. This approach will eliminate most of the subjectivity involved with reviewing and approving hazards analysis and their required controls.

## Corrective Actions

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
ALL 1 Evaluate current Risk Management staffing levels and define impacts to current priorities to realign internal assets to accomplish the corrective action plan	Staffing realigned	07/01/99	Steve Young/985	Definitions of impacts and staff assigned
ALL 2 Complete Plant-wide review of draft DOE Pantex Handbook for Hazards Analysis Reports	Receive comments through Centralized Review System & other individuals	07/02/99	Steve Young/985 (Roy Hedtke)	Written comments or statements of "no comment" from reviewers
B 2.1 Develop a generic methodology for performing the hazards analysis	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written process flow chart & text description
B 2.2 Develop the form & content guide for documenting the results of the hazards analysis	Staff realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written chapter(s) describing the necessary form & content
B 2a Integrate the methodology for hazards analysis to include facilities, nuclear processes, and nuclear explosive operations	Complete B 2.1 and B 2.2	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written chapters describing the integration and how each is accomplished
B 2.3 Document a set of common terms and definitions for hazards analysis	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Written Glossary to be included with draft form & content guide
B 1 Develop criteria for hazards analysis "completeness"	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Set of written & justified criteria for "completeness"
C 2 Develop and formalize a "high-level" methodology for identification of controls	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written process flow chart & text description
C 2b Develop the method for identifying controls, selecting controls, and establishing their bases	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written chapter describing the methodology
C 2c Develop the criteria to determine controls' effectiveness demonstrating how they form an appropriate control set	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Written criteria for controls' effectiveness

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
C 2d Develop a process to validate document integrity & demonstrate proper flow-down from the respective analysis to the controls document	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Set of written guidelines for achieving controls flow-down & documentation
C 1 Develop the form & content guide for documenting controls' identification and selection	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft written chapter(s) detailing the form & content
C 1a Document a set of Site-specific common definitions and terms used in identifying & selecting controls	Staffing realigned & Review complete of Draft DOE Handbook	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Written Glossary to be included with the form & content guide
B 2e Develop the Customer review & approval process for hazards analysis and controls identification results	Complete B 2.1, B 1, C 1, and C 2	See Gantt Chart	Steve Young/985	Draft written review & approval process flow chart and text description
C 2e Develop & formalize the protocol for approval of Plant controlled AB documents	Complete B 2.1, B 1, B 2e, C 1, and C 2	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Draft Plant Standard and draft description for AB Manual
C 3 Enhance the process for formally receiving and resolving comments from internal & external entities concerning hazards analysis and controls identification performed to develop/support the authorization basis (AB)	Complete B 2.1, B 2e, C 2e, and C 3 and receive input from MPD on the requirements for input to the Business Office	See Gantt Chart	Steve Young/985 & Kathleen Herring/	Draft written procedure for receiving & resolving comments on hazards analysis and controls identification
Glob. 3 Gain DOE formal concurrence (after joint review) for hazards analysis and controls identification methodology, form & content guide, stratification, terms, definitions, & criteria for completeness and effectiveness	Complete B 2.1, B 2.2, B 2.3, B 1, C 2, C 2b, C 2c, C 2d, C 1, C 1a, C 1b, C 1c, C 2e, B 2e, and C 3	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Formal letter from Dr. Weinreich requesting concurrence after joint review & resolution of comments
C 2e.1 Formalize hazards analysis and controls identification process for the Plant	Complete Global 3	See Gantt Chart	Steve Young/985 (Roy Hedtke)	Gain approval of Plant Standard or the appropriate chapters in the Plant AB Manual

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
Implementation    Ensure the processes are effectively implemented at the Pantex Plant.	Complete Global 3 and C 2e.1 (ensures all required <i>ABTF Report</i> actions have been completed)	See Gantt Chart	Steve Young/985	Implementation Plan is complete and training documented in Trac

**ATTACHMENT 1:**

**FUNDING REQUIREMENTS FOR FY 99 AND FY 00**

<b>AREA</b>	<b>EXPLANATION</b>	<b>FY 99 FUNDING</b>	<b>FY 00 FUNDING</b>	<b>TOTAL</b>
2.0 FTE AB/ Hazards Analysts SME  OR	FY 99 Hourly Rate 1 @ \$39.39 1 @ \$36.45 Assume same for FY 00 but 50% time	<b>\$ 36,403</b> 40 x 12 wks x \$39.39 = \$ 18,907 40 x 12 wks x \$36.45= \$ 17,496	<b>\$ 18,202</b> .5 x 40 x 12wks x \$39.39 = \$9,454 .5 x 40 x 12 wks x \$36.45 = \$8,748	<b>\$ 54,605</b>
Computer Hardware/Software	1 New System	<b>\$ 4,200</b>	<b>\$ 0.00</b>	<b>\$ 4,200</b>
AB Bench marking Trip	trip for 2 to SRS or Oak Ridge	<b>\$ 5,000</b>	<b>\$ 0.00</b>	<b>\$ 5,000</b>
Supplies	Includes overheads, handouts, pens, etc.	<b>\$ 500</b>	<b>\$ 0.00</b>	<b>\$ 500</b>
<b>TOTAL</b>		<b>\$ 46,103</b>	<b>\$ 18,202</b>	<b>\$ 64,305</b>

# ABTF HA / Controls

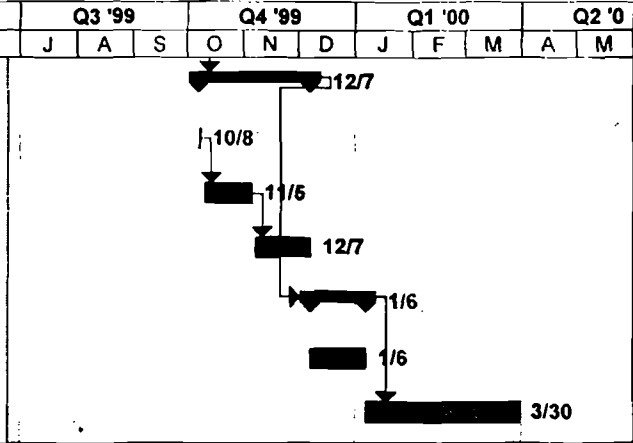
Thu 6/24/99 5 09 PM

ID	Task Name	dur	Start	Finish	Pred	Resource Name	Q3 '99				Q4 '99			Q1 '00			Q2 '0	
							J	J	A	S	O	N	D	J	F	M	A	M
1	ALL 1 Realign Assets for Project	13d	Mon 6/14/99	Wed 6/30/99		Risk Analyst[0.2]	■											
2	ALL 2 Complete Plant-wide review of DOE Handbook on HAR/ABCDs	13d	Mon 6/14/99	Wed 6/30/99		Risk Analyst,Central	■											
3	<b>HAZARD ANALYSIS</b>	44d	Thu 7/1/99	Tue 8/31/99	1													
4	<b>B 2.1 Create Methodology for Performing HA</b>	44d	Thu 7/1/99	Tue 8/31/99		Risk Analyst												
5	B 2.3 Document a set of common terms & definitions for HA	5d	Thu 7/1/99	Wed 7/7/99														
6	B 2.2 Develop Form & Content Guide for HA	24d	Thu 7/8/99	Tue 8/10/99	5													
7	B 1 Develop the "completeness" criteria	10d	Wed 8/11/99	Tue 8/24/99	6													
8	C 2e Formalize Plant process for HA	5d	Wed 8/25/99	Tue 8/31/99	7													
9	<b>CONTROLS</b>	67d	Thu 7/1/99	Fri 10/1/99	1													
10	<b>C 2 Develop &amp; Formalize Controls Identification Methodology</b>	43d	Thu 7/1/99	Mon 8/30/99		Risk Analyst												
11	C 2b Develop the methodology for controls processes	20d	Thu 7/1/99	Wed 7/28/99														
12	C 2c Develop the criteria for controls' effectiveness	15d	Thu 7/29/99	Wed 8/18/99	11													
13	C 2d Develop a process for controls integrity & flowdown	8d	Thu 8/19/99	Mon 8/30/99	12													
14	<b>C 1 Develop the form &amp; content for documenting controls ID &amp; Select</b>	24d	Tue 8/31/99	Fri 10/1/99	10	Risk Analyst												
15	C 1a Document the Site-specific definitions & terms	5d	Tue 8/31/99	Mon 9/6/99														
16	C 1b Develop form & content for each type of control	5d	Tue 9/7/99	Mon 9/13/99	15													
17	C 1c Develop criteria to stratify (catagorize) controls.	6d	Tue 9/14/99	Tue 9/21/99	16													
18	C 2e Formalize Plant process for Controls	8d	Wed 9/22/99	Fri 10/1/99	17													
19	<b>B 2e Develop formal process for reclept &amp; resolution of Internal/External comments</b>	5d	Mon 10/4/99	Mon 10/11/99	14	Risk Analyst												
20	<b>C 3 Develop Customer review &amp; approval process</b>	6d	Tue 10/12/99	Tue 10/19/99	19	Risk Analyst												
21	Collate & author HA/Controls Plant Standard	5d	Wed 9/1/99	Tue 9/7/99	4,10	Risk Analyst,Tech												
22	<b>MHC Review &amp; Approval of Hazards Analysis &amp; Controls</b>	22d	Wed 9/8/99	Thu 10/7/99	21	Tech Writer,Central												

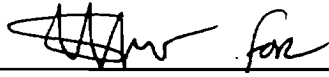
# ABTF HA / Controls

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ID	Task Name	dur	Start	Finish	Pred	Resource Name	Q3 '99			Q4 '99			Q1 '00			Q2 '00	
							J	J	A	S	O	N	D	J	F	M	A
23	Glob 3 Gain DOE Concurrence with HA & Controls processes	43d	Fri 10/8/99	Tue 12/7/99	22	Risk Analyst											
24	Glob 3.1 Prepare Dr. Weinreich Ltr & Packet	1d	Fri 10/8/99	Fri 10/8/99													
25	Glob 3.2 DOE Review	20d	Mon 10/11/99	Fri 11/5/99	24	DOE AAO											
26	Glob 3.3 Resolve Customer comments	22d	Mon 11/8/99	Tue 12/7/99	25	Tech Writer[0.5]											
27	C 2e1 Formalize Processes	22d	Wed 12/8/99	Thu 1/6/00	23												
28	C 2e1.1 Review & approval of Plant Standard	22d	Wed 12/8/99	Thu 1/6/00		Tech Writer,Central											
29	Implementation	12w	Fri 1/7/00	Thu 3/30/00	27	Risk Analyst,Trng											

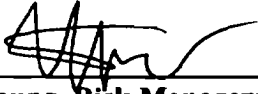


**APPROVALS:**



**Roy R. Hedtke, Originator**

6/24/99  
**DATE**



**Steven L. Young, Risk Management, Department Manager**

6/24/99  
**DATE**



**J. C. Yarbrough, Engineering & Design, Division Manager**

6/24/99  
**DATE**



**A. G. Papp, Nuclear Explosive Safety, Department Manager**

6/24/99  
**DATE**



**J. C. Cantwell, Health & Safety, Division Manager**

6/24/99  
**DATE**



**AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN**  
**HUMAN RESOURCES DIVISION**  
**TRAINING ISSUES**  
(21 June 1999)

**Statement of Concern**

The Authorization Basis Task Force (ABTF) identified three training-related areas for resolving Authorization Basis problems at Pantex Plant. These are:

- B3 Develop a process for orientation and training of all project team members involved with performing Hazards Analyses, which includes a method for determining appropriate target audience and required depth and breadth of the training curriculum.
  
- D3 Develop a comprehensive, consistent, centralized, qualified training program for implementation of controls.
  - D3a Develop a method for identifying the target audience(s) to receive the specific elements of training to enable them to effectively perform their respective work within the applicable authorization basis.
  
  - D3b Identify the qualification requirements for requisite levels of training for respective elements of control.
  
- G3 Develop a process and training program for performing USQ safety prescreens and Safety Evaluation Screens within the respective functional areas.

**Statement of Acceptance**

After discussions with ABTF team members, Manufacturing Division, and Mission Programs Division, Human Resources Division accepts the need to develop the three training areas should the following assumptions be met:

1. The qualification process will be defined consistently with plant policies, and recommendations/corrective actions tailored to meet Pantex's accepted use for the term.
  
2. Personnel will be redirected for FY99 to plan implementation of ABTF corrective actions.

Long-term funding will be provided through the budget process beginning in FY00. (Estimated resource costs are found in Attachment 1.)

3. Prerequisite actions for each training area (e.g., B1 and B2 for B3, D1 and D2 for D3, and G1 and G2 for G3) or complete subparts of these action sets will be complete prior to developing and implementing a detailed training program to meet each training area. These prerequisite actions are found on pages 20-23, and 25-26 of the ABTF Final Report.
4. Given the time necessary to complete the prerequisite actions to define training content and to qualify the 1.5 new Authorization Basis/USQ SME training specialists, training development will begin in December 1999.
5. Training will be split into three areas:
  - B3 Specific Authorization Basis training for weapons and facilities will be developed as needed and identified in completing prerequisite actions for the three training areas. The target audience for this specific training will include at a minimum program management, some upper management, and members of individual project teams (lab personnel, DOE, etc.). Additionally, operations managers, facility managers, maintenance/crafts, program engineers, tooling engineers, system engineers, and tester engineers will need training on specific weapons/facility characteristics as identified. Attachment 2 provides historical and projected hazard analysis activities as identified by Risk Management. These are examples where training might be required.
  - D3 Generic Authorization Basis training for the majority of the plant population. Generic content cannot be further determined until completion of prerequisite actions for each of the three areas of training needs, but it will include both initial and continuing training.

Training to support this corrective action will be accomplished through the joint effort of Human Resources and Manufacturing Divisions.
  - G3 Specific USQ prescreen and Safety Evaluation Screen training will be developed as specified by completing prerequisite actions (or complete subparts) of G1 and G2.

The Risk Management Department of Engineering & Design Division will provide subject matter expertise to assist in developing the initial training program, and will provide instruction on specialized aspects of the USQ and Safety Evaluation Screen process as needed.
6. Generic program implementation will begin approximately 2 months after development and approval of Form and Content Guides to drive a consistent, stable approach to the implementation of controls in the Authorization Basis process.

7. Specific program implementation will begin approximately 4 months after completion of action sets B1-B2 and G1-G2 (or complete subparts; i.e., enough fully-approved material to develop a training program) and hiring of 1.5 SME FTEs.

### Cause Analysis

Causes are analyzed in the ABTF Final Report.

### Generic Implications

Generic implications are defined in the ABTF Final Report.

### Technical Rationale


The technical rationale for these corrective actions is found in the ABTF Final Report.

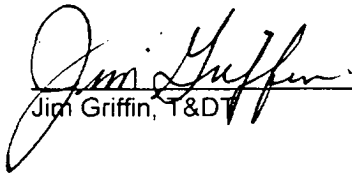
### Corrective Actions

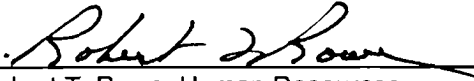
TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
ALL1 Evaluate the impact of redirecting FY99 FTEs to plan implementation of ABTF corrective actions	NA	7/30/99	E. Poore/670	Memo stating analysis of impacts
ALL2 Receive funding for 1.5 SME FTEs	Funding Received	10/1/99	E. Poore/670	FYXX Budget Reports
ALL3 Hire and qualify 1.5 SME FTEs as instructors	Funding Received	12/1/99	E. Poore/670	TRAC Report
B3.1 Determine Training Audience	Hire FTEs and Complete B1 & B2 (or whole subsets of B1 & B2)	Prereqs + 1 Month	E. Poore/670	Lists provided by Affected Divisions
B3.2 Determine Training Content	Hire FTEs and Complete B1 & B2 (or whole subsets of B1 & B2)	Prereqs + 1 Month	E. Poore/670	Course Outline
B3.3 Develop Initial Training Program <b>NOTE:</b> Pilot when enough material from B1 and B2 is developed, approved by DOE, and ready to train	Complete B3.1 & B3.2	Prereqs + 3 Months	E. Poore/670	POI(s) Approved & in TRAC
B3.4 Implement Training Program	Complete B3.3	Prereqs + 1 Month	E. Poore/670	TRAC Report


TASK		PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
B3.5	Develop Continuing Training Program	Start B3.4	Prereqs + 12 Months	E. Poore/670	POI(s) Approved & in TRAC
B3.6	Implement Continuing Training Program	Complete B3.5	Prereqs + 1 Month	E. Poore/670	TRAC Report
D3a	Determine Training Audience	Complete D1 & D2 (or whole subsets of D1 & D2)	Prereqs + 1 Month	E. Poore/670 C. Vanarsdall/310	Lists provided by Affected Divisions
D3b.1	Determine Training Content	Complete D1 & D2 (or whole subsets of D1 & D2)	Prereqs + 1 Month	E. Poore/670 C. Vanarsdall/310	Course Outline
D3b.2	Develop Training Program	Complete D3a & D3b.1	Prereqs + 1 Month	E. Poore/670 C. Vanarsdall/310	POI(s) Approved & in TRAC
D3b.3	Implement Training Program	Complete D3b.2	Prereqs + 1 Month	E. Poore/670 C. Vanarsdall/310	TRAC Report
D3b.4	Develop Continuing Training Program	Start D3b.3	Prereqs + 12 Months	E. Poore/670 C. Vanarsdall/310	POI(s) Approved & in TRAC
D3b.5	Implement Continuing Training Program	Complete D3b.4	Prereqs + 1 Month	E. Poore/670 C. Vanarsdall/310	TRAC Report
G3.1	Determine Training Audience	Hire FTEs and Complete G1 & G2 (or whole subsets of G1 & G2)	Prereqs + 1 Month	E. Poore/670	Lists provided by Affected Divisions
G3.2	Determine Training Content	Hire FTEs and Complete G1 & G2 (or whole subsets of G1 & G2)	Prereqs + 1 Month	E. Poore/670	Course Outline
G3.3	Develop Training Program  <b>NOTE:</b> Pilot when enough material from G1 and G2 is developed, approved by DOE, and ready to train	Complete G3.1 & G3.2	Prereqs + 3 Months	E. Poore/670	POI(s) Approved & in TRAC
G3.4	Implement Training Program	Complete G3.3	Prereqs + 1 Month	E. Poore/670	TRAC Report
G3.5	Develop Continuing Training Program	Start G3.4	Prereqs + 12 Months	E. Poore/670	POI(s) Approved & in TRAC
G3.6	Implement Continuing Training Program	Complete G3.5	Prereqs + 1 Month	E. Poore/670	TRAC Report

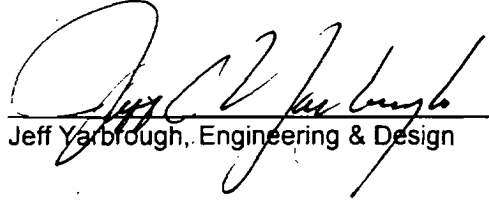
APPROVALS

Originator:  6-24-99  
Mike Davis, T&DT Date

Department Manager:  6-24-99  
Jim Griffin, T&DT Date

Originating Division Manager:  6-24-99  
Robert T. Rowe, Human Resources Date

Supporting Division Manager:  6-24-99  
for Glyde Vanarsdall, Manufacturing Date

Supporting Division Manager:  6/24/99  
Jeff Yarbrough, Engineering & Design Date

**ATTACHMENT 1:**

**FUNDING REQUIREMENTS FOR FY00 AND FY01**

AREA	EXPLANATION	FY00 FUNDING	FY01 FUNDING	TOTAL
1.5 SME FTE Training Specialists	FY00 Hourly Rate: \$40.52 FY01 Hourly Rate: \$42.78	\$109,890.24	\$116,019.36	\$225,909.60
Computer Hardware/Software	1 New System	\$4,200.00	\$0.00	\$4,200.00
Hazard Analysis/USQ Qualification Training	Includes Travel and Course Fees	\$10,000.00	\$10,000.00	\$20,000.00
Contractor Monies	Contractor to Aid with USQ Course Development	\$35,000.00	\$0.00	\$35,000.00
Supplies	Includes Handouts, Overheads, Pens, etc.	\$2,500.00	\$2,500.00	\$5,000.00
<b>TOTAL</b>		<b>\$161,590.24</b>	<b>\$128,519.36</b>	<b>\$290,109.60</b>

**ATTACHMENT 2:**

**HISTORICAL AND PROJECTED SPECIFIC AUTHORIZATION BASIS  
EXAMPLE HAZARD ANALYSIS ACTIVITIES**

#	ACTIVITY	FY99	FY00 (PROJECTED)
1	W56	√	
2	B61		√
3	W62	√	
4	W76	√	
5	W78		√
6	W79	√	
7	W80		√
8	W87	√	√
9	W88	√	√
10	Tester NESS	3	1
11	TSRs (75% of Plant)	√	
12	12-104A	√	√
13	12-116	√	
14	AL-R8/SI	√	
15	NESS Master Studies	√	3

**AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN**  
**ENGINEERING & DESIGN DIVISION**  
**DEVELOP THE PROCESS FOR IMPLEMENTATION OF CONTROLS**  
(21 June 1999).

**Statement of Concern**

The Authorization Basis Task Force (ABTF) identified a significant deficiency with respect to implementing controls at the Pantex Plant. Mason & Hanger Corporation (MHC) must develop and formalize a process for the implementation of controls identified in various hazards analysis and the management of change to those controls. This activity must be integrated with the process for the implementation and preservation of safety commitments (those which currently exist in Plant AB documents but are not identified as such). This process must also support the internal readiness process. The primary focus of this task, as identified by the ABTF, is on the following tasks:

- D 1    Develop the process for preparing a comprehensive implementation plan with identified approval authorities.
  - D 1a    Establish functional area responsibility for controls' implementation.
  - D 1b    Determine the roles and responsibilities with respect to Implementation of controls.
  - D 1c    Identify all tasks required for implementation of controls.
  - D 1d    Identify the review & approval cycle for controls' implementation.
  - D 1d    Develop the form & content guide for documentation related to controls' implementation (implementation plan, flowdown document, etc.).
  - D 1e    Develop a process for validating that the controls are in place.
  - D 1f    Establish common terms & definitions for implementing controls and ensure they are consistent with the process for hazards analysis and identification of controls. The terms & definitions should integrate facilities, nuclear explosive, and nuclear process related controls.
  - D 1g    Determine the minimum requirements for an implementation team.
  - D 1h    Formalize the process at the Plant (update all necessary Plant Standards).



Global 3      Gain formal acceptance from DOE for all contractor-developed form, content, and methodology guides, which includes site specific terms and definitions associated with implementing controls.

### **Statement of Acceptance**

The Engineering & Design Division accepts the requirement to create an action plan for implementation of controls. However, line management (MPD) needs to be involved in the development of a standard methodology for the implementation of controls. Since the ultimate responsibility for ensuring the implementation of controls rests with line management, Mission Programs Division and the Engineering & Design Division will team to develop the process for implementation. A subject matter expert from the Engineering & Design Division will assist the lead in the Missions Program Division. As this process is developed, information will be provided to the Training & Technology Department to enable them to develop the necessary training associated with controls' implementation. This task will include establishing the roles and responsibilities for controls implementation; developing the basic process for implementation; ensuring that the terms & definitions are consistent among all AB/SB processes and for facilities, nuclear explosive, and nuclear processes; establishing the form & content for all documents relating to implementation such as the Implementation Plan and the flowdown document; and the review & approval process (which includes resolution of comments). After formalization of the process an attempt will be made to gain customer concurrence with the process, form, and content for controls' implementation..

1. Acceptance of these needs are predicated on the following assumption:

Current funding and FTE levels will not support completion of ABTF corrective actions in a timely fashion. Therefore, adequate funding must be secured to fund FTE dedication to this project alone. Funding needs to be available in FY '00 and will fund, at a minimum, FTE salaries or contractor support, supplies, and travel (to benchmark other Sites' activities). FTE support would require 2 individuals full-time for approximately three (3) months and quarter-time for an additional three (3) months.

- Generic program development will begin after Management approval of this action plan and upon completion of the draft process/criteria for the identification and stratification of controls.

## **Cause Analysis**

Root causes were analyzed/determined by the ABTF and reported in the *ABTF Final Report*.

## **Generic Implications**

Generic implications are defined in the *ABTF Final Report*.

## **Technical Rationale**

The technical rationale for these corrective actions is found in the *ABTF Final Report*. However, problems associated with implementation of controls result from the lack of a well-defined process. Planning for implementation is virtually non-existent as a result. The various Plant agencies with responsibilities towards controls' implementation have little of no idea of what they are expected to do. Formally defining and establishing the process will enable all functional areas involved to provide the correct level of participation in the process. Line Management will have a tool to use to ensure success of this effort.

## Corrective Actions

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
ALL 1 Receive funding for 2.0 FTE or 2.0 contract personnel	Funding Received	10/1/99	MPD/E&D	Plus up FY '00 budget
D 1 Develop and formalize the process for implementation of controls	Funding Received & draft process for identification & stratification of controls is completed	10/1/99	MPD/E&D	Draft written process flow chart & text description
D 1a Establish functional area responsibility for controls' implementation	Funding Received	10/8/99	MPD/E&D	Identify all functional areas involved & draft responsibility matrix
D 1b Determine the roles and responsibilities with respect to controls' implementation	Funding Received & D 1a	10/15/99	MPD/E&D	Complete draft text describing roles & responsibilities
D 1c Identify a minimum set of tasks required to implement controls. Prepare a checklist	Funding Received & Complete D 1a	10/22/99	MPD/E&D	Draft checklist & textual description
D 1d Develop the form & content guide for any documentation required for controls' implementation - Implementation Plan - Checklist for implementation - Flowdown document	Funding Received & draft process for identification & stratification of controls is completed	11/5/99	MPD/E&D	Draft written chapter(s) detailing the form & content
D 1e Develop the process to be used to validate that controls are in place	Complete D 1b, D 1c, and D 1d	11/19/99	MPD/E&D	Draft written process flow chart & text description
D 1f Establish a set of common terms for implementing controls. The terms must cover facilities, nuclear explosive, and nuclear processes	Complete D 1a	10/13/99	MPD/E&D	Written Glossary
D 1g Determine the makeup for the implementation team	Complete D 1a, D 1b, and D 1e	12/1/99	MPD/E&D	Written section which defines the implementation team & their responsibilities

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
D 1h Formalize the controls' implementation process at the Plant	Complete D 1e, D 1f, and D 1g	12/31/99	MPD/E&D	Draft/update Plant Standards and draft description for AB Manual
Glob. 3 Gain DOE formal concurrence (after joint review) for controls' implementation methodology/ process, form & content guides, and terms and definitions	Complete D 1h	Prereqs + 8 weeks Target: 2/2/00	MPD/E&D	Formal letter from Dr. Weinreich requesting concurrence after joint review & resolution of comments
D 1h.1 Provide necessary information to Training Department to establish POIs for any necessary training	Complete D 1h and update after Global 3 is completed	1/3/00 (& update 3/1/00)	MPD/E&D	Provide draft documents and materials to T&DT
D 1h.2 Formalize & implement controls identification process for the Plant	Complete Global 3	Prereqs + 4 weeks Target: 3/1/00	MPD/E&D	Gain approval of Plant Standard or the appropriate chapters in the Plant AB Manual

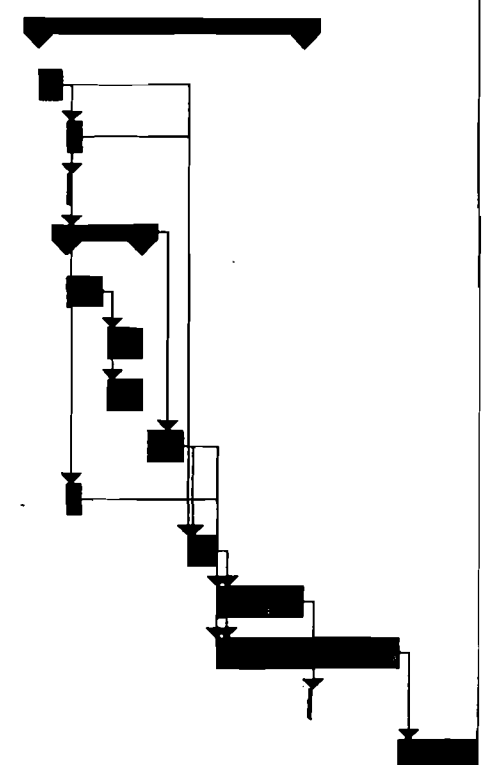
**ATTACHMENT 1:**

**FUNDING REQUIRMENTS FOR FY 99 AND FY 00**

<b>AREA</b>	<b>EXPLANATION</b>	<b>FY 00 FUNDING</b>	<b>TOTAL</b>
2.0 FTE AB/ Hazards Analysts SME  OR	FY 99 Hourly Rate 1 @ \$39.39 1 @ \$36.45	<b>\$ 45,504</b> 40 x 12 wks x \$39.39 + .25 x 40 x 12 x \$39.39 = \$23,634 40 x 12 wks x \$36.45 + .25 x 40 12 x \$36.45 = \$21,870	<b>\$ 45,504</b>
Computer Hardware/Software	1 New System	<b>\$ 0.00</b>	<b>\$ 0.00</b>
AB Benchmarking Trip	trip for 2 to SRS or Oak Ridge	<b>\$ 5,000</b>	<b>\$ 5,000</b>
Supplies	Includes overheads, handouts, pens, etc.	<b>\$ 500</b>	<b>\$ 500</b>
<b>TOTAL</b>		<b>\$ 51,004</b>	<b>\$ 51,004</b>

# ABTF-Implementation of Controls

ID	Task Name	Duration	Start	Finish	Predecessors	r											
						Jun	3rd Quarter			4th Quarter			1st Quart				
						Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb				
1	ALL 1 Receive Funding for Project	1d	Fri 10/1/99	Fri 10/1/99													
2	ALL 2 Receive draft process for controls I	1d	Fri 10/1/99	Fri 10/1/99													
3	<b>D 1 Develop Controls' Implementation F</b>	<b>66d</b>	<b>Fri 10/1/99</b>	<b>Fri 12/31/99</b>													
4	D 1a Establish Functional Area Resp	6d	Fri 10/1/99	Fri 10/8/99													
5	D 1b Determine Roles & Responsibili	5d	Mon 10/11/99	Fri 10/15/99	4												
6	D 1c Identify Minimum Tasks to Impl	1d	Mon 10/11/99	Mon 10/11/99	4												
7	<b>D 1d Develop Form &amp; Content Gult</b>	<b>20d</b>	<b>Mon 10/11/99</b>	<b>Fri 11/5/99</b>	4												
8	D 1d.1 Develop Implementation	10d	Mon 10/11/99	Fri 10/22/99													
9	D 1d.2 Develop Format for Imple	10d	Mon 10/25/99	Fri 11/5/99	8												
10	D 1d.3 Develop Format for Flow	10d	Mon 10/25/99	Fri 11/5/99	8												
11	D 1e Develop Process to Validate Cc	10d	Mon 11/8/99	Fri 11/19/99	7												
12	D 1f Establish Common Terms & Def	5d	Mon 10/11/99	Fri 10/15/99	4												
13	D 1g Determine makeup for Impleme	8d	Mon 11/22/99	Wed 12/1/99	4,5,11												
14	D 1h Formalize Controls' Implementic	22d	Thu 12/2/99	Fri 12/31/99	11,12,13												
15	Global 3 - Gain DOE Concurrence with Proc	45d	Thu 12/2/99	Wed 2/2/00	11,12,13												
16	D 1h.1 Provide Information to T&DT for Pl	1d	Mon 1/3/00	Mon 1/3/00	14												
17	D 1h.2 Formalize & Implement Controls' li	20d	Thu 2/3/00	Wed 3/1/00	15												

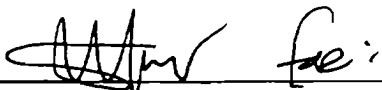


# ABTF-Implementation of Controls

r	2nd Quarter				3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quart	
Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	

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**APPROVALS:**



**Roy R. Hedtke, Originator**

6/24/99

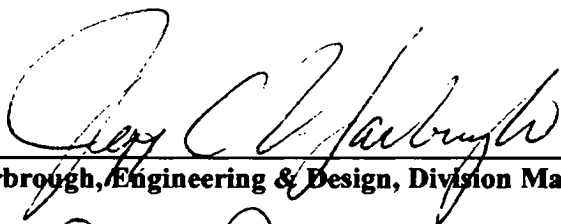
**DATE**



**Steven L. Young, Risk Management, Department Manager**

6/24/99

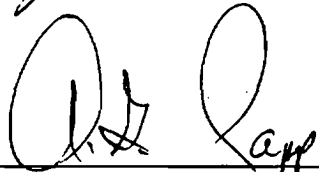
**DATE**



**J. C. Yarbrough, Engineering & Design, Division Manager**

6/24/99

**DATE**



**A. G. Papp, Nuclear Explosive Safety, Department Manager**

6/24/99

**DATE**



**J. C. Cantwell, Health & Safety, Division Manager**

6/24/99

**DATE**



**AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN**  
**ENGINEERING & DESIGN DIVISION**  
**METHOD FOR IMPLEMENTATION AND PRESERVATION OF**  
**SAFETY COMMITMENTS**  
(24 June 1999)

**Statement of Concern**

The Authorization Basis Task Force (ABTF) identified a problem with respect to the identification and preservation of safety commitments. Although Site-wide safety analysis exists in the form of older (& newer) Facility Safety Analysis Reports, the Basis for Interim Operations, and the Nuclear Explosive Safety Master Studies, Mason & Hanger Corporation (MHC) must ensure that the safety commitments found in the Plant-wide Authorization Basis are identified and preserved. This includes identification of any additional Site-wide Technical Safety Requirements (TSRs) and identification of Site-wide TSR Program Controls. The primary focus of this task, as identified by the ABTF, is on the following tasks:

- D 2    Develop a standard method for implementation and preservation of safety commitments
  - C 2a    Evaluate historical safety documentation to extract, compile, and verify safety commitments, including those previously unidentified and incorporate in a centralized database.
    - C 2a1    Develop the description & characteristics of the safety commitments database.
    - C 2a2    Develop the process to identify commitments, screen them for inclusion in the database, implement them across the Plant, and maintain/change control them for future use.
    - C 2a3    Develop the criteria for authorization basis level and safety basis level safety commitments.
    - C 2a4    Determine the roles and responsibilities for current organizations with respect to establishing, maintaining, and complying with safety commitments.
- Global 3    Gain formal acceptance from DOE for all contractor-developed form, content, and methodology guides, which includes site specific terms and definitions associated with maintaining the AB/SB safety commitments data base.

## Statement of Acceptance

The Engineering & Design Division accepts the need to develop a standard methodology for identifying existing (unidentified) safety commitments that have not been formally incorporated into the AB, implementing these commitments as controls (as appropriate), and maintaining them with the suite of existing AB/SB safety commitments. Included in this task are the necessary aspects of: evaluating existing Plant AB/SB documents to extract safety commitments not currently identified; creating a database for the safety commitments; establishing the process by which commitments are identified, selected, stratified, and maintained; the criteria for their stratification; and a provision to gain customer concurrence with the methodology and criteria. /

1. Acceptance of these needs are predicated on the following assumption:

This project will be linked to the Site TSR Implementation effort. However, current funding and FTE levels will not support full completion of all required corrective actions in a timely fashion. Therefore, current staffing levels with the Risk Management Department must be evaluated to define the impacts to other priority projects. Once this has occurred, Risk Management assets will be realigned to accomplish the corrective action plan tasks. Adequate funding must be secured for FY '00 for FTE salaries, supplies, and computer hardware/software. Computer hardware and software support is sought to procure the hardware, software package, and license for a knowledge-retrieval system to support the identification and implementation of safety commitments for a Site-wide database. Procurement cost for the first year's package would be \$100k and a maintenance cost in the second year would be \$10k. FTE support would require 2 individuals full-time for approximately three (3) months and half-time for an additional three (3) months. The further assumption is made that the TSR implementation schedule continues to support completion of the effort in calendar year 1999.

- Generic program development will begin after Management approval of this action plan and the necessary resources are made available.

## Cause Analysis

Root causes were analyzed/determined by the ABTF and reported in the *ABTF Final Report*.

## Generic Implications

Generic implications are defined in the *ABTF Final Report*.

## Technical Rationale

The technical rationale for these corrective actions is found in the *ABTF Final Report*. However, a major problem that the Plant has experienced in the last 5 years has been an inability to fully realize what constituted the AB/SB safety commitments. The Plant has been performing technical analysis in support of facility and nuclear explosive operations. The failure to capitalize on these analytical efforts and record the safety commitments identified has left a major "hole" in the Plant AB/SB structure. Taking steps to identify, select, characterize, and preserve these commitments will help accelerate the cultural change required at the Plant. It will also identify, for everyone involved, what is truly important from the safety viewpoint.

## Corrective Actions

		PERSONNEL	DATE	RESPONSIBLE	COMMENTS
ALL 1	Evaluate current Risk Management staffing levels and realign assets to accomplish the work. Receive funding for computer hardware and software to capture & maintain the safety commitments	Personnel Assets Realigned and Funding Received	10/01/99	Steve Young/985	Identified funding in the FY '00 budget
D 2	Develop a standard method for implementation and preservation of Plant safety commitments	Personnel Realigned & Funding Received	See Gantt Chart	Steve Young/985	Draft written process flow chart & text description
C 2a	Evaluate historical safety documentation to extract safety commitments	Personnel Realigned & Funding Received	See Gantt Chart	Steve Young/985	Lists of safety commitments organized by AB/SB document
C 2a1	Develop the database to receive the safety commitment information	Personnel Realigned & Funding Received	See Gantt Chart	Steve Young/985 with support from AISD	Database established on a PC initially
C 2a2	Develop the entire process for identifying, selecting, recording, implementing, and maintaining safety commitments	Personnel Realigned & Funding Received	See Gantt Chart	Steve Young/985	Process flow with pertinent text descriptions
C 2a3	Develop the criteria for AB and SB level safety commitments	Complete C 2a and C2a3	See Gantt Chart	Steve Young/985	Draft text description of criteria

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
C 2a4 Define the roles and responsibilities for current organizations with respect to establishing, maintaining, and complying with AB/SB safety commitments	Receive input from MPD on the requirements for input to the Business Office	See Gantt Chart	Steve Young/985 & Kathleen Herring/	Draft responsibilities section of Plant STD
C 2a5 Formalize the process for Plant safety commitments	Complete D 2, C 2a1, C 2a2, C 2a3, and C 2a4	See Gantt Chart	Steve Young/985	Draft Plant Standard and draft description for AB Manual
Glob. 3 Gain DOE formal concurrence (after joint review) for the AB/SB safety commitments process	C 2a5	See Gantt Chart	Steve Young/985	Formal letter from Dr. Weinreich requesting concurrence after joint review & resolution of comments
Implementation Ensure the processes are effectively implemented at the Pantex Plant.	C 2e1	See Gantt Chart	Steve Young/985	Implementation Plan is complete and training documented in Trac

**ATTACHMENT 1:**

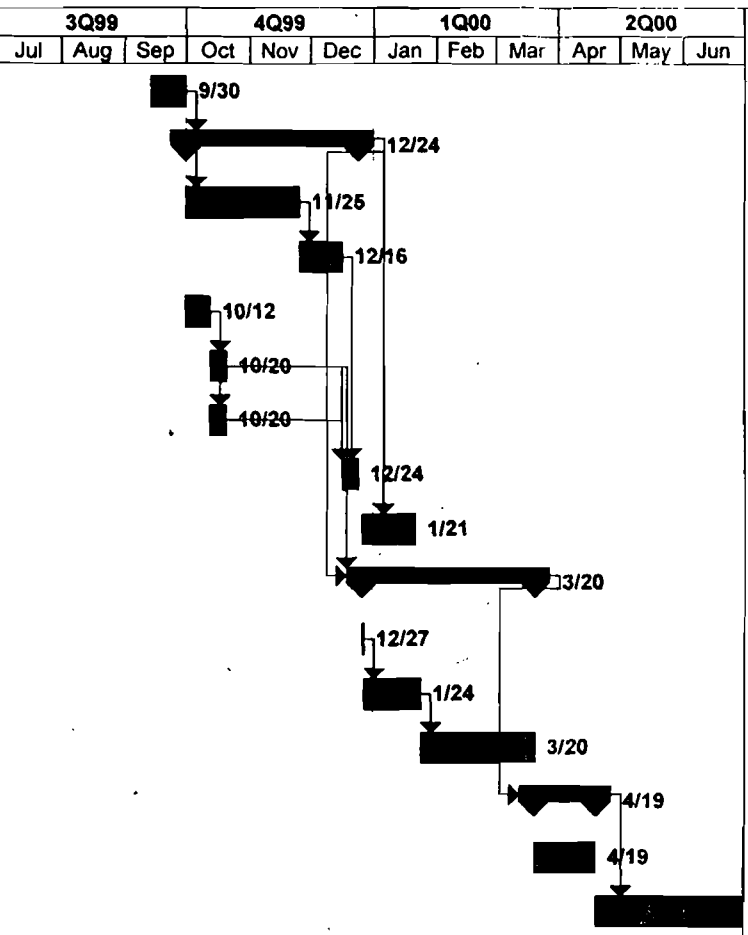
**FUNDING REQUIREMENTS FOR FY 00**

<b>AREA</b>	<b>EXPLANATION</b>	<b>FY 00 FUNDING</b>	<b>TOTAL</b>
2.0 FTE AB/ Hazards Analysts SME  OR	FY 99 Hourly Rate 1 @ \$39.39 1 @ \$36.45 Assume same for FY 00 but 50% time	<b>\$ 54,605</b> 1 x 40 x 12 wks x \$39.39 = \$18,907 + .5 x 40 x 12 wks x \$39.39 = \$9,454   ⇒\$28,361 1 x 40 x 12 x \$36.45 = \$17,496 + .5 x 40 x 12 x \$36.45 = \$8,748   ⇒\$26,244	<b>\$ 54,605</b>
Computer Hardware/Software	1 New System	<b>\$ 110,000</b>	<b>\$110,000</b>
AB Bench marking Trip	trip for 2 to SRS or Oak Ridge	<b>\$ 5,000</b>	<b>\$ 5,000</b>
Supplies	Includes overheads, handouts, pens, etc.	<b>\$ 1000</b>	<b>\$ 1000</b>
<b>TOTAL</b>		<b>\$ 170,605</b>	<b>\$ 170,605</b> or

# ABTF-Safety Commitments

Thu 6/24/99 5:11 PM

ID	Task Name	Dur	Start	Finish	Pred	3Q99			4Q99			1Q00			2Q00		
						Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	ALL 1 Realign Assets & Receive Funding for Project	13d	Tue 9/14/99	Thu 9/30/99					9/30								
2	D 2 Develop a standard method for identifying & preserving safety commitments	61d	Fri 10/1/99	Fri 12/24/99	1												
3	C 2a Evaluate historical safety documentation to extract existing commitments	40d	Fri 10/1/99	Thu 11/25/99	1												
4	C 2a1 Develop the database to receive safety commitments	15d	Fri 11/26/99	Thu 12/16/99	3												
5	C 2a2 Develop the entire process for identifying & preserving safety commitments	8d	Fri 10/1/99	Tue 10/12/99													
6	C 2a3 Develop the criteria for AB and SB level commitments	6d	Wed 10/13/99	Wed 10/20/99	5												
7	C 2a4 Define roles & responsibilities for Plant safety commitments	6d	Wed 10/13/99	Wed 10/20/99	5												
8	C 2a5 Formalize the process for Plant safety commitments	6d	Fri 12/17/99	Fri 12/24/99	4,6,7												
9	B 2.4 Complete MHC Review & Approval process	20d	Mon 12/27/99	Fri 1/21/00	2												
10	Glob 3 Gain DOE Concurrence with HA process	61d	Mon 12/27/99	Mon 3/20/00	2,6												
11	Glob 3.1 Prepare Dr. Weinreich Ltr & Packet	1d	Mon 12/27/99	Mon 12/27/99													
12	Glob 3.2 DOE Review	20d	Tue 12/28/99	Mon 1/24/00	11												
13	Glob 3.3 Resolve Customer comments	40d	Tue 1/25/00	Mon 3/20/00	12												
14	C 2e1 Formalize Process	22d	Tue 3/21/00	Wed 4/19/00	10												
15	C 2e1.1 Review & approval of Plant Standard	22d	Tue 3/21/00	Wed 4/19/00													
16	Implementation	12w	Thu 4/20/00	Wed 7/12/00	14												



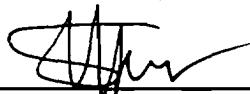
# ABTF-Safety Commitments

Thu 6/24/99 5 11 PM

3Q00			4Q00			1Q01			2Q01			3Q01			4Q01			1Q02			2Q02			3Q02			4Q02		
Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

7/12

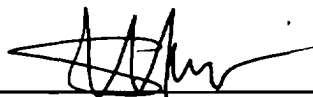
**APPROVALS:**



**Roy R. Hedtke, Originator**

6/24/99


**DATE**



**Steven L. Young, Risk Management, Department Manager**

6/24/99

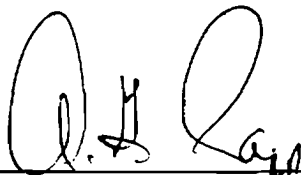
**DATE**



**J. C. Yarbrough, Engineering & Design, Division Manager**

6/24/99

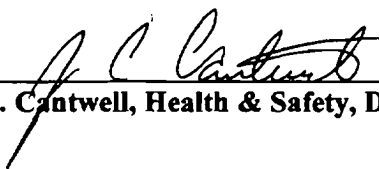
**DATE**



**A. G. Papp, Nuclear Explosive Safety, Department Manager**

6/24/99

**DATE**



**J. C. Cantwell, Health & Safety, Division Manager**

6/24/99

**DATE**



**AUTHORIZATION BASIS TASK FORCE'S FINAL REPORT  
ACTION ITEM "E" ACTION PLAN**

**STATEMENT OF CONCERN:**

Concerns have been expressed as part of the Authorization Basis (AB) Task Force (ABTF) that there may be a lack of criteria to confirm that a facility or a process is ready to start operations ("Evaluation of Authorization Basis and Related Activities at Pantex - Final Report," ABTF, May 1999). This is based on their understanding of a "perfect" program that confirms readiness; however, the above report also makes no assessment regarding the current Pantex readiness review program. The ABTF would like a corrective action plan to establish criteria for Confirmation of Readiness.

**STATEMENT OF ACCEPTANCE:**

We accept the statement of concern. They will be investigated to find and eliminate any weaknesses in the current Pantex Readiness Review Program and its associated Confirmation of Readiness criteria.

**CAUSE ANALYSIS:**

See the ABTF's Final Report.

**GENERIC IMPLICATIONS:**

See the ABTF's Final Report.

**TECHNICAL RATIONALE FOR CORRECTIVE ACTION:**

See the ABTF's Final Report.

**CORRECTIVE ACTIONS:**

<b>Task Number</b>	<b>Task</b>	<b>Completion Date</b>	<b>Responsible Person</b>
1	Conduct interviews and evaluate current Confirmation of Readiness criteria and policy.	07/28/99	M. S. Johnson
2	Consolidate findings, resolve issues, and change plant standards.	10/11/99	M. S. Johnson
3	Conduct training to affected personnel to address changes.	03/08/00	M. S. Johnson

Task Number	Task	Completion Date	Responsible Person
4	Close action item.	03/17/00	M. S. Johnson


**COMPLETION CRITERIA:**


The closure of the above tasks shall be documented by memorandum from the responsible person to the Mission Programs Division Manager

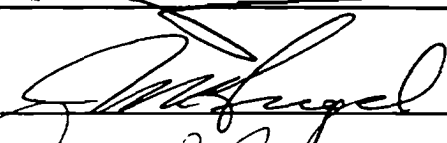
**REFERENCES:**

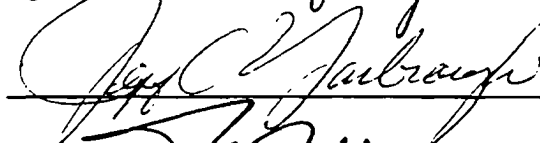
- "Evaluation of Authorization Basis and Related Activities at Pantex - Final Report," ABTF, May 1999.
- Pantex Plant Standard STD-7301, "Management Declaration of Operational Readiness."
- Pantex Plant Standard STD-7302, "Operational Readiness Review (ORR)."
- Pantex Plant Standard STD-7303, "Readiness Assessment (RA) Procedure."
- Pantex Plant Standard STD-7306, "Startup and Restart of Pantex Activities."


**APPROVALS:**

Originator:  6/24/99  
Date

Department Manager:  6/21/99  
Date

Mission Programs Division Manager:  6/24/99  
Date

E&D Division Manager:  6/22/99  
Date

Manufacturing Division Manager:  6/24/99  
Date

Eight-digit FMI Tracking Number: 29001112

ID	Task Name	Duration	Start	Finish	1999												2000												2
					J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	
1	Action Item E Closure	187d	Thu 7/1/99	Fri 3/17/00																									
2	Interview ABTF members for comments concerning specific problems with readiness preparation procedures	5d	Thu 7/1/99	Wed 7/7/99																									
3	Interview Program Managers from last four weapons programs that were reviewed. Determine their ideas to improve the weapons readiness review preparation process.	5d	Thu 7/8/99	Wed 7/14/99																									
4	Interview Deputy General Manager, MP Division Manager, Manufacturing Division Manager, Engineering & Design Division Manager to get their inputs to improve weapon readiness preparation and review process.	5d	Thu 7/15/99	Wed 7/21/99																									
5	Interview Area Office weapons and readiness personnel to determine their perceived problems with weapons readiness preparation and review process.	5d	Thu 7/22/99	Wed 7/28/99																									
6	Consolidate all findings from above interviews to determine actual factors affecting weapons readiness preparation and review.	14d	Thu 7/29/99	Tue 8/17/99																									

Project: Date: Fri 6/18/99	Task		Summary		Rolled Up Progress	
	Progress		Rolled Up Task			
	Milestone		Rolled Up Milestone			





**Authorization Basis Task Force  
Corrective Action Plan  
Item F.1**

**1.0 Statement of Concern:**

**1.1 Background:**

The Authorization Basis Task Force (ABTF) Report identified a number of weaknesses (needs) in the area of overall understanding of the authorization basis (AB) operating environment and the value of this environment. The recommendation, F.1, of the report is to "develop a strategy for communicating and instilling the AB operating environment and demonstrating the value of this environment. The strategy should include an approach to:

- a. Reinforce the requirement that all activities must be performed within the applicable AB.
- b. Develop and promote AB/SB operating environment requirements and expectations.
- c. Hold personnel (including managers) accountable for the expectations.

The time-line and contents of this Action Plan have been coordinated with Human Resource Division's Action Plan on the same subject—Item D3.

**2.0 Statement of Acceptance:**

2.1 The recommendation is accepted as written.

**3.0 Cause Analysis and Generic Implications:**

3.1 The cause and implications are included in the ABTF report.

4.0 **Generic Implications: None**

**5.0 Technical Rational for Corrective Actions:**


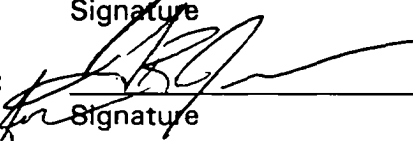
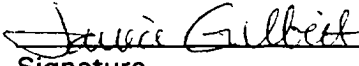

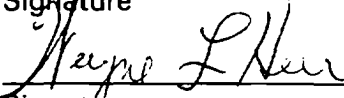
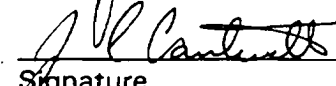
5.1 The specific weaknesses from the report that this action plan addresses are: lack of clear and consistent terms and definitions in the authorization basis/ safety basis arena; and lack of the establishment of an operating environment that supports working within the AB/SB. Recommendation F.1 is very closely tied to recommendation D.3 which addresses the development of a comprehensive, consistent, centralized training program for implementation of controls. Although the training on specific process and facility AB/SB controls cannot commence until the controls themselves are identified, teaching the basic fundamentals of AB/SB to ensure understanding, by the users, of these controls can and should be undertaken as soon as possible. While teaching the fundamentals of AB/SB itself, the requirement for performing all activities within the AB/SB and promotion of the AB/SB operating environment requirements and expectations are natural issues that will be reinforced. Likewise, the fact that personnel are accountable for meeting the

expectations, must be stressed.

- 5.2 Several actions can be undertaken in parallel. Assembling the "glossary" of AB/SB terms and definitions must take place prior to the training material being developed and designated audiences are being identified. Because there are several levels of "users" the training material may have to be tailored to these levels. Likewise within a level the material may have to be tailored because of different application of the principals. One of the tasks in the development of the material and the selection of the audience will be to determine whether, and how many, different versions of the fundamental training are necessary. Included in this determination is whether it is necessary to include some elements of this training as general employee training (i.e. GET) or whether it will be confined to only those who work in or with the affected facilities and processes. Appropriate training will be conducted based upon this determination.
- 5.3 The material developed should be broad enough that it provides the foundation for the follow-on facility and process specific AB/SB training. This plan is based on the assumption that T&DT will be responsible for the development of the training, assisted by subject matter experts from the Risk Management Department, as well as Manufacturing Division and Facilities Division who are the ultimate end users. Likewise the divisions will be responsible for identifying the target audiences. One of the tasks will be the determination of whether the material would be better delivered by someone from the user divisions who is well trained on the material, or someone from T&DT. Experience to date in Manufacturing Division is that the material can and should be presented by personnel intimately familiar with the work being performed as well as the AB/SB concepts. This however is will be a decision that must be reached for the plant as a whole.
- 5.4 The major cost of this portion of the plan will not be the development of the material, but the delivery to a significant portion (or all) of the plant population. Full impacts in terms of time and cost will not be determined until the extent of the training audience is determined.

6.0 Corrective Actions: (See Attachment 1)

7.0 Approvals

Manufacturing Division:		6/24/99
	Signature	Date
Engineering & Design Division:		6/25/99
	Signature	Date
Facilities <del>Operations</del> Division:		6/25/99
	Signature	Date
Human Resources Division:		6/24/99
	Signature	Date
Safeguards & Security Division:		6/24/99
	Signature	Date
Safety & Health Division:		6/24/99
	Signature	Date

Attachment 1 to "Authorization Basis Task Force Corrective Action Plan (Item F.1): Corrective Actions:

ID	Task	Start/Complete	Responsibility	Estimated Man-Hours	Completion Criteria
1	Develop "glossary" of AB/SB terms (F1.1)	7/1 - 11/30	Risk Mgt	60	glossary of terms
2	Determine target audience (s) (F1.2)	11/1 - 12/1	T&DT MFG Safeguards Eng&Design Facilities	60	memorandum defining audiences and scope for each
3	Develop Training Course (F1.3)	11/29 - 1/7	T&DT - 300 mh MFG - 75 mh Risk Mgt - 100 mh FO - 25 mh	500	course material (s)
4	Pilot material and revise as necessary (F1.4)	1/7 - 2/4	T&DT - 2 mh Course Rev - 20 mh Students - 8 mh	30	final course material (s)
5	Determine responsibility for delivering the training (F1.5)	11/1 - 12/1	Division Reps - 10 mh	10	Memorandum assigning responsibility
6	Train instructors as necessary (F1.6)	1/7 - 2/4	T&DT Instructor - 70 mh Division Reps - 30 mh	100	instructor qualification
7	Implement training (F1.8)	1/7 2/4	Students - 3000 mh Instructors Classroom - 100 mh Class Prep - 50 mh	3,150	TRAC records.
	<b>Total Estimated Hours to Accomplish</b>			<b>3,910</b>	
	<b>Average Salary (Dollars / Hour)</b>			<b>38.01</b>	
	<b>Estimated Cost to Implement (\$)</b>			<b>148,619</b>	



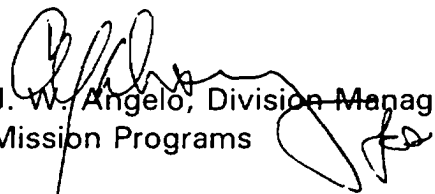


Date: June 23, 1999  
From: J. W. Angelo Location: MPD, 12-69  
To: H. S. Berman Location: Deputy Gen. Mgr., 12-69  
Subject: ABTF Finding F2

The roles and responsibilities for performing weapons work at Pantex will be covered in Development & Production (D&P) Manual, Chapter 11.3. Chapter 11.3 is being drafted for comment by DOE/WPD and should be approved by all SMT members prior to release in the June-July time-frame. This finding is already being tracked as DNFSB Recommendation 98-2, task number 5.1.2.

The D&P Manual Chapter 11.3 will delineate what roles and responsibilities each organization will have. Once the chapter is in place, and impacts to the Pantex plant workload have been assessed, a determination will be made of how best carry out the roles and responsibilities at Pantex. The flowdown and implementation requirements will be identified and the requirements will be implemented in plant standard 7401, "Weapons Program Project Team", or a similar standard.

This memo satisfies item F2 of the ABTF, which corresponds to DNFSB Recommendation 98-2, task number 5.3.1.b. This memo also documents that this finding will now be tracked only as DNFSB Recommendation 98-2, task number 5.1.2, and not under DNFSB Recommendation 98-2, task number 5.3.1.b.

  
J. W. Angelo, Division Manager  
Mission Programs

ps

99-0114.JWA

**Authorization Basis Task Force Recommendation "G1" Corrective Action Plan  
"Develop a Single Change Evaluation Process Which Integrates Unreviewed Safety  
Question (USQ) and Nuclear Explosive Safety (NES) Requirements"  
( June 23, 1999)**

**Statement of Concern:**

The Authorization Basis Task Force (ABTF) Executive Summary, dated May 20, 1999, "Option II" G1 recommended the development of a single change evaluation process which integrates the Unreviewed Safety Question (USQ) and Nuclear Explosive Safety (NES) requirements and establishes:

- G1. a. A form and content guide for documenting the change evaluation process.
  - b. Criteria to segregate inconsequential or trivial changes from those changes requiring formal assessment against the Authorization Basis/Safety Basis (AB/SB).
  - c. A comprehensive list of the types of changes which must be evaluated by a change control process to include such things as nuclear facility changes, nuclear explosive and nuclear process changes, tooling and equipment changes, etc. (see ABTF summary dated May 20, 1999 for other types of changes to be addressed by the change evaluation process).
  - d. Delineate roles and responsibilities for the review and approval of changes.
  - e. Establish change control record keeping requirements.
- G 3. The ABTF Global 3 also describes "Gain Formal Acceptance from DOE for all contractor-developed form, content and methodology guides, which includes site specific terms for conducting AB/SB work."

Defense Nuclear Facility Safety Board (DNFSB) 98-2, Task 5.2.3.a, Item TD5, recommended the development of "a process to permit tooling engineers and program engineers to perform the initial screening of new/modified tools and procedures when a possible connection to the authorization basis is involved." This recommendation will also be addressed in this plan as well as in "Authorization Basis Task Force Corrective Action Plan - Human Resources Division, Training Issues". The form and content guide for the USQ process will include using functional experts such as Tooling, Testers, Systems and Program Engineers to complete the initial screening process. The Training and Development Technologies Department is responsible for the training and the USQ personnel will provide program support and sampling to ensure the evaluations comply with the Order requirements.

The ABTF recommendation for change control and the DNFSB 98-2 Task 5.2.3.a recommendation necessitated the development of this corrective action plan.

**Statement of Acceptance:**

The Mason and Hanger Divisions responsible for this corrective action plan agree with this recommendation. This recommendation is consistent with the Fiscal Year 1999 Cost Plus Award Fee (CPAF) performance objective CM2.5c "Implementation of a change control process for nuclear explosive operations" which states:

"Develop and implement an effective change control process for nuclear explosive operations which identifies screening criteria for nuclear explosive operations, maximizes efficiency, supports mission needs, eliminates redundancy, and institutes formality in the NESS change control process."

The following assumptions need to be met prior to initiation of this corrective action plan:

1. Current funding levels will not support completion of this corrective action. Therefore, adequate funding needs to be secured to complete these actions. These actions can be completed in-house, provided the employees assigned this task are relieved of other responsibilities to allow adequate resource dedication to this task.
2. Allocation of resources necessary to complete the majority of this task by the end of August, 1999 with follow-up support for September 1999 and FY'2000.
3. Concurrence will be gained from DOE on each of the subtasks prior to finalizing the form and content guide.
4. DOE comment/resolution and concurrence must be achieved in a "reasonable" amount of time (30 days for review/comment).

**Cause Analysis:**

The basis for this recommendation is to facilitate the transition from an expert based to a standards-based culture. The integration of the USQ and NES process will enhance the transition to a standards based culture by providing criteria and instituting formality in the NES change control process.

**Generic Implications:**

The absence of integrated change control systems at the plant poses a generic problem in that change control is not coordinated via a formal mechanism to ensure awareness and concurrence of a proposed activity or change. The lack of integration of the two systems also prevents a complete transition to a standards-based culture that is necessary in an AB operating environment.

**Technical Rationale for Corrective Action:**

The actions identified in this corrective action plan address the requirements of Department of Energy Order 5480.21 (USQD) and 452.2A, (“Safety of Nuclear Explosive Operations”), and formalize efforts to establish a change evaluation process that will meet the intent of both Orders. In addition to the ABTF recommendation, and the Defense Nuclear Facility Safety Board 98-2.

**Corrective Actions:**

The following table provides a list of corrective actions associated with this plan, the due dates for each action, the individuals responsible for the tasks.

Task	Prerequisite	Due Date	Responsible Individual	Completion Criteria
ALL 1 Evaluate current Risk Management staffing levels and define impacts to current priorities to realign internal assets to accomplish the corrective action plan	Staffing realigned	7/01/99	Steve Young/985	Definitions of impacts and staff assigned
G1a - Develop a form and content guide for documenting the change evaluation process	Receipt of Funding and completion of G1b, c, d, e	7/30/99	Young/Hamrick Papp/Keith Wieck/Jones/Smith	Draft written chapter describing the necessary form and content
Subtask: G1b - Criteria to segregate inconsequential or trivial changes from those changes requiring formal assessment against the AB/SB	Staffing realigned	7/8/99	Young/Hamrick Papp/Keith	Draft criteria and obtain DOE concurrence
Subtask: G1c - A comprehensive list of the types of changes which must be evaluated by a change control process to include items identified in the ABTF report	Staffing realigned	7/13/99	Young/Hamrick Papp/Keith	Draft a list of types of changes evaluated in change control process and obtain DOE concurrence
G1d - Delineate roles and responsibilities for the review and approval of changes	Reference CAP: Evaluating a Centralized AB Organization	Reference CAP: Evaluating a Centralized AB Organization	Reference CAP: Evaluating a Centralized AB Organization	Reference CAP: Evaluating a Centralized AB Organization

<b>Task</b>	<b>Prerequisite</b>	<b>Due Date</b>	<b>Responsible Individual</b>	<b>Completion Criteria</b>
Subtask: Gle - Establish change control record keeping requirements	Staffing realigned	7/8/99	Young/Hamrick Papp/Keith	MHC comments received and resolved
MHC internal review and comment	G1a-G1e	8/31/99	Young/Hamrick Papp/Keith	MHC comments received and resolved
DOE Review/comment	G1a-G1e	10/1/99	Young/Hamrick Papp/Keith	DOE comments received and resolved
Global 3- Gain Formal acceptance from DOE for all contractor-developed form, content, and methodology guides, which includes site-specific terms and definitions associated with conducting AB/SB work - specific to USQ STD and Manual	G1a,b,c,d,e	10/8/99	Young/Hamrick Papp/Keith	Receipt of DOE approval.
Implementation revised	All tasks are prerequisites	12/6/99	Griffith/Hamrick Papp/Keith	Training, document linkages, etc. complete

**References:**

Authorization Basis Task Force Executive Summary, Option II Tables, May 20, 1999

Fiscal Year 1999 Cost Plus Award Fee Performance Evaluation Plan Project Reporting List (Nov. '98).

U. S. Department of Energy Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant (Board Recommendation 98-2), 4/12/99

DOE Order 452.2A, "Safety of Nuclear Explosive Operations"

DOE Order 5480.21, "Unreviewed Safety Questions"

Defense Nuclear Facilities Safety Board Recommendation 98-2, Task 5.2.3.a, TD5

Department of Energy Development and Production Manual Chapter 11.7 (Draft)

**Attachments:** Funding Requirements for FY'99 and FY'00

## **Attachments**

**ABTF Change Evaluation Process Microsoft Project Plan**

# ABTF Change Evaluation Process

6/15/99 1:11 PM

ID	Task Name	Dur	Start	Finish	Pred	Resource	Gantt Chart													
							Jun '99	Jul '99		Aug '99		Sep '99		Oct '99		Nov '99		D		
							6/13	6/27	7/11	7/25	8/8	8/22	9/5	9/19	10/3	10/17	10/31	11/14	11/28	
1	Recieve Funding	13d	6/14/99	6/30/99		Dept Mgr[0.1],USQ Analyst[0.2]														
2	G1a-Form & Content Guide	21d	7/1/99	7/30/99	1	USQ Analyst[0.5],Tech Writer[0.3],NES Eng[0.2]														
3	G1b-Trivial vs AB/SB Assessment Criteria	5d	7/1/99	7/8/99		USQ Analyst														
4	G1c-Comprehensive Change-Type List	3d	7/9/99	7/13/99	3	USQ Analyst														
5	Recieve G1d-Change Approval Roles & Responsibilities	0d	7/14/99	7/14/99																
6	G1e-Establish Change Control Recording Requirements	5d	7/1/99	7/8/99		USQ Analyst														
7	Publish Guide	13d	7/14/99	7/30/99	3,4,5,6	USQ Analyst,Tech Writer[0.7],NES Eng[0.2]														
8	Plant-wide Review / Comment Resolution	22d	8/2/99	8/31/99	2	USQ Analyst[0.5],Tech Writer[0.5],NES Eng[0.2],Central Review[0.5]														
9	DOE Review / Comment Resolution	22d	9/1/99	10/1/99	8	DOE AAO,USQ Analyst[0.5],Tech Writer[0.5]														
10	Formal DOE Acceptance	5d	10/4/99	10/8/99	9	DOE AAO														
11	Implementation	8w	10/12/99	12/6/99	10	Trng Spec,USQ Analyst														


ID	Resource Name	Cost	Work	June			July				August			
				6/13	6/20	6/27	7/4	7/11	7/18	7/25	8/1	8/8	8/15	8/22
1	USQ Analyst	\$21,998.20	786.65h	8h	8h	44.8h	72h	60h	56.85h	40h	20h	20h	20h	20h
2	Tech Writer	\$5,146.00	257.3h			4.8h	9.6h	28.8h	38.1h		20h	20h	20h	20h
3	DOE AAO	\$0.00	216h											
4	NES Eng	\$2,974.32	81.6h			3.2h	6.4h	12.8h	16h	8h	8h	8h	8h	8h
6	Central Review	\$2,464.00	88h								20h	20h	20h	20h
6	Dept Mgr	\$520.00	10.4h	4h	4h	2.4h								
7	Trng Spec	\$8,000.00	320h											



September					October				November					
8/29	9/5	9/12	9/19	9/26	10/3	10/10	10/17	10/24	10/31	11/7	11/14	11/21	11/28	12/5
20h	16h	20h	20h	20h		32h	40h	40h	40h	40h	40h	40h	40h	8h
20h	16h	20h	20h	20h										
24h	32h	40h	40h	40h	40h									
3.2h														
8h														
						32h	40h	40h	40h	40h	40h	40h	40h	8h

ID	Resource Name	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Use	Accrue At
1	USQ Analyst	U		1.5	\$28.00/h	\$0.00/h	\$0.00	Prorated
2	Tech Writer	T		1	\$20.00/h	\$0.00/h	\$0.00	Prorated
3	DOE AAO	D		1	\$0.00/h	\$0.00/h	\$0.00	Prorated
4	NES Eng	N		1	\$36.45/h	\$0.00/h	\$0.00	Prorated
5	Central Review	C		1	\$28.00/h	\$0.00/h	\$0.00	Prorated
6	Dept Mgr	D		1	\$50.00/h	\$0.00/h	\$0.00	Prorated
7	Trng Spec	T		1	\$25.00/h	\$0.00/h	\$0.00	Prorated

**APPROVALS:**

  
\_\_\_\_\_  
**Kari Hamrick, Originator**

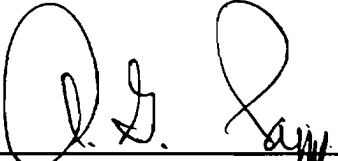
6/24/99  
**DATE**

  
\_\_\_\_\_  
**Steven L. Young, Risk Management, Department Manager**

6/24/99  
**DATE**

  
\_\_\_\_\_  
**J. C. Yarbrough, Engineering & Design, Division Manager**

6/24/99  
**DATE**

  
\_\_\_\_\_  
**A. G. Papp, Nuclear Explosive Safety, Department Manager**

6/24/99  
**DATE**

  
\_\_\_\_\_  
**J/C. Cantwell, Health & Safety, Division Manager**

6/24/99  
**DATE**

AUTHORIZATION BASIS TASK FORCE CORRECTIVE ACTION PLAN  
INTERNAL AUDIT, ASSURANCE & QUALITY OFFICE  
METHODOLOGY FOR FEEDBACK & CONTINUOUS IMPROVEMENT  
(23 June 1999)

**Statement of Concern**

“Develop an action plan that provides for an effective proactive Feedback and Continuous Improvement system. Develop a process to provide feedback and a method to apply this information in a manner that accommodates:

- a. Trend analysis and prevention of recurrence.
- b. A proactive instead of reactive approach is needed.
- c. Validation of performance indicators to assure they are focused upon measurement elements which support correcting the right problems.
- d. Getting information to the right people, in a timely manner, to assure the correct action can be taken.
- e. A process to evaluate the effectiveness of the corrective actions.”

**Statement of Acceptance**

IAA&Q accepts the need to assure understanding and acceptance of an integrated Feedback & Continuous Improvement Process. Acceptance is based upon the assumption that current funding levels will not support completion of all the corrective actions identified herein. Therefore, adequate funding must be secured to fund these tasks.

**Cause Analysis**

The Plant Standards governing Feedback & Continuous Improvement are not adequately integrated, nor has an integrated process been sufficiently communicated to intended users. This lack of communication is demonstrated by the inability of the Authorization Basis Task Force Team to recognize an integrated system or adequate outcomes, lack of performance measures specific to Authorization Basis/Safety Basis processes, and lack of a single source of information describing the system and the relationships between organizations.

**Generic Implications**

Communication of the Feedback & Continuous Improvement System should be completely revisited to assure clarity and availability of information to the user.

**Technical Rationale for Corrective Actions**

The recommendations of the team are addressed by three primary objectives:

- Integration of Feedback & Continuous Improvement
- Improve Trend Analysis & Reporting
- Improve Performance Measures Reporting

These objectives and the underlying actions are presented in table format under Corrective Actions and the attached Microsoft Project 4 schedule. These actions were identified based on the five recommendations contained in the "Evaluation of Authorization Basis and Related Activities at Pantex." Each of the recommendations is listed here along with a description of current implementation and an indication of which corrective actions were identified in response to the recommendation.

- a. Trend analysis and prevention of recurrence: A process to identify trends is in place as described by IOP-I2011, "Quality Performance Monitoring & Analysis." For the past eighteen months, trend analysis reports have been published quarterly to senior management. The process currently identifies trends and precursors identified from occurrences, nonconformance reports (NCRs), internal independent assessments, and external assessments. This process must be improved to require assignment of adverse trends and significant precursors to appropriate management for inclusion in a formal corrective action process (action 10). This process should also be improved to provide clear definitions of categories used for trending. These definitions should be developed and incorporated into the process to assure consistency and repeatability of analysis (action 9).
- b. A proactive instead of reactive approach is needed. A revision to STD-6028 was published at the end of December 1998 to bring the selection of performance measures into line with the Pantex Plant Vision and Strategic Plan. The selection of performance measures is a proactive approach to monitoring key performance areas so that adverse performance can be recognized before a negative event or finding results. Although much improvement has been made with the publication of monthly reports based on this philosophy, the requirements of the standard must be clarified to assure that negative indicators are addressed by improvement actions (action 12), and to assure that all processes significant to the success of the plant are associated with a performance measure (action 13).
- c. Validation of performance indicators to assure they are focused upon measurement elements which support correcting the right problems. As mentioned in the previous paragraph, actions 12 through 14 address identification of performance measures for processes significant to the success of the plant.
- d. Getting information to the right people, in a timely manner, to assure the correct action can be taken. Neither the trend analysis nor performance measures processes are tied directly to a formal corrective action process that will assure the appropriate manager is required to provide actions for improvement. Actions 10 and 12 address this concern.
- e. A process to evaluate the effectiveness of the corrective actions. The effectiveness of corrective actions is addressed in the existing Corrective Action Process as described in Plant Standard STD-6031, "Corrective Actions." However, the processes for trend analysis and performance measurement are not sufficiently linked to this Plant Standard to assure implementation. Actions 1 through 4, 10 and 12 address this concern. Also,

effectiveness of corrective actions will be monitored through ongoing analysis of performance trends and measures.

### Corrective Actions

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
1. Document flow of existing Feedback & Continuous Improvement Processes	None	10/14/99	Kathy Brack/015	Flowchart of existing process between Plant Standards: STD-6028, STD-6031, STD-6161, IOP-I2011
2. Document flow of desired process	Complete 1	10/28/99	Kathy Brack/015	Flowchart of desired continuous improvement process
3. Submit Plant Standard or IOP change requests as needed to achieve the desired process flow from action 2	Complete 2	11/25/99	Kathy Brack/015	Change requests
4. Revise the "Quality Assurance Program Description," MNL00079 to incorporate changes implemented in action 3.	Complete 3	9/7/00	Glenn Beyer/015	Revised MNL00079, "Quality Assurance Program Description"
5. Create Flexible Continuous Training on Feedback & Continuous Improvement	Complete 3, and publish changes	3/30/00	Kathy Brack/015 (Tom Otto)	Plan of Instruction for Flexible Continuous Training on Feedback & Continuous Improvement

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
6. Provide Flexible Continuous Training to the Plant	Complete 5	9/15/00	Kathy Brack/015 (Tom Otto)	Evidence that flexible continuous training has been conducted.
7. Create ongoing computer-based training on Feedback & Continuous Improvement	Complete 3	9/1/00	Kathy Brack/015 (Tom Otto) and E. Poore/670	Plan of Instruction
8. Conduct ongoing computer-based training on Feedback & Continuous Improvement	Complete 7	10/01/01	Kathy Brack/015 (Tom Otto)	Evidence that computer-based training is implemented.
9. Define Functional Areas to be used to categorize events and findings for trend analysis	None	9/2/99	Kathy Brack/015 (Tom Otto)	Functional Area Definitions incorporated to IOP-I2011.
10. Define process to require responses to adverse trends or significant precursors.	None	9/2/99	Skip Drummond/015 (Kathy Brack)	Published IOP-I2011 including process.
11. Document results of actions 9 and 10 in IOP-I2011.	Complete 9 and 10	9/22/99	Kathy Brack/015	Published IOP-I2011
12. Revise Performance Metrics process to require corrective actions for adverse performance.	None	2/28/00	Kathy Brack/015 (Bill Frow)	Publish revision to STD-6028 incorporating requirements for actions in response to adverse performance.

TASK	PREREQUISITE	DUE DATE	RESPONSIBLE INDIVIDUAL	COMPLETION CRITERIA
13. Revise process to require performance metric(s) for Authorization Basis and Safety Basis (AB/SB) processes.	None	2/28/00	Kathy Brack/015 (Bill Frow)	Publish revision to STD-6028 incorporating requirements for AB/SB performance metric(s).
14. Include AB/SB performance metric(s) in Safety Pillar of monthly Performance Measures Report.	Complete 12 & 13	8/31/00	Chris Cantwell/751	Performance Metric included in the Pantex Monthly Performance Metric Report

### References

"Evaluation of Authorization Basis and Related Activities at Pantex," Final Report, May 1999

### Approvals

Originator: Kathy Brack 6-23-99  
Kathy Brack, IAA&Q Date

Manager, IAA&Q J. C. Drummond 6-23-99  
J. C. Drummond, IAA&Q Date

Division Manager: J. Angelo 6/24/99  
J. Angelo, Mission Programs Date

Division Manager: for C. Cantwell 24 June 99  
C. Cantwell, Safety & Health Date

Division Manager: R. Rowe 6/24/99  
R. Rowe, Human Resources Date

Division Manager: J. Yarbrough 6/24/99  
J. Yarbrough, Engineering & Design Date



ATTACHMENT 1:

FUNDING REQUIREMENTS FOR FY99 AND FY00

AREA	EXPLANATION	FY99 FUNDING	FY00 FUNDING	TOTAL
0.29 FTE Training Specialist	FY00 hourly rate 0.29 FTE @ \$40.52	None	\$21,245.45	\$21,245.45
0.01 FTE Safety Engineer	FY00 hourly rate 0.01 FTE @ \$50.68	None	\$916.29	\$916.29
0.01 FTE Engineer	FY00 hourly rate 0.01 FTE @ \$50.68	None	\$916.29	\$916.29
Total		None	\$23,078.03	\$23,078.03

\*IAA&Q funding can be accommodated within the current level of effort funding for FY99 and FY00.








ID	Task Name	Duration	Start	Finish	1999			2000			2001		
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
1	Integration of Feedback & Continous Improvement	522d	Fri 10/1/99	Mon 10/1/01									
2	Review Continuous Improvement Standards for Integration	20d	Fri 10/1/99	Thu 10/28/99									
3	Flowchart existing process	10d	Fri 10/1/99	Thu 10/14/99									
4	Flowchart desired process	10d	Fri 10/15/99	Thu 10/28/99									
5	Submit Procedure Change Requests as needed to improve integration	20d	Fri 10/29/99	Thu 11/25/99									
6	Revise MNL00079, Quality Assurance Program Description to incorporate ch	205d	Fri 11/26/99	Thu 9/7/00									
7	Create Flexible Continuous Training on Feedback & Continuous Improvemen	73.96d	Mon 12/20/99	Thu 3/30/00									
8	Provide Flexible Continous Training to the Plant	120d	Mon 4/3/00	Fri 9/15/00									
9	Create on-going General Employee Training (CBT)	185d	Mon 12/20/99	Fri 9/1/00									
10	Complete First Year of on-going training	1d	Mon 10/1/01	Mon 10/1/01									
11	Improve Trend Analysis & Reporting	72.08d	Mon 6/14/99	Wed 9/22/99									
12	Define Functional Areas	58.13d	Mon 6/14/99	Thu 9/2/99									
13	Define process to require responses to adverse trends or significant precurs	58.96d	Mon 6/14/99	Thu 9/2/99									
14	Docurment process improvements to procedure, IOP-I2011	13.96d	Thu 9/2/99	Wed 9/22/99									
15	Improve Performance Measures Reporting	262d	Wed 9/1/99	Thu 8/31/00									
16	Revise process to require corrective action plans to improve adverse perform	128.96d	Wed 9/1/99	Mon 2/28/00									
17	Revise process to require AB/SB metric(s) as part of the Safety Pillar	128.96d	Wed 9/1/99	Mon 2/28/00									
18	Identify AB/SB performance metric for inclusion in Safety Pillar	90d	Fri 4/28/00	Thu 8/31/00									

Project: Date: Wed 6/23/99	Task		Summary		Rolled Up Progress	
	Progress		Rolled Up Task			
	Milestone		Rolled Up Milestone			

ID	Task Name	1999			2000				2001			
		Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	<b>Integration of Feedback &amp; Continuous Improvement</b>											
2	<b>Review Continuous Improvement Standards for Integration</b>											
3	Flowchart existing process											
4	Flowchart desired process											
5	Submit Procedure Change Requests as needed to improve integration											
6	Revise MNL00079, Quality Assurance Program Description to incorporate ch											
7	Create Flexible Continuous Training on Feedback & Continuous Improvemen											
8	Provide Flexible Continuous Training to the Plant											
9	Create on-going General Employee Training (CBT)											
10	Complete First Year of on-going training											
11	<b>Improve Trend Analysis &amp; Reporting</b>											
12	Define Functional Areas											
13	Define process to require responses to adverse trends or significant precurs											
14	Document process improvements to procedure, IOP-I2011											
15	<b>Improve Performance Measures Reporting</b>											
16	Revise process to require corrective action plans to improve adverse perform											
17	Revise process to require AB/SB metric(s) as part of the Safety Pillar											
18	Identify AB/SB performance metric for inclusion in Safety Pillar											

Project: Date: Wed 6/23/99	Task		Summary		Rolled Up Progress	
	Progress		Rolled Up Task			
	Milestone		Rolled Up Milestone			

2002				2003				2004				2005				2006				2007				2008			2009							
Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 1	Qtr 2	Qtr 3
01],E&D8[0.02]																																		

Project: Date: Wed 6/23/99	Task		Summary		Rolled Up Progress	
	Progress		Rolled Up Task			
	Milestone		Rolled Up Milestone			

**SEPARATION**

**PAGE**

United States Government

Department of Energy

# memorandum

Albuquerque Operations Office

DATE: June 30, 1999

REPLY TO

ATTN OF: WPD:Erhart (505-845-5986)

SUBJECT: Revisions to DOE O 452.1A and DOE O 452.2A

TO: David E. Beck, Deputy Assistant Secretary for Military Application and Stockpile Management, DP-20, HQ

The DOE Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant (DNFSB Recommendation 98-2) dated April 12, 1999, identifies commitment 5.4.2.b which requires DOE/AL to submit recommended revisions to DOE O 452.2, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS by the end of June 1999.

Attachment I to this memorandum fulfills this commitment by identifying the DOE/AL recommended revisions to both DOE O 452.1A and DOE 452.2A. It is DOE/AL's understanding that a meeting between AL organizations and DOE/HQ is currently scheduled at AL on July 1, 1999, to discuss and evaluate these recommendations. It is also DOE/AL's understanding that subsequent to the July 1999 meeting, DOE/HQ (DP-21) will issue revisions to DOE O 452.1A and DOE O 452.2A.

If you have any questions regarding the information in this memorandum or Attachment I, please contact my office at (505) 845-6050.



R. E. Glass  
Manager

Attachment I:  
Recommended Revisions to  
DOE O 452.1A and DOE O 452.2A

RECEIVED  
99 JUL 13 PM 12:11  
DNF SAFETY BOARD

## DOE O 452.1A and DOE O 452.2A Change Request

No.	SECTION	REQUESTED CHANGE
<b>Weapons Program Division Recommended Changes</b>		
<b>DOE O 452.1A</b>		
1.	General	Recommend combining DOE O 452.1A and DOE O 452.2A into one Nuclear Explosive Weapons Safety (NEWS) directive since both documents, collectively, establish the requirements for the NEWS Program and in keeping with current DOE policy to minimize the number of governing directives.
2.	4.c	Reference to "Surety" in this section should more appropriately be "Safety" since "surety" has been interpreted as the program that integrates Nuclear Explosive Safety (NES) with Environmental, Safety, and Health (ES&H). This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (based on recent field appraisals) (i.e., NES is only one element of the Surety Program). DOE O 452.2A section 4.d(1) refers to these "Surety Standards" as "Safety Standards."
3.	4.c/4.c(1)	In limiting the concern of fissile material dispersal to the pit and focusing on fire and High Explosive Detonation/Deflagration (HED/D) as the drivers, the inference is that controlling this consequence associated with these hazards/initiators will ultimately minimize the possibility of IND. What the standards, as currently written, do not recognize or allow for is that in some cases it is possible to effectively and adequately minimize the possibility of IND without necessarily minimizing dispersal of fissile material resulting from fire and/or HED/D. Since the ultimate concern in the NES Standard is Inadvertent Nuclear Detonation (IND), vice the radiological consequences of a dispersal event, the Standards should be modified to allow certification of accomplishment without necessarily preventing or mitigating the radiological event. The ES&H aspect of the Nuclear Explosive and Weapon Surety Program has the responsibility for the radiological concerns associated with the Nuclear Explosive Operation (NEO).
4.	4.f	The many references listed in this section have been replaced by DOE O 452.4, therefore, they should be replaced by reference to the Order.
5.	4.h	Reference to "Surety" in this section should more appropriately be "Safety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (based on recent field appraisals) (i.e., NES is only one element of the Surety Program).
6.	4.h(1)	Reference to "Surety" in this section should more appropriately be "Safety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (based on recent field appraisals) (i.e., NES is only one element of the Surety Program).
7.	4.h(2)	Reference to "Surety" in this section should more appropriately be "Safety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (based on recent field appraisals) (i.e., NES is only

## DOE O 452.1A and DOE O 452.2A Change Request

		one element of the Surety Program).
8.	4.h(2)(a)	This section refers to “accidental and/or inadvertent” suggesting they mean different things. They are the same relative to safety concerns, therefore, recommend deleting “accidental and/or”.
9.	4.h(2)(a) <u>1</u>	The use of the phrase “enabling stimuli and the arming signal” is confusing. Recommend replacing this phrase with standard AF&F terminology to indicate the at rest state of the AF&F system.
10.	4.h(2)(a) <u>2</u>	The use of the phrase “enabling stimuli and the arming signal” is confusing. Recommend replacing this phrase with standard AF&F terminology to indicate the at rest state of the AF&F system.
11.	4.h(2)(a) <u>3</u>	The discussion of nuclear yield in this paragraph is confusing. Recommend the sentence be modified to read “...achieving a nuclear detonation in the event of a...”. The intent is now clear given the definition of nuclear detonation in Attachment 1.
12.	4.j(1)	This requirement should be applicable to “restart” as well as “begin”. In addition, recommend deleting the word “documentation” since some of the identified items are actions rather than documents.
13.	4.j(1)(a)	EH-1 is not the approval authority for this document. Reference to approval authority should be deleted since this is governed by the DOE Order that directs the development of the document as currently prescribed in DOE O 452.2A.
14.	4.j(1)©	EH-1 is not the approval authority for this document. Reference to approval authority should be deleted since this is governed by the DOE Order that directs the development of the document as currently prescribed in DOE O 452.2A.
15.	4.j(1)©	Reference to Operational Safety Controls (OSCs) should be deleted, and in all cases replaced by reference to Technical Safety Requirements (TSRs), since TSRs address significant worker injury from non-standard industrial hazards.
16.	4.j(1)(d)	Reference to approval authority should be deleted since this is governed by the DOE Order, and supporting Supplemental Directives, that directs the development of the document or performance of the activity consistent with the requirements in DOE O 452.2A.
17.	4.j(1)(e)	Reference to approval authority should be deleted since this is governed by the DOE Order, and supporting Supplemental Directives, that directs the development of the document or performance of the activity consistent with the requirements in DOE O 452.2A.
18.	4.j(1)(f)	Reference to approval authority should be deleted since this is governed by the DOE Order, and supporting Supplemental Directives, that directs the development of the document or performance of the activity consistent with the requirements in DOE O 452.2A.
19.	4.j(2)	The word “either” should be deleted since it is an obvious editorial error and “seven” should be deleted since the number is irrelevant .
20.	4.k(4)	Reference to “Surety” in this section should more appropriately be “Safety” since “surety” has been interpreted as the program that integrates NES with ES&H. This will require the definition of “surety” to be expanded to include the ES&H disciplines (i.e.,



**DOE O 452.1A and DOE O 452.2A Change Request**

		NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (based on recent field appraisals) (i.e., NES is only one element of the Surety Program).
21.	4.k(4)	DOE G 414.1-1 does not contain the referenced information and should be deleted.
22.	4.k(4)	DOE Order 5700.6C has been replaced by DOE O 414.1.
23.	4.k(4)	Reference to "all" in this section suggests more than what is really expected and should be reworded to more accurately reflect the required reviews. Recommend deleting the word "all."
24.	5.f(7)	DOE Order 5700.6C has been replaced by DOE O 414.1.
25.	6.h	DOE Order 5700.6C has been replaced by DOE O 414.1.
26.	6	References "j" through "p" should be replaced by DOE O 452.4.
27.	Attachment 1	The last part of definitions 1 and 6 should be deleted since they are not applicable to the DOE NEWS program.
28.	Attachment 1	Shouldn't Definition 3 include High Explosive Violent Reaction (HEVR).
29.	Attachment 1	If HEVR is included in Definition 3, a definition of HEVR should be added.
30.	Attachment 1	A definition of "collocated" as used in Definition 9 should be included.
31.	Attachment 1	Definitions 10 and 19 should be expanded to include ES&H disciplines such that it is obvious that NES is only one element of "surety."
32.	Attachment 1	The last three words of the second sentence of Definition 18 "and be controllable" are confusing and appear to be missing an important element.
<b>DOE O 452.2A</b>		
33.	General	Recommend combining DOE O 452.1A and DOE O 452.2A into one NEWS directive since both documents, collectively, establish the requirements for the NEWS Program and in keeping with current DOE policy to minimize the number of governing directives..
34.	Subject	The title/subject of this Order should be "NEWS Program" since both DOE O 452.1A and DOE O 452.2A, collectively, establish the requirements for the NEWS Program.
35.	4.a(2)	Reference to "safety" in this section should more appropriately be "surety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (i.e., NES is only one element of the Surety Program).
36.	4.a(3)	Reference to "safety" in this section should more appropriately be "surety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current

## DOE O 452.1A and DOE O 452.2A Change Request

		interpretation of “surety” by DP-21 (i.e., NES is only one element of the Surety Program).
37.	4.b	Reference to “safety” in this section should more appropriately be “surety” since “surety” has been interpreted as the program that integrates NES with ES&H. This will require the definition of “surety” to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of “surety” by DP-21 (i.e., NES is only one element of the Surety Program).
38.	4.b(3)	“Administrative” should be changed to “Safety” since TSRs are not simply administrative.
39.	4.b(3)	Reference to OSCs should be deleted, and in all cases replaced by reference to TSRs, since TSRs address significant worker injury from non-standard industrial hazards.
40.	4.b(4)(a)	The Interim Personnel Assurance Program (PAP) Procedures and Standards have been replaced by 10 CFR Part 711.
41.	4.b(9)	Reference to DOE O 232.1 and DOE M 232.1 should be DOE O 232.1A and DOE M 232.1-1A.
42.	4.c(1)(b)	Reference to the Nuclear Explosive Hazard Analysis (NEHA) should be deleted since the requirements for the Hazard Analysis Report (HAR) fulfil these requirements and the HAR becomes the input to the Nuclear Explosive Safety Study (NESS).
43.	4.c(1)©	DOE-DP-STD-XXXX is now DOE-DP-STD-3016. Also reference to “requirements” or “in accordance with” relative to this standard should be deleted since Standards do not represent DOE requirements therefore absolute compliance is recommended but not required if equivalency is established.
44.	4.c(1)©	Delete the reference to Figure 1 since it is not accurate and provides no real value.
45.	Figure 1	Delete Figure 1 since it is not accurate and provides no real value.
46.	4.c(1)(d)3	DOE-DP-STD-XXXX is now DOE-DP-STD-3016. Also reference to “requirements” or “in accordance with” relative to this standard should be deleted since Standards do not represent DOE requirements therefore absolute compliance is recommended but not required if equivalency is established.
47.	4.c(1)(d)3	Delete the second sentence. Replace with a determination that the operation specific safety analysis and controls combined with the facility safety basis bounds the NEO.
48.	4.c(1)(d)4	Reference to the NEHA should be deleted since the requirements for the HAR fulfil these requirements and the HAR becomes the input to the NESS. Also DOE-DP-STD-XXXX is now DOE-DP-STD-3016. Reference to “requirements” or “in accordance with” relative to this standard should be deleted since Standards do not represent DOE requirements, therefore, absolute compliance is recommended but not required if equivalency is established.
49.	4.c(1)(d)5	Delete since it doesn’t provide any real value.
50.	4.c(1)(d)6	Reference to OSCs should be deleted, and in all cases replaced by reference to TSRs, since TSRs address significant worker injury from non-standard industrial hazards. Also DOE-DP-STD-XXXX is now DOE-DP-STD-3016. Reference to “requirements”

## DOE O 452.1A and DOE O 452.2A Change Request

		or "in accordance with" relative to this standard should be deleted since Standards do not represent DOE requirements, therefore, absolute compliance is recommended but not required if equivalency is established.
51.	4.c(1)(d)Z	Delete since it doesn't provide any real value.
52.	4.c(2)(b)	DOE-DP-STD-XXXX is now DOE-DP-STD-3016. Reference to "requirements" or "in accordance with" relative to this standard should be deleted since Standards do not represent DOE requirements, therefore, absolute compliance is recommended but not required if equivalency is established.
53.	4.d(1)	This section simply repeats the exact words from section 4.c or DOE O 452.1A. This appears to be unnecessary, therefore, recommend deleting.
54.	4.d(3)	Recommend deleting since these concerns should be addressed in TSR space.
55.	4.d(4)C	Reference to revalidations should be deleted since they are no longer applicable.
56.	4.d(5)	The Interim PAP Procedures and Standards have been replaced by 10 CFR Part 711.
57.	4.d(9)(a)	A clarification of "cargo" would be useful.
58.	4.d(9)(c)	Since restraints are include here as part of Offsite Transportation, shouldn't the scope of Offsite Transportation in 4.d(9) be modified to include restraining and verifying same prior to closing the loaded conveyance?
59.	4.d(13)	Reference to DOE O 232.1 and DOE M 232.1 should be DOE O 232.1A and DOE M 232.1-1A.
60.	4.e(3)	This is simply a repeat of 4.b(4)(a) and appears unnecessary.
61.	4.i	If DOE O 452.1A and DOE O 452.2A are not combined, this section should be added to 452.1A also.
62.	5.a(1)	Reference to "safety" in this section should more appropriately be "surety" since "surety" has been interpreted as the program that integrates NES with ES&H. This will require the definition of "surety" to be expanded to include the ES&H disciplines (i.e., NES is only one element of the surety program). This is consistent with the current interpretation of "surety" by DP-21 (i.e., NES is only one element of the Surety Program).
63.	5.c(2)	Reference to revalidations should be deleted since they are no longer applicable.
64.	6.d	Reference to DOE O 232.1 and DOE M 232.1 should be DOE O 232.1A and DOE M 232.1-1A.
65.	6.x	Reference to DOE O 232.1 and DOE M 232.1 should be DOE O 232.1A and DOE M 232.1-1A.
66.	6.ff	DOE-DP-STD-XXXX is now DOE-DP-STD-3016.
67.	6.gg	The Interim PAP Procedures and Standards have been replaced by 10 CFR Part 711.
68.	Attachment 1	Shouldn't Definition 10 include HEVR.

## DOE O 452.1A and DOE O 452.2A Change Request

69.	Attachment 1	If HEVR is included in Definition 10, a definition of HEVR should be included here.
70.	Attachment 1	Delete Definition 21 as it is no longer applicable.
71.	Attachment 1	Modify Definition 26 such that it doesn't suggest that NESRs replace or provide the same level of information as TSRs.
72.	Attachment 1	Delete Definition 32 as it is no longer applicable.
73.	Attachment 1	Add a definition for "surety" also the definition should be expanded to include ES&H disciplines such that it is obvious that NES is only one element of "surety".
74.	Attachment 1	Modify Definition 47 such that TSRs are applicable to and developed for NEOs as well as for facilities.
<b>Weapon Surety Division/Nuclear Explosive Safety Program Recommended Changes</b>		
<b>DOE O 452.2A</b>		
1.	4d(4)	Change heading to " <u>NES Studies, Surveys, Revalidations, and Performance Reviews</u> "
2.	4d(4)(a)	Change to read:  "A NES Study shall evaluate proposed operations to determine whether there are adequate positive measures (controls) to satisfy the DOE NES Standards in paragraph 4d(1) above. NES Studies are valid for five years, unless an agreement is made between DP-20 and the Operations Office Manager to eliminate the NES Study expiration."
3.	4d(4)(b)	Replace the last sentence with:  "NES surveys are valid for as long as the study it was based upon is valid."
4.	4d(4)(c)	Change to read:  "For studies with expiration dates, a NES Study Revalidation may be conducted to determine whether a nuclear explosive operations has significantly changed since the NES Study was approved. A NES Study with an expiration date may be revalidated for a maximum for 5 years, not to exceed 10 years from the date of the original approval."
5.	4d(4)	Add new subparagraph (d):  "A NES Performance Review shall be conducted once every 36 to 48 months on all programs, processes, or activities evaluated by a NES Study for which DP-20 and the Operations Office Manager have agreed to remove the five-year study validity timeframe. NES Performance Reviews shall evaluate activities to ensure operations continue to be performed safely and within the safety envelope studied by the NESSG and maintained by the change control process. Responsibility for ensuring these reviews are conducted and performed within the 36 to 48 month timeframe resides with the Operations Office Manager. If the review does not occur within this prescribed timeframe, justification for this non-compliance shall be provided to DP-20, and a review performed as soon as feasible."

**SEPARATION**

**PAGE**

United States Government

Department of Energy

# memorandum

Albuquerque Operations Office

DATE: June 30, 1999

REPLY TO

ATTN OF: WPD:Erhart (505-845-5986)

SUBJECT: Implementation Instructions for Albuquerque Operations Office Supplemental Directive 452.2A, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS

Ref. 1) Management Agreement (MA) Between Albuquerque Operations Office (AL) and Oakland Operations Office (OAK) dated 6/15/95

TO: James M. Turner, Manager, OAK  
W. Steven Goodrum, Area Manager, AAO  
Michael J. Zamorski, Area Manager, KAO  
David A. Gurule, Area Manager, LAAO

The Albuquerque Operations Office Final Supplemental Directive 452.2A, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS, dated January 15, 1999, has been prepared and reviewed by the Office of Primary Interest (OPI), Weapon Programs Division. It has been determined that the following contractor(s) are subject to the requirements of the Supplemental Directive.

Mason and Hanger Corporation  
Lockheed Martin  
University of California

To implement the Supplemental Directive, the following instructions shall be followed:

### **Mason and Hanger Corporation**

An analysis must be made regarding the impact of implementing the requirements of the Supplemental Directive. If the Supplemental Directive impacts a Work Authorization Directive (WAD) or a Contract Line Item, implementation of the Supplemental Directive may be directed by the appropriate Contracting Officer after necessary actions have been taken to modify the contract and/or the WAD.


### **Lockheed Martin & University of California**

The Supplemental Directive implementation shall be directed by the appropriate Contracting Officer responsible for day-to-day administration of the contract.

The Oakland Operations Office is requested to prepare, negotiate, approve and modify contract documents for Lawrence Livermore National Laboratory in accordance with Ref. 1) Section IV A.1.

Please note that any page changes that occur to this Supplemental Directive at a later date must also be implemented. Additional implementation instructions will not be sent for future page changes to the Supplemental Directive but shall be subject to the implementation instructions provided above.

Direct any questions regarding this implementation memorandum to Steve Erhart, Weapon Programs Division, at (505) 845-5986.



R. E. Glass  
Manager

cc:

David Beck, DP-20, HQ  
Walter Von Flue, OAK  
Jean Moore, AAO  
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625 Indiana Avenue, NW  
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June 30, 1999

**SUBJECT: SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS**

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PURPOSE. This Supplemental Directive (SD) includes clarifications, extra details, and additional requirements, in addition to those in DOE O 452.2A, applicable to the Albuquerque Operations Office (AL) activities as necessary to implement DOE O 452.2A. This Directive is supplemental to the DOE Order and assigns responsibilities in support of the DOE Order. In conjunction with DOE O 452.2A, this SD establishes the DOE/AL requirements for Safety of Nuclear Explosive Operations. AL activities include nuclear explosive operations and associated activities and maintaining facilities used for nuclear explosive operations and associated activities.

For ease in cross-referencing, the paragraph numbering from DOE O 452.2A was preserved in this SD; for corresponding paragraphs, the SD may clarify, add detail, or add requirements. Only those sections of DOE O 452.2A, which required clarifications, etc., are addressed in this SD. Whenever paragraph numbers have been omitted, the corresponding paragraphs and requirements in DOE O 452.2A apply as written without clarifications, etc. For each paragraph number included, the corresponding paragraphs and requirements in DOE O 452.2A apply in addition to the associated clarifications, extra details, and additional requirements in this SD. Attachment I includes supplemental definitions. This SD does not delete order requirements.

2. CANCELLATION. AL SD 452.2, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS, dated 1-16-98 and AL SD 5610.11A, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS, dated 10/27/95 are canceled. Cancellation of the above SDs does not, by itself, modify or otherwise affect any contractual obligation to comply with the SDs. Canceled SDs that are incorporated by reference in a contract shall remain in effect until the contract is modified to delete the reference to the requirements in the canceled SDs.
3. APPLICABILITY.
  - a. DOE Elements. This SD applies to AL and AL field elements that manage, oversee, or conduct nuclear explosive operations and associated activities.
  - b. Contractors. This SD applies to all contractors and subcontractors that manage, oversee, or conduct the DOE/AL Nuclear Explosive Weapons Safety Program activities, nuclear explosive operations, associated activities, and facilities for which AL is responsible, as provided by law and/or by contract as implemented by the appropriate contracting officer. Responsibilities are delineated for Contractors and Federal employees with the SDs, Orders, referenced Rules, Technical Standards, and Implementation Guides. Responsibilities are in sufficient detail such that an additional document, such as a Contractor Requirement Document, would not be beneficial and may hamper implementation.
4. REQUIREMENTS.
  - a. General.
    - (3) The safety program shall integrate Nuclear Explosive Safety (NES) requirements from the 452- and applicable 5610-series Orders and Environmental, Safety, and Health (ES&H) requirements from other Orders if applicable under their own terms or invoked



in this SD. ES&H requirements shall be integrated into nuclear explosive operations and associated activities without compromising nuclear explosive safety. The objective is to satisfy all nuclear explosive safety requirements and ES&H requirements.

- (4) (a) Safety Hierarchy. An overriding policy based on the differing severity of the potential consequences of the hazards present in nuclear explosive operations will govern implementation of all requirements. Hazards may be associated with:
- Nuclear explosive detonation;
  - High explosive detonation or deflagration;
  - Firing of Electroexplosive and pyrotechnic devices;
  - Rupture of high pressure vessels, with and without radioactive gases;
  - Criticality; and
  - Occupational hazards (industrial, radiological, and chemical).

b. Operational Safety Program.

- (2) Conduct of Operations. The guidelines in Attachment I to DOE Order 5480.19 shall be applied in a graded approach commensurate with their potential ES&H impact, their potential NES impact, and the facility's programmatic importance.

In accordance with DOE Order 5480.19, the production agency shall develop and implement a Conduct of Operations Program to ensure safe, uniform, and reliable operations. All 18 chapters of Attachment I of the Order must be considered during program development.

The Conduct of Operations Program shall also include unique practices that have been developed for nuclear explosive operations and associated activities.

The production agency shall establish staffing requirements for positions important to safety based on relevant safety analyses. The area office and design agencies shall also determine the minimum required staffing levels for their personnel at the production agency site, and ensure that they are met. Adequate and appropriate staff shall be available to provide the required organizational representation for responding to abnormal conditions or incidents at all times that nuclear explosive operations and associated activities are being conducted.

- (4) Training and Qualification of Personnel. Each organization responsible for and/or involved in nuclear explosive operations and associated activities shall develop and implement a training and qualification program for their respective personnel that manage, oversee, perform, or directly support these operations and activities.
- (b) Responsible AL organizations shall develop and implement training and qualification programs for AL and support contractor personnel (including line management, oversight, review, and appraisal personnel) involved with the safety of nuclear explosive operations, associated activities, and associated facilities. These programs shall contain the following key elements:
- Training and qualification requirements graded to the particular nuclear explosive safety activity;
  - Qualification requirements that include specific criteria for education, experience, and training;
  - A process for certifying review and appraisal personnel;

- A process for periodic requalification and recertification; and
- Maintenance of training, qualification, and certification records.

In addition, personnel who must routinely enter facilities in which nuclear explosive operations are performed shall complete the training necessary for such entry.

Training and qualifying personnel involved in ES&H appraisals and assessments of facilities in which nuclear explosive operations are performed shall be conducted in accordance with applicable DOE and AL ES&H Orders, directives, and procedures.

Training and qualifying Facility Representatives (FRs) for facilities used for nuclear explosive operations and associated activities shall be conducted in accordance with the AL Facility Representative Program Manual and area office procedures. The training program content for FRs, assigned to facilities in which nuclear explosive operations are performed, shall include nuclear explosive safety, explosive safety, and other safety aspects of nuclear explosive operations and associated activities.

- (c) The production agency shall develop and implement a training and qualification program for all personnel involved with nuclear explosive operations and associated activities. Responsible design agency managers shall develop and implement an appropriate personnel training program to qualify individuals who directly support nuclear explosive operations and associated activities. Design agency managers shall ensure that personnel assigned to the activities described in this SD are qualified for them.

- (5) Maintenance of Facilities, Tooling, and Equipment. The key requirements of the maintenance management program are:

- The production agency shall prepare a Maintenance Implementation Plan (MIP), as described in paragraph 10a of DOE Order 4330.4B;
- Per paragraph 10d of DOE Order 4330.4B, a graded approach shall be used to determine the depth of detail required for each program element in Chapter II of the Order; and
- The MIP shall be submitted to the Area Manager for approval, in accordance with paragraph 10e of DOE Order 4330.4B.

Consistent with the graded approach concept, the MIP shall specify a higher degree of detail and rigor for maintaining safety-class/safety-significant equipment than for maintaining other equipment. The MIP shall contain a master list of all equipment, components, and structures in the maintenance program. The list will distinguish safety-class/safety-significant equipment, which will include both installed facility equipment and equipment used specifically for the nuclear explosive operations and associated activities (i.e., tooling and equipment).

The MIP should address each element in Chapter II of DOE Order 4330.4B. The essential elements, for which a detailed description of planned implementation must be included, are as follows:

- Training and qualification of maintenance personnel;
- Types of maintenance (i.e., corrective, preventive, and predictive);
- Maintenance procedures;

- Control of maintenance activities;
- Post-maintenance testing; and
- Control and calibration of measuring and test equipment.

The MIP is required to define the equipment to be included in the maintenance program. The specific tooling and equipment used in nuclear explosive operations may be identified in the MIP, but this will require continual plan revision for new items developed for new operations. Another acceptable method for complying with this requirement is to identify only equipment types in the MIP, and include specific tooling and equipment in other controlled master lists of equipment and components that are included in the maintenance program.

(6) Configuration Management (CM).

- (a) The appropriate design laboratories and/or operating contractors shall develop and implement an integrated CM program for nuclear explosive operations and associated activities and facilities to establish and maintain consistency among design requirements, physical configuration, and documentation. The CM program shall include activities to:
- Control the physical configuration of the equipment, systems, and facilities used for nuclear explosive operations and associated activities so they are consistent with design requirements and the Authorization Basis (AB);
  - Ensure that only proper, authorized equipment is used for nuclear explosive operations and associated activities;
  - Review proposed changes to facilities; equipment; operations; and approved nuclear explosive procedures and drawings in accordance with the change control process specified in this directive to identify any necessary safety documentation revision; and
  - Incorporate approved changes into all affected documents (such as design documents, drawings, procedures, and AB documents such as Hazard Analysis Reports (HARs), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), and Activity Based Control Documents (ABCDs)) and programs (such as the maintenance and training programs).
- (c) CM measures are to be applied using a graded approach, with stricter controls placed on equipment important to safe operation as identified in the facility safety analysis and/or the operation's HAR.
- (d) The production agency, with input from the design agencies, shall prepare a CM program plan to define policy and responsibilities, to describe each program activity, and to identify or reference where the interfaces with the design agencies are identified. The CM program plan should function primarily as an integrating document to identify where essential elements of CM are addressed. Where CM activities are addressed by other programs (e.g., the quality assurance procedure for document control), the CM program plan may simply reference these other programs.

(7) Quality Assurance (QA).

- (a) Implementation plans shall be prepared to describe how the criteria of 10 CFR Part 830.120 will be satisfied. While methods specified for facilities may differ from those for operations and activities, the program must address any coordination necessary at interfaces. A graded approach should be used to scale

the degree of rigor and detail applied to different items and processes depending on their safety classification. In performing work at the production agency directly related to nuclear explosive operations, associated activities, and associated facilities, design agencies shall comply with 10 CFR 830.120 and QC-1, as described in the production agency's QA Implementation Plan. In coordination with the production agency, design agencies shall establish a mechanism to accomplish this. Design agencies may use production agency processes and procedures, or they may establish their own QA Program for these activities.

(8) Issues Management. Although DOE and DOE contractor systems may be combined to avoid duplication, the system(s) must:

- Document the status of each action/commitment;
- Identify the individual(s) responsible for closure;
- Identify the individual(s) responsible for validating closure; and
- Identify the expected completion dates for each item.

Findings, corrective actions, and commitments shall be reviewed periodically to identify any adverse trends or opportunities for improving the safety of nuclear explosive operations, associated activities, and associated facilities. Separate laboratory systems are not required; rather, laboratory corrective actions and commitments will be contained in the production agency and DOE systems for work at Pantex.

(a) Corrective Action System. This system shall contain all corrective actions from: internal and external audits; NES Study Group (NESSG) activities; appraisals; assessments; inspections; reviews; and reportable occurrences.

(b) Commitment Tracking System. This system shall track commitments and enhancements that are identified by DOE appraisals and assessments, including NESSG recommendations.

(9) Occurrence Reporting. DOE O 232.1A requires that contractors develop implementing procedures for the Occurrence Reporting Program at their facility. The production agency shall develop an implementing procedure that includes a comprehensive list of reportable occurrences for nuclear explosive operations, associated activities, and facilities. The list shall include the minimum set of occurrences that are listed under the nuclear explosive safety group in DOE M 232.1-1A, the nuclear explosive safety occurrences in DOE G 452.2A-1A, and any other facility specific types of occurrences. The procedure shall be submitted to the Area Manager for processing in accordance with DOE O 232.1A and applicable AL implementing instructions.

Similarly, Transportation Safeguards Division (TSD) shall develop an implementing procedure that includes a comprehensive list of reportable occurrences for transportation operations involving nuclear explosives. The procedure shall be processed in accordance with DOE O 232.1A and applicable AL implementing instructions.

(10) Performance Indicators.

(b) Production contractors shall identify NES performance indicators, as described below:

- NES Performance Indicators should include parameters unique to nuclear explosive operations. In addition, existing site performance indicators

should be reviewed to identify any that can also be reported on a facility basis to provide useful data for nuclear explosive operations. Performance indicators should provide information that can assist in early identification of potential problems, deteriorating or improving conditions, or lessons learned; and

- The Assistant Manager, Office of National Defense Programs (ONDP), is responsible for concurring with these performance indicators and specifying reporting requirements.

c. Safety Analyses.

(1) Process and Documentation.

(b) The results of facility safety analyses shall be documented in a SAR or equivalent interim document (e.g., Basis for Interim Operations (BIO)). Controls derived from facility and operation-specific analyses shall be documented in a single operation-specific authorization basis document. Documentation of facility controls (including site-wide TSRs) may be accomplished by reference. This document will be referred to as the Program specific (e.g. W56) ABCD. The AB requirements for Nuclear Explosive Operations and associated activities conducted at the Pantex Plant are delineated in the AL Development and Production (D&P) Manual AL 56XB Chapter 11.4.

(d) AL, AL field elements, contractors, and subcontractors shall comply with the safety analysis requirements of this section.

1 A safety analysis of facilities used for nuclear explosive operations and associated activities shall be performed and shall be documented in a SAR or equivalent interim document (e.g., BIO).

4 Hazards analyses for nuclear explosive operations and associated activities shall be performed, documented, reviewed, and approved in accordance with AL 56 XB, D&P Manual, Chapter 11.4. The HAR as described in this D&P Manual chapter includes the Nuclear Explosive Hazard Assessment requirements specified in DOE O 452.2A. The HAR shall be submitted to NESSG as part of the input document for the study.

6 TSRs shall be reviewed and recommended in DOE HAR reviews. The ABCD documents facility and operation-specific TSR controls for a nuclear explosive operation. Approval of the ABCD constitutes approval of the TSR-level controls required for a nuclear explosive operation. Chapter 11.4 of the AL 56XB D&P Manual specifies the requirements for the ABCD.

(2) Criticality Safety.

(a) Criticality safety analyses of the facility and general nuclear explosive operations and associated activities shall be documented in the SAR or equivalent interim document (e.g., BIO).

(c) The safety analyses and the facility AB document shall address the criticality protection policy and program for handling and staging nuclear explosives and components.

- (3) Change Control. The Pantex Plant Management and Operating (M&O) Contractor shall establish a documented Nuclear Explosive Operations Change Control Process for nuclear explosive operations, associated activities, and associated facilities that shall comply with the requirements established in D&P Manual Chapter 11.7.
- (b) The required NES evaluations are in addition to any Unreviewed Safety Question Determination (USQD) evaluations. Section 4.d (4)(d) identifies the circumstances that require NES change evaluation. D&P Manual Chapter 11.7 specifies the various NES approval levels and the criteria for selecting an appropriate level for a proposed change.
- (d) Offsite Transportation Change Control. A USQD process as established in D&P Manual Chapter 11.7 shall be used, augmented by the additional NES evaluations (see D&P Manual Chapter 11.7). NES evaluations shall be completed prior to implementation of the change. All proposed changes to offsite nuclear explosive transportation shall be evaluated against applicable nuclear explosive safety documents by TSD personnel assigned nuclear explosive safety responsibilities.

A USQD safety evaluation shall be performed for the following circumstances:

- Temporary or permanent changes in offsite transportation operations or associated procedures, as described in the existing safety analysis; and
- New information not described in existing safety analysis.

Proposed changes of a trivial or strictly administrative nature with no likelihood of significance to nuclear explosive safety may be approved by TSD. Other proposed changes require further DOE NES evaluations as defined in 4.d (4)(d) and D&P Manual Chapter 11.7.

The change control process shall include provisions for incorporating approved changes into the appropriate safety documents.

d. Nuclear Explosive Safety Program.

(2) General Nuclear Explosive Safety Rules.

- (f) AL General Nuclear Explosive Safety Rules. The general Nuclear Explosive Safety Rules (NESRs) in this section supplement those provided in DOE O 452.2A. They are mandatory for all nuclear explosive operations conducted under the cognizance of AL. Exemptions from the following AL General NESRs shall be approved in advance by the Manager, AL.

The following are the AL general NESRs.

1 All nuclear explosive operations shall be performed in accordance with approved written procedures or released drawings.

- a Changes to approved procedures or drawings shall be processed through a system designated for that purpose, as prescribed in section 4.c (3).



when test or other conditions indicate the possibility of a reduced state of nuclear explosive safety. The AL Immediate-Action Procedures are published under separate cover by WSD.

- (4) NES Studies, Surveys, and Revalidations. The cognizant AL line management organization, in coordination with WSD/NESP, shall determine when an NESSG evaluation is required (i.e., when desired nuclear explosive operations are not covered by a current, approved NES Study). The type of NESSG evaluation shall be determined by AL NESP personnel based on the criteria in DOE O 452.2A and DOE-STD-3015.

(a) AL NES Study Process.

1 Planning Meeting. The cognizant line management organization shall conduct a planning meeting with the principal participants (WSD/NESP, design agencies, the Pantex Plant M&O contractor, and Amarillo Area Office (AAO)). The purpose of the planning meeting is to define the scope and objectives of the NES Study; identify required input document contents; assign organizational responsibilities for input document preparation; develop a schedule for input document preparation and submission; identify organizational points of contact; and plan briefings, demonstrations, and resources as required to support the study.

2 AL NES Study Prerequisites

- a A program-specific NES Study may not begin until preparatory work on the operation has been completed, including completion of the HAR (DOE approved) for the operation, and an Engineering Release.
- b A Master NES Study may not begin until preparatory work on the facilities and operations has been completed and the safety analysis for those facilities/operations prepared.

3 NES Study Input Document. The agency responsible for the studied operation shall integrate all required NES Study inputs into a single input document. Technical data requirements are specified in DOE-STD-3015-97. For a program-specific NES Study, inputs will normally be provided by the Los Alamos National Laboratory (LANL) or Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL), and the Pantex Plant M&O contractor. For operations that include DOE quality inspection, these procedures will be provided by DOE/AAO as part of the input. Attachment II provides a sample format for the input document. The specific format and content will be established during the NES Study Planning Meeting. Input documents shall be internally reviewed and certified by the preparing organization(s) to verify technical accuracy and adequacy, prior to submittal.

In accordance with DOE-STD-3015, an adequacy review of the input document shall occur prior to commencing the NES Study. Normally this review will occur 1 to 2 weeks following delivery of the input to the NESSG. The primary objective of the meeting is to determine if sufficient information is provided in the input document to commence



the study. This review, normally conducted as a meeting at the Pantex Plant, is also an opportunity to finalize plans and schedules for the study (e.g., expected briefings and demonstration arrangements). Typically, the NES Study will begin 2 to 3 weeks following the adequacy review.

- 4 Conducting the NES Study. A NES Study shall include reviewing documents, receiving briefings, examining the facility and equipment, and observing proposed activities, as appropriate to the scope of the study. A program-specific study shall include observation of the operation on a trainer. These activities and NESSG findings are documented in a NES Study Report.

NESSG members shall evaluate nuclear explosive safety and the adequacy of positive measures to satisfy the nuclear explosive safety standards. NESSG advisors shall contribute to the NES Study in their areas of expertise.

- 5 NES Study Report. A NES Study Report shall be prepared in accordance with DOE-STD-3015-97. The input document may or may not be physically part of the NES Study Report, depending on the size of the input and the media in which it is produced. If not included as an Appendix of the NESSG report, the input document will be identified in the report.

The NESSG Chairperson shall coordinate the report with the cognizant AL line management Division Director; the Director, WSD; and Assistant Manager, ONDP; and formally present the report to the Manager, AL, for review and action in accordance with this SD, DOE O 452.2A, and DOE-STD-3015-97.

- 6 Validation of NES Studies. After approval of a program NES Study, or following other studies for which the NESSG deems appropriate, and soon after completion of the pilot lot (if applicable), a subgroup of the NESSG shall observe the nuclear explosive operation to assure there is consistency between the safety study demonstrations and the actual operation. The subgroup shall be designated by the NESSG Chairperson, and will normally consist of the Chairperson and members representing the AAO, the Pantex Plant M&O contractor, the applicable nuclear laboratory, and SNL. Videotapes of the safety study demonstrations can be used to prepare for this validation. The validation shall be documented in a memorandum to the Manager, AL.

- (b) AL NES Survey Process. The purpose of the NES Survey is to evaluate a proposed operation by comparative analysis with a similar nuclear explosive operation in a specified approved NES Study. Except for the approval of the report, requirements and responsibilities for conducting a NES Survey are the same as for a NES Study and are specified in DOE-STD-3015-97. The Manager, AL, shall approve the NES Survey Report, and provide a copy to DP-20.
- (c) AL NES Study Revalidation Process. The purpose of the NES Study Revalidation is to verify that a nuclear explosive operation has not significantly changed since the NES Study. A NES Study may be revalidated for a maximum







































































- f. Assistant Manager, Office of Safety and Security is responsible for:
- (1) Assisting the Assistant Manager, ONDP, concerning the safety of nuclear explosive operations and associated activities and facilities, as requested;
  - (2) Notifying the Director of the cognizant AL line management organization and WSD of changes in ES&H requirements or activities that may have an impact on nuclear explosive safety; and
  - (3) Performing internal safety review and readiness review activities in accordance with the requirements of this directive.
- h. Weapon Surety Division, Nuclear Explosive Safety Program Manager is responsible for:
- (1) Developing and implementing procedures for conducting oversight of nuclear explosive operations;
  - (2) Managing the accomplishment of NESSG activities in accordance with DOE O 452.A and this directive;
  - (3) Qualifying WSD/NESP members of the NESSG and recommending their certification by the Director, WSD;
  - (4) Appointing the Chairperson of the NESSG; and
  - (5) Reviewing NESSG reports, preparing recommendations for disposition of any minority opinions, and forwarding these to the Assistant Manager, ONDP
- i. Director, Weapon Programs Division is responsible for:
- (1) Providing guidance to the Area Manager, AAO, and design agencies regarding assignment of specific responsibilities for planning and implementing the requirements of this and referenced directives;
  - (2) Acting as the lead line management for support of NESSG activities, including:
    - (a) Ensuring the required input documents are completed prior to the NESSG activity;
    - (b) Coordinating with WSD/NESP to schedule NESSG activities consistent with programmatic needs; and
    - (c) Participating in the NESSG activities to provide line management input;
  - (3) Providing line management for actions resulting from NESSG activities for weapon programs under the division's cognizance;
  - (4) Notifying the WSD/NESP Manager of concerns that may have an impact on nuclear explosive safety;
  - (5) Approving HARs and ABCDs as delegated by the AL Manager;

- (6) Chartering SBRT internal safety reviews and DOE Readiness Reviews for nuclear explosive operations; and
- (7) Providing quarterly reports to Headquarters (DP-20) on the status of outstanding NES Study recommendations.

j. Director, Safeguards and Security Division, is responsible for:

- (1) Establishing and reviewing the positive measures to satisfy the surety standard for nuclear explosive security specified in AL SD 452.1A;
- (2) Notifying the WSD/NESP Manager, of changes to security operations that may have an impact on nuclear explosive safety;
- (3) Acting as the lead line management for support of NESSG activities covering security operations; and
- (4) Ensures PAP responsibilities assigned to SSD are implemented.

k. Director, Safety Analyses Support Division is responsible for:

- (1) Performing nuclear explosive operation internal safety review activities as chartered by the WPD Director.

l. Director, Independent Safety Review Division is responsible for:

- (1) Performing nuclear explosive operation readiness review activities as chartered by the WPD Director.

m. Director, Transportation Safeguards Division, is responsible for:

- (1) Applying applicable provisions of this directive;
- (2) Ensuring that DOE assignments of responsibility and the delegations of authority for this directive are clearly defined and implemented;
- (3) Informing the WSD/NESP, of proposed operations that involve nuclear explosive safety considerations so that necessary NESSG activities may be scheduled and performed;
- (4) Ensuring an adequate training and qualification program is established for TSD employees assigned to nuclear explosive duties;
- (5) Acting as the lead line management for support of NESSG activities covering nuclear explosive operations under the division's cognizance;
- (6) Managing actions assigned to the division as a result of NESSG activities, and providing quarterly (March, June, September, and December) reports on the status of actions to the cognizant WPD Program Engineer and WSD NESP Manager;
- (7) Administering the PAP for division personnel in conformance with 10 CFR Part 711 and this SD; and
- (8) Developing an implementing procedure that includes a comprehensive list of reportable occurrences for transportation operations involving nuclear explosives.

- n. Area Manager, Amarillo Area Office, is responsible for:
- (1) Ensuring that the requirements of this directive are invoked through the contract with the Pantex Plant M&O contractor;
  - (2) Developing and issuing such procedures and guidelines as are necessary to implement this and referenced directives;
  - (3) Monitoring contractor compliance with the nuclear explosive safety requirements in this and referenced directives;
  - (4) Ensuring appropriate safety awareness and training programs are developed, documented, and implemented to ensure activities covered by this directive are conducted safely;
  - (5) Providing qualified individuals to serve as NESSG members;
  - (6) Managing actions assigned to AAO or the Pantex Plant M&O contractor as a result of NESSG activities, and providing quarterly (March, June, September, and December) reports on the status of actions to the cognizant WPD Program Engineer and WSD NESP Manager;
  - (7) Approving temporary use of MEL-type electrical equipment prior to that equipment being used in a NEA;
  - (8) Administering the PAP for DOE and DOE contractor personnel in conformance with 10 CFR Part 711 and this SD; and
  - (9) For operations that include DOE quality inspections, providing procedures as input for NES Studies covering these inspections.
- o. Area Manager, Kirtland Area Office, and Area Manager, Los Alamos Area Office, are responsible for:
- (1) Applying applicable provisions of this directive;
  - (2) Ensuring that area office and contractor assignments of responsibility and the delegations of authority for this directive are clearly defined and implemented;
  - (3) Monitoring contractor performance to the requirements of this directive and keeping the Director, WSD, advised of any areas of concern;
  - (4) Ensuring an adequate training and qualification program is established for DOE contractor employees assigned nuclear explosive duties; and
  - (5) Administering the PAP for contractor personnel under their direction in conformance with 10 CFR Part 711 and this SD.
- p. Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and Sandia National Laboratories are responsible for:
- (1) Complying with the applicable provisions of this directive and assigning specific responsibility and delegating necessary authority for nuclear explosive safety to management and supervisory levels;

- (2) Providing qualified individuals to serve as NESSG members and advisors;
- (3) Providing the NESSG with technical data, safety analyses, and briefings, as required;
- (4) Managing and accomplishing, if appropriate, assigned actions resulting from NESSG activities, and providing quarterly (March, June, September, and December) reports on the status of actions to the cognizant WPD Program Engineer and WSD NESP Manager;
- (5) Within the assigned scope, ensuring that the safety standards, objectives, and requirements in this and referenced directives are incorporated into procedures for nuclear explosive operations;
- (6) Ensuring appropriate safety awareness and training programs for Laboratory personnel are developed, documented, and implemented to ensure activities covered by this directive are conducted safely;
- (7) Providing safety design requirements, with technical data and analyses, as requested;
- (8) Providing technical experts to support, as required by AL, its area offices, or the production agencies, the nuclear explosive safety activities described in this and referenced directives; and
- (9) Assisting production agencies in performing hazard analyses and nuclear explosive hazards assessments of nuclear explosive operations and associated activities and in preparing associated safety documentation.

q. Pantex Plant M&O Contractor is responsible for:

- (1) Complying with the applicable provisions of this directive and assigning specific responsibility and delegating necessary authority for nuclear explosive safety to management and supervisory levels;
- (2) Informing the Area Manager, AAO, of proposed operations so that timely decisions may be made regarding the need for NES Studies, Evaluations, Surveys, or Revalidations;
- (3) Managing and accomplishing, if appropriate, assigned actions resulting from NESSG activities, and reporting the status of actions to the Area Manager, AAO, quarterly (March, June, September, and December);
- (4) Providing technical experts to support, as required by AL or AAO, the nuclear explosive safety activities described in this and referenced directives;
- (5) Performing hazard analyses and nuclear explosive hazards assessments of nuclear explosive operations and associated activities, and preparing associated safety documentation;
- (6) Providing qualified individuals to serve as NESSG members and advisors;
- (7) Planning, designing, and conducting nuclear explosive operations and associated activities in accordance with the requirements in this and other referenced directives;
- (8) Providing the NESSG with technical data, safety analyses, and briefings, as required;

- (9) Developing and implementing appropriate safety awareness and training programs to ensure the activities covered by this directive are conducted safely; and
- (10) Administering the PAP for contractor personnel in conformance with 10 CFR Part 711 and this SD.

6. REFERENCES.

- b. DOE O 210.1, PERFORMANCE INDICATORS AND ANALYSIS OF OPERATIONS INFORMATION, dated 9-27-95, with Change 2 dated 5-1-96.
- d. DOE O 232.1A, OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION, dated 7-21-97.
- f. DOE O 420.1, FACILITY SAFETY, dated 10-13-95, with Change 2 dated 10-24-96.
- g. DOE O 425.1, STARTUP AND RESTART OF NUCLEAR FACILITIES, dated 9-29-95, with Change 1 dated 10-26-95.
- h. DOE O 440.1, WORKER PROTECTION MANAGEMENT FOR DOE FEDERAL AND CONTRACTOR EMPLOYEES, dated 9-30-95, with Change 2 dated 10-21-96.
- n. DOE 5480.19, CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE FACILITIES, dated 7-9-90, with Change 1 dated 5-18-92.
- q. DOE 5480.22, TECHNICAL SAFETY REQUIREMENTS, dated 2-25-92, with Change 2 dated 1-23-96.
- r. DOE 5480.23, NUCLEAR SAFETY ANALYSIS REPORTS, dated 4-10-92, with Change 1 dated 3-10-94.
- t. DOE 5480.31, STARTUP AND RESTART OF NUCLEAR FACILITIES, dated 9-15-93, with Revision 1 dated 2-3-95.
- x. DOE M 232.1-1A, OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION, dated 7-21-97.
- z. DOE M 440.1-1, DOE EXPLOSIVES SAFETY MANUAL, dated 3-29-96.
- ff. DOE-DP-STD-3016-99, Preparation Guide for U.S. Department of Energy Hazard Analysis Reports for Nuclear Explosive Operations.
- oo. Joint DOE/DOD Technical Publication 45-51D, Transportation of Nuclear Weapons Material (Supplement), Shipment by Safe-Secure-Trailer (SST), dated 7-14-89.
- qq. DOE N 441.3, EXTENSION OF DOE N 441.1 RADIOLOGICAL PROTECTION FOR DOE ACTIVITIES, dated 9-27-97.
- rr. AL SD 452.1A, NUCLEAR EXPLOSIVE AND WEAPON SURETY PROGRAM, dated 1-15-99.
- ss. AL SD 5480.31, STARTUP AND RESTART OF AL FACILITIES, ACTIVITIES, AND OPERATIONS, Rev. 1 dated 2-3-95.

- tt. DOE Order 5610.12, PACKAGING AND OFFSITE TRANSPORTATION OF NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES ASSOCIATED WITH THE NUCLEAR EXPLOSIVE AND WEAPON SAFETY PROGRAM, dated 7-26-94.
  - uu. AL SD 5610.12, PACKAGING AND OFFSITE TRANSPORTATION OF NUCLEAR COMPONENTS, AND SPECIAL ASSEMBLIES ASSOCIATED WITH THE NUCLEAR EXPLOSIVE AND WEAPON SAFETY PROGRAM, dated 8-17-95.
  - vv. DOE Order 414.1, QUALITY ASSURANCE, dated 11-24-98.
  - ww. DOE Order 6430.1A, GENERAL DESIGN CRITERIA, dated 4-6-89.
  - xx. DOE-STD-1027-92, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, dated 12-92, with Change Notice No. 1, dated 9-97.
  - zz. DOE/AL Quality Criteria (QC-1), Revision 9, dated 7-17-95.
  - aaa. MIL-STD-1472D, Human Engineering Design Criteria for Military Systems, Equipment, and Facilities.
  - bbb. ASME B30, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings.
  - ccc. NFPA 70, National Electric Code.
7. CONTACT. AL, Office of National Defense Programs, (505) 845-6666.

## DEFINITIONS

12. Hazard Analysis. Largely qualitative techniques used to pinpoint weaknesses in facility design and in the design of nuclear explosive operations and associated activities.
19. Nuclear Explosive Area (NEA). Any area that contains a nuclear explosive or collocated pit and main charge high-explosive parts. These components are considered to be collocated if high explosive detonation or deflagration could result in fissile material dispersal.
23. Nuclear Explosive Operation (NEO). Any activity involving a nuclear explosive, including activities in which main charge high-explosive parts and pit(s) are collocated. These components are considered to be collocated if high explosive detonation or deflagration could result in fissile material dispersal.
30. Nuclear Weapon. A nuclear explosive configured for operational use by the DOD.
41. Safety Analysis Report (SAR). A report that documents the results and adequacy of safety analysis for facilities in which nuclear explosive operations and associated activities are performed to ensure that such a facility can be constructed, operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws, regulations, DOE Orders, and SDs.
43. Safety-Class Structures, Systems, and Components (safety-class SSCs). Structures, systems, or components including primary environmental monitors, portions of process systems, and features of nuclear explosive operations and associated activities and facilities, whose failure could adversely affect the environment or safety and health of the public as identified by safety analyses.
47. Technical Safety Requirements (TSRs). Those requirements that define the conditions, the safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear explosive operation, associated activities, and associated facilities. These requirements are also necessary to reduce the potential risk to the public, environment, and workers from inadvertent nuclear detonation, high explosives detonation/deflagration resulting in dispersal of fissile material, fire resulting in dispersal of fissile material, uncontrolled releases of radioactive materials from the facility(s), radiation exposures due to inadvertent criticality, and other non-standard industrial hazards that could result in significant worker injury.
50. Accident Analysis. Accident analysis is a follow-on effort to hazard analysis and entails qualitative (quantitative when necessary) assessment of likelihood of occurrence range and consequence analysis. Bounding analyses are selected for inclusion in the facility SAR and in the HARs for specific nuclear explosive operations and associated activities.
51. Activity Based Controls Document (ABCD). An ABCD documents the controls for nuclear explosive operations that DOE relies on to prevent or mitigate accidents with consequences that meet or exceed the NEO Evaluation Guidelines. The goal of the ABCD for a nuclear explosive operation at the Pantex Plant is consistent with the goal for TSRs specified in DOE Order 5480.22.
52. Authentication. Using a die stamp or template of a unique pattern to show that obliterating a permanent marking has been authorized.
53. Authorization Agreement (AA). The AA documents the DOE and Contractor agreement to the conditions of operation and as a minimum will:
- Define the scope of operations,
  - List the applicable Authorization Basis documents,

- List other documents that support the decision to authorize operations, such as S/RIDs, applicable readiness review reports, NES review reports, National Environmental Policy Act documents, and certification that all nuclear explosive surety standards are met, and
  - Define any other terms and conditions.
54. Authorization Basis (AB). For nuclear explosive operations, the AB is defined as the applicable Safety Evaluation Report, SAR (or equivalent interim document), Pantex Plant TSR, HAR, and ABCD. These documents control the aspects of the operation relied upon by DOE.
55. Basis for Interim Operations (BIO). The BIO is the documented establishment of a safety basis (SB) for current facility operations and operational controls until more detailed documentation, fully compliant with the requirements of DOE Order 5480.22 and DOE Order 5480.23, is developed and approved by DOE. An approved BIO serves as the interim DOE SB until the upgraded safety documentation is developed and approved.
56. BIO Upgrade Program. A program for upgrading existing SB documentation by developing and approving safety documentation that is fully compliant with the requirements of DOE Order 5480.22 and DOE Order 5480.23.
57. Design Agencies. Weapon design laboratories (LANL, LLNL, and SNL).
58. Dummy Pit. A component, or set of components, designed to simulate a live pit, but which does not contain fissile material and cannot therefore create a nuclear explosive if placed in the central cavity of an implosion system.
59. Engineering Release. Technical approval of a nuclear explosive operation issued jointly by the appropriate weapon design laboratories.
60. Fail-Safe Design. Tooling, equipment, and facility designs that have considered possible points of failure (physical failure and human error) and have provided hardware compensation for these failures in order that the operation remains safe.
61. Human Factors. A discipline concerned with designing machines, operations, and work environments to match human capabilities, limitation, and needs.
62. Layout. How tooling, equipment, nuclear explosives, waste receptacles, and similar items are placed within a NEA.
63. Mock High Explosive. A non-detonable material used to simulate one or more properties of HE.
64. Nuclear Explosive Safety Tester Evaluation (NESTE). A formal evaluation of a proposed replacement for a tester previously authorized through a NES Study.
65. Nuclear Explosive Safety Survey (NES Survey). A formal evaluation based on a comparative analysis of the operation with the nuclear explosive operation evaluated in a current and approved NES Study Report.
66. Obliteration. Removing or defacing the permanent marking on a nuclear explosive or NELA when the marking is no longer valid.
67. Production Agency. A DOE M&O contractor responsible for assembling or disassembling nuclear explosives, components of nuclear explosives, or NELAs.
68. Safety Basis (SB). For the purposes of this document, the SB consists of the AB and all information serving as the foundation for the AB, such as the Weapon Safety Specification (WSS), design information,



engineering analyses, fire hazard analyses, contractor safety program documentation, and technical background information for both the facility and the weapon.

69. Safety Structures, Systems, and Components. The set of Safety-Class SSCs and Safety-Significant SSCs for nuclear explosive operations and associated activities and facilities.
70. Significant Modification. Changes to facilities, systems, or components that may result in a significant increase in risk from a hazard beyond that previously analyzed and reviewed, or a significant reduction in the reliability of any item for which credit has been taken for reducing or controlling a hazard. These changes may include introducing a new hazard, applying of new regulations, or receiving new information indicating an increased hazard associated with an existing operation.
71. Tooling. Commercially procured or custom designed and fabricated devices, such as stands and fixtures, used in performing nuclear explosive operations or associated activities.

**SAMPLE FORMAT - NES STUDY INPUT DOCUMENT**

The following is a format that has evolved over time. This should continue to change as the state of the AB documents evolves. If topics are presented in sufficient detail in documents provided in the input (e.g., WSS), this information need not be repeated elsewhere in the input document.

Executive Summary (If applicable)Volume 1A - Nuclear Laboratory Input

1. Descriptions
  - A. Nuclear System
    - (1) Primary
    - (2) Secondary
    - (3) Gas Systems
  - B. Special Processes
  - C. Quality Tests
2. Safety/Hazard Evaluations
  - A. One-point Safety
  - B. High Explosive Safety
  - C. High Explosive Deterioration
  - D. Chemical Compatibility
  - E. Pressure Safety
  - F. Command Disable
  - G. Special Processes
  - H. Quality Tests
  - I. Significant Controls
3. Specific Nuclear Explosive Safety Rules  
Evaluation of current specific NESRs and any recommended changes.
4. Immediate-Action Procedures  
Evaluation of current immediate-action procedures and any recommended changes.

Volume 1.B - Sandia National Laboratories Input

1. Descriptions and Safety/Hazards Evaluation
  - A. General Description of Warhead/Bomb
  - B. Warhead Electrical System
  - C. Gas Systems
  - D. Nuclear Explosive Safety Theme
  - E. Non-DOE Components
  - F. Telemetry Considerations
  - G. Other Hazards (including energy sources/potential effects)
  - H. Shipping Configurations
  - I. Tie-down Specification
  - J. Permissive-Action Link

- K. Command Disable
- L. Special Processes
- M. Quality Tests
- N. Significant Positive Measures

2. Electrical Tester Equipment

- A. List Testers Required
- B. Evaluation of Testers and Nuclear Explosive/Electrical Tester Interface with respect to DG 10001
- C. Independent Tester Analysis

3. Specific NESRs

Evaluation of current specific NESRs and any recommended changes.

4. Immediate-Action Procedures

Evaluation of current immediate-action procedures and any recommended changes.

Volume IC - Pantex Plant M&O Contractor Input

1. Sequence of Operations

- A. Description of Operations
  - (1) Disassembly & Inspection
  - (2) Reassembly/assembly
  - (3) Onsite Transportation
  - (4) Special Processes
  - (5) Quality Tests
  - (6) Facility Interface
- B. Process Flow Diagram Nuclear Explosive Operating Procedures/Process flow Diagrams
  - (1) Process photos and videotapes
- C. Significant Positive Measures

2. Description of Process Tooling, Equipment, and Materials

- A. Mechanical Tooling (special, commercial, hand tools) and equipment
- B. Electrical Equipment (MTL, MEL, Pink Labeled)
- C. Materials (support and expense)

3. Specific NESRs

Evaluation of current specific NESRs and any recommended changes.

4. Immediate-Action Procedures

Evaluation of current immediate-action procedures and any recommended changes.

Volume 2 – Authorization Basis Documentation

- 1. Weapon Safety Specification
- 2. Hazards Analysis Report and/or applicable facility safety analysis documents
- 3. Applicable control documents

Volume 3 - Tooling

Volume 4 - Addendum

1. Briefings to the NESSG
2. Additional document not previously included in the Input Document

## Acronyms

AA	Authorization Agreement
AAO	Amarillo Area Office
AB	Authorization Basis
ABCD	Activity Based Control Document
AL	Albuquerque Operations Office
ALARA	As-Low-As-Reasonably-Achievable
ASME	American Society of Mechanical Engineering
B	Bomb
BIO	Basis for Interim Operations
CHE	Conventional High Explosive
CFR	Code of Federal Regulations
CM	Configuration Management
D&P	Development and Production
DOD	Department of Defense
DOE	Department of Energy
ES&H	Environmental, Safety, and Health
FR	Facility Representative
HAR	Hazard Analysis Report
HE	High Explosive
HFE	Human Factors Engineering
HRD	Human Resource Division
IHE	Insensitive High Explosive
IVAN	Independent Vulnerability Analysis
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
MEL	Master Equipment List
MIP	Maintenance Implementation Plan
M&O	Management and Operating
MTL	Master Tester List
NEA	Nuclear Explosive Area
NELA	Nuclear Explosive-Like Assembly
NEO	Nuclear Explosive Operation
NES	Nuclear Explosive Safety
NESP	Nuclear Explosive Safety Program
NESR	Nuclear Explosive Safety Rule
NESSG	Nuclear Explosive Safety Study Group
NESTE	Nuclear Explosive Safety Tester Evaluation
ONDP	Office of National Defense Programs
PAP	Personnel Assurance Program
QA	Quality Assurance
QC-1	Quality Control-1
SAR	Safety Analysis Report
SB	Safety Basis
SBRT	Safety Basis Review Team
SD	Supplemental Directive
SNL	Sandia National Laboratories
SOMD	Site Occupational Medical Director
S/RID	Standards/Requirements Identification Document
SSC	Structure, System, or Component
SSD	Safeguards and Security Division

<b>SST</b>	Safe Secure Trailer
<b>TSD</b>	Transportation Safeguards Division
<b>TSR</b>	Technical Safety Requirement
<b>USQD</b>	Unreviewed Safety Question Determination
<b>W</b>	Warhead
<b>WPD</b>	Weapon Programs Division
<b>WSD</b>	Weapon Surety Division
<b>WSS</b>	Weapon Safety Specification

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SEPARATION

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## Development and Production Manual

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DELIVERABLE 5.3.2b

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- 1.0 Purpose
- 2.0 Policy
- 3.0 Definitions
- 4.0 NEO Change Control Process Flow
- 5.0 Responsibilities
- 6.0 Responsible Organizations
- 7.0 Attachments

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## 1.0 PURPOSE

The purpose of the chapter is to describe the change control process for nuclear explosive operations (NEOs) performed at the Pantex Plant. The NEO Change Control Process is to be applied to all requested changes to NEO procedures, tooling/equipment items, or facility interfaces. The proposed changes are to be evaluated from the Authorization Basis (utilizing the USQ process, with criteria tailored from DOE 5480.21 criteria) and from the Nuclear Explosive Safety (NES) perspectives (utilizing the NES change evaluation process). In each of these areas, the level of review and implementation approval for the change is determined by the application of specific evaluation criteria. Review/approval levels may range from the M&O contractor to DOE/HQ, depending upon the safety implications of the proposed change.

## 2.0 POLICY

It is U.S. Department of Energy (DOE) policy that nuclear explosive operations be developed with safety as a primary consideration. A formal process is required to ensure that all proposed changes to NEOs at the Pantex Plant are subject to a formal and rigorous evaluation. Line management at the M&O contractor and DOE offices must ensure that all proposed changes have merit, do not adversely affect the safety of the operation, and fall within the scope of the existing authorization basis or are documented in an approved revision to the existing authorization basis as determined by the USQ process. In addition to the line management function, an independent NES evaluation will be performed on all proposed changes to NEO procedures, tooling/equipment items, and facility interfaces.

For those programs not yet having an approved HAR and ABCD, the USQ evaluation will be performed only if the subject of the proposed change is addressed in the existing AB documents (SAR or equivalent, and Pantex Plant TSRs). If the subject is not addressed in the existing AB documents, only the NES evaluation will be performed on the proposed change.

The M&O contractor and DOE offices are to maintain auditable records of the change request evaluations for which they have approval authority.

# Development and Production Manual

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A detailed implementation plan will be developed by the M&O contractor for implementation of this change control process at the Pantex Plant. The plan will be submitted for DOE review and approval.

## 3.0 DEFINITIONS

See Chapter 11.0 for Definitions

## 4.0 NEO CHANGE CONTROL PROCESS FLOW

The NEO Change Control process flow is illustrated in Figure 1.

The process is divided into seven parts based upon organizational roles and responsibilities. Each part is comprised of individual steps, identified by letter. Any particular step is denoted by a part number (1-7) and a step letter (A-Z).

The process is initiated when a change is proposed to an existing operation. Proposed changes can be generated from essentially any level, from M&O Contractor production technicians to laboratory technical specialists. All proposed changes will be referred to the M&O Contractor program engineer, who will evaluate the proposed change for merit. If the proposed change has merit, the M&O Contractor program engineer will initiate the NEO Change Control Process by proceeding with Step 1.

## 5.0 RESPONSIBILITIES

### PART 1

### M&O CONTRACTOR ACTIONS

#### STEP 1A

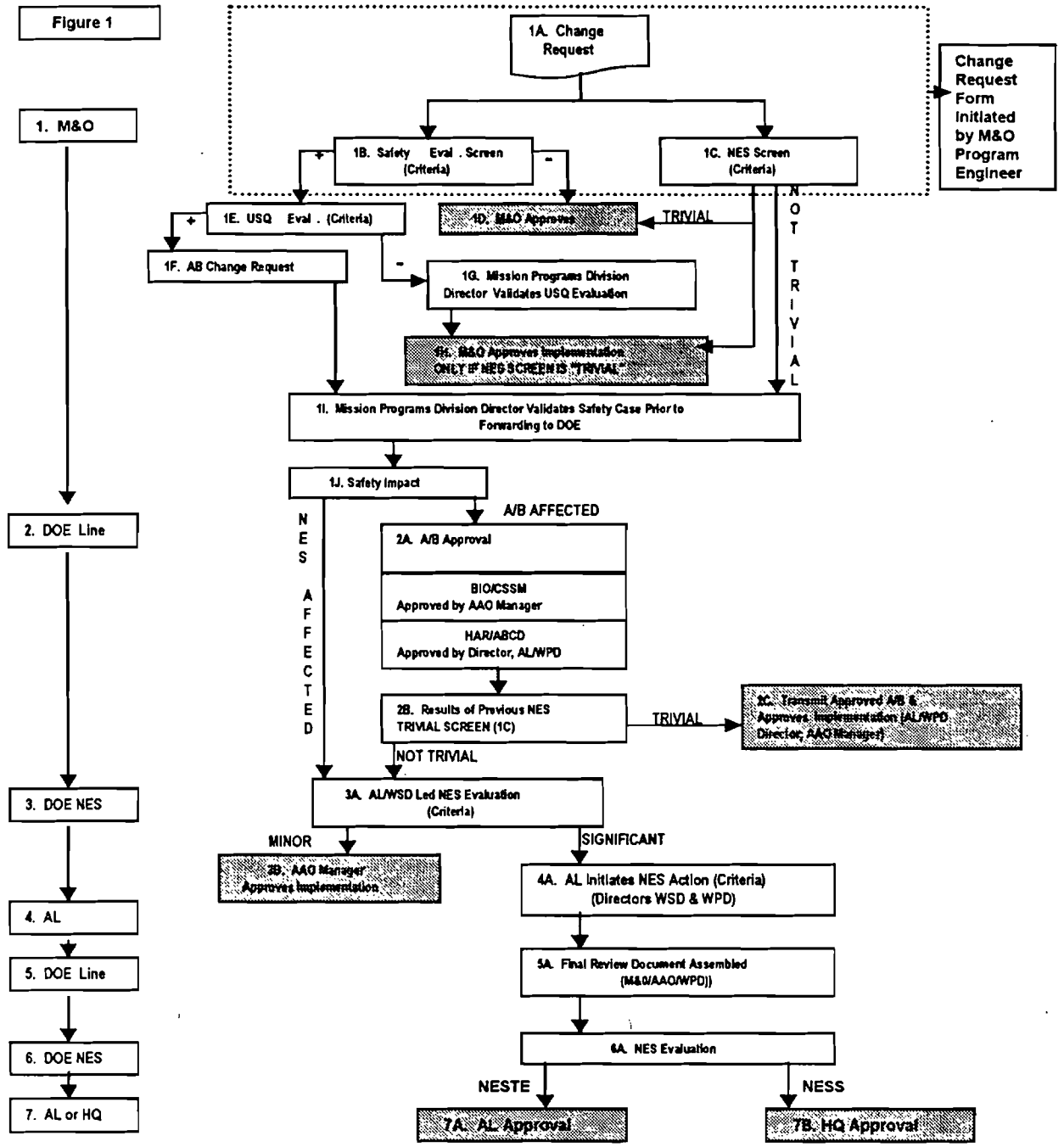
Every proposed change that will affect a NEO procedure, tooling/equipment item, or facility interface is to be documented on an M&O Contractor Change Request Form. The form must include a complete description of the proposed change, justification for implementation of the proposed change, and concurrence with the change request by the following individuals: M&O Contractor program engineer; M&O Contractor facility manager, and design agency technical representative. The concurrence signatures (and review signatures, see Step 1B, 1C below) are depicted in Attachment 1.

#### STEP 1B, 1C

The M&O Contractor Change Request Form will also reflect the results of the independent evaluation by an M&O Contractor NES representative (for the NES perspective on proposed changes) and an independent safety evaluation screen by an M&O Contractor Authorization Basis representative (for the Authorization Basis (A/B) perspective on proposed changes), see Attachment 1.

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The criteria utilized in the screens and the associated evaluation results are to be attached to the Change Request Form. The required Criteria are shown on Attachment 2. The NES criteria were adopted from the AL/WSD NES change evaluation process (described in more detail in Attachment 6, "Detailed Guidance on NES Change Evaluation Process"). The M&O Contractor provided the A/B safety screen criteria.

If the NES screen indicates "Trivial", proceed to Step 1D (or to Step 1H if the A/B screen proceeds to Step 1H). If the NES screen indicates "Not Trivial", proceed to Step 1I.

**AND**

If the A/B screen indicates "Negative" (-) proceed to Step 1D. If the A/B screen indicates "Positive" (+), proceed to Step 1E.

## **STEP 1D**

If, and only if, the NES screen is "Trivial" and the A/B screen is "Negative", then M&O Contractor is authorized to approve implementation of the proposed change. M&O Contractor is to define the appropriate M&O Contractor approval level for this situation in the development of detailed implementing instructions for this change control process. MHC shall maintain auditable documentation of these approvals.

## **STEP 1E**

The A/B safety evaluation screen has resulted in a "positive" determination. M&O Contractor now performs a detailed USQ evaluation of the proposed change. The basis for the USQ evaluation is the seven questions shown on Attachment 3, "Basis for M&O USQ Evaluation on Authorization Basis".

If the detailed USQ evaluation indicates "Negative", proceed to Step 1G.

If the detailed USQ evaluation indicates "Positive", proceed to Step 1F.

## **STEP 1F**

The detailed USQ evaluation is "Positive", and therefore a change to the existing Authorization Basis is required. The M&O Contractor compiles the documentation associated with the requested change, to include proposed revised pages to the existing A/B, and transmits the results of the USQ evaluation and the requested A/B change to M&O Contractor's Director, Mission Programs Division (MPD) for review (Step 1I).

## **STEP 1G**

If the USQ evaluation is "Negative" and therefore no change to the existing Authorization Basis is necessary, the M&O Contractor Director, MPD reviews and validates the results of the USQ evaluation prior to proceeding with Step 1H. The Director, MPD will redirect the evaluation back to Step 1E if the negative determination is not validated.

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## STEP 1H

If and only if the result of the M&O Contractor NES screen was "Trivial", M&O Contractor is authorized to approve implementation of the proposed change at this point in the process.

If the result of the NES screen was "Not Trivial" M&O Contractor is not authorized to approve implementation, but must continue the process by proceeding to Step II.

## STEP 1I

If the M&O Contractor A/B USQ evaluation is "Positive" and/or the M&O Contractor NES screen has resulted in a "Not Trivial" determination, the result now requires DOE involvement.

The M&O Contractor's Director, MPD is charged with the responsibility of reviewing the results of the A/B USQ evaluation (and associated proposed revisions to the Authorization Basis) and/or the M&O Contractor NES screen prior to forwarding a request for action to DOE. In addition to ensuring the safety evaluations are complete and support a determination that the proposed change is safe, the Director, MPD is to ensure that sufficient documentation on the proposed change, its safety implications, and justification for implementation, are forwarded for DOE action, as per Step 1J. The Director, MPD is authorized and may elect to abandon a change proposal. The Director, MPD is not authorized to reverse a NES screen determination that a proposal is "Not Trivial" or reverse a "Positive" USQ determination.

## STEP 1J

The M&O Contractor's Director, MPD forwards the change request documentation, associated safety evaluations, and implementation justification to DOE for action, in the following sequence:

1. If the proposed change resulted in an A/B change request only, the requested change will be sent to the Manager, Amarillo Area Office for BIO/TSR approvals with copy to DOE/AL, or to the Director, Weapon Programs Division, DOE/AL for HAR/ABCD approvals with copy to AAO.
2. If the change resulted in a "Not Trivial" NES determination only, then the M&O Contractor Director, MPD will send a formal request to the Director, AL/WSD, with copy to the Director, AL/WPD, to conduct a WSD/NESP-led NES review, to support Step 3A.
3. If the change resulted in both a requested A/B change and a "Not Trivial" NES determination, then steps one and two above are to be executed simultaneously.

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## PART 2

## DOE LINE MANAGEMENT ACTIONS

### STEP 2A

The Area Manager, AAO is the review/approval authority for BIO/TSR changes and the Director, DOE/AL/WPD, is the review/approval authority for HAR/ABCD changes.

Upon approval of the Authorization Basis change, DOE Line Management proceeds to Step 2B.

### STEP 2B

DOE Line Management reviews the results of the M&O Contractor NES screen, completed earlier in the process (Step 1C).

If Step 1C determined that the proposed change was "Trivial", then in combination with the approved A/B revision, proceed to Step 2C for Line Management authorization for implementation of the proposed change.

If the NES screen determined the proposed change to be "Not Trivial", then Line Management cannot approve implementation of the change at this time, pending results of the AL/WSD-led NES evaluation in Step 3A.

### STEP 2C

DOE Line Management has approved the A/B change request and has verified that the M&O Contractor NES screen resulted in a "Trivial" determination.

DOE Line Management (AAO for BIO/TSR changes and AL/WPD for HAR/ABCD changes) transmits the approved A/B change request to the M&O Contractor and authorizes implementation of the proposed change.

## PART 3

## DOE NES ACTIONS

### STEP 3A

Upon receipt of a proposed change request and supporting documentation from the M&O Contractor, the Director, AL/WSD, initiates a WSD-led joint NES review of the proposed change. Additional requirements and guidance for this review are detailed in Attachment 6.

The joint NES review team will make one of the following determinations:

- a. The proposed change is "Trivial" and should be referred back to the M&O contractor for NES approval.
- b. The proposed change is "Minor" and may be NES-approved by AL/WSD.



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- c. The proposed change does not qualify for a lower approval level and should be evaluated using a NES Study for approval by DP-20.

*Notes: The joint NES review team determines an appropriate approval level; it does not approve changes. Unanimous agreement of the NES Review Team is needed to categorize a proposal as "Trivial" or "Minor."*

The criteria for the NES Minor screen are reflected in Attachment 4. The "NES Minor Screen Criteria" were adopted from the AL/WSD change evaluation process, see Attachment 6.

The NES review team may advise the proposing agency of any additional information needed above and beyond the initial submittal. The AL member will inform the Director, WSD, of the results of the joint review prior to obtaining that official's NES decision.

The Director, AL/WSD, will formally notify the Manager, AAO, and the Director, AL/WPD, of the NES approval of the change as "Minor" (or reason for disapproval, or conclusion that the change is actually Trivial).

If the change is approved as "Minor", proceed to Step 3B of the process.

*Note: It is also possible that the Joint NES Review Team will categorize the proposed change as "Trivial". In this case the Director, WSD, will formally notify AAO, WPD, and the M&O Contractor that the change proposal was determined to be "Trivial" from a NES perspective, and process reverts to Step 1H if USQ evaluation was negative.*

If the change is not "Trivial" or "Minor", proceed to Step 4A.

## **STEP 3B**

AL/WSD has approved the proposed change as "Minor" (from a NES perspective). AAO is authorized to approve implementation of the change after ensuring that any and all necessary Authorization Basis changes have been approved by line management as per Step 2A.

## **PART 4**

## **AL ACTIONS**

### **STEP 4A**

AL/WSD and AL/WPD will reach agreement on the need for a NESTE or a NES Study (See Attachment 5, "NES Criteria for NESS versus NESTE," for changes involving testers) and will initiate preparations for the NESSG evaluation. At this step it is possible that DOE will determine that the benefit of the proposed change does not warrant further obligation of resources.

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## PART 5

## LINE MANAGEMENT ACTIONS

### STEP 5A

The appropriate review and approval level having been determined, the M&O Contractor will then lead the development of the necessary safety support documentation for the change request. The M&O contractor will be responsible for compiling the safety package, with appropriate input from M&O contractor, the design agencies and other DOE offices as appropriate. The AL PM, responsible and accountable for ensuring the completeness of the documentation prior to submittal of the documentation to review entities, will submit the safety package to the appropriate review entity for approval, in support of Attachment 6, "Detailed Guidance on NES Change Evaluation Process."

## PART 6

## DOE NES ACTIONS

### STEP 6A

The proposed change will be evaluated by the NESSG via a NESS (as specified in DOE O 452.2A and DOE-STD-3015-97) or a NESTE (as specified in Attachment 6, Section I.C).

## PART 7

## AL, HQ ACTIONS

### STEP 7A

The Manager, DOE/AL has approval authority for NESTES.

### STEP 7B

The Deputy Assistant Secretary for Military Applications and Stockpile Management, DP-20, DOE/HQ has approval authority for NESSs.

## 6.0 RESPONSIBLE ORGANIZATIONS

WPD and WSD are responsible for this chapter.

## 7.0 ATTACHMENTS

- Attachment 1: Concurrence and Review Signatures for M&O NEO Change Request Form
- Attachment 2: M&O Safety Evaluation Screen Criteria
- Attachment 3: Basis for M&O USQ Evaluation on Authorization Basis
- Attachment 4: NES Minor Screen Criteria
- Attachment 5: NES Criteria for NESS versus NESTE
- Attachment 6: Detailed Guidance on NES Change Evaluation Process

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Attachment 1

## Concurrence & Review Signatures For M&O NEO Change Request Form

1. Apply to proposed change to a weapon system's procedures, tooling/equipment, or facility interface	
2. NES and Authorization Basis are to be screened	
3. Independent M&O determination of safety impact is required and is to be attached to form	
4. Attach the Screen Criteria, a Change Description, and a Change Justification	
5. Apply to proposed change to a weapon system's procedures, tooling/equipment, or facility interface	
6. NES and Authorization Basis are to be screened	
7. Independent M&O determination of safety impact is required and is to be attached to form	
8. Attach the Screen Criteria, a Change Description, and a Change Justification	
<b>Concurrence with Change Request</b>	
<b>Program Engineer:</b> Name: Title: Remarks:	Concurrence Initials: Concurrence Date:
<b>Facility Manager:</b> Name: Title: Remarks:	Concurrence Initials: Concurrence Date:
<b>Design Agency:</b> Name: Title: Remarks:	Concurrence Initials: Concurrence Date:
<b>Design Agency:</b> Name: Title: Remarks:	Concurrence Initials: Concurrence Date:
<b>Safety Determination</b>	
<b>NES Representative:</b> Name: Title: Remarks:	Trivial: <input type="checkbox"/> Not Trivial: <input type="checkbox"/>  Concurrence Initials: Concurrence Date:
<b>A/B Representative:</b> Name: Title: Remarks:	Negative: <input type="checkbox"/> Positive: <input type="checkbox"/>  Concurrence Initials: Concurrence Date:

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Attachment 2

## M&O Safety Evaluation Screen Criteria

### NES (Performed by M&O NES Rep)

*Any YES Means  
"Not Trivial"*

NO

- |  |                          |                          |
|--|--------------------------|--------------------------|
| A. Does the change have any NES implications?  | <input type="checkbox"/> | <input type="checkbox"/> |
| B. Is the change outside the scope of an existing study?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 1. Does proposed change increase likelihood of failure of a control relied upon to meet any of the three DOE NES Standards?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Does proposed change create possibility of accident or failure of a different type than any evaluated previously and which could lead to a violation of any of the three DOE NES Standards? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Does the proposed change reduce the margin of assurance that any of the three DOE NES Standards is met?   | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Does the proposed change require a process modification that is significantly different from the previously studied and approved process and that may affect NES?                           | <input type="checkbox"/> | <input type="checkbox"/> |

Narrative: \_\_\_\_\_

### A/B (Safety Evaluation Screen Performed by M&O A/B Rep)

*Any YES Means  
"Positive"*

NO

- |  |                          |                          |
|--|--------------------------|--------------------------|
| A. Could the proposed change place the operation outside of the existing authorization basis?  | <input type="checkbox"/> | <input type="checkbox"/> |
| B. Could the proposed change adversely affect structures, systems, or components; tooling/equipment; or materials identified in a safety basis document? | <input type="checkbox"/> | <input type="checkbox"/> |
| C. Does the proposed change involve a new procedure (operating, facility, or other) or a modification to a current procedure that could--                |                          |                          |
| 1. reduce the effectiveness of a control identified in a safety basis document?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. alter how a major task is performed?  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. introduce a new or increased hazard into the process?   | <input type="checkbox"/> | <input type="checkbox"/> |

Narrative: \_\_\_\_\_

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Attachment 3

**Basis for  
M&O USQ Evaluation on Authorization Basis  
(Performed by M&O Risk Management)**

*"Yes" answer to ANY question means evaluation is "Positive"*

*"No" answer to ALL questions means evaluation is "Negative"*

1. Could the proposed change increase the probability of an accident previously identified in the safety analysis?
2. Could the proposed change increase the consequences of an accident previously identified in the safety analysis?
3. Could the proposed change increase the probability of the occurrence of a malfunction of equipment important to safety previously evaluated in the safety analysis?
4. Could the proposed change increase the consequences of a malfunction of equipment important to safety previously evaluated in the safety analysis?
5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the safety analysis?
6. Could the proposed change create the possibility of a different type of malfunction of equipment important to safety than any previously evaluated in the safety analysis?
7. Could the proposed change reduce the margin of safety defined in the basis for any TSR or ABCD?

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Attachment 4

## NES Minor Screen Criteria

(Performed by Joint NES Review Team led by AL/WSD)

	<u>Any YES Means Change is "Not Minor"</u>	<u>NO</u>
A. Is the Change "Trivial"?	<input type="checkbox"/>	<input type="checkbox"/>
B. Is the change outside the scope of an existing study?		
1. Does proposed change increase likelihood of failure of a control relied upon to meet any of the three DOE NES Standards?	<input type="checkbox"/>	<input type="checkbox"/>
2. Does proposed change create possibility of accident failure of a different type than any evaluated previously and which could lead to a violation of any of the three DOE NES Standards?	<input type="checkbox"/>	<input type="checkbox"/>
3. Does the proposed change reduce the margin of assurance that any of the three DOE NES Standards is met?	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the proposed change require a process modification that is significantly different from the previously studied and approved process and that may affect NES?	<input type="checkbox"/>	<input type="checkbox"/>
C. Does the change have any significant adverse NES implications?	<input type="checkbox"/>	<input type="checkbox"/>

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Attachment 5

**NES Criteria for NESS versus NESTE**

*If the answer to both of the following questions is "Yes," a proposed replacement tester may be evaluated by a NESTE and approved by the Manager, AL. Otherwise, the proposal is evaluated in a NES Study for approval by DP-20.*

	<u>YES</u> <i>NESTE</i>	<u>NO</u> <i>NES Study</i>
1. Will the proposed tester replace one that is authorized through an approved NES Study?	<input type="checkbox"/>	<input type="checkbox"/>
2. Will the proposed replacement tester perform the same tests on the same nuclear explosive circuits as the approved tester it replaces (or a subset of the previously approved tests)?	<input type="checkbox"/>	<input type="checkbox"/>

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Attachment 6

## Detailed Guidance on NES Change Evaluation Process

This attachment provides detailed requirements and guidance for achieving NES approval of proposed changes to approved nuclear explosive operations. Section I describes what must be done to gain NES approval for each of the authorized approval levels. Section II describes how to select an appropriate NES approval level.

In the context of this guidance, "NES Approval" refers to the determination that a proposal is acceptable from a NES perspective. Actual approval authority for implementation of a proposed change rests with the appropriate line management official, subject to appropriate safety reviews such as the NES reviews described below.

### **I. Requirements for NES Approval of Changes**

NES approval of proposed changes may be granted at one of four levels, depending on the nature (complexity, NES implications, analysis needed, etc.) of the proposal.

#### **A. Trivial Changes**

The Pantex Plant M&O contractor (based on concurrence of the contractor's NES personnel) may approve proposed changes of a trivial or strictly administrative nature with no likelihood of significance to nuclear explosive safety. The M&O Contractor shall establish a process for NES review and approval of "trivial" changes that is consistent with the requirements of this directive.

#### **B. Minor Changes**

The Director, WSD (based on evaluation by a joint NES review team as described below) may approve proposed changes that have no significant adverse NES implications and that do not cause the operation to be outside the scope of the approved NES Study. Such changes are characterized as "minor" (using the guidance in Section II below). A joint NES review team composed of NESSG-certified personnel from WSD (chairman), AAO, and the Pantex Plant M&O contractor shall review proposed changes that the proposing agency believes might fall in this category. NESSG personnel from the national laboratories or other organizations may participate, as deemed appropriate by the chairman.

The proposing agency shall assemble and submit appropriate information, documentation, and analysis to support the proposal. Unanimous agreement of the NES review personnel is required to seek NES approval as a "minor" change.

AL/WSD/NESP will keep an auditable record of these NES reviews and approvals until the applicable NES Study is either superseded or no longer needed.



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## C. Replacement Testers

Review and approval of electrical tester replacements is a unique category of the NES change evaluation process. Electrical testers used with nuclear explosives require special consideration because nuclear explosives are designed to operate from electrical signals, and these testers intentionally apply electrical energy to the nuclear explosive. For that reason, DOE O 452.2A requires NESSG evaluation of any new testers proposed for addition to the Master Tester List (MTL) of authorized nuclear explosive electrical testers.

A replacement tester that performs the same electrical test on the same nuclear explosive circuits as is already approved in a NES Study is a process change that is within the scope of the applicable NES Study. Therefore, it is within the authority of the Manager, AL to approve. (By contrast, a proposal to perform a new electrical test is not "in-scope" and must be evaluated in a NES Study for approval by DP-20.)

NES approval of proposed replacement testers will be based on a NES Tester Evaluation (NESTE) performed by an NESSG. The NESSG report and associated approval correspondence provide the necessary auditable record of the NES review and approval. A copy of AL-approved NESTE reports will be provided to DP-20 for information. A NESTE approval is valid only as long as the NES Study on which it is based remains valid.

Line management preparation for a NESTE should include at least one planning meeting with the principal participants, similar to those required for NES Studies, to determine and document the specific approach and expectations for each NESTE. To obtain NES approval of proposed replacement testers using the NESTE process, the following are required:

1. Convening the NESSG.
2. A tailored input document covering the NES Study topics identified in DOE-STD-3015-97 that are relevant to the tester operations. The focus should be on the tester design and analysis, the specific electrical tests to be performed, the specific nuclear explosive configurations during the tests, and any associated safety basis information.
  - a. The input shall include:
    - A description of the similarities and differences between the proposed tester/operation and the tester/operation being replaced.
    - Tester Nuclear Safety Specification
    - Analysis of the tester design with respect to established nuclear explosive tester design criteria.
    - Analysis of the tester output in single-fault conditions.
    - Vulnerability of the configuration under test to the worst-case, single-fault tester output.

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- Vulnerability of the configuration under test to the occurrence of any abnormal environments for which electrical tester requirements have been established.
- SNL's independent safety assessment.

b. Preparation and Distribution

- The NESTE input document shall be prepared by the organization(s) having responsibility for the information (i.e., design agency or Pantex Plant M&O contractor).
  - Information prepared by a design agency shall be provided to the Pantex Plant M&O contractor.
  - The input document will be consolidated and published by the Pantex Plant M&O contractor.
  - The input document will be provided to the NESSG members at least two weeks before the start of the NESTE.
3. Briefings by the responsible design agencies and the Pantex Plant M&O contractor on the information in the input document, with emphasis on the proposed replacement tester, its use, and the configuration under test. The briefings should also cover basic nuclear explosive information (type of explosive, safety features, etc.), process flows, and any other background information needed to put the proposed replacement tester in context.
  4. Realistic demonstration of the electrical test configuration with the proposed replacement tester and trained technicians, using the proposed written operating procedure.
  5. Deliberations by the NESSG to assure that the proposed replacement tester is not a threat to nuclear explosive safety and to determine if use of the proposed replacement tester meets the three DOE NES Standards and other NES criteria specified by DOE 452-series directives.
  6. Preparation of an NESSG report following the general guidelines in DOE-STD-3015-97 for preparation of other NESSG reports.
  7. Coordination of the report with the cognizant AL line management Division Director; the WSD director; and the Assistant Manager, ONDP; followed by submission of the NESSG report to the Manager, AL for approval.

D. All Other Changes

Proposed changes that do not qualify for one of the lower levels of approval will be evaluated in an appropriately scoped NES Study and submitted to DP-20 for approval. NES Studies will be performed in accordance with DOE-STD-3015-97 and AL SD 452.2A. The NESSG report and associated approval correspondence provide the necessary auditable record of the NES review and approval.

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When a NES Study is used for evaluation of proposed changes, the study process and requirements are essentially the same as for a full program NES Study. The only difference is that a NES Study for change evaluation will be limited in scope to the specific processes affected by the change proposal. Therefore, input documents and analyses should be similarly limited in scope and tailored to the subject.

While most NES Studies expire five years after approval, an earlier expiration may be appropriate for a NES Study of a process change. If the scope of the NES Study is such that the activity being evaluated cannot be performed without other operations covered by the associated program NES Study, it will expire with the NES Study on which it is based. In these cases, the input document may reference applicable portions of the existing NES Study input to the extent that the existing input is relevant and remains accurate with respect to the change proposal. If the scope of the study is such that establishing a new 5-year expiration is meaningful and desired, the input for the study should be complete enough so that the study can stand on its own without reference to the previous program study input.

E. Supporting Data

Regardless of which NES review and approval path is used, it is the responsibility of line management and the proposing agency(ies) to develop and present information to support the independent NES evaluations.

For all changes that do not rise to the level of a NES Study, the supporting data should include sufficient information to show that (1) the proposed modified process is within the scope of the applicable NES Study(ies), and (2) the proposed change is not a threat to nuclear explosive safety. The approach chosen to support those two necessary conclusions may be tailored to the nature of the change and availability of applicable safety analyses. For example, a comparative analysis may be used to show that the existing approved process bounds the proposed operations, from a NES perspective. Or, a complete (stand-alone) analysis may be used to show that implementation of the proposed change is not a threat to NES. In the second approach, some comparison with the unmodified process will still be necessary to show that the modified process remains "in-scope."

Additionally, briefings and/or demonstrations may be needed to support any NES evaluation. This should be determined through planning discussions between the proposing organization(s) and the applicable NES reviewer(s).

II. **Choosing a NES Approval Level for Proposed Changes**

A. M&O Contractor Screen

1. The Pantex Plant M&O contractor may approve proposed changes of a trivial or strictly administrative nature, with no likelihood of significance to nuclear explosive safety. NESSG-certified personnel from the M&O contractor will determine whether a proposal qualifies as "trivial." If the answer to both the following questions is clearly "No," then the change is

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categorized as a trivial change. If either of these questions is answered "Yes" or "Maybe," then the change will most likely not qualify as a trivial change.

- a. Does the change have any NES implications?
- b. Is the change outside the scope of an existing study? If the answer to any of the following questions is "Yes" then the proposed change is outside the scope of the existing study:
  - 1) Does the proposed change increase the likelihood of failure of a control relied upon to meet any of the three DOE NES Standards?
  - 2) Does the proposed change create the possibility of an accident or failure of a different type than any evaluated previously and which could lead to violation of any of the three DOE NES Standards?
  - 3) Does the proposed change reduce the margin of assurance that any of the three DOE NES Standards is met?
  - 4) Does the proposed change require a process modification that is significantly different from the previously studied and approved process and that may affect NES?
2. Answering the questions above is a judgment determination based on the experience of the NES personnel involved, and their efforts to gain understanding of the proposed change. Applicable and existing safety basis information should be used where helpful in making a determination, but no significant analysis should be needed for truly "trivial" changes. If the questions cannot be confidently answered, the NES reviewer should request additional input and/or elevate the NES evaluation to the DOE.
3. The Pantex Plant M&O contractor will keep an auditable record of the NES review and approval until the applicable NES Study is either superseded or no longer needed. Decisions made by the M&O contractor are subject to later DOE review during NEWS Program appraisals and other DOE (AL and AAO) oversight activities.

## B. Joint NES Review Screen

For proposed changes judged by the Pantex Plant M&O contractor NES personnel to be non-trivial, a second screen is performed by a joint NES review team composed of NESSG-certified personnel from WSD/NESP, AAO, and the M&O contractor. NESSG personnel from other organizations (e.g., national laboratories) may participate, as deemed appropriate by the Chairman.

1. The proposing agency shall assemble appropriate information, documentation, and analysis to support the proposal. The joint NES review team will make one of the following determinations:
  - a. The proposed change is trivial and should be referred back to the M&O contractor for approval.

U.S. Department of Energy Albuquerque Operations Office

AL Appendix 56XB

# Development and Production Manual

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- b. The proposed change is minor and should be submitted to the Director, AL/WSD for NES approval.
- c. The proposed change does not qualify for a lower approval level and should be evaluated using a NES Study for approval by DP-20.

Note: The joint NES review team determines an appropriate approval level; it does not approve changes.

- 2. If the answer to all of the following questions is clearly "No," then the change is categorized as a minor change.
  - a. Is the change trivial? (Note: The joint NES review team may accept a slightly higher threshold than the contractor was required to use in categorizing a change as trivial. That is, the proposal may have some small NES implications and still be considered trivial by the joint NES review team.)
  - b. Is the change outside the scope of an existing study? (See A.1.b above)
  - c. Does the change have any significant adverse NES implications?

Answering the questions above is a judgment determination based on the experience of the NES personnel involved and their efforts to gain understanding of the proposed change. Applicable existing safety basis information should be used where helpful in making a determination. For truly "minor" changes, it should be relatively easy to answer the questions from available information and appropriate inquiry by the NES personnel. If the questions cannot be confidently answered, the joint NES review team should request additional input and/or elevate the NES evaluation to the NESSG.

Questions A.1.b.(1) and (3) ask about increased "likelihood of failure..." and reduced "margin of assurance...." These are intended to be qualitative and do not require strict quantitative or probabilistic interpretation. For example, a small decrease in a large safety margin would not necessarily disqualify a proposal as "minor." The NES review team should consider the impact of the proposed change as a whole.

The NES review team should also consider the relative uniqueness of the proposal. For example, the adoption or adaptation of proven concepts from other nuclear explosive programs may qualify as "minor" from a NES perspective, even though the proposal is a significant departure for the specific application being evaluated. Such a proposal may not need extensive analysis to demonstrate that it would be a safety enhancement because of experience gained in other applications and NES Studies. On the other hand, a proposal to use a new, unproven concept that requires significant or complex safety analysis should be elevated to a NES Study.

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3. Unanimous agreement of the NES review team is required to seek NES approval as a "minor" change or to refer it back to the contractor as "Trivial". In the course of the review, the NES review team may advise the proposing agency on any additional information required above and beyond the initial contractor package submittal. The AL member will inform the approval official of the results of the joint review. If unanimous agreement is achieved, the Director, AL/WSD, may approve of the change (from the NES perspective) as "Minor." AL/WSD/NESP will keep an auditable record of the NES review and approval until the applicable NES Study is either superseded or no longer needed.
4. Although the joint NES review screen may appear from its screening questions to be quite similar to the M&O contractor screen, there are three important differences. First, the joint NES review team may accept a slightly higher threshold than the contractor was required to use in categorizing a change as trivial. That is, the proposal may have some small NES implications and still be considered trivial by the joint NES review team. Second, the M&O contractor screen will elevate (to DOE) proposals that have any NES implications, no matter how small. The joint NES review team will then determine whether those NES implications are adverse or otherwise significant. Third, the joint NES review screen is a collaborative effort by NES personnel from multiple organizations, while the M&O contractor screen is limited to the single organization. This collaborative effort enables the team to deal effectively with more complex issues.
5. A proposed change that is not categorized as "trivial" or "minor" must be evaluated by an NESSG. Most types of changes that reach this level will be evaluated in a NES Study for approval by DP-20. The exception is a proposed electrical tester replacement, which may qualify for evaluation in a NESTE, and approval by the Manager, AL. (See paragraph C below.) In either case, the NESSG report and associated approval correspondence provide the necessary auditable record of the NES review and approval.

C. Electrical Tester Changes

The criteria for selecting an approval level for proposed electrical testers are simple and unambiguous. It is not necessary to apply the NES screens described above to determine the appropriate approval level for a new electrical tester. If the answer to both the following questions is "Yes," a proposed tester may be evaluated by a NESTE and approved by the Manager, AL. Otherwise, the proposal is evaluated in a NES Study for approval by DP-20.

1. Will the proposed tester replace one that is authorized through an approved NES Study?
2. Will the proposed replacement tester perform the same tests on the same nuclear explosive circuits as the approved tester it replaces (or a subset of the previously approved tests)?

Documentation of the decision will be in the NESSG report.

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**D. Checks and Balances**

The NES change evaluation process is designed with checks and balances to prevent misuse and abuse. The most complex changes, or changes that require complex analyses, are reviewed in a NES Study by the full NESSG and submitted to DP-20 for approval. This provides the same degree of rigor and management review as for a new nuclear explosive operation.

The initial judgment that a proposed replacement tester qualifies for approval by the Operations Office Manager is subject to three reviews. First, by the NESSG during the NESTE. Second, by the Operations Office Manager during his review and approval. Third, if approved, the NESSG report and Manager's approval correspondence are provided to DOE HQ for information. HQ can thus be assured that the Operations Office Manager has not exceeded his authority.

At the next lower approval level (Director, WSD), unanimous agreement of a team of experienced NESSG-certified personnel from at least three specified organizations is needed. Because changes approved at this level have no significant adverse NES implications, the additional collaborative efforts of a full NESSG are not needed. But the requirement for unanimous agreement among the NESSG-certified personnel involved helps ensure that an approval recommendation is well supported and non-controversial. Appropriate supporting technical data is included with the request for approval and all documentation is kept for later audit.

At the lowest approval level, the M&O contractor is severely limited in his ability to approve changes to nuclear explosive operations without prior DOE review. His approval authority is limited to changes of a trivial or strictly administrative nature, with no likelihood of significance to nuclear explosive safety. Decisions made by the M&O contractor are subject to later DOE review during NEWS Program appraisals and other DOE oversight activities.

- E. The following page summarizes the NES approval level selection criteria. See the text above for detailed requirements and guidance.

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## *Nuclear Explosive Safety Change Evaluation Process Approval Level Decision Matrix*

### *M&O Contractor Screening Questions*

1. Is the change outside the scope of an existing study? \*
2. Does change have any NES implications?

Answers	Approval
Both clearly "No"	M&O Contractor
Either answer "Yes" or "Maybe"	Present to joint NES review to answer questions below.

### *Joint NES Review Screening Questions*

1. Is the change trivial?
2. Is the change outside the scope of an existing study? \*
3. Does the change have any significant adverse NES implications?

Trivial?	Outside Scope?	Significant Adverse NES Implication?	Approval Level
Yes	No	No	M&O Contractor
No	No	No	AL/WSD
No	Either answer = Yes or Maybe		DP-20 (NESS)

\* Proposed change is "outside the scope" if the answer is "Yes" to any of the following questions:

1. Does the proposed change increase the likelihood of failure of a control relied upon to meet any of the three DOE NES Standards?
2. Does the proposed change create the possibility of an accident or failure of a different type than any evaluated previously and which could lead to violation of any of the three DOE NES Standards?
3. Does the proposed change reduce the margin of assurance that any of the three DOE NES Standards is met?
4. Does the proposed change require a process modification that is significantly different from the previously studied and approved process and that may affect NES?



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AL Appendix 56XB

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*NES Tester Evaluation Criteria*

If the answer to both the following questions is "Yes," a proposed replacement tester may be evaluated by a NESTE and approved by the Manager, AL. Otherwise, the proposal is evaluated in a NES Study for approval by DP-20.

1. Will the proposed tester replace one that is authorized through an approved NES Study?
2. Will the proposed replacement tester perform the same tests on the same nuclear explosive circuits as the approved tester it replaces (or a subset of the previously approved tests)?

**SEPARATION**

**PAGE**

# Nuclear Explosive Safety Study Group (NESSG) Workshop

Panel Discussion

*June 24, 1999*

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# Agenda

9:00	Welcome	DASMASM
	Opening remarks	DNFSB, Other panel members
9:15	Intro DNFSB 98-2 Sub-Rec #5	Stan Puchalla
	DOE Implementation Plan actions	
	Current NES Study program	Stan Puchalla
9:45	AL perspective	Rick Glass
10:15	NV perspective	Travis Hunsaker
10:30	Break	
10:45	NES Study Group options	Stan Puchalla
	using DOE structures,	
	ACRS-like structures	
11:15	Panel discussion	Panel members
12:00	Adjourn	

# **NESSG Workshop Objectives**

Understand the NESSG process and the issues identified in DNFSB 98-2.

Examine possible alternatives to the NESSG as suggested in sub-recommendation #5.

# **DNFSB 98-2 Sub-Rec 5**

“Therefore, the Board recommends that:

...DOE establish a standing committee of NESS reviewers to replace the ad hoc groups now used; the membership of this body being centered on individuals of emeritus status with experience and proven stature in the nuclear weapons field. This body would be expected to conduct the safety reviews of the future.”

# **Nuclear Safety and Nuclear Explosive Safety External Reviews (1986-1993)**

- 1985 Blue Ribbon Panel on Nuclear Weapons Management (Judge Clark's Panel) - Questioned DOE nuclear safety program effectiveness.
- 1987 Advisory Committee on Nuclear Facility Safety (Ahearne Report) - Nuclear safety management and nuclear safety evaluations. Emphasized risk assessment and management techniques to enhance safety criteria, analysis and evaluation methods.
- 1988 Nuclear Weapons Safety Management Process Review (The Moe Committee)-recommended increased line management responsibility, accountability and emphasized DOE's role in DOD-DOE NWC safety and plutonium scatter matters.
- 1989 Drell Report - Enhance safety of deployed/fielded weapons systems. Addressed Plutonium Dispersal concerns in DOD and DOE. Recommended quantitative risk assessments for weapons activities and operations.
- 1993 DNFSB Recommendations 93-1 Standards Utilization in Nuclear Explosive Operations.
- 1993 DNFSB request for independent review of the NESS process.

# **DOE-DNFSB Actions Concerning Nuclear Explosive Safety Since 1993**

- **DNFSB Recommendation 93-1 Standards Utilization**
  - Increased formalization of the NES Program
  - Incorporated conventional nuclear safety guidance into safety program for nuclear explosive operations
- **NES Independent Review (1993-94)**
  - Commissioned by DNFSB to be independent of Defense Programs (DP)
  - Confirmed current 9 member NESSG program and process
  - Resulted in the NESS Corrective Action Plan requiring a formalized NES training program
- **Policy Changes (1995-1999)**
  - DP revised previous NES directives, developed NES standards and processes which were implemented program-wide



# Current NESSG Membership

## Nine Organizations Represented

AL	LANL	DP-21
NV	LLNL	MHC
OAK	SNL	AAO

All member organizations are specifically assigned the NESS function and are independent of line management responsibilities.

## Training and Qualifications

All NESSG members must meet the requirements of DOE-STD-3015-97, NES Study Process

# NESSG Activities

Independent review of the line management safety case.

The following technical areas are evaluated to assess the adequacy of positive measures (controls) to satisfy the three DOE nuclear explosive safety standards:

- Isolation from unwanted energy sources
- One-point detonation safety
- High-Explosive safety
- Design safety features
- Nuclear Explosive Safety Theme
- Electrical Tester design and safety
- Unique NES threats
- Material, tooling, mechanical and electrical equipment design, safety and use
- Adequacy of written procedures
- Human error threats
- Threats from security operations
- Transportation procedures and equipment
- Potential threats from associated equipment

# SUMMARY OF DNFSB 98-2

## *Sub-Rec #5 (NESSG Membership)*

- **NESSG Issues**

- Erosion of numbers & experience of NESSG pool
- Conflict of interest (Independence)
- Lack of institutional memory
- Lack of conformity & uniformity of standards & procedures

- **DNFSB Proposal**

- Standing committee
- Emeritus status
- ACRS Model

- **Implementation Plan**

- 5.5.1: Senior level workshop to review NESSG membership options; issue report; revise STD-3015-97
- 5.5.2: Revise current T&Q standards process; certification process; revise STD-3015-97

# ACRS-NESSG Comparison

## **NRC ACRS Membership**

1. Eleven Members, Chairman is selected by ACRS peers.
2. Members drawn from external sources independent of the NRC.
3. Members are appointed for four year terms and normally serve no more than three terms.
4. Members are qualified by professional expertise in selected technical areas.

## **DOE NESSG Membership**

1. Nine Members, Chairman is selected by DOE/AL management.
2. Members drawn from the independent non-line, nuclear explosive safety organizations: DP-21, DOE/AL, DOE/NV, DOE/OAK, MHC, LANL, LLNL, and SNL.
3. Full-time permanent function.
  - Once certified, members have no time restriction on service
  - Members must be annually certified
4. Members qualified by nuclear explosive experience and specific NES training and certification requirements of DOE- STD-3015.

# ACRS-NESSG Comparison

## **ACRS Charter**

Reviews and advises the NRC on licensing and operation of commercial nuclear facilities and related safety issues.

On its own initiative, may conduct reviews of specific safety-related items.

Upon DOE request, reviews and advises on hazards of DOE nuclear facilities (10CFR 1.13)

Advises DNFSB (PL 100-456)

## **ACRS Work Process**

Expert-based review process.

Conducts (open) public meetings under the Federal Advisory Committee Act

Portions of meetings closed during review of Proprietary & National Security Information such as: Naval Reactors

Disseminates work product to the public.

## **NESSG Charter**

Evaluates the NES aspects of proposed and existing DOE nuclear explosive operations and recommends to DP-20 final approval/ disapproval.

## **NESSG Work Process**

Review process defined by DOE Order 452 Series.

Conducts classified meetings not open to the public due to National Security considerations.

Work product is restricted to DOE use.

# **Erosion of Numbers/Experience\***

“...The board is aware that the absence of design and testing of new nuclear weapons and the associated reduction in size of research and development staffs in the field are substantially reducing the numbers and experience of individuals available for membership in NESS groups.”

\* DNFSB 98-2, Sub Rec 5, Page 5

# Independence/Conflict of Interest\*

“...The membership of the groups is now drawn from a relatively small pool of qualified persons. Many of these individuals are subject to conflict of interest since they are involved in actions and decisions that the groups they join are called to review.”

# Institutional Memory\*

“...Moreover, few members of NESS groups have an institutional memory covering the safety process conducted in the past on the weapon system they are now reviewing.”

“...On the other hand, individuals with institutional memory and with extensive history in the nuclear weapons field are still available, for instance, as retirees from the nuclear weapons program. The thought naturally arises that safety reviews might take advantage of the existence of this pool of expertise in a manner that also provides future continuity to the process.”



# **Continuity/Uniformity of Procedures\***

“...Such a group would contain institutional memory important to safety, would avoid conflicts of interest that presently exist, and would provide continuity and uniformity of standards and procedures.”

“...A standing NESS group of this kind might resemble in many features, the Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards (ACRS), which has provided guidance and continuity to safety of the commercial nuclear industry for half a century...”

# Framing the Issues

## Erosion of Number & Experience

- DOE acknowledges the diminishing opportunity for the types of experience that produce NESSG candidates
- Current status:
  - The NESSG uses national laboratory subject matter experts and other outside experts to augment and provide advice on specific technical issues
  - NESSG training and certification programs are improving
  - Mentoring and archiving programs
- Potential additional steps:
  - Expand Technical Advisor Corps (TAC) base to include more disciplines and training
  - Increase internal recruiting (incentives for NESSG service)

# Framing the Issues

## Independence/Conflict of Interest

- DOE recognizes the challenge to have NESSG remain objective and retain independence of actions
- Current status:
  - All NESSG members are assigned to independent non-line organizations
  - What level of organizational independence is acceptable?
- Potential Additional Steps:
  - Further split the organizational tie within DOE
  - External options (ACRS, etc.)

# Framing the Issues

## Institutional Memory

- DOE acknowledges few NESSG members have institutional memory covering nuclear explosive operations from earlier decades
  - Is this a major problem, as past processes were different?
  - Is current NES state-of-the-art emphasis more important?
- Current status:
  - TAC provide current and historical knowledge augmentation
  - Archival efforts provide a process for accessing historical data
  - Today's Pantex operations and processes are different from those of the past.
- Potential Additional Steps:
  - Augment the NESSG with individuals possessing institutional memory/emeritus status
  - Further enhance existing training and qualification programs by increasing awareness of historical data and lessons learned

# Framing the Issues

## Continuity/Uniformity of Procedures

- DOE acknowledges that many changes have occurred to the Pantex safety management process over the last several years
- Current status:
  - The NESSG has provided a consistent safety back stop
  - The rigor and formality of the NESS Process have improved (DOE-STD-3015)
  - Acceptability of input documentation is being tightened
  - Increased line management role in designing NES into nuclear explosive operations

# NESSG Options

- **DOE NESSG Options \***

- NESSG-1: 5 member (AL, DP-21, LANL, LLNL, SNL)
- NESSG-2: 7 member (NESSG-1 + AAO + MHC)
- NESSG-3: 9 member (NESSG-2 + NV + OAK)

- **Standing Committee (ACRS model)**

- NESSC-1: Replaces NESSG
- NESSC-2: NESSG+Emeritus Group \*
- NESSC-3: Pilot of NESSC-1

\* All options include a Technical Advisor Corps (TAC)

# Framing the Options

	<i>NESSG-1</i> <i>LANL, LLNL, SNL; AL, DP-20</i> <i>(Minimum capability)</i>	<i>NESSG-2</i> <i>LANL, LLNL, SNL; AL,</i> <i>DP-20; MHC, AAO</i> <i>(Enhance capabilities)</i>	<i>NESSG-3: LANL, LLNL, SNL; AL,</i> <i>DP-20, AAO, MHC, NV, OAK</i> <i>(Current Structure)</i>
<i>Erosion of numbers/ experience</i>	Emphasizes design experience.  Limited production and/or plant perspectives	Increases manufacturing, production understanding and emphasis.  Enhanced on-site knowledge	Supports the retention of expertise for NES and NTS related activities.  Diversity enhanced  Highest level of weapons experience
<i>Conflict of Interest/ Independence</i>	Independent of both production and line management organizations	AAO and MHC members are functionally independent of the work, but organizationally, could be considered as lacking sufficient independence from site management.	NV & OAK provide functional and organizational independence.
<i>Institutional Memory</i>	Potential access to original design team and design data not available elsewhere  Limited production expertise	Add AAO and MHC practical (hands-on) experience perspective.  Increased access to on-site information for desired depth or background .	Adds supplemental R&D/Testing perspectives and knowledge base.
<i>Continuity/Uniformity of Procedures Standards</i>	<p>- Well established and documented process</p> <p>- Qualitative/expert based evaluation with some standard-based input</p>		

	<p style="text-align: center;"><b>Framing the Options</b></p> <p style="text-align: center;"><i>NESSC #1 (Totally replace the NESSG)</i></p>
<p><b><i>Erosion of Numbers/ Experience</i></b></p>	<p>Population base for recruitment needs to be evaluated</p> <p>Currency and relevance of work experience needs to be assessed</p> <p>Expert-level nuclear explosive safety personnel may require introduction to NES-unique issues and attributes</p>
<p><b><i>Conflict of Interest/ Independence</i></b></p>	<p>Solved by definition</p> <p>Prior experience for direct/indirect review or oversight needs to be evaluated</p> <p>May be subjected to fiscal or legal limitations concerning independent boards and committees</p>
<p><b><i>Institutional Memory</i></b></p>	<p>Unique proficiency/training or orientation may be required to achieve desired NES expertise/ knowledge</p> <p>May have to depend on external/additional technical support staff to act as institutional memory</p>
<p><b><i>Continuity/ Uniformity of Procedures Standards</i></b></p>	<p>Standards based evaluations require extensive testing and database, not currently available</p> <p>Administrative support required to standardize NES information for evaluations/final reports</p> <p>Timeliness and responsiveness may require additional dedicated administrative and support staff</p>



	<p style="text-align: center;"><b>Framing the Options</b>  <i>NESSC-#2</i>  <i>(Current NESSG with Emeritus augmentation)</i></p>
<p><i>Erosion of Numbers/ Experience: (Fewer NESSG members with weapon design experience)</i></p>	<p>Depth and breadth may be strengthened over current process</p> <p>Allows real time mentoring of NES personnel by emeritus members</p>
<p><i>Conflict of Interest/ Independence</i></p>	<p>Management must plan assignments to avoid potential future conflicts of interest</p> <p>Builds strengths of existing NESSG organizational capabilities and expertise</p>
<p><i>Institutional Memory</i></p>	<p>Institutional memory enhanced by using emeritus augmentation</p> <p>Promotes real time mentoring, interaction and exchange between NESSG and emeritus personnel on safety expertise, ideas and concepts</p>
<p><i>Continuity/ Uniformity of Procedures Standards (Consistency from NESS-to-NESS)</i></p>	<p>Similar to current NESSG technical advisor usage</p> <p>Consistency improved by feedback on qualitative expert-based process</p> <p>NESSC supported by existing HQ and field NES personnel</p>

	<b>Modified NESSG Options</b>			<b>NESSC Options (Standing Committee)</b>	
	<i>NESSG-1 (5)</i>	<i>NESSG-2 (7)</i>	<i>NESSG-3 (9)</i>	<i>NESSC-1 (NEW)</i>	<i>NESSC-2 (NESSG +TAC)</i>
<i>Erosion of Numbers/ Experience</i>					
<i>Conflict of Interest</i>					
<i>Institutional Memory</i>					
<i>Continuity/ Uniformity of Procedures/ Standards</i>					

Backup slides follow

# NESSG Participation

## *(1997- 1998)*

- Federal
  - HQ 2
  - OAK 3
  - AAO 2
  - AL 4
  - NV 3
- National Laboratories
  - SNL 5
  - LLNL 3
  - LANL 3
- Support Contractors
  - MHC 3
  - Others 5
- Technical Advisors: HE, Risk Assessment, Tooling, Chemical, Electrical, etc
  - W69 (5)
  - W79 (6)
  - Electrical MS (2)
  - Security MS (2)

## NESSG MEMBERSHIP (1996-1998)

NESS	Completion Date	LANL	LLNL	SNL	Pantex	OAK	AAO	NV	AL	HQ
W76 NESS Revalidation	2 / 1/96	Simonsic	Devlin	Lewis	Keith	Plencner	Kellogg	Owens	Rider	Stepan
SGT Over-The Road Add	2/16/96	Simonsic	Devlin	Cates	Galloway	Duarte	Kellogg	Lurette	Thompson	Stepan Morrison
B61-3/4/10 Revalidation	3/19/96	Sinonsic	Devlin	Mauldin	Keith	Kontaxis	Thompson	Lurette	Pecsok	Weidman
W70 "Cracker"	9/ 5/96	Sinonsic	Devlin	Cates	Keith	Kontaxis	Kellogg	Owens	Rider	Weidnam
NV DAF AS&T MS	9/10/96	Kelly	Devlin	Konnick	Keith	Lovell	Kellogg	Owens	Nichols	Weidman
B83 Revalidation	9/20/96	Simonsic	Devlin	Lewis	Keith	Duarte	Thompson	Owens	Pecsok	Stepan
W87 Revalidation	1/16/97	Morris	Winstanley	Cates	Rinella	Duarte	Thompson	Luctte	Pecsok	Morrison
W80 Revalidation	2/20/97	Morris	Devlin	Lewis	Rinella	n/a	Thompson	Hunsaker	Pecsok	Weidman
W69 NESS	6/ 5/97	Simonsic	Mc Gee	Mauldin	Keith	Lovell	Kellogg	Owens	Rider	Morrison
Pantex Security NES MS	9/26/97	Stepan	Winstanley	Mauldin	Keith	Wilhelm	Thompson	Hanson	Rider	Morrison
PT4172/4030 NES Eval	12/18/97	Simonsic	Devlin	Mauldin	Keith	Plencner	Kellogg	Behne	Pecsok	Weidman
W79 NESS	4/ 9/98	Simonsic	Devlin	Mauldin	Keith	Behne	Thompson	Owens	Rider	Morrison
B61-11 NES Evaluation	4/24/98	Stepan	Winstanley	Lewis	Rinella	Wilhelm	Kellogg	Hanson	Pecsok	Weidman
Electrical Equip Control NES MS	9/11/98	Stepan	Winstanley	Cates	Keith	Wilhelm	Kellogg	Owens	Rider	Hagan
W62 NESS Revalidation	TBD	Morris	Winstanley	Wolcott	Keith	Wilhelm	Kellogg	Behne	Pecsok	Westfall

# Nuclear Explosive Safety

- Prevent adverse national security consequences (ND, HED/D, Pu dispersal).
- Provide high level assurance of the safety of nuclear explosives operations.
- Develop, implement, and maintain integrated system of positive measures to maintain safety and control of the stockpile during all life cycle phases.

# Nuclear Explosive Safety Standards

All DOE nuclear explosive operations shall meet the following qualitative safety standards to prevent unintended nuclear detonation, fissile material dispersal from the pit, or loss of control. There shall be positive measures to:

- (1) minimize the possibility of accidents, inadvertent acts, or authorized activities that could lead to fire, high explosive deflagration, or unintended high explosive detonation;
- (2) minimize the possibility of fire, high explosive deflagration, or high explosive detonation, given accidents or inadvertent acts;
- (3) minimize the possibility of deliberate unauthorized acts that could lead to high explosive deflagration or high explosive detonation.

# Evaluation Techniques

**DNFSB RECOMMENDATION 93-1** Increased formalization of the NES Program

**DNFSB RECOMMENDATION 98-2** Revert Rec 93-1 back to expert-based system

## *Formality-based*

- Knowledgeable personnel employ standard objective criteria, processes and procedures
- Formalized evaluation criteria with documented procedures and conclusions
- Objective evaluations and criteria achieve consistency and repeatability over time
- Minimize subjectivity
- Tends to extensive documentation and time requirements
- Breadth of knowledge
- Promote effective and efficient training

## *Expert-based*

- Experts employ personal knowledge (focused experience, education)
- Expert subjective evaluations based on individual/personal evaluation criteria
- Lack of consistency and repeatability over time
- Highly subjective
- Highly efficient (fast) with little documentation
- Depth of knowledge
- Transfer of knowledge and experience (Mentoring/On-the-job Training)



# Scheduled Reviews (1999)

- PT4171 Study
- PT4183 Study
- Lightning Master Study
- Onsite Transportation Master Study
- W62 Revalidation
- W88 Revalidation
- Fire Protection Master Study
- W76 Study
- Bays Master Study
- Tooling Master Study

# Expiring NES Studies

- 1999 (or earlier)
  - B53
  - W62
  - W76
  - W78
  - W88
- 2000
  - Over-the-Road Master Study
- 2001
  - Processing Facilities Master Study
  - Handling and Transportation Master Study
  - Operations and Staging Facilities Master Study
  - B61-3,4,10
- 2002
  - B61-7,11
  - W80
  - B83

# ACRS Activities - 1999

Full committee 10-11 meetings per year

## Subcommittee meetings to date

Reliability & PRA	Jan 25
Plant Operations /Reliability	Jan 26
Planning & Procedures	Jan 27-29, Feb 2, Mar 10, Apr 6, May 5,
Plant Operations/Fire Protection	Jan 20-21, Jun 22-23
Thermal-Hydraulics Phenomena	Feb 23, Mar 23
Materials & Metallurgy	Mar 24-25
Reliability + Regulatory Policies	Apr 7 & 21, May 5
Human Factors	May 27
Plant License Renewal	Apr 28-29
Severe Accident Management	Apr 30
Safety Research Program	May 4
Joint ACRS/ACNW Working Group	May 11

# Restructuring Concerns

- Mode and location of operation
  - Pantex; Albuquerque; other?
- Organizational structure
  - Full or part-time (Fed/contractor)
  - Consultant status
  - Contractual relationships
- Reporting relationships
  - MHC, AAO, AL, DP
- Administrative & logistical support
  - Centralized/Task MHC/other?

# **DNFSB Recommendation 98-2**

Accepted Nov 20, 1998

– IP forwarded April 1999

– Commitments

- Implement effective management structure
- Streamline process & tooling development and enhance safety improvements Authorization Basis Structure and approval
- Streamline review process and proper roles for reviewers
- Enhance NES Review Group structure and continuity
- Improve integration of NEO and ISM initiatives
- W62 specific recommendation

# **Effectiveness Impact**

## *Erosion of Numbers/Experience*

### **Considerations for all NESSG and NESSC options**

- Staff turnover and attrition are routine
- Requires continuing recruitment and training program
- Build on existing experience-base, where available
- Limited pool of emeritus experts with desired skills, experience, and interests
- Develop and retain a strong training & qualification program

# Effectiveness Impact

## *Conflict of Interest*

### **Considerations for all NESSG and NESSC options**

- Control/management of NESSG members
- Independence in assigning and managing members
- Reduce management emphasis for rapid evaluations, reactions and decisions affecting those in subordinate positions (performance appraisals)
- Clarify limit of independence to prevent schedule driven pressures
- Do not review the work you prepared or supervised

# Effectiveness Impact

## *Institutional Memory*

### **Considerations for all NESSG and NESSC options**

- Build on knowledge base from previous NES reviews
- Programmatic, organizational & individual stability
- Long term personnel availability for extended projects
- Management, supervision and/or mentoring personnel stability
- Technical support, records and report system stability
- Long term operational & administrative support organizations
- Avoid “ad hoc” revisions to ground rules and techniques
- Employ documented processes and techniques
- Evaluators should not have to invent or develop new processes or procedures for each program



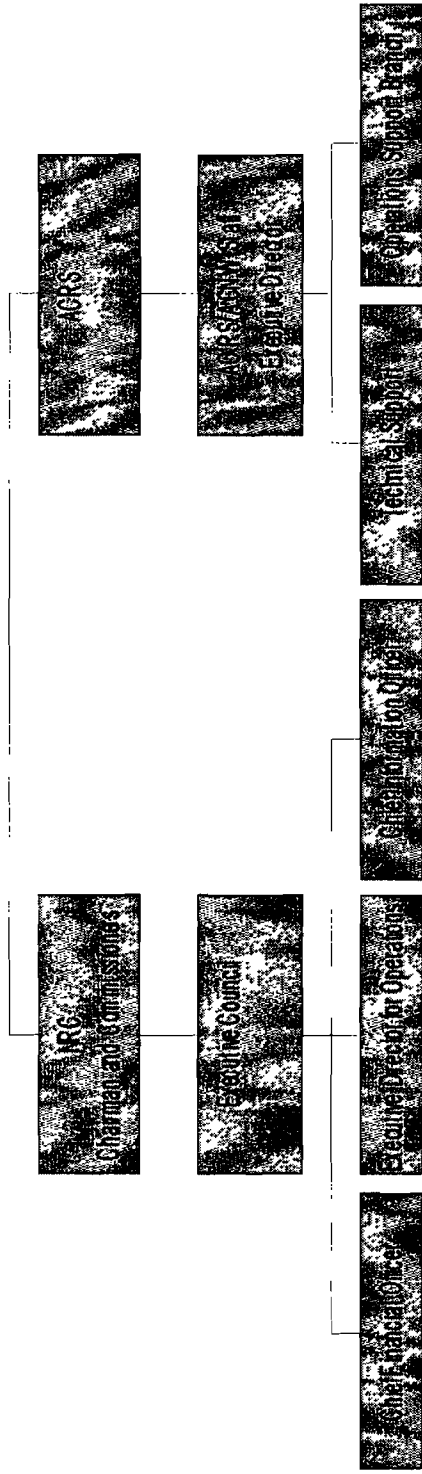
# Effectiveness Impact

## *Continuity/Uniformity*

### **Considerations for all NESSG and NESSC options**

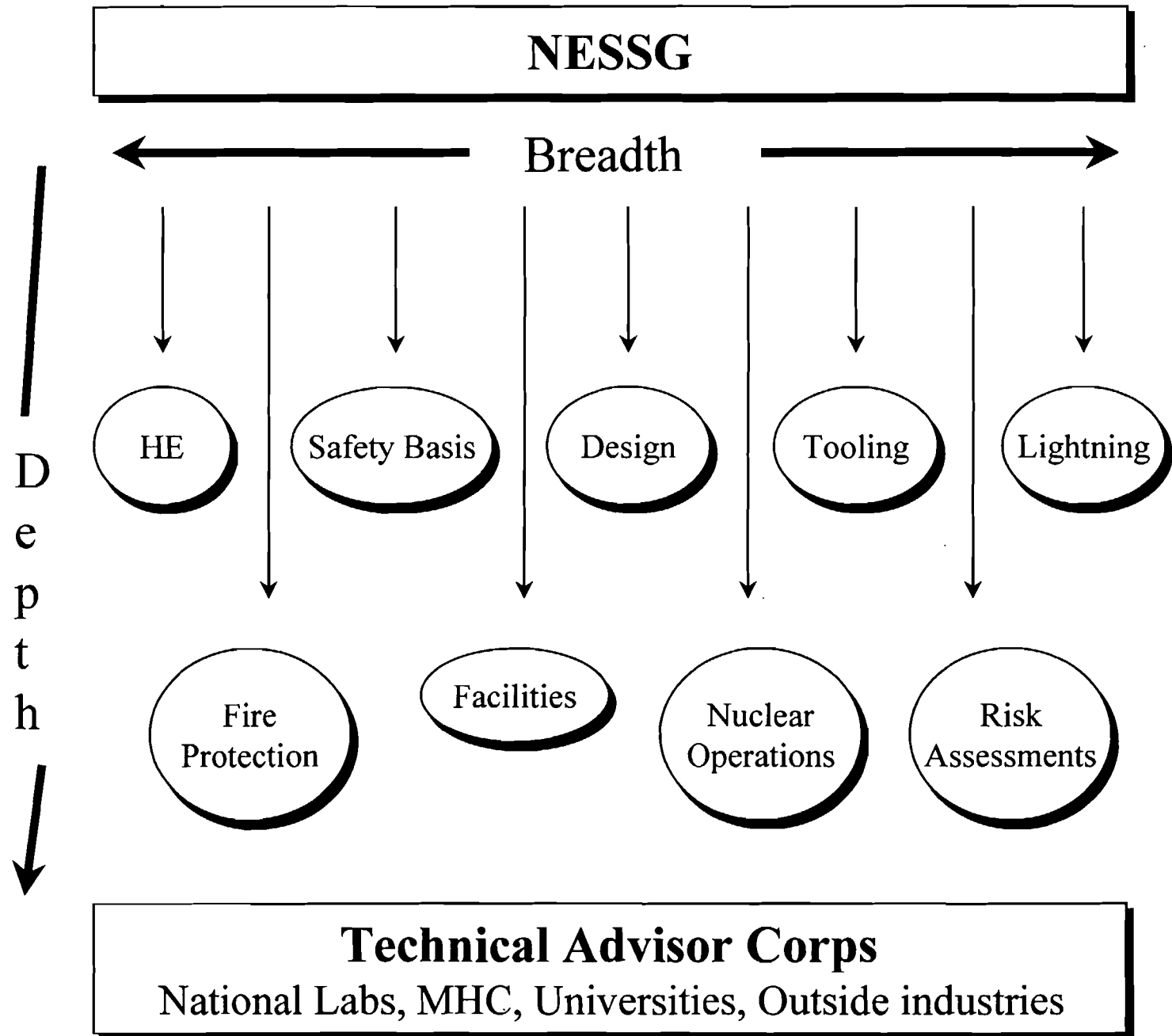
- Develop and employ standard evaluation concepts which do not depend on individual pet-topics;
- Acceptable scope and family of desired expectation should be provided or written.
- Desire to employ individual expertise to accept or reject standard evaluation methods and means; enhance the limited state of institutional memory
- Aim for reproducibility of results (results independent of members)
- Conduct performance evaluations by NES technical experts
- Continued line management role in designing NES into NEOs
- **Limit arbitrary use of frequency or probability data to avoid consideration of safety concerns “outside some preconceived limits.” (re-visit)**

# Nuclear Regulatory Commission



# NESSG WORKSHOP CONCLUSIONS

1. Issue 1 - Erosion of numbers/experience
2. Issue 2 - Independence/Conflict of interest
3. Issue 3 - Institutional memory
4. Issue 4 - Continuity of procedures
5. NES Study Group and ACRS options
6. Path forward
  - Near-term goals
  - Long-term goals



SEPARATION

PAGE



since 1827

MASON & HANGER CORPORATION

JUN 25 1999

Mr. W. S. Goodrum, Area Manager  
USDOE  
Amarillo Area Office  
Amarillo, Texas 79120

Re: Compensatory Measures Based on the SWOT Analysis

Dear Mr. Goodrum:

After review and concurrence from DOE/AAO, a final Action Plan which meets the intent of 98-2, Task #5.8.1.b "Prepare a compensatory measure project management personnel plan based on the SWOT analysis," has been attached.

MHC considers this portion of Task 5.8.1 closed and will proceed with Task 5.8.1.c, "Prepare a long-term project management personnel plan based on the SWOT analysis."

If you have any questions concerning this matter please contact Jim Angelo of my staff at extension 7401.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W.A. Weinreich'.

W.A. Weinreich  
General Manager

mm

Attachment: as stated

cc: D. D. Schmidt, DOE/AAO

GM99-00534-165

Mr. W. S. Goodrum  
Compensatory Measures Based on the SWOT Analysis

Page 2

bcc: J. W. Angelo, MPD, 12-69  
L. L. Mayes, MPO, 12-69  
R. L. Wright, MPO, 12-69  
file

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## **DNFSB 98-2 Recommendation**

### **DOE Implementation Task 5.8.3.b**

#### **STATEMENT OF CONCERN:**

The Strength, Weakness, Opportunity, and Threat (SWOT) analysis for Weapons Program Managers indicated a need to provide compensatory measures until completion of an upgraded training program.

#### **STATEMENT OF ACCEPTANCE:**

MHC agrees that compensatory measures should be provided based on the SWOT analysis for Weapons Program Managers.

#### **CAUSE ANALYSIS**

A SWOT analysis for the Weapons Program managers had not been completed. A clear definition of the required skills needed to effectively and efficiently lead projects was not well defined in the training and qualification documentation. In addition, the flow down of the required skills outlined in the Technical Qualification Standard (TQS) were not sufficiently linked to the Qualification Card and the Individual Training Plan (ITP) for each manager. Finally, Pantex-specific courses of instruction in the areas of Project Risk Management and the Pantex Management Control System did not exist.

#### **GENERIC IMPLICATIONS:**

This deficiency is inclusive of all weapon project/program managers in the Mission Programs Office. For the purpose of this action plan, the terms Program Manager, Weapons Project Manager and Weapons Project Team Leader are all equivalent.

#### **TECHNICAL RATIONALE FOR CORRECTIVE ACTION:**

The Mission Program Office is developing a new Technical Qualification Standard (TQS) that will clearly define the required skill set for the Weapon Programs Director and all Program Managers. This skill set will include general management skills and project management skills. Each required skill will be further defined to include statements which delineate a competency for that skill. The skill set defined in the TQS will flow down to a Qualification Card for each Weapon Program Manager and the Weapon Programs Director. This qualification card will be MHC Weapon Program Manager specific and include activities required to demonstrate competency in each skill. Included in these activities must be a demonstration of knowledge in the areas of Project Risk Management and the Pantex Management Control System. Compensatory measures and associated completion criteria have been established and are included in this document. These compensatory measures will address deficiencies until the Weapon Programs Director and all Weapon Program Managers have completed the required training and qualification.



## CORRECTIVE ACTIONS:

Appendix A provides a table which correlates weaknesses from the SWOT analysis with compensatory measures. Appendix B provides additional analysis based on training and experience which identified weaknesses and compensatory measures. All compensatory measures have been included below.

ID	TASK (Comp Measure)	DATE	RESPONSIBLE INDIVIDUAL
1	Weapon Program Director meet with all Program Managers to review scope of task	Ongoing	Mayes
2	Reorganize Program Management Team to optimize skill set	Complete	Mayes
3	Initiate action to bring in selected new Program Managers to inject new ideas and to expand experience base	Complete	Mayes
4	Meet with Program Managers to review existing qualification cards and existing TQS. Identify shortfalls.	Complete	Mayes
5	Meet with selected Program Managers to identify weaknesses and to establish remediation path forward.	Complete	Angelo
6	Meet with all Program Managers to review Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis	7/16/99	Angelo
7	Meet with Program Managers associated with highest project risk on weekly basis	Ongoing	Angelo
8	Meet with Program Managers to discuss status of the Project Risk Management Course of Instruction and to establish qualification objectives.	7/16/99	Angelo
9	Establish qualification due dates	8/25/99	Mayes
10	Include the following documents in Weapon Programs Department's Required Reading program: DOE D&P Chapter 11 Series TBP901 DOE Order 425.1 DOE AL Supplemental Directives 452.1A and 452.2A MHC Plant Standard 7401. MHC Plant Standard 7403	7/31/99	Mayes

ID	TASK (Comp Measure)	DATE	RESPONSIBLE INDIVIDUAL
11	Program Engineering provide training on engineer functions and process to Dept. 165	8/25/99	T. Jones
12	Schedule Brody Course as part of Program Manager qualification <i>Note: Completion of Brody Course is dependent on the availability of the course</i>	8/25/99	Mayes
13	Continue weekly Program Manager meetings to share information and experience	Ongoing	Mayes
14	Fund PMI certification for Program Managers	7/30/99	Mayes
15	Develop performance indicators for program/project performance, quality, and cost.	8/31/99	Mayes
16	Perform program/project assessment at end of fiscal year to identify any other areas for improvement.	10/31/99 and annually thereafter	Mayes

### COMPLETION CRITERIA:

1. Continuance of bi-weekly staff meetings.
2. Issuance of memo and organization chart, May 18, 1999, Subject: Reorganization of Mission Programs Office, Mission Programs Division.
3. Completion will be documented by letter to AAO when all desired personnel are in place.
4. Publication of Technical Qualification Standard, associated Qualification Card, and Individual Training Plan for the Weapon Programs Director and each Program Manager.
5. Meeting held May 19, 1999; path forward documented in letter from W. A. Weinreich to W. S. Goodrum, dated May 24, 1999, Subject: Program Management Strengths, Weaknesses, Opportunities and Threats (SWOT).
6. Issuance of letter to AAO documenting results of Program Manager review of SWOT Analysis.
7. Report status of highest risk projects in weekly meeting between Weapon Programs Director and AAO (Darrell Schmidt).
8. Issuance of letter to AAO documenting results and action plans derived from Program Manager meeting on Project Risk Management Course of Instruction.
9. Publication of qualification due dates to W. A. Weinreich and DOE/AAO.
10. Issuance of memo to J.W. Angelo upon completion of Required Reading by all departmental personnel.
11. Documentation of course completion to J. W. Angelo and DOE/AAO.

12. Document scheduling Brody course for those Program Managers who have not yet attended.
13. Continuance of bi-weekly staff meetings
14. Process Change Control Request to transfer funds to support cost of formal project management training course and Project Management Institute testing/certification.
15. Submit Performance Indicators for approval.
16. Issuance of self-assessment report in the form of an updated SWOT Analysis on an annual basis.

**REFERENCE DOCUMENTS:**

DNFSB 98-2 Recommendations  
DOE Implementation Plan for 98-2

**APPROVALS:**

Responsible Individual: Stacey L. Meier 6-25-99  
for G. E. Pool Date

Responsible Manager: McCarthy 6/25/99  
for L. Mayes Date

Responsible Division Manager: J. W. Angelo 6/25/99  
Date

DOE/AAO: N/A N/A  
W. S. Goodrum Date

## APPENDIX A

	<b>Weakness</b>	<b>Compensatory Measure</b>
1	Focus is primarily on creating and tracking the Project Plan elements rather than driving schedule and cost control. Performance is left to Production.	1, 4, 5, 6, 7, 12
2	Over-reliance on status reports at the expense of real-time verification.	8, 12
3	Shallow understanding of details of the process flow/just-in-time principles.	10, 13
4	Unable to quantify unit cost other than for direct and direct support labor, supplies, and contracts.	4, 12, 13
5	Variance is not tracked in real-time; therefore, cost is recovered, not controlled.	4, 12, 13
6	Authority is not exercised; it is yielded due to perceptions and real shortfalls in clarity of authority assignments.	1, 2, 3, 4, 5, 6, 8, 12, 13
7	Lack of assertiveness results in poor scope control.	1, 2, 3, 4, 5, 6, 8, 12, 13
8	Business risk is not assessed; as a result, risk is not managed.	7, 8, 13
9	While customer requirements are known, customer expectations are not well understood and clarification is often not sought.	1, 2, 4, 12
10	Information is not adequately shared between Program Managers. As a result, lessons from one project are not adequately considered in others.	12
11	Most Program Managers are internally supportive but externally neutral. This stovepipe mentality severely limits innovation and process breakthroughs.	2, 3, 12
12	Within the ISM framework, the elements of feedback and process improvement are frequently left to others within the Project Team to perform.	1, 5, 7, 8, 11, 12
13	Issues affecting Project Team discussions are poorly documented or are buried in Team Meeting minutes.	1, 5, 12
14	Program Managers do not have a good grasp on how to deal with the next-in-line customer.	1, 2, 4, 5, 6, 12, 13
15	Program Managers use only those metrics required by senior managers to track project progress. Unit progress and process metrics, statistical process controls, and process checklists are typical management tools which are not used.	4, 5, 8, 12, 13
16	Project Plans are not standardized.	4, 12, 13
17	Project Status Reports are not standardized.	4, 12, 13

	<b>Weakness</b>	<b>Compensatory Measure</b>
18	Program Managers are not meeting with or communicating with sufficient clarity of purpose to ensure all of the critical project resources to adequately status projects. As a result, status of procurements, craft work, tooling, tooling repair, calibration, and Receiving & Inspection are frequently not understood and readiness preparations typically fall short of expectations.	1, 2, 3, 4, 5, 6, 8, 10, 12
19	Program Managers do not have Mission and Vision Statements.	1, 2, 3, 4, 12, 13
20	Program Managers have not completed a formal qualification program.	All
21	Program Managers are not thinking on a strategic plane. Their focus is on tactical issues.	1, 3, 4, 5, 6, 12, 13
22	Program Managers have not established a reporting relationship with their Operations Managers. As a result, programmatic issues often reach the customer before they reach the Program Manager, and an element of ownership is lost.	1, 3, 5, 6, 12, 13
23	Project Team meetings have no standard agenda. As a result, some maintain minutes while others do not.	1, 5, 6, 12
24	Program Managers do not typically take into consideration the Manufacturing details such as MRP II and container flow in their planning.	1, 6, 10, 12
25	Program Managers have received no formal training in Concurrent Engineering concepts. As a result, a good deal of the planning process is conducted serially rather than in parallel.	1, 3, 4, 6, 10, 12, 13

## APPENDIX B

Program Manager SWOT Assessment Data								
	Prog Engr	Operational Weapons Experience (DoD)	Attended Brody or Equivalent	# Yrs as Weapon Prog Mgr	PT or QAT	Other Weapon Related Position in Mfg or Prog Engr	PMI Certification or Working Toward	FY99 YTD Casual Time
PM1			✓	5.5		✓		312.5
PM2	✓		✓	5.5		✓	✓	163.5
PM3			✓	6		✓	✓	52.5
PM4	✓		✓	8		✓	✓	107.5
PM5				3		✓	✓	79.5
PM6		✓	✓	2			✓	89.5
PM7				10		✓		0.0
PM8		✓	✓	4				149.0
PM9			✓	1.5			✓	100.0
PM10			✓	3.5			✓	56.0
PM11	✓	✓		4		✓	✓	N/A
PM12			✓	3.5		✓	✓	18.5

Using the above SWOT Assessment data, the following weaknesses and compensatory actions were identified:

Weakness	Compensatory Action
Not all Program Managers have Engineering experience	Program Engineering to provide training to Dept. 165
Not all Program Managers with DoD experience	None
Not all Program Managers have attended Brody Course or equivalent	Schedule all to attend Brody Course
There is wide variation in amount of Weapon Program Manager experience	Continue weekly Program Management meetings to share information and experience
No Program Managers have Production Technician or Quality Assurance Technician experience	Complete qualification program
Only 4 Program Managers are PMI certified (additional 5 working toward certification)	Fund PMI Certification efforts

### Observations

- Success in a program does not require weapon engineering experience

- PMI certification does not guarantee project success
- Years of experience as a weapon Program Manager is not directly proportional to achieving success as a Program Manager

### **Conclusion**

- Success in Weapon Program Management requires a combination of fundamental skills, lessons from experience of others, innovative and creative thinking, flexibility, and strong leadership. While no qualification card can capture all of these factors, a comprehensive training and qualification program can.



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DNF SAFETY BOARD

JUN 25 1999

Mr. W.S. Goodrum, Area Manager  
Amarillo Area Office  
U.S. Department of Energy  
Amarillo, Texas 79177

Re: Compensatory Measures for Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis for Authorization Basis Personnel

Dear Mr. Goodrum:

Attached is a copy of Compensatory Measures for Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis for Authorization Basis Personnel. This analysis was performed to fulfill Task 5.8.3.b in the 98-2 deliverables and milestones.

If you have any questions, please contact Jeff Yarbrough at extension 3281.

Very truly yours,

W.A. Weinreich  
General Manager

dlc

Attachments: As Stated

cc: S.L. Young, Risk Management, 12-127  
R.A. Leffel, Risk Management, 12-127  
D.R. Turcotte, IAA&Q, 12-6  
P.K. Howard, Risk Management, 12-127  
D.R. Walsh, Risk Management, 12-127  
File Copy

GM99-00536-985



**Risk Management Department**

## **Compensatory Measures**

**for**

**Strengths, Weaknesses, Opportunities, and Threats  
(SWOT) Analysis**

**for**

**Authorization Basis Personnel**

**Prepared By:**

**Kelly Howard  
Rick Leffel**

**June 21, 1999**

### STATEMENT OF CONCERN:

On November 20, 1998, the Department of Energy (DOE) accepted Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, which addressed the need to improve the safety management of nuclear explosive operations conducted at the Pantex Plant. Since that time, DOE has published several versions of an implementation plan entitled U. S. Department of Energy Implementation Plan for Improving Safety Management at Pantex Plant (Board Recommendation 98-2). Corrective actions were then derived from this implementation plan and assigned to various Mason & Hanger division managers. Specific actions to address Authorization Basis personnel were identified as follows:

- 1) 5.8.3.a Complete Strengths, Weaknesses, Opportunity, and Threats (SWOT) analysis for personnel preparing Authorization Basis document.
- 2) 5.8.3.b Prepare a compensatory measures action plan based on the SWOT analysis.
- 3) 5.8.3.c Prepare a long-term project plan for authorization basis personnel.

On May 28, 1999 a SWOT analysis which addresses corrective action 5.8.3.a was submitted to DOE/AAO. Corrective actions 5.8.3.b and 5.8.3.c will be addressed in this document.

### STATEMENT OF ACCEPTANCE:

“Authorization Basis (AB) personnel” was defined in the SWOT. AB personnel consist of those Risk Management Department (RMD) employees who develop Basis for Interim Operation (BIO) documentation, Hazard Analysis Reports (HARs), and Activity Based Controls Documents (ABCDs). Also included are those RMD employees who provide change control capability in the form of Unreviewed Safety Questions (USQs), BIO maintenance, and Technical Safety Requirements (TSRs) maintenance. RMD also employs support personnel that provide direct technical and clerical support on AB work; therefore, they also are considered AB personnel.

The weaknesses identified in the AB personnel SWOT are:

- W.1 AB personnel staffing levels are inadequate and can not effectively meet the increase in workloads projected for FY99 and FY00.
- W.2 RMD lacks technical writers, reviewers, and clerical staff in its pool of AB personnel. Simple documentation problems such as consistent format and grammatical errors are occurring in AB documentation, which is symptomatic of this weakness.

- W.3 RMD has a high turn-over rate of AB personnel. The net result is inexperienced AB personnel performing the work and high reliance on outside contractor personnel.
- W.4 No long-term commitment has been made to keep staffing levels at any identified level. For example:
- 1) The current FY00, at the \$233 million, all AB work is listed as "requirements over target" (ROT).
  - 2) The FY00 budget, if set at \$258 million, will necessitate 98 RMD employees, most of whom are AB staff. The current hiring plan will fall considerably short of this number.
- W.5 A budget for training and continuing professional development for technical AB employees is not present. New employees require training and current employees require professional development if they are to remain productive.
- W.6 Attaining proper funding for AB work is arduous and sometimes delayed. FY99 funds to perform AB work in RMD was received at mid-year. Also, current guidelines do not allow functional support groups, such as RMD, to charge weapons and other programs for items necessary for AB employees to do the work. Examples include training, supplies, equipment, and travel necessary to maintain the employees level of competence.
- W.7 AB personnel are rarely integrated in decisions involving due dates and scopes of projects. While project plans have recently been employed for AB projects, rarely is the plan done prior to establishing due dates. Furthermore, project scopes are allowed to change during project execution without properly altering the project plans.
- W.8 There are currently many high-profile "number one priorities" that involve AB personnel. Thus, rather than properly prioritizing and planning activities, the AB staff works in a reactive mode. Knowing that staffing is low, integrated priorities should be developed, rather than having numerous "number one priorities."
- W.9 It has not been evident that the Plant readily addresses the AB as an MHC commitment. This especially becomes apparent during review and implementation of AB documents, and when trying to meet a due date. If AB development and maintenance is to be successful and on time, it must become a Plant-wide commitment.

- W10 MHC, specifically the AB personnel, has no formal work agreement with the national laboratories for participation on AB project teams. Laboratory participation on AB project teams without this agreement will continue to cause project delays and missed due dates.
- W.11 MHC currently has no form and content guides for AB documentation. With no form and content guides, and numerous cyclical reviews from various customer organizations, AB personnel will continue to struggle with completion and approval of AB projects.
- W.12 The image of AB personnel has been tarnished due to the problems identified as weaknesses in this SWOT. Variable scopes, "tight" due dates, and inadequate staffing levels have resulted in missed due dates and poor quality documents.
- W.13 Morale of AB personnel is low. While morale shifts are common in virtually all organizations in all industries, morale in RMD is at a steady-state low. The combination of many of the weaknesses in this SWOT perpetuates this problem.
- W.14 The Mason & Hanger Corporation (MHC) merit system hampers MHC's ability to retain experienced AB personnel. Hiring new AB personnel at industry-average grade levels and salaries has resulted in new, inexperienced AB employees starting work at a higher grade and much higher salary than well-tried, experienced AB personnel. The current merit system perpetuates this disparity.

The SWOT that contained these weaknesses was signed by the MHC General Manager and formally submitted to DOE/AAO on May 28, 1999; therefore, they are accepted.

#### **CAUSE ANALYSIS:**

The causes of the identified weaknesses will be analyzed and discussed as part of the long-term corrective action plan, which is due on September 31, 1999.

#### **GENERIC IMPLICATIONS:**

There are no generic implications of this compensatory measures action plan outside of RMD.

#### **TECHNICAL RATIONALE FOR COMPENSATORY MEASURE:**

This plan was written from the AB development perspective to address weaknesses identified in the AB personnel SWOT. It specifically addresses compensatory measures which have already been instituted. Corrective actions will be addressed in the corrective action plan which is due on September 31, 1999.

**COMPENSATORY MEASURES:**

The compensatory measures are presented in the following table for areas in which short-term compensatory measure are feasible. Long-term corrective actions to address all of the weaknesses will be provided in the corrective action plan due on September 31, 1999.

Number	Compensatory Measure	Status
1	RMD has developed a hiring plan to hire 13 new employees. Twelve have been hired, with an other out to the 13th.	Complete
2	An inner-divisional transfer of seven personnel in E&DD to supplement the AB staff has occurred	Complete
3	Mid-year special merit increases were given to superior AB personnel	Complete
4	MHC has established an AB task force and initiated action plans based on the findings	Complete
5	RMD has identified the skill mix necessary to support FY00 staffing	Complete
6	An implementation plan has been written and submitted to DOE, which includes AB training for MHC personnel to instill AB ownership and knowledge throughout the Plant.	Complete for this SWOT action plan (will be tracked as part of the implementation plan for TSRs)
7	An action plan has been written to develop form and content guides for AB	Complete (will be tracked as part of the implementation plan for AB task force findings)

**REFERENCES:**

- 1) "Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis for Authorization Basis Personnel", Howard, Kelly and Leffel, Rick, Mason & Hanger Corporation, Pantex Plant, Amarillo, Texas, May 27, 1999.

Compensatory Measures for AB Personnel  
SWOT Analysis

---

June 21, 1999

**APPROVALS:**

Originator Kelly Howard / [Signature] Date: 6-21-99

Department Manager [Signature] Date: 6/21/99

Originating Division Manager [Signature] Date: 6/21/99



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Mr. W. S. Goodrum, Area Manager  
 USDOE  
 Amarillo Area Office  
 Amarillo, Texas 79120

Re: Strengthen Program Managers' Skills Through Training

Dear Mr. Goodrum:

After review and concurrence from DOE/AAO, a final Action Plan which meets the intent of 98-2, Task #5.8.2.a "Strengthen Skills of Pantex Team Leads (Program Managers) through Training," has been attached. The Weapons Program Director will not be required to demonstrate proficiency since this aspect is evaluated during the normal performance evaluation cycle. All other comments have been incorporated into the attached Action Plan.

MHC considers this portion of Task 5.8.2 closed and will proceed with Task 5.8.2.b, "Complete the required actions necessary to strengthen the experience level of Pantex Team Leads."

If you have any questions concerning this matter please contact Jim Angelo of my staff at extension 7401.

Very truly yours,

W.A. Weinreich  
 General Manager

mm

Attachment: as stated

cc: D. D. Schmidt, DOE/AAO

GM99-00535-165

Mr. W. S. Goodrum  
Strengthen Program Managers' Skills Through Training

Page 2

bcc: J. W. Angelo, MPD, 12-69  
L. L. Mayes, MPO, 12-69  
R. L. Wright, MPO, 12-69  
file

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**DNFSB 98-2 Recommendation**  
DOE Implementation Task 5.8.2.a

**STATEMENT OF CONCERN:**

The skills of the Pantex Weapon Project Team Leads (Program Managers) need to be strengthened through the application of an upgraded training program.

**STATEMENT OF ACCEPTANCE:**

MHC agrees that the management skills of the Program Managers should be strengthened through application of improved training.

**CAUSE ANALYSIS**

A clear definition of the required skills needed to effectively and efficiently lead projects was not well defined in the training and qualification documentation. In addition, the flow down of the required skills outlined in the Technical Qualification Standard (TQS) were not sufficiently linked to the Qualification Card and the Individual Training Plan (ITP) for each manager. Finally, Pantex-specific courses of instruction in the areas of Project Risk Management and the Pantex Management Control System must be developed.

**GENERIC IMPLICATIONS:**

This deficiency is inclusive of all weapon Program/Project Managers in the Mission Programs Office. For the purpose of this action plan, the terms Program Manager, Weapons Project Manager and Weapons Project Team Leader are all equivalent.

**TECHNICAL RATIONALE FOR CORRECTIVE ACTION:**

Weapons Program Managers and Director will develop a new TQS that will clearly define the required skill set for all Program Managers and the Program Director. This skill set will include general management skills and project management skills. Each required skill will be further defined to include statements which delineate a competency for that skill. The skill set defined in the TQS will flow down to a Qualification Card for each Weapons Program Manager and the Director. This qualification card will be MHC Weapons Program Manager-specific and include activities required to demonstrate competency in each skill. Included in these activities must be a demonstration of knowledge in the areas of Project Risk Management and the Pantex Management Control System. Each skill and the required competency will be reviewed by the Weapons Program Director for each Program Manager to determine a level of competency. When the Program Manager has demonstrated proficiency in the skill, the Weapons Program Director will sign-off on that skill. If the Program Manager is not proficient in a particular skill, additional training will be added to the Program Manager's ITP. Competency for the Weapons Program Director will be evaluated during normal performance review by the Mission Programs Director.

**CORRECTIVE ACTIONS:**

ID	TASK	DATE	RESPONSIBLE INDIVIDUAL
1	Submit Draft TQS to PMs and Director in Depts 165 & 167 for review	6/22/99	R. L. Wright
2	Submit Draft Qual Card to PMs and Director in Depts 165 & 167 for review	7/20/99	R. L. Wright
3	Develop a Pantex specific Project Risk Management course of instruction	7/20/99	J. W. Angelo
4	Submit Draft ITP to PMs and Director in Depts 165 & 167 for review	8/3/99	R. L. Wright
5	Submit TQS to Plant for review	7/22/99	R. L. Wright
6	Submit TQS, Qual Card, and ITP for Senior Management Approval	8/11/99	R. L. Wright
7	Obtain approval of TQS, Qual Card, and ITP	8/25/99	R. L. Wright
8	Develop proficiency criteria and measurement method for qualification and develop Plant Standard to govern this process.	8/31/99	R. L. Wright
9	Develop a course of instruction for the Pantex Management Control System	8/25/99	R. J. Barton

**NOTE:** This schedule assumes that the TQS will be well received by all and will be approved with minor changes. If any significant change is required during any review of the TQS it will directly affect all work in parallel (Qual Card and ITP).

**COMPLETION CRITERIA:**

1. Draft TQS submitted to PMs and Director in Depts 165 & 167
2. Draft Qual Card submitted to PMs and Director in Depts 165 & 167
3. Issued Project Risk Management course of instruction
4. Draft ITP submitted to PMs and Director in Dept 165

- 5. TQS submitted to Plant for review
- 6. TQS, Qual Card, and ITP submitted to management for approval
- 7. TQS, Qual Card, and ITP approved
- 8. Issued Plant Standard for Program Managers/Director qualification criteria and measurement
- 9. Issued Pantex Management Control System course of instruction

**REFERENCE DOCUMENTS:**

DNFSB 98-2 Recommendations  
DOE Implementation Plan for 98-2

**APPROVALS:**

Responsible Individual: Stacey L. Meier 6-25-99  
 for R. L. Wright Date

Responsible Manager: [Signature] 6/25/99  
 for L. L. Mayes Date

Responsible Division Manager: [Signature] 6/25/99  
 J. W. Angelo Date

DOE/AAO: N/A N/A  
 W. S. Goodrum Date