



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

JUL 21 2000

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

Dear Mr. Chairman:

Consistent with the Department's implementation plan (IP) for the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, the following provides an update on deliverables.

- 1. Deliverable 5.6.1, #3 - Approved ISMS Description. The Department approved the description on May 12, 2000 (Enclosure #1). This completes all of the actions under commitment 5.6.1.**
- 2. Commitment 5.6.2 #1 and #2 - Develop a plan for and conduct an ISMSV Phase II Review and submit Report. The ISMSV Phase II Review was performed at the Pantex Plant during June 19-27, 2000. The completed report is provided as Enclosure 2. This completes all of the actions under commitment 5.6.2.**
- 3. Deliverable 6.2.1 - Quarterly Briefings and Written Report. Attached is the Quarterly Progress Report for the period January 1 through June 30, 2000. The quarterly briefing is in process of being scheduled during late July or early August 2000.**

If you have any questions, please contact me at (505) 845-6050 or have your staff contact Karen Boardman at (505) 845-6045,


**R. E. Glass
Manager**

Enclosures (3)

cc: See Page 2

cc w/enclosures:

Defense Nuclear Facilities Safety Board

625 Indiana Avenue, NW

Suite 700

Washington, DC 20004

Attn: J. McConnell, DNFSB Staff

Ann: W. Andrews, DNFSB Staff

M. Whitaker, S-3.1, HQ

D. Beck, DP-20, HQ

K. Boardman, WPD

D. Glenn, AAO

Quarterly Report For the Implementation Plan

Defense Nuclear Facilities Safety Board
Recommendation 98-2

*Accelerating Safety Management Improvements at
the Pantex Plant*

January 1, 2000 through June 30, 2000

*Albuquerque Operations Office
U.S. Department of Energy*

1.0 Introduction

The Department of Energy (DOE) issued the Implementation Plan for Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 98-2, *Accelerating Safety Management Improvements at the Pantex Plant*, in April 1999. On June 16, 1999, the Department received a letter from the DNFSB accepting the Implementation Plan.

This quarterly report for the period January 1 through June 30, 2000 focuses on progress made towards completing the deliverables outlined in the 98-2 Implementation Plan Commitments.

2.0 General Progress

The 98-2 implementation plan is approaching its one-year anniversary. During this time the Department has been reporting the status of individual actions. As a result, the Department and the DNFSB staff have identified several opportunities to enhance the focus and usefulness of this document.

A revision to this implementation plan would provide the mechanism to (1) apply lessons learned, (2) remove redundancies, and (3) better target the actions that are most essential to SS-21 implementation. Therefore, during the last two quarters, the Department has worked closely with your staff and developed a revised implementation plan. The Revision 1 has been completed and is in process for delivery to the Board within the next week.

During this reporting period the following occurred:

- The Department delivered 17 actions.
- Deliverables 5.2.3-#2, 5.3.1-#3, 5.4.2-#3, 5.5.1-#4, 5.6.3-#3, 5.6.4-#1, 5.8.1 - #3, and 5.8.2 -#2 due during the April 1, 1999 through June 30, 2000, remain incomplete. Discussion regarding incomplete deliverables is provided within the Task Area Status section of this report

During the period beginning April 1, 1999 through April 30, 2000, a total of 42 out of 50 actions were delivered to the Board.

3.0 Task Area Status

The following provides a status corresponding to the task areas defined within the 98-2 Implementation Plan (1P) for those actions due within the January 1, 2000 to June 30, 2000 reporting period and any outstanding deliverables from previous reporting periods.

A summary of the commitments and their associated deliverables for 98-2 is provided as Attachment A to this report.

98-2 Commitments and Deliverables

5.1 Implementation of Effective Management Structure

Commitment 5.1 .3—Replace EP40110 with Technical Business Practice (TBP) 901 to define roles of design agency project team members and eliminate mandated sub-teams.

Deliverable to issue TBP 901 was delivered for publication on August 27, 1999, and published on February 7, 2000. Notification of completion was provided to the Board at the quarterly briefing on February 10, 2000, and through the Department's letter to the Board on April 28, 2000.

The Department has added a commitment 4.1.2 within Section 4.1 of impending revision to the IP for Recommendation 98-2 to address remaining organizational comments or issues.

Commitment 5. 1.4—issue project plans with improved project definitions for each weapon program and BIO improvement initiative. Resolve scope and resource conflicts. Issue schedule for Pantex operational improvement initiatives:

Deliverable to provide the project plans and schedules are complete. The integrated weapons activity plan (IWAP) Issue F was approved on February 7, 2000. Notification of completion was provided to the Board through copy of the February 7, 2000 memo to DP-20 and through the Department's letter to the Board on April 28, 2000. Future updates will be provided to the Board as they are approved for information purposes.

5.2 Streamline Process and Tooling Development, and Improve Transfer of Safety Improvements

Commitment 5.2.1—issue updated definition of DOE expectations for SS-21 and laboratory/contractor implementation guidance.

Deliverable #2 to issue TBP 901 was mailed to the Board on September 7, 1999, and published on February 7, 2000. See commitment 5.1.3

Commitment 5.2.2—Implement concurrent engineering activity based tooling design, multiple program-use tooling and improved built-in review processes.

Deliverable to modify associated plant documents to meet the new TBP 901 standards. The operating contractor completed their impact analysis on March 8, 2000 and contractual documents are in modification. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

Commitment 5.2.3—Complete an assessment of Pantex practices for tooling design, tooling procurement, and procedure development. Issue a report with recommendations and implement adopted actions.

Deliverable #2 to implement the process improvements as a result of the tooling recommendation report issued May 1999. The operating contractor is reporting that one correction action plan remains from the four identified in the long-term corrective action plan submitted to the Board in through the Department's letter dated September 7, 1999. The estimated completion date for all corrective actions is July 2000. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department suggests removal of this item in section 4.0 of the impending revision to the IP for Recommendation 98-2.

5.3 Improve Authorization Basis Structure and Approval Process

Commitment 5.3.1—Complete Task Force and Management Action Plan.

Deliverable #3 to complete the actions defined within the May 1999 Task Force Report and June 1999 Action Plan. The Pantex Plant Integrated Safety Management Authorization Basis Manual (MNL-254543) Revision 1, was approved on February 21, 2000. Training associated with the referenced manual is expected to be completed June 30, 2000. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department addresses carrying the action forward as Commitment 4.2.4 to include assessment of the USQ process as discussed in Section 4.2 of the impending revision to the IP for Recommendation 98-2.

Commitment 5.3.2—issue AL SD 452.2A to establish the line management role (see 5.4) in change control activities. Revise D&P Manual Chapter 11.4 with expectations for 'USQ' process.

Deliverable #3 to combine requirements in one manual. The Department issued Albuquerque Operations Office (AL) supplemental Directive 56XB, Development and Production (D&P) Manual Chapter 11.7, Nuclear Explosive Operations Change Control Process in June 1999. Chapter 11.7 provides requirements and guidance on how the unreviewed safety question (USQ) and nuclear explosive safety change control processes (AL SD 452.2A) are integrated. Since the D&P Manual Chapter 11.7 combined the requirements into a single document, the Department considers the actions associated with commitment 5.3.2 complete. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

The Department has added a commitment 4.2.6 within Section 4.2 of impending revision to the IP for Recommendation 98-2 to address remaining organizational comments or issues.

Commitment 5.3.3—Assess effectiveness of review process for proposed authorization basis documents.

Deliverable #1 and #2 for the assessment of the review of the W88 HAR and Transportation BIO upgrade. The Office of Oversight, Environment, Safety and Health (EH-2) is conducting an authorization basis evaluation specific to the Pantex Plant. The review is a follow-up evaluation by the Office of Environment, Safety and Health stemming from “opportunities for improvement” identified during an earlier review (*Independent Oversight Evaluation of Headquarters and Albuquerque Operations Office Management of Environment, Safety, And Health Programs at the Pantex Plant*, October 1996). in light of the extent and scope of the EH-2 evaluation, and the earlier assessment performed by the Office of Defense Programs in April 1999, the Department does not consider further evaluations of the authorization basis review process warranted.

The Department addresses this issue through Section 4.5 of the impending revision to the IP for Recommendation 98-2.

5.4 Streamline Review Processes and Ensure Proper Roles for Reviewers

Commitment 5.4.2—Define changes to NES and readiness review processes.

Deliverable #3 to issue DOE order 452.2. Department personnel are currently working with your staff to resolve remaining comment on the order. The schedule for completion is addressed in the impending revision to 98-2. An update regarding the status of this deliverable was

provided to the Board through the Department's letter dated April 28, 2000.

The Department has carried this commitment forward by adding Commitments 4.4.1 through 4.4.4 within Section 4.4 of impending revision to the IP for Recommendation 98-2 to address remaining organizational comments or issues and combining it with DOE-STD-3015.

5.5 Enhance NES Review Group Structure and Continuity

Commitment 5.5.1—Provide recommendations for NES review group structure and membership. Provide a senior level workshop to discuss and review recommendations. Issue a report documenting DP-20's decision. Issue revised requirements.

Deliverable #4 to issue DOE-STD-3015. Department personnel are currently working with your staff to resolve remaining comments on the standard. The schedule for completion is addressed in the impending revision to 98-2. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department has carried this commitment forward by adding Commitments 4.4.1 through 4.4.4 within Section 4.4 of impending revision to the IP for Recommendation 98-2 to address remaining organizational comments or issues and combining it with DOE Order 452.1A and 452.2A.

5.6 Improve Integration of NEO and ISM Initiatives

Commitment 5.6.1 – Develop a plan for Pantex Plant ISMSV Phase I review. Conduct the ISMSV Phase I review and issue a report. Upon satisfactory results from the ISMSV phase I review, approve the ISMS Description.

Deliverable #1 and #2 to conduct the ISMSV review and issue a report is complete. The ISMSV Phase I review and resulting report was completed on April 13, 2000. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

Deliverable #3 to approve ISMS Description was completed on May 12, 2000. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000, and a copy of the approval letter is provided with this report.

Commitment 5.6.2—Develop a plan for the ISMSV Phase II review and conduct the review.

Deliverable #1 to develop an ISMSV Phase Plan II is complete. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000. Subsequent to that letter, the Department completed the review on June 19-27, 2000.

Deliverable #2 to provide a ISMSV Phase II Report is complete. A copy of the final report is included with the transmission of this quarterly report to the Board.

Commitment 5.6.3 – Demonstrate implementation of the safety management process by approving the TSR conversion and BIO Upgrade modules.

Deliverable #1 to convert the plant's Critical Safety System Manual (CSSM) to the Technical Safety Requirement (TSR) is complete. On March 13, 2000, the operating contractor submitted a declaration of readiness to operate in accordance with the Master Authorization Agreement (AA) for the Pantex Plant. The declaration of readiness and change to the Master AA reflects implementation of the TSR. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

Deliverable #2 to approve BIO/TSR Upgrade for lightning hazards is complete. The Lightning BIO was approved on April 17, 2000. The TSR stemming from the Lightning BIO will be fully implemented by May 11, 2000. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

Deliverable #3 to approve BIO/TSR Upgrade for transportation hazards remains incomplete. The Transportation BIO scope has been modified to include partial weapon configurations. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department is carrying this action forward through Commitments 4.3.3 and 4.3.4 within Section 4.3 of the impending revision to the IP for Recommendation 98-2.

Commitment 5.6.4 – Demonstrate implementation of the safety management process established for nuclear explosive operations. Evaluate effectiveness of safety management process improvements.

Deliverable #1 to re-authorize the existing W88 process in accordance with the tasks and schedule identified in the IWAP is incomplete. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department discusses this issue and suggests replacing this action with Commitment 4.4.5 and 4.4.6 within Section 4.4 of the impending revision to the IP for Recommendation 98-2 to demonstrate the Department's commitment to achieving accelerated safety improvements that affect multiple weapon programs.

5.8 Enhance Capacity to Complete Program Management and Safety Analysis Tasks

Commitment 5.8.1—Complete Strengths, Weaknesses, Opportunity and Threats (SWOT) analysis for project management skills. Prepare a long-term project management personnel plan.

Deliverable #3 to provide a long-term personnel plan for project management is incomplete. The final action is development of a course and conduct of training. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department suggests removing this action in Section 4.5 of the impending revision to the IP for Recommendation 98-2.

Commitment 5.8.2—Strengthen skills and experience level of Pantex Team Leads.

Deliverable #2 to complete the defined actions necessary to strengthen the experience level of the Pantex Team Leads is incomplete. Not all personnel have completed the training. The estimated date for completion is October 2000. An update regarding the status of this deliverable was provided to the Board through the Department's letter dated April 28, 2000.

The Department suggests removing this action in Section 4.2 of the impending revision to the IP for Recommendation 98-2.

Commitment 5.8.4—Staff authorization basis review positions as AAO and DOE-AL. Complete qualification for individuals with authority to approve authorization basis documents.

Deliverable #3--to complete qualification is complete. Notification of completion was provided to the Board through the Department's letter dated April 28, 2000.

APPENDIX

98-2 Deliverables and Milestones Matrix

The attached Matrix provides a summary of the outstanding 98-2 Commitments and associated deliverables in numerical order by the original deliverable number.

The first section displays the outstanding actions that are being proposed for carry over as a result of the impending revision to the IP for the 98-2 Recommendation. This section also lists the proposed new commitments as a result of the revision.

The second and shaded section displays the outstanding actions that are being proposed for removal as a result of the impending revision to the IP for the 98-2 Recommendation.

The third and darker shaded section displays the actions that the Department considers complete.

Summary of 98-2 Actions as of 6/30/00

Outstanding Actions Carried Over or Revised as a Result of 98-2 Revision					
98-2 Implementation Plan (April 1999)			Revised 98-2 Implementation Plan (June 2000)		
Deliverable No.	Description	Status	New Commitment Number	Description	98-2 Revision Status
i.3.1-#3	B Actions Complete	Forward	2.4	Assessment of USQ process	See Section 4.2
i.4.2-#3	Issue revised DOE Order 452.2	Forward	4.1 4.2 4.3 4.4	DOE Order 452.1A and 452.2A Revisions Submitted Formal Review Cycle & Orders Issued Issue Revised Site Directives, Impact Analysis &AL Approved IP Revisions to NV Orders Issued, Impact Analysis, NV Approved IP	See Section 4.4
i.5.1-#4	Issue DOE-STD-3015	Forward	4.1 4.2 4.3 4.4	DOE-STD-3015-97 Revisions Submitted Formal Review Cycle & Orders Issued Issue Revised Site Directives, Impact Analysis &AL Approved IP Revisions to NV Orders Issued, Impact Analysis, NV Approved IP	See Section 4.4
i.6.3-#3	Approved BIO/TSR Upgrade for transportation hazards	Forward	3.3 3.4	DOE-Approved BIO Module/TSR for On-Site Transportation and DOE-Approved IP for On-Site Transportation Controls DOE RA Report for On-Site Transportation	See Section 4.3
i.6.4-#2	Authorization of an SS-21 process for the W78 in accordance with the tasks and time interval identified in the IWAP	Forward	4,5	W78 SS-21 Start-up Authorization	See Section 4.4
i.6.5-#1 & 2	Review plan and criteria for final assessment of 98-2 actions and final report	Forward	5.1	IP 98-2 Final Assessment Report	See Section 4.5
VA	New Commitment	New	1.1	BIO/SAR Program Plan	See Section 4.1
VA	New Commitment	New	1.2	Assessment of TBP-901 Implementation	See Section 4.1
VA	New Commitment	New	2.1	D&P Manual Chapter 11.8--Weapon Response Guidance	See Section 4.2
VA	New Commitment	New	2.2	TBP Guidance on expectations & documentation of weapon response (Follows 11,8)	See Section 4.2
VA	New Commitment	New	2.3	11,8 & TBP Impact Analysis& DOE-Approved Implementation Plan	See Section 4.2
	New Commitment	New	2.5	Revise ISM AB Manual	See Section 4.2
VA	New Commitment	New	2.6	Revise D&P 11.7--Nuclear Explosive Operations Change Control Process	See Section 4.2
VA	New Commitment	New	3.1	DOE-Approved BIO Module/TSR for Fire Protection and DOE-Approved Implementation Plan for Fire Protection Controls	See Section 4.3
VA	New Commitment	New	3.2	DOE Readiness Assessment Report for Fire Protection	See Section 4.3
VA	New Commitment	New	3.5	Additional DOE-Approved TSR controls derived from the NES master Studies	See Section 4.3
VA	New Commitment	New	3.6	Flammable Solvent and Combustible Material Reduction Plan	See Section 4.3
VA	New Commitment	New	3.7	Plan for Transportation Carts	See Section 4.3
VA	New Commitment	New	3.8	PDS for 12-44 Fire Protection Upgrade	See Section 4.3
VA	New Commitment	New	3.9	Completion of physical Modifications to Bldg. 12-44 Completed	See Section 4.3
VA	New Commitment	New	3.10	Conceptual Design for Fire Detection and Suppression Systems Upgrades	See Section 4.3
VA	New Commitment	New	3.11	ESAAB Authorization for Title 1	See Section 4.3
VA	New Commitment	New	4.6	B83 SS-21 Start-up	See Section 4.4

Out of the **12** remaining Open Actions, **7** will be carried over and **5** are being proposed for removal/replacement.

Summary of 98-2 Actions as of 6/30/00

Outstanding Actions Suggested for Removal—Dependant on another processor implemented through another action				Revised 98-2 Implementation Plan (June 2000)		
98-2 Implementation Plan (April 1999)				Revised 98-2 Implementation Plan (June 2000)		
Deliverable No.	Description	Status	Remarks	New Commitment Number	Description	38-2 Revision Status
5.2.3-#2	Implement process improvements (tooling/procedure processes)	Remove	90% complete as of 6/30/00. 98-2 Revision addresses this and suggests removal of this item.	NA	NA	See Section 4.0
5.3.342	Assessment for review of transportation BIO upgrade	Remove	EH-2 is conducting an authorization basis evaluation. In light of the extent and scope of the EH-2 review and the April 1999 Once of Defense Program review, the Department does not consider further evaluations warranted. 98-2 Revision addresses this and suggests removal of this item	NA	NA	See Section 4.5
5.6.441	Re-authorization of the existing W88 process in accordance with the tasks and schedule identified in the IWAP	Remove	W88 is discussed in 98-2 Revision as last revalidation. Final result will be reported to the Board. However, 98-2 Revision suggests removal of this item since not effective measure of process improvements.	NA	NA	See Section 4.3 and 4.4
5.8.1-#3	Long term personnel plan for project management.	Remove	The course development was completed on 4/28/00. The core team has received training. Project and Program Managers due to complete training in June. This is the last action. 98-2 Revision discusses and suggests removal of this action.	NA	NA	See Section 4.5
5.8.242	Complete defined actions	Remove	This is the last action. 98-2 Revision will discuss and suggests removal of this action. ECD for completing training is 10/1/2000	NA	NA	See Section 4.2

Out of the 12 remaining Open Actions, 7 will be carried over and 5 are being proposed for removal/replacement.

Summary of 98-2 Actions as of 6/30/00

Completed Actions Prior to Approval of the 98-2 Revision					
98-2 Implementation Plan (April 1999)			Revised 98-2 Implementation Plan (June 2000)		
Deliverable No.	Description	Status	New Commitment Number	Description	98-2 Revision Status
5.1.1	Plant Standard 7401 & 7403	Delivered 5/30/99	NA	NA	See Section 4.1
5.1.2	Issue D&P Manual Chapter 11.1, Rev. 1	Delivered 6/30/99	NA	NA	See Section 4.1
5.1.3	Issue TBP 901	Delivered 2/10/00	NA	NA	See Section 4.1
5.1.4	Project Plans and Schedules (IWAP)	Delivered 2/7/00	NA	NA	See Section 4.1
5.2.141	Issue D&P Manual Chapter 11.3	Delivered 4/19/99	NA	NA	See Section 4.1
5.2.142	Issue TBP 901	Delivered 2/10/00	NA	NA	See Section 4.1
5.2.2	Modify associated plant documents to meet new TBP 901 standards	Delivered 4/28/00	NA	NA	See Section 4.1
5.2.3-#1	Review report with recommendations (tooling/procedure processes)	Delivered 5/30/99	NA	NA	See Section 4.0
5.3.1-#1	AB Task Force Report	Delivered 5/30/99	NA	NA	See Section 4.2
5.3.1-#2	AB Action Plan	Delivered 6/30/99	NA	NA	See Section 4.2
5.3.2-#1	Issue AL SD 452.2A	Delivered 6/30/99	NA	NA	See Section 4.2
5.3.2-#2	Revise D&P Manual Chapter 11.4	Delivered 6/30/99	NA	NA	See Section 4.2
5.3.2-#3	Combine requirements into one manual	Delivered 6/30/99	NA	NA	See Section 4.2
5.3.3*1	Assessment for review of W88 HAR	Delivered 12/13/99	NA	NA	See Section 4.5
5.4.1	D&P Manual Chapter 11.6	Delivered 6/30/99	NA	NA	See Section 4.4
5.4.241	Initial issue of DOE-AL SD 452.2A	Delivered 6/30/99	NA	NA	See Section 4.4
5.4.2-#2	Submit revisions to DOE Order 452.2	Delivered 6/30/99	NA	NA	See Section 4.4
5.4.341	Develop NESS process changes & provide recommendations	Delivered 6/30/99	NA	NA	See Section 4.4
5.4.3-#2	Revise DOE STD-3015	Delivered 12/10/99	NA	NA	See Section 4.4
5.5.1-#1	Provide NESS recommendations	Delivered 5/28/99	NA	NA	See Section 4.4
5.5.14/2	Senior level workshop	Delivered 6/30/99	NA	NA	See Section 4.4
5.5.1-#3	Decision Report	Delivered 8/23/99	NA	NA	See Section 4.4
5.5.241	Recommendations (NESS)	Delivered 5/28/99	NA	NA	See Section 4.4
5.5.2-#2	Revise & Issue DOE-STD-3015	Delivered 12/10/99	NA	NA	See Section 4.4
5.6.1-#1	ISMSV Phase 1 Review Plan	Delivered 9/10/99	NA	NA	See Section 4.5
5.6.1-#2	ISMSV Phase 1 Review Report	Delivered 4/13/00	NA	NA	See Section 4.5
5.6.1-#3	Approved ISMS Description	Delivered 6/30/00	NA	NA	See Section 4.5
5.6.2 #1	ISMSV Phase II Review Plan	Delivered 6/30/00	NA	NA	See Section 4.5
5.6.2 #2	ISMSV Phase II Report	Delivered 6/30/00	NA	NA	See Section 4.5
5.6.341	CSSM to TSR Conversion	Delivered 3/13/00	NA	NA	See Section 4.2
5.6.3-#2	Approved BIO/TSR Upgrade for lightning hazards	Delivered 4/17/00	NA	NA	See Section 4.3
5.7.1	Reauthorization of the existing W62 process in accordance with the IWAP project plan.	Delivered 1/6/00	NA	NA	See Executive Summary
5.8.1-#1	SWOT analysis (project management)	Delivered 5/13/99	NA	NA	See Section 4.5
5.8.1-#2	Compensatory measure action plan (project management)	Delivered 6/30/99	NA	NA	See Section 4.5
5.8.241	Revise training programs and complete training	Delivered 6/13/99	NA	NA	See Section 4.5
5.8.3-#3	Long term personnel plan for project management.	Delivered 2/7/00	NA	NA	See Section 4.2
5.8.341	SWOT analysis (AB personnel)	Delivered 5/30/99	NA	NA	See Section 4.2
5.8.3-#2	AB Compensatory measure action plan	Delivered 6/30/99	NA	NA	See Section 4.2
5.8.4-#1	Complete staffing actions	Delivered 2/5/00	NA	NA	See Section 4.2
5.8.4-#2	Complete qualification standards	Delivered 2/5/00	NA	NA	See Section 4.2
5.8.4-#3	Complete qualification	Delivered 4/28/00	NA	NA	See Section 4.2

United States Government

Department of Energy

Albuquerque Operations Office

Memorandum

DATE: **MAY 12 2000**

REPLY TO: ISRD

SUBJECT: Pantex Integrated Safety Management (ISM) System Description

TO: Dan Glenn, Area Manager, AAO

I have reviewed Revision 6 of the Pantex ISM System Description submitted to me on May 2, 2000 from your office. Based on your validation of closure of issues identified as prerequisites for approval, I am approving the Revision 6 Pantex ISM System Description.

I look forward to successful results from the Pantex Phase 11 ISM verification. If you have any questions, please call me at 505-845-6050.



R. E. Glass
Manager

cc:

D. Beck, DP-20, HQ
T. Wyka, EH-9, HQ
R. T. Brock, AAO
D. C. Brunell, AAO
D. J. Kelly, AAO
D. D. Schmidt, AAO
J. S. Johnson, AAO
D. G. White, AAO
C. L. Longenbaugh, ISRD, AL

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: JUN 27 2000

REPLY TO
ATTN OF: DP:E. D. Morrow:6-5530

SUBJECT: Pantex Pant Phase 11 Integrated Safety Management System Verification (ISMSV) Review
– Final Report

TO: R, E. Glass, Manager, AL

The subject report is attached for your information and use. The review was conducted June 19-27, 2000. The review identified specific issues organized into opportunities for improvement (OFI). At the conclusion of the review, the team briefed senior management within MHC and AAO on the results.

The team concluded that ISM was implemented at Pantex and that the OFIS from the Phase I Verification in April 2000, have been properly closed out. The team also noted significant improvement from the verifications conducted in 1998,

The following is a summary of the OFI and the team recommendation associated with each OFI.

1. Authorization Basis capability requires improvement. (MHC)
2. Hazard identification processes at the activity/task level requires improvement. (MHC)
3. Consistency of procedures and adherence to procedural processes require improvement. (MHC)
4. Feedback and Improvement mechanisms require better integration and utilization. (MHC)
5. Five issues were identified as Opportunities for Improvement for DOE AAO

Recommendations

1. DOE AL task DOE A40 to monitor MHC progress in improving MHC AB documentation capability and to expeditiously pursue an approved basis for Plant TSRs.
2. DOE AL task DOE AAO to conduct an assessment of MHC's capability to conduct hazard identification at the activity level. This assessment could be conducted in accordance with the annual assessment by AL in response to the AAO Performance Assessment Matrix.
3. MHC should close issues under OFI 3 as a matter of continuous improvement.

4. Both MHC and DOE **AAO** should evaluate tracking and trending to better integrate the various mechanisms in order to achieve better efficiency and effectiveness.
5. AL should validate AAO closure of OFI #5.

If you have any questions concerning the attached report, please contact me at (202) 586-5530.



Emil Morrow
Review Team Leader
Pantex Plant Phase 11 ISMSV

Attachment

cc w/attachment:

- B. Pellegrini, General Manager, MHC
- D. Pellegrino, AL
- J. Hassenfeldt, DP
- D. Mimema, DP
- R. Englehart, EH
- T. Sena, AL
- T. Henderson, OAK
- L. Zalants, SRS
- J. Bemier, AAO
- L. Earley, RL
- R. Brock, AAO
- B. Herrbach, AL

Pantex Plant
Phase II
Integrated Safety Management Verification
Final Report



June 2000

I, by signature below, concur with the recommendations of the LLNL ISMS Verification Phase IB/IIB, Part I Team, Team Leader, and Senior Advisor.

Joe Hassenfeldt
Joe Hassenfeldt
Department of Energy (DOE)

Richard Englehart
Richard Englehart
Hazard Identification (HAZ)

Teresa Sena
Teresa Sena
Management (MG)

Dan Pellegrino
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EXECUTIVE SUMMARY

The Department of Energy (DOE) is committed to conducting work efficiently and in a manner that ensures protection of workers, the public, and the environment. [t is DOE policy that safety management systems shall be used to systematically integrate safety into management and work practices at all levels so that missions are accomplished while protecting the worker, the public, and the environment (DOE P 450.4). Contractors responsible for management and operation of DOE sites are required to describe the integrated safety management system used to achieve this objective, including the identification of applicable laws, regulations, and DOE directives (DEAR, 48 CFR 970.5204-2 and 970.5204-78).

This Report documents the results of the review conducted to verify the implementation of the Pantex Plant's Integrated Safety Management Description (PLN-93, Revision 6), developed by Mason and Hanger Corporation (MHC), and that supporting plant documents conform to the requirements and guidance provided by DOE. The review was also conducted to verify that MHC and DOE Amarillo Area Office (AAO) had closed out the Opportunities for Improvement (OFI) noted in the Final Report of the Pantex Phase I Management Verification Review (dated April 25, 2000). The review was conducted consistent with the guidance contained in the following: (1) the Under Secretary's Memorandum of March 1997, *Protocol for Review and Approval of Documented Safety Management System Descriptions Associated with Defense Nuclear Facilities*; (2) the *Integrated Safety Management System Description Guide* (DOE G 450.4-1); and (3) the *Integrated Safety Management System (ISMS) Verification Team Leader's Handbook* (DOE-HDBK-3027-99).

The Team was organized into five areas: Management, Hazards, Operations, DOE, and Validation of Closure of Phase I issues. Additionally, Subject Matter Experts were assigned in the areas of High Explosives, Maintenance and Work Control, Training and Qualification, and Radiation Health. The team conducted [their review June 19-27, 2000 at the Pantex Plant. The review was conducted using the Criteria Review Approach Document (CRAD) based on the core functions and guiding principles of the DOE policy, associated guide and handbook. Individual CRADs are contained in Appendix A.

RESULTS

The Team noted significant improvement in the conduct of Integrated Safety Management (ISM) from the first verification conducted July 22-31 and August 24-28, 1999. The organizational structure of MHC has improved and roles and responsibilities are more clearly defined. Improvement was noted in the conduct of work and in staff support to the line organizations.

The team identified four Opportunities for Improvement for MHC: 1) the ability of MHC to properly perform in the area of Authorization Basis (AB) documentation requires improvement, 2) the identification of hazards at the task level is weak, 3) MHC should improve consistency of procedures and ensure adherence to procedural processes, and 4) MHC mechanisms for feedback and improvement require better utilization and integration. The Team identified one OFI for DOE AAO. These OFIS are discussed in the paragraphs below.

Authorization Basis

MHC does not yet possess the indigenous capability to meet AB commitments and to routinely produce high quality AB documents in a timely manner. This deficiency is compensated somewhat by the fact that DOE AAO has developed a rigorous AB review and approval capability. However, that fact does not relieve MHC of the responsibility to develop their own expertise in this important area of ISM.

Hazard Identification

Hazard identification at the activity level requires improvement. Although the team found some evidence of implementation of hazard identification at the activity/task level, the team identified several instances where proper hazard identification processes were not followed in maintenance evolutions and balance of plant work and did not adequately reflect worker involvement.

Consistence of Procedures

The team found areas where procedures were either consistent with the ISM System Description, or required upgrading to conform to the recent MHC reorganization.

Feedback and Improvement

MHC feedback and improvement mechanisms require better integration and utilization. Several mechanisms are used by MHC for tracking and trending but do not capture all deficiencies and corrective actions (i. e.. in some tracking systems those deficiencies anticipated to be corrected or resolved within 30 days. are not tracked).

DOE

Five issues were identified as an OFI for DOE AAO.

NOTEWORTHY PRACTICES

The following Noteworthy Practices were identified.

- NP-MG.1-1** MHC has restructured the financial system, enabling budget allocation and execution based upon the DOE Defense Program structure and the structure required in order to formally manage weapon programs. The Pantex Plant has recognized the need to manage costs associated with the specific weapon programs and activities and, as such, has implemented a new financial structure, tracking direct and indirect weapon specific costs.
- NP-MG.3.1** MHC has placed IWAP schedules, along with weapon budgetary information on their Web site, allowing customers access to planning/status information. This effort increases MHC's customer understanding of current Plant schedules, provides a clear statement to DOE on the specific allocation of funds, and reduces the time required of DOE and MHC program engineers to answer scheduling budget questions associated with each of the weapon systems.

- NP-OP.1-1** Implementation of Early Warning Indicator Program (EWIP) at **Pantex**, has enhanced the identification of at-risk behavior. In addition, the process has also improved contractor safety performance through ISM.
- NP-SME.3-1** The RST Mentoring Program is a noteworthy practice for providing feedback and improvement into both the work practices of the individuals mentored, and into the overall radiation safety training program.

OPPORTUNITIES FOR IMPROVEMENT

The following Opportunities for Improvement (OFI) were identified. The individual Issues supporting each OFI are provided.

- OFI 1: MHC should continue to improve the Plant **AB** and upgrade its indigenous capability to meet authorization basis commitments and process **AB** documents in a **timely** manner.
- HAZ.2-1** The status of the Plant BIO is not clear in that, the parts of the BIO that are relied upon are not clearly identified, and the status of plant nuclear facilities with relation to the Price Anderson rules is not correct.
- HAZ.2-2** The TSRs are not in conformance with the criteria of DOE-STD-3009 and Plant Authorization Basis Manual. There is no DOE approved basis for the TSRs.
- HAZ.2-3** The Pantex training courses for the USQ process and implementation are not in compliance with the Order with respect to the treatment of the TSR criteria relating to increase in consequences to workers.
- HAZ.2-4** The MHC Authorization Basis Department does not have an organizational plan to ensure competence commensurate with responsibility; and to adequately define scope of work and insure balanced priorities to fulfill the responsibilities of the AB organization.
- OFI 2: MHC should improve hazard identification processes **at** the activity/task level and enhance worker involvement.
- HAZ.1-i** The processes for identification of hazards and implementation of controls at the task level are not being utilized in all cases.
- OP.1-2** [OP-FO-1049. Issue 22 Processing Maintenance Work Orders, did not ensure craftsmen actively participated in the work planning process.
- SME.2-1** Planners are not performing sufficient field verifications to become familiar with the job scope and hazards prior to initiating work packages.

- SME.2-2** The Job Safety and Hazard Analysis Program *are* not an integral part of job work orders to improve worker safety. JSHAS are not reviewed with the craft at pre-job briefs.
- SME.2-3** The procedure writer did not walk down a UPS Monthly PM procedure as required by STD-O 143, Technical Procedures System.
- OFI 3: MHC** should improve consistency of procedures **and** ensure adherence to procedural processes.
- SME.1-1** There have been problems noted on program start-ups regarding technician proficiency.
- SME.2-3** The procedure writer did not walk down a UPS Monthly PM procedure as required by STD-0143, Technical Procedures System.
- SME.4-1** Operational requirements were found in a Plant standard instead of Technical Operating Procedures, as prescribed by Plant Standard STD-0 143, Technical Procedures System.
- SME.4-2** The exception to the annual review requirement does not ensure the currency and adequacy of explosives operating procedures and hinders the ability to incorporate feedback and improvement opportunities.
- OP.1-3** Conduct of Operations Program deficiencies were identified.
- VAL2.1** The revision of plant standards and procedures that reflect the roles and responsibilities of the MHC reorganization of March 2000 has not yet been completed. Ten standards, two IOP's, two manuals and six O&I's had not been revised as of June 23, 2000. Change requests have been initiated for all items that have not yet been revised.
- OFI 4: MHC** mechanisms for Feedback and Improvement require better integration and utilization.
- OP.1-1** Less than adequate work ~~is~~ involvement was identified in the planning of maintenance work orders and in the PHA for Building 16-18.
- OP.1-4** Facility identified deficiencies that are anticipated to be closed within 30 days are not captured in MHC Tracking and Trending Systems.
- OP. I-5** Multiple deficiency tracking and trending systems existed within DOE and MHC but were not fully integrated at the institutional level.

OFI 5: Opportunities for Improvement exist for DOE AAO

- DOE.1-1** The AAO OQA program (AAO Procedure 101. 1.0) has not been updated as required by DOE O 41-1. Quality Assurance (September 29, 1999). DOE O -114.1 A also requires development of an AAO Safety Issue Corrective Action Process (DOE O 414. Attachment 2). The updated AAO OQA plan was required by December 29, 1999. The current OQA document (dated May 14, 1999) has not been updated.
- HAZ.2-1** The status of the Plant BIO is not clear in that the parts of the BIO that are relied upon are not clearly identified, and the status of plant nuclear facilities with relation to the Price Anderson rules is not correct.
- HAZ.2-2** The TSRS are not in conformance with the criteria of DOE-STD-3009 and Plant Authorization Basis Manual. There is no DOE approved basis for the TSRs.
- OP.1-5** Multiple deficiency tracking and trending systems existed within DOE and MHC but were not fully integrated at the institutional level.
- SME.4-2** The exception to the annual review requirement does not ensure the currency and adequacy of explosives operating procedures and hinders the ability to incorporate feedback and improvement opportunities.

RECOMMENDATIONS

1. The Team recommends that DOE AL task DOE AAO to monitor MHC progress in improving MHC AB documentation capability and to expeditiously pursue an approved basis for Plant TSRs.
2. The Team recommends that DOE AL task DOE AAO to conduct an assessment of MHC's capability to conduct hazard identification at the activity level. This assessment could be conducted in accordance with the annual assessment by AL in response to the AAO Performance Assessment Matrix.
3. MHC should close issues under OFI 3 as a matter of continuous improvement.
4. Both MHC and DOE AAO should evaluate tracking and trending to better integrate the various mechanisms in order to achieve better efficiency and effectiveness.
5. AL should validate AAO closure of OFI #5.

CONCLUSIONS

- MHC has implemented ISM at the Pantex Site.
- The OFI's from the Phase I Verification were satisfactorily closed.
- Four OFIS for MHC were identified.

- 1) Authorization Basis capability requires improvement.
- 2) Hazard identification at the activity/task level requires significant improvement.
- 3) Consistency of procedures and adherence to procedural processes require improvement.
- 4) MHC feedback and improvement mechanisms require better integration and utilization.

“ One OFI was identified for DOE AAO.

1.0 INTRODUCTION

Department of Energy (DOE) Safety Management System Policy (DOE P 450.4) defines the expectations that DOE Facilities be operated in accordance with an integrated Safety Management System (ISMS). The DEAR, 48 CFR 970.5204-2, requires that the contracting officer (Albuquerque Operations Office (AL) Manager) provide guidance to a management and operating contractor as to the expectations for the ISMS Description. The DEAR also requires the ISMS Description, submitted by a management and operating contractor, be reviewed and approved by the contracting officer.

The AL provided guidance, specifically tailored to Pantex, for use in developing its ISS4S Description on April 27, 1998. An ISMS Verification (ISMSV) of the Mason and Hanger Corporation (MHC) safety management processes was conducted by DOE on July 27-31, and August 24-28, 1998. The ISMSV included two phases. Phase I involved the review of the MHC ISM Program Plan (which served as the ISMS Description) and MHC implementing, standards and procedures. Phase II involved the review of selected activities/facilities in order to assess the level of implementation. The scope of the ISMSV addressed all mission and supporting work. The areas reviewed included: business practices, management and organization, nuclear explosive operations, special nuclear material, high explosive operations, mission support functions, and DOE interfaces. In addition, the ISMSV was performed in conjunction with AL's 1998 Annual Environment, Safety, and Health Assessment of the Pantex Plant and AL's 1998 Nuclear Explosive Safety Appraisal of the Pantex Plant.

Overall, the 1998 ISMSV review concluded MHC was generally achieving DOE objectives for ISM and identified specific areas where improvement was needed. Opportunities for Improvement (OFI) identified through the 1998 Phase I and II review was: institutionalization of the ISMS processes; clarification of roles and responsibilities; DOE process guidance for nuclear explosive operations; and Amarillo Area Office (AAO) roles and responsibilities, and processes. The recommended actions were:

MHC should proceed to formally establish processes (including requirements, roles, and responsibilities) for defining the scope of work, analyzing hazards, developing controls, implementing controls, confirming readiness, and applying change control to nuclear explosive operations.

MHC should proceed to formally establish processes for prioritization of work consistently on a site-wide basis.

MHC should proceed to clarify responsibilities for mission work at lower levels within the management hierarchy, consistent with the current organizational structure addressing the core functions and guiding principles of ISM (i.e., address "chain of command" responsibilities down to the operations manager or department-level manager).

The ISMSV Team also recommended that the AAO establish procedures for site workload prioritization, determination of required area office resources, and change control of the MHC ISMS Description. The ISMSV Team recommended that the Manager, AL approve the MHC

ISMS Description contingent upon correction of the deficiencies identified, and successful results from a follow-up review.

From April 3-14, 2000, a Phase I Verification was conducted. The team found the MHC ISM System Description (PLN-93, Revision 5) responsive to the requirements of DOE P 450.4, the DEAR, and guidance from the contracting officer. The MHC ISMS Description provides an adequate "roadmap" to the mechanisms used to implement the core functions and guiding principles of integrated safety management. The team found the Description to be relatively comprehensive and complete, with some limited exceptions.

The team recommended the following actions be taken:

1. The AOO Manager approve the MHC ISMS Description (PLN-93) upon MHC resolution of the issues identified under OFI #1 and AL validation of closure. (OFI #1 - The MHC ISM System Description needs improvement to achieve completeness.)
2. The AL Manager task MHC to resolve the issues identified under OFI #2 prior to declaring readiness for a Phase II ISMSV review. The Phase II ISMSV Review Team should be tasked to validate closure of these issues. (OFI #2 - The MHC ISM System Description needs improvement to achieve consistency.)
3. The AL Manager task MHC to develop and submit a Corrective Action Plan (CAP) to address the issues identified under OFI #3. The AL Manager should approve the CAP given the need for continued improvement in the MHC System Description. (OFI #3 - The MHC ISM System Description should be enhanced to improve clarity.)
4. AL lead development of a CAP to address the issues under OFI #4. (OFI #4 - DOE should work jointly with MHC to further define and strengthen formal mechanisms to integrate design laboratory support into Pantex Plant operations.)
5. The AL Manager task AAO to address the issues under OFI #5 prior to performance of a Phase II ISMSV review. The Phase II ISMSV Review Team should be tasked to validate closure of these issues. (OFI #5 - OFI #5 - The AAO ISM System Description needs improvement)

1.1 Purpose

The purpose of this review is to provide an assessment on whether the MHC ISMS Description and associated plant standards, manuals, and procedures are being implemented. Additionally, this Phase II will validate closure of actions in response to OFI (OFI #2 & OFI #5) that were identified during the recent Phase I Verification.

1.2 Scope

The review focused on the implementation of formal mechanisms established through the MHC ISMS Description (and implementing procedures and standards) to satisfy each of the core safety

functions and guiding principles defined in DOE P 450.4. Interviews, briefings, and observation of selected activities were conducted to facilitate review team understanding of ISM processes used by MHC and DOE.

The Pantex Plant is located in Carson County, 17 miles northeast of downtown Amarillo, Texas. The Pantex Plant site consists of 10,177 acres owned by the DOE, including 9,100 acres in the main plant area and 1,077 acres around Pantex Lake, approximately 2.5 miles northeast of the main plant area. An additional 5,800 acres of land south of the main plant is leased from Texas Tech University for use as a safety and security buffer zone. The Pantex Plant was first used by the U.S. Army for production of conventional ordnance from 1942 to 1945. In 1951, the Atomic Energy Commission chose the site for expansion of its nuclear weapons assembly facilities. The Pantex Plant is composed of several functional areas referred to as zones. These zones include a weapons assembly and disassembly area (Zone 12), a weapons staging area (Zone 4), an area for experimental explosive development (Zone 11), a domestic water treatment plant (Zone 15), a sanitary wastewater treatment facility (Zone 13), and vehicle maintenance and administrative areas (Zone 16). Other functional areas include an explosive test-firing facility, a burning ground for explosive materials, an area for storage (Zone 10), and area of landfills north of Zone 10.

The following is a general summary of the types of operations or activities performed at the Pantex Plant:

- Assembly of nuclear weapons
- Disassembly of nuclear weapons
- Modification and maintenance of nuclear weapons
- Quality assurance testing of weapon components (surveillance)
- Research and production of high explosives (HE) and weapon components
- Storage of plutonium components (pits) from dismantled nuclear weapons
- Transport for nuclear weapons and components to Department of Defense and other DOE sites (e.g., tritium reservoirs to the Savannah River Site)
- Demilitarization and sanitation of components, including burning of HE and HE-contaminated wastes
- Environmental restoration activities including site characterization to determine the nature and extent of contamination
- Waste management
- Maintenance of site infrastructure including security, utilities, roads, receipt and transport of equipment and bulk materials, landscaping

Pantex Plant operations involve the following hazards (or potential hazards):

- Nuclear explosives
- High explosives
 - “ Radioactive material
- Fissile material (criticality)
 - “ Hazardous chemicals

“ Firearms

- Standard industrial (natural gas, steam, electrical energy, rotating machinery, heavy equipment, etc.)
- “ Natural phenomena (tornado, earthquake, lightning)
- External events (aircraft crashes, fire)

Roles, responsibilities, and interfaces necessary for the institutionalization of the ISMS process were examined on a plant-wide basis. This included interfaces between MHC, national laboratories (weapon design agencies), and DOE that are required to safely perform work assigned to the Pantex Plant. The review included an examination of MHC processes and their potential effectiveness in achieving integration both from an ‘-upward.’ site perspective, as well as “downward” (i. e., a vertical slice) (o the facility and activity level. The review examined the extent of internal integration within AAO and MHC, and how well the two organizations are integrated to form a seamless site management system.

As described above, the review started at the site level, where the MHC ISMS Description established requirements and mechanisms that are “general” (i.e., applicable to all site operations.) The review then examined implementation of the specific requirements and mechanisms established for the varying levels of hazards associated with Pantex Plant operation. These included: “high” (i.e., nuclear material and nuclear explosive operations), “moderate” (e.g., high explosive operations), and “low” (e.g., standard industrial hazards) hazard activities.

1.3 Approach

The ISMSV team reviewed the ISMS Description. The review evaluated implementation of the description and supporting plant standards, manuals, and procedures against the guiding principles and core functions defined in DOE P 450.4 and drew a conclusion as to whether the ISMS will achieve the overall objective of integrated safety management.

2.0 RECOMMENDATIONS

The Team recommends that DOE AL task DOE AAO to monitor MHC progress in improving MHC Authorization Basis (AB) documentation capability.

The Team recommends that DOE AL task DOE AAO to conduct an assessment of MHC’s capability to conduct hazard identification at the activity level. This assessment should be conducted in accordance with the annual assessment by AL in response to the AAO Performance Assessment Matrix.

MHC should close issues under OFI 3 as a matter of continuous improvement.

Both MHC and DOE AAO should evaluate tracking and trending so as to better integrate the various mechanisms in order to achieve better efficiency and effectiveness.

AL validate closure of OFI #5 by DOE AAO.

Appendix A

Integrated Safety Management Phase I Verification

Assessment Forms

ISMS Verification Assessment Form

Functional Area: DOE

Objective Number: DOE.1

Date: June 26,2000

OBJECTIVE

DOE procedures and mechanisms should ensure that work is formally and appropriately authorized, and performed safely. DOE line managers should be involved in the review of safety issues and concerns and should have an active role in authorizing and approving work and operations. (CE II-7)

Criteria

1. DOE procedures and/or mechanisms are in place that establish a process for confirming readiness and authorizing operations. (FRAM 9.5.1 and 9.5.2)
2. DOE procedures and/or mechanisms ensure that the safety management system is properly implemented and line management oversight of the contractor's worker, public, environment, and facility protection programs is performed. (FRAM 9.5.2)
3. DOE procedures and/or mechanisms require day-to-day operational oversight of contractor activities through Facility Representatives. (FRAM 9.5.2)
4. DOE procedures and/or mechanisms ensure the implementation of quality assurance programs and ensure that contractors implement quality assurance programs. (FRAM 9.5.3)
5. DOE procedures and practices assure that personnel who define scope of work (SOW) or oversee contractor practices for defining SOW have competence commensurate with their assigned responsibilities.

Approach

Record Review: Review the AAO System Description to determine that the process for the authorization and oversight of work is adequate. Verify that those DOE personnel assigned to perform these functions have clear roles and responsibilities. Determine if the oversight policy is balanced with risk and priority of mission. Review the quality assurance program established by DOE and the interactions of that program with the contractors quality assurance program. Verify DOE programs hold line management responsible for safety and contain clear roles and responsibilities.

Interviews: Discuss work authorization and performance activities with DOE and contractor personnel to determine if there are adequate mechanisms to ensure that work is properly authorized at all levels. Determine if worker safety is perceived as an integral part of the work authorization process and that workers are involved in issue resolution if appropriate. Discuss the oversight programs with DOE and contractor personnel. Discuss the Facility Representative (FR) programs with facility representatives and contractor personnel to determine if the FR program is effective. Discuss oversight programs with DOE staff who perform ES&H management and supervision assignments. During interviews, verify understanding of line management responsibility for safety and understanding of clear roles and responsibilities.

Record Review

- AAO Procedure 101.1.0. Operational Quality Assurance program.. 5/13/1999
- AAO Procedure 103.1. Amarillo Area Office Integrated Safety Management System Description. 5/31/2000
- AAO Procedure 103.2. Authorization Agreements, 6/15,'2000
- AAO Procedure 103.4. AAO Functions. Responsibilities and Authorities Manual, 6/16/2000
- AAO Procedure 106.1. Authorization Basis Documentation Program, 6/25/1 999
- AAO Procedure 109. i. 1. AAO Trending and Analysis of Pantex Operations Information Using performance Indicators, 4/3/2000
- AAO Procedure 110.1.0. Issues Management and Tracking Program. 11/29/1999
- AAO Procedure 115.1.0, AAO Self Assessment Program, 6/14/2000
- AAO Procedure 115.1.0, Startup and Restart of Pantex Plant Activities, 5/9/2000
- AAO Procedure 511.1.0, Facility Representative Program Manual, 8/12/1998
- Pantex Plant Functional Area Performance Analysis Report, June 16,2000
- Hazard Analysis and Readiness Assessment documentation for W62 Program
- Selected AAO Position Descriptions and Qualification Standards
- MHC DIR-0001, Roles and Responsibilities for the Management and Operation of Pantex Plant. -5/25/2000
- MHC Integrated Safety Management Description. 4/26/2000
- MHCSTD-0107, Independent Assessments and Self-Assessments, 6/6/2000
- MHCSTD-1054, Authorization Agreements, 4/26/2000
- MHCSTD-3014, Unreviewed Safety Question Process. 3/27/2000
- MHC STD-3071. Authorization Basis, 4/11/2000
- MHC STD-3366. Nuclear Explosive Safety Reviews. 3/15/2000
- MHCSTD-6028. Performance Measurement System. 5/31/2000
- MHC STD-6216. Lessons Learned Program. 6/15/2000
- MHC STD-7301. Management Declaration of Operational Readiness. 6/16/2000
- MHCSTD-7302. Operational Readiness Review (ORR), 9/30/1999
- MHC STD-7303. Readiness Assessment (RA) Procedure. 3/31/2000
- MHCSTD-7306. Startup and Restart of Pantex Activities. 3/31/2000

Interviews

- AAO Deputy Area Office Manager
- AAO Senior Scientific Technical Advisor
- AAO Employee Concerns Program Manager
- AAO Authorization Basis Staff Manager
- AAO Waste Operations/Management Team Leader
- AAO Weapon Explosives & Components Team Leader
- AAO Production Operations Team Leader
- AAO Weapons Quality Staff Chief
- AAO Safeguards & Security Team Leader
- AAO Emergent Manager

- AAO Facility Representative, Senior Nuclear
- MHC Director of Readiness and Assessment Division

, Discussion of Results

Amarillo Area Office (AAO) has procedures in place that implement the DOE requirements for confirming readiness and authorizing operations. Documentation was reviewed covering the startup of the W62 Disassembly and Inspection (D&I) Program, which was authorized for startup on January 6, 2000. The documentation followed the processes outlined in DOE O 425.1A, Startup and Restart of Nuclear Facilities, and the Albuquerque Operations Office and AAO flowdown documents on startup and restart. Plans of Action (POAs) were submitted and approved. Implementation Plans (IPs) were developed and followed. pre-start issues from the Readiness Assessment (RA) and the Nuclear Explosive Safety review were corrected, and corrective actions for post-start findings were approved prior to receiving approval to startup the D&I operations.

The AAO Integrated Safety Management (ISM) System Description details the area office's methodology for ISM implementation and oversight of contractor implementation. AAO personnel understand the principles of ISM and can relate their functional responsibilities to these principles. The AAO Functions, Responsibilities, and Authorities Manual (FRAM) establishes the office roles and responsibilities regarding Integrated Safety Management (ISM) and an annual requirement to update the FRAM as part of ongoing ISM process improvement. Line management oversight roles are clearly stated, and the AAO Performance Evaluation and Measurement Plan (PEMP) has a specific Functional Area documenting and evaluating the contractor's performance regarding ISM.

The AAO Facility Representative Program (FRP) is well documented, and meets the requirements of the Albuquerque and DOE standards for FRPs. The program is mature, and properly uses the technical capabilities of the Facility Representatives (FRs) to maintain day-to-day oversight of operations. The quarterly performance indicators which AAO reports to the Headquarters FRP Manager indicate that the FRs are spending 70% of their available time performing oversight functions, 35% of which is spent in the facilities. The analysis that determines the appropriate FR staffing levels (per DOE-STD-1063-00) indicates a need for 15 FTE, while current staffing remains at nine FTE. This issue is receiving senior management attention, and AAO will perform an update to its staffing analysis to support future management decisions. In addition, the Facility Representatives work closely with the line subject matter experts in assessing, identifying, and verifying closure of corrective actions.

The AAO Operations Quality Assurance (OQA) Program sets down the requirements for AAO operations and oversight of contractor quality assurance (for areas other than those covered by the DOE QC-1 nuclear weapons quality assurance program). Oversight in the area of OQA is accomplished by line organizations, and various program elements are in place (performance indicators, the Facility Representative Program, surveillances, etc) which demonstrate that line management is performing proper oversight of contractor program activities.

The AAOQA program does not implement Attachment 2 of DOE O 414.1A. Quality Assurance (September 29, 1999), which requires development of an AAO Safety Issue Corrective Action Process. DOE O 414.1A required an updated AAOQA plan by December 29, 1999. The current OQA document (May 1-1, 1999) has not been updated. (see DOE. 1-1)

The AAO ISM Description outlines the process by which the scope of work (SOW) is to be determined, reviewed, and approved. Personnel who are involved in these SOW definition, review, and approval activities have the requisite level of technical competence and qualification to perform these activities. At a senior level, the AAO Manager is co-chair on the Standing Management Team (SMT) which determines mission priorities from which SOW and resource allocation (for directed stockpile work) occurs. At a lower level, use of the Work Breakdown Structure (WBS), the Work Authorization Document (WAD) system, the Performance Evaluation and Measurement Plan (PEMP) and the budget decrement list provide the iterative mechanisms by which line managers determine SOW and make recommendations to the Area Office Manager (Contracting Officer for Administration). AAO implementation of their procedures show appropriate SOW definition, readiness verification and authorization to startup, and line management oversight of contractor operations.

Conclusion

The criteria for this objective have been met.

Issue

DOE.1-1 The AAOQA program (AAO Procedure 101. 1.0) has not been updated as required by DOE O 414.1A. Quality Assurance (September 29, 1999). DOE O 414.1A also requires development of an AAO Safety Issue Corrective Action Process (DOE O 414.1-4. Attachment 2). The updated AAOQA plan was required by December 29, 1999. The current OQA document (dated May 14, 1999) has not been updated,

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ISMS Verification Assessment Form

Functional Area: DOE

Objective Number: DOE.2

Date: June 26, 2000

OBJECTIVE

DOE procedures and mechanisms ensure that hazards are analyzed, controls are developed, and that feedback and improvement programs are in place and effective. DOE line managers are using these processes effectively, consistent with FRAM and FRA requirements. (CE 11-8)

Criteria

1. DOE processes and/or mechanisms are in place to ensure that the contractor's hazard analysis covers the hazards associated with the work and are sufficient for selecting standards. (FRAM 9.3.1)
2. DOE procedures and/or mechanisms are in place in which DOE directs the contractor to propose facility or activity-specific standards tailored to the work and the hazards. DOE procedures require that appropriate safety requirements in necessary functional areas are included in contracts. (FRAM 9.4.1)
3. DOE procedures and/or mechanisms are in place that direct DOE line manager oversight to ensure that implementation of hazards mitigation programs and controls are established. (FRAM 9.4.2)
4. DOE procedures and/or mechanisms are in place that direct the preparation of the authorization basis documentation and oversee the implementation by the contractor. Procedures for development, review, approval, maintenance, and utilization of Authorization Agreements are implemented. (FRAM 9.4.3)
5. DOE procedures and/or mechanisms require that contractors develop a lessons-learned program and monitor its implementation. A process is established for reviewing occurrence reports and approving proposed corrective action reports. A DOE process is established and effectively implemented to continuously improve efficiency and quality of operations. Corrective actions are developed, implemented, and tracked in order to profit from prior experience and the lessons learned. DOE provides effective line oversight of the contractor's self-assessment programs. (FRAM 9.6.2)

Approach

Record Review: Review the FRAM/FRA and DOE implementing guidance to determine that a process for ensuring that effective interfaces with the contractor's ISMS has been established. Review DOE procedures for ensuring that adequate provisions are included for verification that hazards are properly identified, analyzed, and categorized. Review the approved and in process hazards analysis documentation to verify that contractor procedures and mechanisms have been properly reviewed and approved. Review DOE procedures that specify the process to be followed for the review and approval of standards and hazard controls. Ascertain that DOE has approved the process used by the contractor to tailor the selection of standards and requirements.

Record Review

- AAO Procedure 101.1.0. Operational Quality Assurance Program. 5/13/1999
- AAO Procedure 103.1. Amarillo Area Office Integrated Safety Management System Description. 5/31/2000
- AAO Procedure 103.2. Authorization Agreements. 6/15/2000
- AAO Procedure 103.4. AAO Functions. Responsibilities and Authorities Manual, 6/16/2000
- AAO Procedure 106.1. Authorization Basis Documentation Program. 6/25/1999
- AAO Procedure 109.1.1. AAO Trending and Analysis of Pantex Operations Information Using Performance Indicators. 4/3/2000
- AAO Procedure 110.4.0. Issues Management and Tracking Program. 11/29/1999
- AAO Procedure 11-1.1.0. AAO Self Assessment Program, 6/14/2000
- AAO Procedure 1.15.1.0. Startup and Restart of Pantex Plant Activities, 5/9/2000
- AAO Procedure 511.1.0. Facility Representative Program Manual, 8/12/1998
- Pantex Plant Functional Area Performance Analysis Report, June 16,2000
- Hazard Analysis and Readiness Assessment documentation for W62 Program
- Selected AAO Position Descriptions and Qualification Standards
- MHC DIR-0001, Roles and Responsibilities for the Management and Operation of Pantex Plant, 4/25/2000
- MHC Integrated Safety Management Description. 4/26/2000
- MHC STD-O 107. Independent Assessments and Self-assessments. 6/6/2000
- MHCSTD- 1054, Authorization Agreements, 4/26/2000
- MHCSTD-3014, Unreviewed Safety Question Process, 3/27/2000
- MHC STD-3071. Authorization Basis. 4/11/2000
- MHCSTD-3366. Nuclear Explosive Safety Reviews. 3/15/2000
- MHCSTD-6028. Performance Measurement System. 5/31/2000
- MHCSTD-6216. Lessons Learned Program. 6/15/2000
- MHCSTD-7301. Management Declaration of Operational Readiness. 6/16/2000
- MHCSTD-7302. Operational Readiness Review (ORR). 9/30/1999
- MHCSTD-7303. Readiness Assessment (RA) Procedure. 3/31/2000
- MHCSTD-7306. Startup and Restart of Pantex Activities. 3/31/2000

Interviews

“AAO Deputy Area Office Manager

- AAO Senior Scientific Technical Advisor
- AAO Employee Concerns Program Manager
- AAO Authorization Basis Staff Manager
- AAO Waste Operations/Management Team Leader

“AAO W'apon Explosives & Components Team Leader

- AAO Production Operations Team Leader
- AAO Weapons Quality Staff Chief
- AAO Safeguards & Security Team Leader
- AAO Emergency Manager

- AAO Facility Representative. Senior Nuclear
- MHC Director of Readiness and Assessment Division

Discussion of Results

Amarillo Area Office (AAO) procedures address the processes for oversight of contractor hazard analysis, including Hazard Analysis Reports (HARs) for nuclear explosive activities, and Job Hazard Analyses (JHAs) for non-nuclear activities. Line management reviews the documentation and then ensures implementation of controls via day-to-day oversight by Facility Representatives (FRs) and subject matter experts from the AAO line organizations.

The AAO procedures and guidance to MHC direct development of standards and requirements tailored to the given activity. This is accomplished via the MHC Standards/Requirements Identification Documents (S/RIDs). Performance expectations are defined in the Performance Evaluation and Measurement Plan (PEMP). Day-to-day oversight and performance assessments are documented in the Performance Assessment Matrix and end-of-year cost-plus award fee.

The AAO has procedures in place for review and approval of Authorization Basis (AB) documentation. These procedures have been followed in development of the recent updates to the Basis for Interim Operations (BIO) but were not followed in the transfer from Critical Safety Systems Manuals to Technical Safety Requirements (TSRs). Specifically, the TSRS were approved by DOE without MHC completion and DOE approval of the analytical basis for the TSRS. This analytical basis (Safety Evaluation Report, section 3.8. Derivation of TSRS) is required by AAO 106.1.0, but AAO has decided to waive this requirement. The AAO has been successful in improving the technical competence of its AB staff. The AAO could more readily achieve desired efficiency by ensuring that the contractor effectively upgrades its AB staff competency, or by mentoring the contractor AB staff during document development. The current process has become an overly iterative (and time consuming) process where MHC submits documents that are lacking in quality and completeness to the AAO. AAO returns the documentation with comment, and the cycle repeats. This efficiency issue has been documented by AAO in the contractor's performance for 1999 and is being measured in the FY00 PEMP.

AAO oversees the contractor's lessons learned program, and participates in the exchange of lessons learned from MHC and other DOE activities. FRs and line managers review and track Occurrence Report corrective actions. AAO procedures establish the expectation of continuous quality improvement and this expectation is carried out primarily via the PEMP. AAO oversees the MHC corrective action process through review and approval of Corrective Action Plans (CAPs) and by monitoring the MHC tracking of items to closure. Verification of corrective action closures is performed by FRs and SMEs.

Conclusion

The criteria for this objective have been met.

Issue

- None

Team Member: <u>Joseph Hassenfeldt</u> Joseph Hassenfeldt	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS Verification Assessment Form

Functional Area:HAZ

Objective Number: HAZ. 1

Date: June 26,2000

OBJECTIVE

The full spectrum of hazards associated with the Scope of Work is identified, analyzed, and categorized. Those individuals responsible for the analysis of the environmental, health and safety, and worker protection hazards are integrated with personnel assigned to analyze the processes. (CE 11-2)

Criteria

1. Procedures and/or mechanisms are in place and utilized by personnel to ensure hazards associated with the work throughout the facility have been identified and analyzed. The resulting documentation is defined, complete, and meets DOE expectations. The execution of these mechanisms ensure personnel responsible for the analysis of environmental, health and safety concerns are integrated with those assigned to analyze the hazards for the facility or activity. These mechanisms ensure direction and approval from line management and integration of the requirements.
2. Procedures and/or mechanisms are in place and utilized by personnel that describe the interfaces, roles and responsibilities of those personnel who identify and analyze the hazards of the scope of work. Personnel assigned to accomplish those roles are competent to execute those responsibilities.

Approach

Record Review: Review the documents that govern the conduct, review, and approval of facility or activity hazard analysis and documentation such as Process Hazards Analysis (PHA),

Preliminary Hazards Review (PHR), Preliminary Safety Analysis Report (PSAR), Job Hazards Analysis (JHA), and Work Control Permits (WCP). Verify that these records conform to [the hazard analysis requirements. Coordinate the review of work related documents such as JHAs, and WCPs with the OP and SME functional area reviewers.

Interviews: Interview personnel responsible for the identification and analysis of work hazards. In nuclear facilities, for example, this ~~will~~ include personnel responsible for USQ determination, lock and tag preparation, procedure technical reviews, etc. --

Observations: If possible, observe the actual preparation and field implementation of the analysis of hazards. [n nuclear facilities, this should include an Unreviewed Safety Question Determination (USQD), preparation of a JHA, S,AR'TSR, or Criticality Safety Evaluation, etc.

Record Review

- “ Safety Evaluation Report for Lightning Basis for Interim Operation. MNL-PTX-277516. Rev.0
- STD-3116. Job Safety and Health Analysis, March 27, 2000
- “ STD-9550. Performance of Process Hazard Analysis for Process Safety Management, May 31, 2000
- “ STD-0148. Integrated Processes for Seamless Safety (SS-21), March 22, 2000

Interviews

- “ AAO Authorization Basis Staff Members (2)
- MHC Manager, Nuclear Safety, Nuclear Explosive Safety Department, ESH&Q Directorate
- MHC Nuclear Facility Manager
- MHC Operations Manager, Satellite Division
- MHC Production Facility Maintenance Planning Conflict Resolution Manager
- MHC Members of Job Safety and Health Analysis review team
- MHC Hazard Identification Team (HIT) members

Observations

- Hazard Identification Team (HIT) Survey
- Maintenance Plan-of-the-Day Meeting
- “ Job Safety and Health Analysis Review Meeting

Discussion of Results

At the facility level, although [the state of safety basis documents is not completely up to current standards, the defined controls are implemented and work is being conducted in accordance with the controls. This is based on interviews with facility and operations managers, as well as the results of the verification efforts in the Operations assessments.

At the task level, there is evidence that the processes associated with Job Safety and Health Analyses (JSHA) and work control are imperfectly being implemented. At a JSHA review meeting, a JSHA was presented that was developed because an employee suggestion regarding an unsafe procedure had been inadequately dealt with by reviewers. Because the JSHA had not been done in accordance with the correct format, it was sent back with advice as to how to do it properly and to try again through the employee suggestion process. Because there had reportedly been no injuries over the years the situation had existed, there seemed to be no urgency in resolving the issue. They are not completely met with respect to task level, in that although the processes and mechanisms are in place, there is evidence that they are not being utilized in all cases. (HAZ. 1-1)

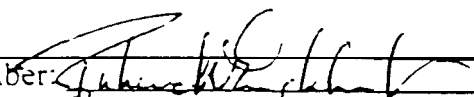

In the Operations and Maintenance areas of the verification, there are weaknesses associated with worker involvement in work planning and in hazard identification during the preparation of work control processes. (see OP.i-1 and SME.2-1)

Conclusion

The criteria associated with this objective are met with regard to facility level identification and implementation of controls.

Issue

HAZ.1-1 The processes for identification of hazards and implementation of controls at the task level are not being utilized in all cases.

Team Member:  Richard Englehart	Team Leader:  Emil Morrow
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ISMS Verification Assessment Form

Functional Area: HAZ	Objective Number: HAZ.2
	Date: June 26.2000

OBJECTIVE

An integrated process has been established and is utilized to develop controls that mitigate the identified hazards present within a facility or activity. The set of controls ensures adequate protection of the public, worker, and the environment and are established as agreed upon by DOE. These mechanisms demonstrate integration, which merge together at the workplace. (CE II-3)

Criteria

1. Procedures and/or mechanisms are in place to develop, review, approve and maintain current all elements of the facility Authorization Basis Documentation with an integrated workforce.
2. Procedures and/or mechanisms that identify and implement appropriate controls for hazard mitigation within the facility or activity are developed and utilized by workers and approved by line managers. These procedures/mechanisms reflect the set of safety requirements agreed to by DOE.
3. Standards and requirements are appropriately tailored to the hazards.
4. Procedures and/or mechanisms are in place to develop, maintain, and utilize Authorization Agreements.
5. Procedures and/or mechanisms are in place to effectively and accurately implement all aspects of the Authorization Basis.

Approach

Record Review: Review a sample of hazard control documents to verify safety controls are provided for the hazards identified and that the control strategy encompasses a hierarchy of 1) hazard elimination, 2) engineering controls, 3) administrative controls, and 4) personnel protective equipment. Typical documents include Authorization Agreements (AAs), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), Health and Safety Plans (HASPS), Radiological Work Permits (RWPs), operating procedures, etc. Review procedures and mechanisms to ensure accurate and effective implementation of Authorization Basis documentation. Sample actual implementing documentation. Coordinate the review of work related documents such as RWPs and operating procedures with the OP and SME functional area reviewers.

Interviews: Interview personnel responsible for developing and implementing hazard controls and/or Authorization Basis Documentation at the facility level. This should include personnel such as those responsible for SAR/TSR preparations and implementation. ALARA review requirements. Process Hazard Analysis activities, etc.

Observations: Observe the actual processes development, review, approval, and implementation of SARTSR, AA, and other Authorization Basis Documents as available.

Record Review

- MNL-254543, Pantex Plant integrated Safety Management Authorization Basis Manual, dated February 21, 2000
- AL56XB, Development and Production Manual (Sections 11.0, 11.4, and 11.7), Rev. 1
- MNL-00076, Pantex Plant Basis for Interim Operation, Rev. 3
- MNL-PTX-2775 16, Lightning BIO, Rev. 5, dated April 1, 2000
- Safety Evaluation Report for Lightning Basis for Interim Operation, MNL-PTX-2775 16, Rev. 0
- RPT-SAR-199801, TSRs for Pantex Plant Lightning BIO, dated May 17, 2000
- Lightning BIO Controls Implementation Plan, Issue O, dated April 4, 2000
- RPT-SAR-199S01, TSRS for Pantex Facilities, dated February 17, 2000
- RPT-SAR-209895, Pantex Plant Facilities Analytical Basis for the Technical Safety Requirements (TSR), Rev. 1, dated February, 2000
- Memo, Bernier to Weinreich, Approval of Revision O, Issue A, Pantex Plant Technical Safety Requirements, dated September 1, 1999
- RPT-SAR-210643, Selection of Controls for Inclusion in the Technical Safety Requirements (TSR) Rev 1, February, 2000
- Memo, Brunell to Eppler, Review Comments on Pantex Analytical Basis Document, dated May 2, 2000
- ABC-258600, Master Authorization Agreement for Nuclear Operations, Change O, Rev. 2, dated May 19, 2000
- Follow-up Evaluation of the Authorization Basis at the Pantex Plant (draft), June, 2000
- STD-071, Development and Revision of Authorization Basis Documents, dated April 11, 2000
- STD-3014, Nuclear Facility and Nuclear Explosive Operation Unreviewed Safety Questions, dated March 27, 2000
- Course = 517.19, USQ Level B Prescreen Course (slides), 0600
- PX-2630, Unreviewed Safety Question Evaluation (form), dated April 11, 2000
- An AB Project Plan
- Six USQ Determinations

Interviews

- Manager, Authorization Basis Staff, AAO
- Senior Technical Advisor, AAO
- Authorization Basis Staff Members, AAO (2)
- Authorization Basis Department Manager, Operations Directorate, MHC
- Authorization Basis Staff Members, Operations Directorate, MHC (5)
- Manager, Nuclear Safety, Nuclear Explosive Safety Department, ESH&Q Directorate

Discussion of Results

The results of other recent assessments were considered as an input to this 3M verification CRAD. Some of the conclusions from those assessments were as follows:

“ The current BIO does not provide a comprehensive and systematic assessment of hazards in accordance with DOE-STD-3009. Some aspects of the BIO are incomplete, outdated, or reference outdated accident analyses. Hazard and accident analyses for most Pantex Nuclear Facilities do not meet current standards. The BIO does not provide the justification for TSR controls. The General Information Document (GID) has not been updated since 1995 and neither it nor the BIO reflects some existing analyses, such as the 1998 seismic hazard characterization study.

- MHC has not yet defined and developed its long-range strategy in addressing weaknesses in in-house technical capability for authorization basis development.
- Ability of contractor technical staff to develop AB documents and associated controls effectively and efficiently is still a weakness. Formal staffing goals and needs, including a plan to obtain experienced and qualified AB personnel have not been prepared. There is a lack of qualification standards for AB/safety basis job functions.
- As yet, Pantex does “not have the project management systems in place to fully and efficiently identify necessary resources and develop integrated site-wide and individual project work plans to facilitate informed decision-making and establish a defensible basis for budget requests. The current processes for identifying, prioritizing, and allocating resources are not sufficiently mature for managing the IWAP and related activities.

The interviews and document reviews conducted as part of this verification confirm these findings.

The Plant BIO is designated by DOE as “For Information Only,” however, some of the information within is designated as part of the Plant’s safety basis. Further, it classifies nuclear facilities as “regular” and “excluded,” relating to whether they are covered by 10 CFR 820. This is contrary to DOE-General Counsel interpretations of 10 CFR 820. The Master Authorization Agreement relies on the Plant BIO and requires it be maintained current. The status of the Plant BIO should be clarified, the parts of the BIO that are relied upon should be clearly identified, and the status of plant nuclear facilities with relation to the Price Anderson rules should be corrected (HAZ.2-1).

The TSRS for the Pantex Facilities document is a key component of the facility level safety basis. It is supported by an analytical basis document (RPT-SAR-209895). The analytical basis document has received a DOE review. ~~But~~ it is not approved by DOE. DOE has sent MHC a set of comments and a request for a plan to resolve those comments; however, interviews with DOE personnel indicate that there is no intent to approve the analytical basis document, even if the comments are resolved satisfactorily. The TSRS were developed from the Critical Safety Systems Manual (CSSM). The criteria for identifying TSR level controls, including Safety Class and Safety Significant Structures, Systems, and Components (SSCs) omits the DOE-STD-3009 criterion for worker safety relating to serious injury or death and classifies such potential accident consequences as “common industrial hazards.” This criterion is included in the ISM Authorization Basis Manual. DOE has recognized this omission. As a result of its omission in the TSR effort, many critical safety systems in the CSSM were screened out for consideration as Safety Significant SSCS or critical safety Administrative Controls. For example, according to the analytical basis document there are no Safety Significant SSCS or critical safety

Administrative Controls for external or internal fires, external explosions, seismic events, high explosive detonation, and linac failures, including operator exposure due to entry into an operational area. There are critical safety Administrative Controls, only, for tritium release, aerosol release, equipment fires, crane failure, and dynamic balancer failure (in some cases, if the accident progresses into a larger event, Safety Significant SSCs may be identified). A number of formerly critical safety systems are now called "important to safety" and are under a "configuration control program." The potential implication of this is a lower level of priority and attention to surveillance and maintenance for these systems. It is not clear that these decisions have been critically evaluated, especially from the standpoint of worker safety. At this point [there is no DOE approved basis for the TSRs. The TSRS should be brought into conformance with DOE-STD-3009 with respect to the criteria used for identification of safety SSCs. A basis for the TSRS that can be approved by DOE should be developed (HAZ.2-2).

Although the USQ Process Description and implementing forms do not indicate it, the USQ process, as reflected in training materials and as currently implemented at Pantex, does not appropriately consider workers. Training materials indicate that increase in consequences relating to accidents associated with a proposed change or new activity is only considered with regard to site boundary consequences. Although an examination of several USQDS shows that workers are sometimes considered, sometimes they are not, because consequences are compared with the worst possible accident end point (see USQD 99-065A as an example). This is contrary to DOE Order 5480.21 and its clarifying interpretations. The Pantex courses for the USQ process and implementation should be brought into compliance with the Order (HAZ.2-3).

DOE has requested an implementation plan from MHC that provides a detailed description on how the site SAR will be developed and implemented. The vision of both DOE and MHC is that the site BIO, the upgrades to the BIO, the TSRs, and the process specific HARs and Authorization Basis Control Documents will be transformed into a plant safety basis that is fully compliant with DOE Order 5480.23 and DOE-STD-3009. This Implementation Plan is due to be submitted in July 2010. Meanwhile, as part of the ISM development effort, the Authorization Basis Department has been formed. It has been clearly specified by DOE, and recognized by MHC, that MHC is responsible for the development and implementation of the Safety Basis for Pantex operations. An ISM Authorization Basis Manual has been developed. A USQ upgrade program is underway, and recent HARs and BIO upgrade efforts, including the Lightning BIO have been recognized as being compliant with the guidance of Chapters 2, 3, 4, and 5 of DOE-STD-3009. There is objective evidence that MHC and DOE understand an appropriate path to achieve the goal that the DNFSB had in mind in Recommendation 5.5-1, that nuclear explosive facility and operations safety should be implemented in a comparable fashion to that required by DOE Nuclear Safety Orders. The Implementation Plan is anticipated to provide the program plan and project identifications and schedules to achieve this.

However, there is considerable concern on the part of personnel interviewed from both MHC and DOE, reflected as well in the EH-2 Assessment, that the MHC Authorization Basis (AB) Department will have the resources (financial, qualified personnel, schedule margin considering the resources, and strategic plan) to efficiently and effectively implement the anticipated AB Implementation Plan. The current AB Department Manager is in acting status, performing two jobs. A search is underway for a permanent manager. The AB Department is regarded by some

personnel interviewed to have a limited number of experienced and senior level staff capable of leading projects that will result in quality products. MHC recognizes the need to recruit additional personnel, but they are looking for entry level people. This is not the best course, considering current limitations and the need for specific technical competencies. Project planning within the AB Department appears to be at a superficial level, based on an examination of a recent project plan, represented as typical. This is probably due to the lack of a departmental level QA Manual that is compliant with the DOE QA expectations and focused on the type of work done in the AB Department. Such a manual would define requirements for planning and organizing a project, defining scope, obtaining agreement and commitment on approach and schedule from project participants, and defining the details of checks on calculations, reasonableness of results, and quality of the finished report. Scheduling of projects is often driven by external constraints, without consideration of the time needed to accomplish the work, and is often affected by unanticipated high priority assignments. The internal MHC management reviews and approvals are extensive and time consuming. The interface with DOE reviewers is limited during the course of project execution, which can lead to several iterations of comments and comment resolutions, which affects schedule. The interface with national laboratories supporting nuclear explosive safety is not within the control of MHC. All of these factors can negatively affect MHC's ability to deliver on commitments that may be made in the anticipated Implementation Plan. The MHC Authorization Basis Department should develop a strategic plan that would define how the Department will deal with the issues discussed above so that it can efficiently and effectively deliver quality products within agreed upon schedules and budget. (HAZ.2-4)

Conclusion

The criteria for this objective have been met. An integrated process has been established and is being utilized in recent documents such as the Lightning BIO and recent HARs and ABCDs to analyze hazards and develop controls, DOE has agreed that these sets of controls ensure adequate protection of the public, workers, and the environment.

Issues

- HAZ.2-1** The status of the Plant BIO is not clear in that, the parts of the BIO that are relied upon are not clearly identified, and the status of plant nuclear facilities with relation to the Price Anderson rules is not correct
- HAZ.2-2** The TSRs are not in conformance with the criteria of DOE-STD-3009 and Plant Authorization Basis Manual. There is no DOE approved basis for the TSRS.
- HAZ.2-3** The Pantex training courses for the USQ process and implementation are not in compliance with the Order with respect to the treatment of the TSR criteria relating to increase in consequences to workers.

HAZ.2-4

The MHC Authorization Basis Department does not have an organizational plan to ensure competence commensurate with responsibility and to adequately define scope of work and insure balanced priorities to fulfill the responsibilities of the AB organization,

Team Member: <u>Richard Englehart</u>	Team Leader: <u>Emil Morrow</u>
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ISMS Verification Assessment Form

Functional Area: MG	Objective Number: MG.1
	Date: June 26, 2000

OBJECTIVE

An integrated process has been established and is utilized to identify and prioritize specific mission discrete tasks, mission process operations, modifications and work items. (CE II-1)

Criteria

1. Procedures and/or mechanisms that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and utilized by personnel.
2. Procedures and/or mechanisms are in place and utilized by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes, facility or process modification, and other related work items. Personnel assigned to the roles are competent to execute these responsibilities.
3. Procedures and/or mechanisms are in place and utilized by personnel that ensure identified work (i. e.. mission-related tasks and process, processes or facility modification, maintenance work, etc.) can be accomplished within the standards and requirements identified for the facility.

Approach

Record Review: Review the facility or activity long-range planning documentation. This should include such items as: summary schedules, plan of the week, long-range maintenance schedules, modification schedule, etc. Review the procedures and mechanisms [hat line managers utilize to identify and prioritize mission-related tasks and processes, modifications, and work items. Review organizational documentation to determine the personnel positions with responsibility associated with this objective, Review the position description for those positions. Review the personnel records that identify the individual qualifications [hat meet the elements of the position descriptions. Review any training or qualification material included in training and qualification manuals that support gaining or verifying competence to fill the positions. Review the procedures and/or mechanisms that are utilized by the facility or activity to ensure that identified work is accomplished in accordance with established standards and requirements.

Interviews: Interview management personnel responsible for the identification and prioritization of work. This should include personnel such as those responsible for long-range planning documentation, schedule preparation, etc. "

Observations: Observe work definition and planning activities such as plan of the week meetings, long-range scheduling meetings, etc.

Record Review

- NWC Technical Business Practice 90+. Integrated Safety Process for Nuclear Weapons Operations and Facilities. February 7, 2000
- DOE Development and Production Plan, May 16.2000
- DOE Pantex Plant Phase 1 Integrated Safety Management Verification Final Report
- DRAFT DOE Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant, June 16.2000
- DIR-000 1. Roles and Responsibilities for the Management and Operation of Pantex Plant. April 25, 2000
- MHCSTD-0148, Integrated Processes for Seamless Safety (SS-21). March 22.2000
- MHCSTD- 1045, Work Authorization Directives (WADS) Change Control Process, May 26, 2000
- MHC STD- 1046, Work Authorization Directives (WADS) Cost Management Program, February 3, 1999 “
- MHC STD-0 154, Authorization Agreements, April 26,2000
- MHC STD-7012, Functions of the Program Management Directorate, June 9,2000
- MHC STD-7301, Management Declaration of Operational Readiness. November 26, 2000
- MHCSTD-7302, Operational Readiness Reviews. September 30.1999
- MHCSTD-7303. Readiness Assessment Procedure. March 31, 2000
- MHCSTD-7306. Startup and Restart of Pantex Activities. March 31.2000
- MHCSTD-7308, Integrated Plant Project Priorities, March 31.2000
- MHC STD-7401. Weapon Program Project Team. March 2S. 2000
- MHC W62 Disassembly and Inspection Step 11 Project Management Plan. Rev. A, June 15, 2000
- MHC Status Report for the Integrated Weapon Activity Plan (IWAP) FY00 Performance Objective CMN1c. Weapon Program Startups and BIO Upgrade. Reporting Period April 20-May 15.2000
- IWAP Summary (based on Issue F). December 16.1999
- Integrated Weapon Activity Plan, Issue F. January 3, 2000 (FY00 based on \$258M funding)
- MHC Unfunded FY00 Priorities
- Pantex Plant FY2001 Priorities Decrement List (CSM Direct Only) Draft Rev. 8
- MHC Training Records and Certification Qualification Requirements, Integrated Planning Department
- MHC Authorization Basis/Unreviewed Safety Questions (USQ) Training Courses
- Detailed Production Plan W80 Cycle 19
- W80 Disassembly and Assembly Integrated Safety Process Schedule
- MHC Pantex Plant Authorization Basis Task Force Final Report. May 1999
- FY00 IWAP PEMP Deliverables, February 1.2000
- Pantex Plant Training Program Description and Qualification Standard for Program Manager PRM1, February 27.1997
- Pantex Plant Technical Qualification Standard Program Management
- Pantex Plant Training Completion Report Program Manager Qualification Card. March 2000
- Prerequisites for Weapon Readiness

- Report from Baker Barnes Associates. Inc.. Needs and Skill Gap Assessment for Business Excellence. March 2000
- Baker Barnes Associates. Inc.. Interview Results Mason & Hanger. Inc.. Pantex Nuclear t-capons Facility
- Pantex Program Management System (PPMS), Program Management Directorate, April, 2000

Interviews

- “ MHC Manager, Readiness Review and Assessment Group
- MHC Manager, Training and Development Department
- “ MHC Director, Operations
- MHC Director, Support Services
- MHC Director, Program Management
- MHC Chief Financial Officer
- MHC Integrated Planning Manager
- MHC Production Reporting Manager
- MHC Weapons Program Manager
- “ MHC Director, Environment, Safety, Health and Quality
- MHC Lead Accountant, Finance Reporting Group

Discussion of Results

Reviews and interviews were conducted to ensure that the procedures and processes that require line management to identify and prioritize mission-related tasks and processes, modifications, and work items are in place and utilized by personnel. MHC DIR-0001, Roles and Responsibilities for the Management and Operation of Pantex Plant, establishes roles and responsibilities and identifies the scope of work of each Directorate. Interviews with the Chief Financial Officer, and the Program Management, Operations, Support Services, and Environment, Safety and Health, and Quality Directives, with respect to nuclear explosive and nuclear explosive support operations, verified that line management indeed identified and prioritized nuclear explosive mission-related tasks and processes as directed by the General Manager. The Program Management Directorate is responsible for planning, managing, and controlling work for each of the specific weapon systems. This requires focusing on both external and internal customers, processes, systems, and controls in order to effectively manage nuclear weapons programs, while utilizing Integrated Safety Management (ISM) principles. The Program Management Directorate approves the annual allocation of facilities and programmatic personnel to support weapon program work. The Program Management Directorate has developed and published MNL-PPMS-202443, Pantex Program Management System, which documents the integrated systems approach to project management using concepts and techniques that provide accurate and consistent information on plant workload, cost, and resources. The Pantex Program Management System describes the concept, principles, and techniques for planning, authorizing, monitoring, and controlling the accomplishments of work within authorized technical scope, schedule, budget, and funding constraints. Interviews with the Program Management Directorate and t-capon Program Managers verified that the projects are consistent with published standards and guidance. The Director is a member of the Department

of Energy/Albuquerque's (DOE/AL) Standing Management Team, which has the primary objective of improving the planning, prioritization, and execution of nuclear explosive operations at Pantex.

Prioritization of the weapons work at Pantex is accomplished through the Program Budget Council, established by the MHC General Manager, to address program and budget prioritization issues. This council has representation from each of the directorates. Although each directorate is able to represent their specific program and budget priorities to the council, the intent of the council is to set priorities from the perspective of the entire Plant, a process which should enable them to focus more on the work to be accomplished, rather than on special interests.

The Integrated Weapons Activity Plan (IWAP) is a tool developed to improve planning and prioritization, required by the DOE/AL Development and Production Manual (D&P Manual). The IWAP contains the resource loaded schedules and plans for each of the weapon systems. The IWAP schedules are maintained within the Program Management Directorate Integrated Planning Group. Evidence of these schedules being utilized extensively throughout Pantex was found in discussions across organizations. These weapon schedules are currently being migrated onto an integrated PRIMAVERA scheduling system, which will enable more extensive scheduling manipulations to occur. Schedules on PRIMAVERA will be complete October 1, 2000. In addition, the Production Plan, consisting of a planning horizon sufficient to support budget preparation, is prepared within the Integrated Planning Group. The Production Plan tracks weapon: War Reserve Production; Retrofit Disassembly and Assembly; New Material Laboratory Test (NMLT) Disassembly and Inspection; NMLT Rebuild; New Material Flight Test (NMFT) Disassembly and Inspection; NMFT Rebuild; Stockpile Laboratory Test (SLT) Disassembly and Inspection; SLT Rebuild; Stockpile Flight Test (SFT) Disassembly and Inspection; Joint Test Assembly Production; Type Production; Repair Exam; Repair Rebuild; Test Bed Assembly; Test Bed Disassemble; Disposal; JTA Postmortem; and Reimbursable; all of which are weapon activities of significant interest to the MHC and DOE Weapon Program Managers.

The financial systems which support the weapons program management at Pantex have been restructured in order to track and report more meaningful cost data associated with the weapons activities and support scope of work development and work prioritization. The DOE Budget and Reporting (B&R) system with supporting budget allocation and budget execution is currently not structured by weapon systems, rather it is structured by the categories of maintenance, evaluation, field engineering and training, research and development, dismantlement, and production support. Proposals were put forth during FY99 within the DOE to restructure B&R Codes and financial systems to track costs associated with weapons work by each of the weapons programs, thereby supporting more effective weapon program management, work scope development, and work activity prioritization within DOE Defense Programs and the contractor organizations. This proposal was not implemented. Pantex, however, has recognized the need to manage costs and work scope associated with the specific weapon programs and support activities and, as such, has implemented a new financial structure, tracking direct and indirect weapon-specific costs.

Reviews and interviews were held to ensure that procedures and mechanisms are in place and utilized by personnel that define the roles and responsibilities for the identification and prioritization of mission-related tasks and processes. facility or process modification. DIR-0001, Roles and Responsibilities for the Management and Operation of Pantex Plant, establishes the roles and responsibilities and identifies the scope of work of each Directorate and the General Manager's Staff at Pantex. MHCSTD-7012, Functions of the Program Management Directorate, defines roles for planning, managing, and controlling work for the specific weapon system assigned. MHCSTD-7401, Weapons Program Project Team, defines the roles of the Weapon Project Teams at Pantex. MHCSTD-7308, Integrated Plant Project Priorities, establishes a process for defining, grouping, and assigning relative priorities of work at Pantex, for determining work that is authorized within funding limitations. Interviews with the Chief Financial Officer's Organization, and the Program Management, Operations, Support Services and Environment, Safety and Health Directorates demonstrated that these organizations have implemented the defined roles and responsibilities as described in the standards, in support of weapon operations. Training and qualifications were reviewed with the Manager, Training and Development Department. Of particular interests were the training and qualifications of the Program Management Integrated Planning Organization, because of their responsibilities associated with IWAP, the preparation, coordination, and distribution of the production plans and resource requirements for incorporation into the Pantex Production Plan, and establishment and maintenance of a site planning function, providing the 10-Year Site Plan and the 20-Year Site Vision. A review of their training and qualification records supported their qualifications to support their current responsibilities. In addition, Pantex has developed the Training Program Description and Qualification Standard for Program Manager (MNL-TNG0003) and the Technical Qualification Standard for Program Manager. Weapon Program Managers are required to meet the Technical Qualification Standard for Program Managers, and their progress is tracked through the Training Completion Report, Program Managers Qualification Card.

Program Management requires the management of costs, technical scope and schedules of the weapon programs. Recently, Pantex has made significant progress towards establishing formal program management within the weapon programs. The financial systems have been restructured to support tracking of budgets and costs by weapon systems, detailed scheduling capability for the weapon activities are being migrated onto the Pantex PRIMAVERA scheduling system, and the weapon program teams have developed a formality, as defined in MHC STD-7401 and the Pantex Program Management System, to managing their programs. The scheduling capability should be fully in place on October 1, 2000. The integration of these systems, providing effective tools for managing the weapon programs, was reported in discussions with the Chief Financial Officer and the Operations and Program Management Directorates. In addition, Pantex Plant tracks and reports monthly on the status of each weapon program, including budgeted cost of work performed, budgeted cost of work scheduled, actual cost of work performed, schedule variance, cost variance, trend analysis and forecasts. These performance indicators are monitored closely by the Weapon Program Managers, the Program Management Directorate, and the General Manager. (see MG. 1 -2)

Conclusion

The criteria for this objective have been met.

Issue

“ None

Noteworthy Practice

NP-MG.1-1 MHC has restructured the financial system, enabling budget allocation and execution based upon the DOE Defense Program structure and the structure required in order to formally manage weapon programs. The Pantex Plant has recognized the need to manage costs associated with the specific weapon programs and activities and, as such, has implemented a new financial structure, tracking direct and indirect weapon specific costs

Team member: <u>Teresa Sena</u> Teresa Sena	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS V-edification Assessment Form

Functional Area: MG	Objective Number: MG.2
	Date: June 26, 2000

OBJECTIVE

Clear and unambiguous roles and responsibilities are defined and maintained at all levels within the facility or activity. Managers at all levels demonstrate a commitment to ISMS through policies, procedures, and their participation in the process. Facility or activity line managers are responsible and accountable for safety. Facility or activity personnel are competent commensurate with their responsibility for safety. (CE II-6)

Criteria

1. Procedures and/or mechanisms are in place that define clear roles and responsibilities within the facility or activity to ensure that safety is maintained at all levels.
2. Facility or activity procedures specify that line management is responsible for safety.
3. Procedures and/or mechanisms are in place that ensure that personnel who supervise work have competence commensurate with their responsibilities.
4. Procedures and/or mechanisms are in place that ensure that personnel performing work are competent to safely perform their work assignments.

Approach

Record Review: Review facility or activity manuals of practice that define roles and responsibilities of personnel responsible for safety. Review position descriptions and other documentation that describe roles and responsibilities related to ensuring safety is maintained. The review should consider personnel in line management and staff positions and should evaluate whether line managers are responsible for safety. Review the procedures established to ensure that managers and the work force is competent to safely perform work. Review the records of qualification and certification as applicable.

Interviews: Interview selected personnel at all levels of facility or activity management who are identified by the record review above. Verify their understanding and commitment to ensuring that safety is maintained for all work at the facility or activity. Interview a selected number of supervisors and workers (see definition) to determine their understanding of competency requirements and their commitment to performing work safely.

Observations: Observe scheduled activities that demonstrate that clear roles and responsibilities are established and understood, that line managers are actively involved with decisions affecting safety, and that managers and workers are competent to perform their duties. Activities such as weekly planning meetings, plans of the day, event critiques, safety training, and safety meetings are typical events that may provide good examples of the safety training and decision making process.

Record Review

- MHC Integrated Safety Management Description (ISMD), Plan 93, Rev. 6, dated April 26, 2000
- DIR-000 1, Roles and Responsibilities for the Management and Operation of Pantex Plant, dated April 25, 2000
- MHC Organization Chart, Rev. 21, dated March 20, 2000
- MHCSTD-7403, Operations Directorate, dated June 7, 2000
- MHC Internal Operating Procedure (IOP) AT-80079, Applied Technology Operations, dated March 30, 2000
- MHC Internal Operating Procedure IOP-SS-100 1, Support Semites Directorate Responsibilities and Authorities, dated April 25, 2000
- MHC Internal Operating Procedure (IOP) B-0006, Manufacturing Division Guidelines for Formal Conduct of Operations, dated March 9, 2000
- MHC STD-5 100, Maintenance Management, dated June 9, 2000
- MHC STD-2777, Personnel Selection, Qualification, and Certification, dated April 6, 2000
- MHC STD-2788, Training Analysis and Design, dated May 31, 2000
- MHCSTD-2540, Job Description, Job Review, and Evaluation, dated May 26, 2000
- MHCSTD-2533, 5480.20A Position Classification Process, dated May 24, 2000
- MHCSTD-0265, W'capons Training and Qualification, dated May 25, 2000
- MHC Internal Operating Procedure (IOP) AT-80027, Applied Technology Division Guidelines for Personnel Selection and Qualification, dated November 20, 1998
- MHC Internal Operating Procedure (IOP) B-0019, Operations Directorate Guidelines for Personnel Selection Qualification and Certification, dated April 19, 2000
- MHCSTD-4525, Safeguards Training Requirements, dated May 3, 2000
- MHC STD-91 14, Training Requirements for Hazardous Material Employees, dated September 16, 1998
- MHC Job Description, Director Level 11, Issue No. 3, dated March 13, 2000
- MHC Job Description, Business Group Manager, Issue No. 1, dated March 13, 2000
- MHC Job Description, Department Manager Level 111, Issue No. 3, dated April 17, 2000
- MHC Job Description, Facility Manager Level H, issue No. 3, dated April 17, 2000
- MHC Job Description, Facility Manager Level 1, Issue No. 3, dated April 17, 2000
- MHC Job Description, Assistant Facility Manager Level II, Issue No. 3, April 17, 2000
- MHC Job Description, Training Specialist Level III, Issue No. 3, April 17, 2000
- MHC Job Description, Production Technician, Issue No. 3, dated November 1, 1998
- MHC Position Description, Assistant Facility Manager Level I, dated August 13, 1998
- MHC Position Description, Scientist Level II, dated September 27, 1999
- MHC Position Description, Engineer Level 11, dated September 27, 1999
- MHC Position Description, Program Engineer/Scientist, dated March 18, 1992
- MHC Position Description, Sectional Scientist, dated April 1-1, 2000
- MHC Position Description, Scientist Level IV, dated November 13, 1997
- MHC Training Records and Certification (TRAC), Qualification Requirements, Director, Operations, dated June 22, 2000
- MHC Training Records and Certification (TRAC), Qualification Requirements, Transportation Department Manager, dated June 20, 2000

- MHC Training Records and Certification (TRAC), Qualification Requirements. Facility Manager, dated June 20.2000
- MHC Training Records and Certification (TRAC), Qualification Requirements. Weapon Operations Manager, dated June 20.2000
- MHC Training Records and Certification (TRAC), Qualification Requirements, Production Technician. dated June 20.2000
- MHC Training Records and Certification (TRAC), Qualification Requirements. Non-Destructive Examination (NDE) Scientist. dated June 20.2000
- MHC Training Records and Certification (TRAC), Qualification Requirements, W62 Disassembly and Inspection (D&I) Production Technician. dated May 5.1999 and June 21. 2000
- MHC Training Records and Certification (TRAC), Qualification Requirements, W88 High Explosives (HE) Production Technician, dated October 5, 1999
- MHC Training Records and Certification (TRAC), Qualification Requirements, W76 Disassembly and Inspection (D&I) Operations Manager, dated November 10, 1997 and June 21,2000
- MHC Proficiency Card (PX-4537), W62 High Explosives (HE) Disassembly and Inspection (D&I) Production Technician, dated March 21,2000
- MHC Proficiency Card (PX-4537), W62 High Explosives (HE) Disassembly and Inspection (D&I) Operations Manager, dated June 12,2000
- MHC Proficiency/Performance Validation (PX413 5). W76 Disassembly and Inspection (D&I) Operations Manager, dated April 13,2000
- MHC Personnel Certification (PX-2402), W76 Disassembly and Inspection (D&I) Production Technician. dated January 9. 1998 and May 26.1999
- MHC Personnel Certification (PX-2402), W88 High Explosive (HE) Production Technician. dated October 28.1999
- MHC programmatic Oral Examination Sheet (PX-2407), W62 Disassembly and Inspection (D&I) Production Technician, dated February 16 and March 21.2000
- MHC Programmatic Oral Examination Sheet (PX-2407), W76 Disassembly and Inspection (D&I) Production Technician. dated April 13.2000
- MHC Manufacturing Division Oral Examination Sheet (PX-2407), W88 Disassembly and Inspection (D&I) Production Technician, dated May 21, 1999
- MHC Training Completion Report (PX-3864), W62 Disassembly and Inspection (D&I) High Explosive (HE) Production Technician, dated January 29, 2000
- MHC Training Completion Report (PX-3864), W76 Disassembly and Inspection (D&I) Operations Manager, dated March 10,2000
- MHC Training Completion Report (PX-3864), W88 High Explosive (HE) Production Technician. dated October 20.1999
- MHC production Technician Proficiency Card (PX-4199), W88 Disassembly and Inspection (D&I) Production Technician. dated September 24, 1998
- MHC Qualification Card (PX-3864), Manufacturing Division Operations Manager, dated August 13, 1999
- MHC Qualification Card (PX-3864), Evaluation/Dismantlement/Satellite Operations Manager, dated April 27.2000

- MHC Qualification Card (PX-3864), Operations Directorate Facility Manager and Assistant, dated April 6, 2000
- MHC Qualification Card (PX-3864), Non-Destructive Evaluation (NDE) Technician, dated August 13, 1997
- MHC Qualification Adjustment Authorization (PX-2411.1), Manufacturing Facility Manager/Assistant, dated June 21, 1999
- MHC Qualification Adjustment Authorization (PX-2411.1), Training Instructor, dated May 20, 1999
- MHC Technical Qualification Standard, Training Staff, dated March 1996
- MHC Training Program Description (PX-2496), Manufacturing Operations Manager
- MHC Table Top Job Analysis (PX-2498A), Manufacturing Operations Manager
- MHC Training Program Description (PX-2496A), Operations Director and Weapon Operations Business Group Manager/Deputy
- MHC Table Top Job Analysis (PX-2496A), Operations Director and Weapon Operations Business Group Manager/Deputy
- MHC Training Program Description, Manufacturing Facility Manager
- MHC Training Program Description and Qualification Package (PX-2496), Nondestructive Evaluation Technical Support
- MHC Table Top Job Analysis (PX-2498A), Nondestructive Evaluation Technical Support
- MHC Training Program Description and Qualification Package (PX-2496), Manufacturing Production Technician
- MHC Table Top Job Analysis (PX-2498A), Manufacturing Production Technician
- MHC Internal Operating Procedure (IOP) B-3090, Conduct of Operations Improvement Observations and JSH.A, dated September 9, 1999

Interviews

- MHC Director, Operations
- MHC Director, Security and Emergency Operations
- MHC Director, Environment, Safety, Health and Quality
- MHC Readiness Manager, Operations Directorate
- MHC Department Manager, Nuclear Facility Management

Observations

- “B61-10 Command Disablement - DOE Readiness Assessment Meeting (MHC & AAO senior management)
- AAO/MHC Senior Management Issues Meeting
- DP-20 Weekly Conference Call (AAO/MHC senior management)

Discussion of Results

Mason and Hanger Corporation (MHC) Directive (DIR)-00(11), *Roles and Responsibilities for the Management and Operation of Pantex Plant*, defines the responsibilities assigned to each directorate and the General Manager's staff. DIR-0001 is consistent with the current MHC

organization and clearly defines the responsibilities and authorities of Directors and key personnel assigned to the General Manager. Each of the respective directorates within the MHC organization has a lower tier document that further delineates responsibilities and authorities for safety. These consist of a combination of plant standards (STD) and internal operating procedures (IOP). Lower tier documents were sampled to assess the adequacy to which they assign roles and responsibilities at the facility or activity level (e.g., STD-7403, IOP AT-80079, and IO P- FO- 1001). The documents adequately address the five core functions of integrated safety management and clearly assign organizational responsibilities and authorities by position title. In general, these documents assign responsibilities down to the level of first line supervision. This includes supervision directly accountable for the work at the facility or activity level (e.g., Facility Manager, Operations Manager).

Selected key MHC managers were observed and interviewed to assess their understanding of organizational roles and responsibilities related to safety. MHC managers exhibited a good knowledge and Understanding consistent with these documents. They were able to clearly articulate not only their responsibilities, but also the responsibilities of subordinates and support personnel with which they routinely interface. During the interviews, MHC managers frequently illustrated organizational relationships through the use of impromptu drawings or sketches. This reflected a depth of understanding well beyond the content of the governing organizational procedures.

As described above, each of the respective directorates within the MHC organization have internal documents and procedures delineating responsibilities and authorities. A sampling of these documents were reviewed to assess their adequacy in establishing line management responsibility for safety at the facility or activity level. MHC ST D-7403, *Operations Directorate*, assigns responsibility and accountability "for the safety, environmental soundness, and quality of work conducted" to each respective first line manager (e. g., Transportation Department Operations Supervisor, Operations Manager, Facility Managers, and Assistant Facility Managers). Similarly, MHC internal operating procedure AT-80079, *Applied Technology Operations*, assigns each respective first line manager the direct responsibility "for the safety of the public, the workers and the environment as a result of all operations performed" under their cognizance. Appendix .4 to MHC internal operating procedure, IOP-SS-1001., *Support Services Directorate Responsibilities and Authorities* contains an appendix that specifically addresses "line management ownership of environment, safety, and health."

Selected key MHC managers were observed and interviewed to determine their understanding of line management responsibilities with respect to safety. The personnel interviewed were extremely knowledgeable as to [their line management responsibilities. They could readily describe MHC processes for hazard analysis and provide examples of operational controls derived. MHC managers were able to provide examples of process or operational changes to improve safety that resulted from worker feedback. For instances where their personnel provide functional support [o other parts of the MHC organization for work, they were able to discuss the distinction between their responsibilities and those of the line manager directly responsible for the safety of the work.

MHC requirements for hiring, training, and qualification of personnel were reviewed to determine if personnel have competence commensurate with their assigned responsibilities. MHC STD-2540, *Job Description, Job Review, and Evaluation* requires the “accountabilities, duties, and responsibilities that are assigned” to be listed for each job, along with the “knowledge, skills, and abilities required by the role.” The immediate manager for each position is required to describe the general responsibilities of the role, including task assigning role responsibilities and the task delegations. MHC STD-2533, 5480. 20.4 *Position Classification Process* defines the process used to determine positions requiring formal qualification or certification due to the nature of the work assigned. MHC STD-2777, *Personnel Selection Qualification and Certification* establishes entry-level requirements for new hires or employees transferring into new positions. STD-2777 also defines the process for establishing position specific requirements, hands-on or on-the-job training, professional and technical qualifications, and formal certification. STD-2777 defines the training and qualification process requirements at the site level applicable to all organizational elements within MHC. MHC STD-2788, *Training Analysis and Design* defines the process for performing table top job analysis to determine training needs.

Each of the respective directorates within MHC have training and qualification requirements tailored for their specific scope of work. For example, the Operations Directorate has established STD-0265, *Weapons Training and Qualification* and internal operating procedure (IOP), B-0019, *Operations Directorate Guidelines for Personnel Selection, Qualification, and Certification*. Other examples include, IOP AT-80027, *Applied Technology Division Guidelines for Personnel Selection and Qualification*, STD-4525 *Safeguards Training Requirements*, and STD-911 4 *Training Requirements for Hazardous Material Employees*. Each of the standards and internal operating procedures adequately consider the elements necessary to ensure competence commensurate with the assigned responsibilities.

Implementing documentation resulting from the above standards and procedures was sampled to assess the adequacy of MHC compliance with their established requirements. Although all types of positions were sampled, particular attention was paid to key supervisory positions (e.g., Operations Director, Facility Manager, and Operations Manager). The documents reviewed included position descriptions, table top job analyses, training program descriptions, training and qualification standards, training and qualification status records, proficiency cards and evacuations, and oral examination results. All of these documents were found to be in compliance with the requirements. The documents reflect consideration of the full range of responsibilities assigned to any given position. The resulting documents coupled with the governing standards demonstrate adequate procedures are in-place to ensure competence with responsibility.

Conclusion

The criteria for this objective have been met.

Issues

- None

Team Member: <u>R.T. Brock</u> <u>6/26/00</u>	Team Leader: <u>Emil Morrow</u>
R.T. Brock	Emil Morrow

ISMS Verification Assessment Form

Functional Area: MG

Objective Number: MG.3

Date: June 26, 2000

OBJECTIVE

An integrated process has been established that ensures that mechanisms are in place to ensure continuous improvements are implemented through an assessment and feedback process, which functions at each level of work and at every stage in the work process. (CEII-5)

Criteria

1. Procedures and/or mechanisms are in place and utilized by personnel to collect feedback information such as self-assessment, monitoring against performance objectives, occurrence reporting, and routine observation. Personnel assigned these roles are competent to execute these responsibilities;
2. Procedures are in place that develop feedback and improvement information opportunities at the site and facility levels as well as the individual maintenance or activity level. The information that is developed at the individual maintenance or activity level is utilized to provide feedback and improvement during future similar or related activities.
3. Procedures and/or mechanisms are in place and utilized by managers to identify improvement opportunities. Evaluation and analysis mechanisms should include processes for translating operational information into improvement processes and appropriate lessons learned.
4. Procedures and/or mechanisms are in place and utilized by managers to consider and resolve recommendations for improvement, including worker suggestions.
5. Procedures and/or mechanisms are in place, which include a process for oversight that ensures that regulatory compliance is maintained.

Approach

Performance monitoring documentation for MHC's feedback and improvement process was sampled. This included such documents as performance indicator charts, occurrence reports, deficiency reports, MHC reports, employee concerns programs, and reports of self-assessments. Procedures for work were reviewed to determine that adequate feedback and improvement mechanisms are in place at the individual maintenance or activity level. Actual data from these processes was evaluated to determine the effectiveness of the implementation of these mechanisms.

Personnel responsible for administering the feedback and continuous improvement progress were interviewed. Interviews included personnel such as those responsible for occurrence reporting, lessons learned preparation, shift orders preparation, worker concerns program, self-assessment, and oversight. Personnel responsible for capturing and utilizing feedback and improvement information during individual maintenance and/or other work activities were also interviewed.

The development and utilization of feedback and continuous improvement activities was observed. This included such things as watching MHC conduct plan of the week meeting, operations production meetings, etc.

Record Review

- MHC Integrated Safety Management System Description. Rev. 6. dated April 26.2000
- MHC DIR-0001. Roles and Responsibilities for the Management and Operation of Pantex Plant. dated April 25, 2000
- MHCSTD-0182. Root Cause Evaluation, dated February 11, 2000
- MHCSTD-1027. Price-Anderson Amendment Act(P.A.A.) Compliance Program noncompliances, dated April 28.2000
- MHCSTD-1070. Employee Suggestion Program. dated May 9.2000
- MHCSTD-6028. Performance Measurement System, dated May 31.2000
- MHC STD-6031. Corrective Action Program, dated April 10, 2000
- MHC STD-6161, Nonconformance Reporting
- MHC STD-6216, Lessons Learned Program
- MHC STD-7301, Management Declaration of Operational Readiness, dated June 16,2000
- MHC MNL-289226, Feedback and Improvement Manual, Issue 1, dated June 2000
- MHC AT-IOP-80002, Applied Technology Division Assessment Program, dated September 7, 1999
- MHC AT-IOP-80022, Applied Technology Division Lessons Learned
- MHC AT-IOP-80024, Applied Technology Division Performance Based Self-Assessment Program. dated June 21, 2000
- TBP-901. dated February 9.2000
- Performance Assessment Matrix, Pantex Fact Sheet, Management Systems (Central Training Organization). dated April 22.1998
- Listing of Authorization Basis: Unreviewed Safety Questions (USQ) Training Courses (including statistics of audience required/complete/remaining). dated June 14.2000.
- Performance Indicator Charts from Training and Development Department: M.A.A [unescorted Access Qualification - Personnel deficient in [raining requirements. dated June 1. 2000; M.A.A Unescorted Access Qualification - Training Deficiencies. Division level detail. dated June 1.2000; Image Files Stored to OPTIX. dated April 2000; Training Records Posted. dated May 2000
- Performance Indicator Charts from Security Force Department: Vehicle Accidents; Injuries; Illnesses; Lacerations; Lost Workday Cases; OSHA Recordable; First Aid Cases
- Performance Indicator Chart: I WAP Deliverable Status, dated June 1,2000
- performance Indicator Charts from Program Management: QER Transmissions; QET Shipments: W87 LEP Multi-Site Pantex Delivery Performance B61 ALT 349 PBI; W56/W79 Dismantlement PNI; B83 ALT 752 PBI; JTA PBI; Tested PBI; D&I Summary; Rebuild Summary; AL-R8/SI Pit Repackaging; PEMPIWAP; First Aid. Lost Workday, & Total Recordable Cases: FY00 PBI Fee Status. W62 Evaluation Status FY2000
- FY2000 Performance Evaluation Management Plan Performance Object #13 Validation by AAO:
- End of Course Evaluation Summary (MHC internal document used to evaluate training course/ training instructor feedback). dated April 24.2000
- MHC to AAO Memo, Updated Response to DOE/AAO DOE-STD- 1070-94 Limited Assessment. dated January' 1-1.2000

- MHC internal memo from Director of Operations to Distribution, Programmatic Self-Assessment Dosage. dated June 14, 2000
- MHC Issues Report (containing information on Open Actions, Past Due Corrective Actions, Actions due in 14 days, and Occurrence Reporting Program Status), dated June 16, 2000
- Pantex DOE Order 5480.20A Training Implementation Matrix, FMI Document PLN 24877, Rev. 4, dated April 30, 1999
- Notes from Training Coordinator's Meetings on January 20, 2000, March 23, 2000, May 25, 2000
- Readiness Review Finding Resolution Form, PX-3795, (sampling of 16 completed forms – pre-start findings)
- Safeguards and Security Quality Executive Committee Meeting Minutes, dated February 28, 2000
- MHC Internal e-mail, SSC Weekly Report, dated June 19, 2000
- AAO e-mail Summary of Meeting with MHC on W76 Readiness Expectations (with prerequisites for Weapon Readiness expectations attached), dated May 9, 2000
- MHC draft report, Needs and Skill Gap Assessment for Business Excellence, being prepared by Baker Barnes Associates, Inc.
- MHC interview results (3/1/00-3/3/00) of Nuclear Weapons Program Management Division.
- MHC MNL-PPMS-202443, Pantex Program Management System, Rev. 1, dated May 3, 2000
- MHC Waste & Environmental Management Department Self-Assessment Report, dated May 13, 1999
- MHC Waste & Environmental Management Department Assessment Checklist MHC Work Authorization Directive WBSA1220.B0201.E0807, Performance Report, dated April 2000
- MHC memo to DOE/AL WPD, W62 Step 11 Project Plan, dated June 15, 2000

Interviews

- MHC Director, Security and Emergency Operations
- MHC Director, Environment, Safety, Health and Quality
- MHC Director, operations
- MHC Director, Program Management
- MHC Manager, Readiness Review and Assessment Group
- MHC Manager, Training and Development Department
- MHC Manager, Waste Operations Department
- MHC Lessons Learned Program Manager
- MHC Employee Concern Program Manager

Observations

- Operations Production Issue Meeting
- AAO/MHC Senior Management Issues Meeting

Discussion of Results

Document reviews, interviews, and observations of MHC activities were conducted to determine the extent MHC is implementing the feedback and improvement mechanisms described in their ISM System Description (specifically section 7 of the Management Control & Integration S'RID). The Feedback and Improvement discussion of the MHC ISM System Description contains criteria associated with: records; measuring and test equipment; configuration management; operability; continuing training; scope change control; employee empowerment; lessons learned; nonconformities; performance measures; self-assessments; independent assessments; corrective actions; DOE reporting; and ES&H records/reporting.

Many of the MHC feedback and improvement standards that were reviewed have been revised to reflect the new MHC organization (a prerequisite requirement for this Phase II). One MHC standard issued after the April 2000 Phase I Verification (June 8, 2000) is MHC MNL289226, Feedback and Improvement Manual. Questions were asked of the Director, ES&H&Q if any plant personnel have received training on this new manual. His response was no. Additional questions were asked to determine how MHC decides who should receive training on this manual. The Director, ES&H&Q indicated that the process for determining training requirements for new manuals needs enhancement (see SME 1 -2).

Interviews were conducted with MHC personnel to assess their understanding of MHC standards and [their responsibilities to implement the standards. MHC personnel were able to articulate their organizational responsibilities with respect to self-assessments, lessons learned, and performance monitoring, and how they used such data to improve operations. Every manager interviewed was able to explain what operational process changes resulted from recent self-assessments, what performance indicators require attention (and what's being done), and how their organization contributes to the MHC lessons learned program.

Every manager interviewed was able to explain what performance indicators they track, what the data represents, and what's being done to monitor and improve performance. One indicator chosen at random was the number of pre-start findings from past MHC readiness assessments (covering the past year). An evaluation of pre-start findings from MHC readiness assessments was conducted. The table below summarizes the data reviewed:

Readiness Review Activity	Number Prestarts	Type of AB Dot(s) and Associated Approval Date(s)	MHC Readiness to Proceed Date
WALS	16	Bld 12-116 FSAR 3 27 98	09/01/99
W62 D&I	28	HAR 10/15/99, ABCD - 10/15/99	10/29/99
12-19W	12	Not Nuc Fac -No AB Dots	11/01/99
W87 Armed MSAD	3	HAR -11/17/99; ABCD - 11/17/99	01/06/00
Lightning JCO	8	JCO 7/21/99	12/22/99
12-104A-1/ HE Industrial	9		01/24/00
Site Wide TSRS	21	SAR-199801 -5,2999	02/14/00
Master AA	22	ABC-258600, 1/4/00	No RA - MSA conducted
W76 D&I	28	HAR 10/15/99 ABCD 10/15/99	03/20/00

Discussions with the Director of Program Management, the Director of Operations, and the Manager of the Readiness Review and Assessment Group provided insight as to why significant pre-starts were found in some cases. Contributing factors that were discussed include : 1) Weapon Safety Specification changes due to evolving analytical data; 2) training of MHC personnel conducting Technical Assists; 3) customer pressure to expedite schedules; 4) last minute changes made to configuration management and operational procedures; 5) MHC Program Managers not detailing Project Plans to sufficient detail such that the customer appreciates the full impact of any scope changes; and 6) DOE not providing detailed expectations. A random sample of 17 completed readiness review finding resolution forms (PX-3795) from the above identified pre-start population was also conducted. Many of the completed forms reviewed indicate the above factors contributed to these pre-start findings. Recent measures taken by AAO and MHC should help reduce the number of pre-start findings associated with future reviews. The following summarizes these measures:

- AAO provided MHC with a listing of Prerequisites (prior to Milestone 3) for Weapon Readiness. The 26 expectations contained in this listing were discussed with MHC during a meeting in May 2000.
- MHC Program Management Director delineated these expectations to his personnel during weekly staff meetings. Of note was the shift to walking down procedures instead of performing a table top procedure review.
- The Director of Program Management has committed to develop detailed Project Plans similar to the W62 Project Plan submitted to WPD/AL on June 16, 2000, for all active stockpile weapon systems by October 1, 2000. Having these project plans should allow MHC program engineers and MHC customers to better understand the full impact of any scope changes.

Two meetings were observed which indicate effective communication within MHC, and between MHC and DOE, with respect to resolution of operational issues. A meeting between MHC and DOE AAO was observed. The subject of the meeting was to discuss AAO concerns with a JCO on the B61. MHC Pantex General Manager and the Manager, AAO, as well as senior managers

of both DOE and MHC attended the meeting. The discussion was frank. DOE did a good job of expressing expectations and MHC acknowledged that improvements to the JCO were needed. Both sides acknowledged a lesson learned on how to achieve better communication. The meeting was a good example of continuous improvement. An internal weekly MHC production - issues meeting was also observed. Various production issues were discussed and action items were assigned. In attendance were the Director of Operations and representatives from MHC's ES&H, planning, program and other organizations. The open exchange of information demonstrated a good communication forum.

As a means to provide MHC customers with weapon program project status, MHC has placed IWAP schedules, along with weapon budgetary information on their Web site. The budgetary information includes Budgeted Cost of Work Performed, Budgeted Cost of Work Scheduled, Actual Cost of Work Performed, Schedule Variance, etc. Access is password protected. Currently, the following sites have access: DNFSB (HQ and at Site), DOE/HQ, DOE/AL, DOE/AL, LANL, LLNL, SNL (both NM and CA), and Pantex personnel. This communication mechanism is considered noteworthy. (see MG.3-1)

MHC STD-1070, Employee Suggestion Program, describes the process for administration of the Employee Suggestion Program. Interviews with MHC indicate personnel are using this program, and management is responsive to employee suggestions.

Since the Employee Concerns Program was established in April 1995, the Employee Concerns Review Committee was established, made up of a cross-section of employees within MHC. These committee members worked with their respective organizations and the Employee Concerns Program to develop the program in existence today. Concerns can be brought to the attention of the Employee Concerns Program anonymously. There is also a process in place through which responses and followup can be provided to anyone's concerns.

Maintaining regulatory compliance was discussed during interviews with MHC personnel. procedures and/or mechanisms were found to be in place, including a process for oversight that ensures that regulatory compliance is maintained. A review of the MHC Performance Report for the Waste Operations Department was conducted. No deficiencies were noted.

Conclusion

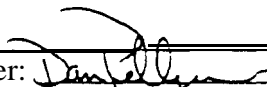
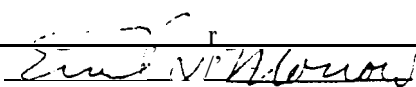
The criteria for this objective have been met. Issues related to Feedback and Improvement are noted in OP. I-1, OP.1-4, and OP.1-5.

Issues

None

Noteworthy Practices

NP-MG.3.1 MHC has placed IWAP schedules, along with weapon budgetary information on their Web site, allowing customers access to **planning/status** information. This effort increases MHC's customer understanding of **ccurrect** Plant schedules, provides a clear statement to DOE on the specific allocation of **funds**, and reduces the time required of DOE and to **MHC program** engineers answer scheduling budget questions associated with each of the weapon systems.

Team Member:  Dan Pellegrino	Team Leader:  Emil Morrow
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ISMS Verification Assessment Form -

Functional Area: OP	Objective Number: OP.1
	Date: June 26,2000

OBJECTIVE

An integrated process has been established and is utilized to effectively plan, authorize and execute the identified work for the facility or activity. (CE II-4)

Criteria

1. Procedures and/or mechanisms are in place to ensure that work planning is integrated at the individual maintenance or activity level fully analyzes hazards and develops appropriate controls.
2. Procedures and/or mechanisms are in place which ensure that there is a process used to confirm that the facility or activity and the operational work force are in an adequate state of readiness prior to authorizing the performance of the work.
3. Procedures and/or mechanisms are in place which ensure that there is a process used to gain authorization to conduct operations.
4. Procedures and/or mechanisms are in place which ensure that safety requirements are integrated into work performance.
5. Procedures and/or mechanisms are in place which ensure that adequate performance measures and indicators, including safety performance measures are established for the work.
6. Workers actively participate in the work planning process.
7. Procedures and/or mechanisms demonstrate effective integration of safety management.

Approach

Record Review: Review documents and/or mechanisms that govern the process for planning, authorizing, and conducting work with emphasis on the individual maintenance or activity level. Evaluate the adequacy of the division of responsibilities, worker involvement, and work authorization process. Review the performance measures and performance indicators established to determine that these tools provide information that is truly a direct indicator of how safely the work is being performed. Review the mechanisms used to prepare authorization agreements and protocols. Review these documents to determine if they are adequate, that they demonstrate effective integration, and that proper procedures were followed to prepare, review, and approve them.

Interviews: Interview personnel responsible for authorizing, performing, and measuring the performance of the work. This should include personnel such as those responsible for preparing and maintaining documents such as the Plan-of-the-Day (POD), equipment status files, pre-job briefings, and the conduct of facility or activity operations. Interview personnel responsible for development of maintenance or individual activity procedures and controls. Verify adequate worker involvement at each step of the process.

Observations: Observe the actual authorization and performance of work activities. This should include such items as pre-job briefings, authorization by the managers to proceed. command and control of the work, review of safety requirements. etc. Observe work hazard identification activities. This should include such things as validation of procedures, procedure tracking, compensatory measures determination, etc.

Records Reviewed

All records listed below are MHC except for the DOE Orders listed:

- Policy Directive DIR-000 1 Roles and Responsibilities for the Management and Operation of PANTEX Plant, 4/25/2000
- ISM CRAD Self Assessment Status
- ISM Phase II Self-Assessment (Operations Directorate, Rev. 1), June 2000
- Integrated Safety Management Plan, Rev. 6, April 26,2000
- Pantex Plant Integrated Safety Management Authorization Basis Manual, Rev 1, Change O, February 21,2000
- IOP B-0006 Guidelines for Formal Conduct of Operations
- IOP 707 Achieving Readiness for Weapons Programs
- STD-0154 Authorization Agreements
- Facility Limit Placards
- STD-6028 Performance Indicators
- STD 0148 Integrated Process for Seamless Safety (S S-2 1), March 22.2000
- MNL-00040 Conduct of Operations
- STD-7000 Conduct of Operations Implementation
- Code of Conduct for the Plan of the Day
- Early Warning Indicator Process (EWIP)
- O&ISTD-7-5000. General Safety Requirements-Production and Support Activities
- DOE Order 5480.19. Conduct of Operations
- ST D-7303, Readiness Assessment Procedure
- STD-311 8 Issue 7, Lockout/Tagout Program
- STD-7301, Management Declaration of Operations Readiness
- Building 12-44 Cell 6 Production Logbook
- Operations and Inspection Standard 1539-TM through W091
- Nuclear Explosive Operating Procedure N-56 250-168
- Nuclear Explosive Operating Procedure N-6 13 18412-DIS Issue C
- Nuclear Explosive Operating Procedure N-62 6830 Issue R
- Preoperational Checklist for W-56 Dismantlement/Building 12-44 Cell 6
- Maintenance Work Order 29056289 01
- Maintenance Work Order 29052137 01
- MAA Maintenance Shop Lock and Tag Logbook
- IOP- FO- 1049 Issue 22 Processing Maintenance Work Orders. Sept. 10, 1999
- DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements
- Maintenance Work Order Package Quality Checklist (Blank)

- Internal Letter from Kittie Hams on Quality Review of Maintenance Work Packages (Nov. & Dec), Feb. 3.2000
- Support Services Strategy Implementation Program Plan. May 25.2000
- Early Warning Pocket Checklist (Blank), 3/10/00
- Early Warning Checklist for Heavy Equipment, 7/6/99 -
- Early Warning Checklist for General Use for Custodians, 7/6/99
- Early Warning Checklist for Construction Projects, 41'17~00
- Construction Management Early Warning Indicator Program Status Report. FYOO, 3/28/00
- Innovation in Continuous Improvement Presentation Slides. Skip Maas, July 20, 1999
- Monthly Publication for the Purpose of Disseminating Current ISM Information #000609, 12-5 Facility Business Group Support Services, June/July 2000
- Facilities Business Group Performance Report, May 2000
- Facilities Division Maintenance Work Principles, Course #1 90.02 Notes
- Zone 12 South and Zone 4 Management Plan, August 22, 1997 (revised)
- **Compartmentation Management** Plan, Zone 12 South Facilities, October 9, 1997 (r)
- Emergency Lights and Exit Markings Project Execution Plan, January 1998
- Fire Protection Upgrade Management Plan Zone 12 South MAA Facilities, 10/98
- RAMS Capability Assurance Upgrade Management Plan, Zone 12 South MAA Facilities, June 18, 1998
- Weapons Operations Weekly Assignment Schedule, Week of June 19-June 25.2000
- PSS Daily Journal Report, 6/20/2000
- IOP B-3075, Selecting Facilities for Weapon Assembly/Dissassembly Operations, June 9, 2000
- STD-7403, Operations Directorate.. June 7.2000

Interviews Conducted

All personnel listed below are MHC employees except as noted below:

- Logistics Coordinator
- DOE Operations Feedback Manager
- Maintenance Department Manager
- Weapon Production Training Manager
- Operations Training Coordinator
- Maintenance Scheduler
- Electronics Technician
- Electrician (2)
- Radiation Safety Department Manager
- Manufacturing Department Operations Manager (3)
- Radiation Safety Operations Manager
- DOE Facility Representative
- blaster Production Scheduler
- Maintenance Section Manager
- Testing Section Manager

- Sectional Engineer
- Senior Project Engineer
- Quality Assurance Technician
- Plant Procedures Manager, Weapon Production Support Division
- Site Planning Manager
- Deputy for Operations/Readiness, Weapons Operations Division
- Director, Nuclear Facility Management
- Process Technician (4)
- Facility Manager (2)
- Production Manager (2)
- Maintenance Planner
- Assistant Zone 12 South Manager
- 12-104 E&W/12-1 04A Facility Department Manager
- Weapons Production Manager
- Maintenance Work Control Department Manager
- Facilities Business Group Manager
- Project Specialist

Observations

- Plan-of-the-Day Meeting (4)
- WOD Production Issues Meeting
- Operations Production Issues Meeting
- Tester Design Operations. Operations and Inspection Standard Performance
- W56 Nuclear Explosive Operations Procedure Performance
- B61 Nuclear Explosive Operations Procedure Performance
- W62 Nuclear Explosive Operations Procedure Performance
- Maintenance Work Order Performance (2)
- Hoist Monthly Preventative Maintenance Procedure

Discussion of Results

The work planning processes were reviewed for the production department and for the facility maintenance department to determine if hazards were adequately analyzed and controls identified. Deficiencies were noted in the planning process for facility maintenance which is described in IOP-FO- 1049 (Processing Maintenance Work Orders). In several sections of the IOP the procedure requires the Planning Lead and/or Planner to perform hazard analyses and hazard screens. The IOP also required the planners to walk down selected jobs as necessary. The IOP did not require the planner to engage craft personnel to determine workplace hazards and develop controls. Interviews indicated the planners generally perform walkdowns for selected complex corrective maintenance work but rarely for preventative maintenance work. All the craft personnel stated in the interviews conducted they have never been contacted to perform walkdowns of preventative maintenance work packages. [In addition, the craftsmen

Hazards are identified and the contractor does develop engineering and administrative controls to mitigate the hazards. For example, the Maintenance Work Control Plan Manager was recently added as a member of the Authorization Basis Change Control Committee (ABCCC). This provides the Maintenance Department advance notice on proposed changes that will impact the performance of maintenance operations. Despite this participation on the committee, the Maintenance Department has been flooded with authorization basis changes and there has been inadequate time to modify procedures (see MG.3-1). When necessary, the Maintenance Department has been issuing standing orders as compensatory measures to address this short fall. However, during the conduct of several interviews, employees stated that schedule commitments appeared to be taking precedent over procedural modifications and craft training.

Operations have a dedicated training staff with high fidelity weapon program models for production technician training. The Weapons Training Program (WTP) is provided the hazards and controls as part of the design agency input (weapons safety specification) and the contractor's authorization basis staff. The WTP administers the training to the technicians through the Nuclear Explosive Operating Procedure (NEOP). There have been problems noted on program start-ups regarding technician proficiency. (SME. 1-1) During the conduct of interviews with training personnel and production technicians, concerns were raised about last minute changes introduced to the NEOP primarily due to authorization basis changes. Scheduled start-up dates were not appropriately adjusted to provide adequate training for the technicians to gain proficiency with the NEOP changes. This has resulted in Readiness Assessments that indicated the contractor was not ready for program start-up and several Defense Nuclear Facility Safety Board letters critical of the programs.

The contractor has roles and responsibilities defined for the training program at the site, facility, and activity level. DIR-000 1. Roles and Responsibilities for the Management and Operation of Pantex Plant establish the Human Resource Directorate as the centralized location for the training program. Facility line management has overall responsibility and authority for the content and effective conduct of training and qualification programs. Each directorate is responsible for the training of their employees and they utilize a training coordinator working directly with the supervisor to facilitate this process. The centralized training function support is integrated with line management through these training coordinators. This process provides a two-way flow of information from the line/training so that line managers are responsible for safety. Each division directorate has control on the decision. During interviews with managers, this process was raised as a concern because some divisions have identified requirements they feel need to be implemented across the plant site and have met resistance from other divisions to adopt the requirement. This process was viewed to be healthy in that it requires all managers to be accountable for the safety of their employees. The division proposing the new training requirement has the opportunity to raise the issue to the centralized training owner anchor the general manager. This process also reduces the potential for implementing needless requirements and provides for better stewardship of limited funding.

The contractor has procedures and mechanisms in place to train and qualify personnel for confirmation of readiness prior to the performance of work. These procedures and mechanisms for implementation can be found at the site, facility, and activity level. At the site level, for example, the general manager utilizes the independent assessment organization to verify

organizational and operational adequacy for safe performance of work. At the facility level, the contractor conducts Plan-of-Day meetings to discuss facility operational activities. At the activity level, for example, HE machine operators and weapon production technicians perform pre-operational checks prior to the conduct of work. A checklist with specific criteria outlines and guides the operator/technician through an analysis to determine if the required systems are acceptable/not acceptable prior to commencement of work. It was particularly noteworthy that the Pre-Job Briefing for HE included Technician Core Training Qualification Requirements and Technician Machine Qualification Requirements. It should be noted that the qualification requirements for nuclear explosive operations by production technicians is routinely checked prior to the performance of work. During the conduct of interviews and observations, it was recognized that maintenance pre-shift briefings are not routinely conducted on swing shift operations (see SME2-3).

The contractor has procedures and mechanisms to train and qualify personnel to help ensure there is a satisfactory level of competence to perform assigned duties and tasks. This process begins with defined requirements when hiring new employees and through position analysis, employee evaluation and training for incumbent staff. Training for technical staff is based on an assessment of position duties and responsibilities. The task required for competent job performance are identified and documented through a systematic analysis of requirements conducted through a table top job analysis (TTJA). The training program is based on the results of this analysis. Learning objectives are derived from tasks selected for training. Learning objectives describe knowledge and skills required for successful job performance and are specified in observable and measurable terms. Contractor training staff admit that TTJA were accomplished for a large portion of the technical staff several years ago. However, the size of the training staff has declined markedly in more recent years with fewer TTJAs being accomplished. There have been numerous changes in the last several years especially in the conduct of authorization basis analysis. The continuation of a systematic analysis of position requirements through a rigorous TTJA is highly recommended.

The contractor does have procedures and or mechanisms for feedback and improvement of their training. The Feedback and Improvement mechanisms are not centralized but are primarily accomplished at the activity level. The Maintenance and Operation Programs have implemented an early warning indicator (EWI) process that provides an opportunity to detect potential issues and focus on prevention of problems rather than the correction of problems. The early warning process keys on self-assessments, reinforcing line management responsibility for safety through direct observation and immediate feedback to reinforce standards and expectations. The purpose of the process is to reduce variability in safety performance by identifying and correcting at-risk behavior of personnel. The Operations Program has only recently implemented the EWI while the Maintenance Program has documentation supporting trends. This is considered a Noteworthy Practice by the maintenance department and appears to be gaining momentum by being adopted within other sister departments, (see NP-OP.1-1)

The Department Training Coordinators (TC) work as Lessons Learned Coordinators. The TC evaluates lessons learned. to determine applicability to fictional areas within their department, which are then presented as required reading. There are provisions and procedural documentation. to disseminate lessons learned information from a department or other source and be more generalized and made available to the balance of the plant population.

The Maintenance Department, for example, utilizes a feedback and improvement process on work control packages that provide the crafts an opportunity to. identify problems/concerns. The maintenance or crafts personnel can also submit a PX Form change to work control planning as another method for feedback and improvement. The contractor conducts line self-assessments as another method of enhancing operational safety through feedback and improvement. The maintenance department, for example, recently completed a self-assessment that identified crafts personnel recommended changes for work control packages were not being incorporated into the change control process. The Maintenance Department took immediate action, based on this self-identified oversight, to implement corrective measures to remedy this issue.

Conclusion

The criteria for this objective have been met.

Issue

SME.1-1 There have been problems noted on program start-ups regarding technician proficiency.

Team Member: <u>John Bernier</u> John Bernier	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS Verification Assessment Form

Functional Area: SME	Objective Number: SME.2
Maintenance and Work Control	Date: June 26, 2000

OBJECTIVE

Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE 11-3, CE II-4, CE II-5, CE II-6)

Criteria

1. Procedures and/or mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to [he subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area. Review training records of personnel in the subject area to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item. which includes interactions with personnel of the subject area.

Record Review

- MHC [O P-F O- 1049, Internal Operating Procedure, Processing Maintenance Work Orders
- MHC TP-MN-04126, Chain Hoists
- MHC TP-MN-04127, Wire Rope Hoist
- MHC DS-TP-04127, Hoist Inspection and Testing Checklist
- MHC WO 29054055-01, UPS Monthly PM
- MHC WO 29056713-01, 12-104 Bays 1-8 Hoist Monthly
- MHC WO 29052131-01, 12-98-C1, Install E-Lights “
- “ MHC WO 2903380 S)-02, Replace Motor – Well 16
- “ MHC PX-30, Safety Work Permit
- MHC PX-2872B, Excavation Permit
- MHC PX-3 169, Facility/Building Transfer Permit
- MHC STD-3118, Lockout/Tagout
- “ MHC PX-3 170, Work Order Performance Record
- MHC WO 29049261-01, 11-17 Sub-#983Y 544
- MHC STD-0143, Technical Procedure System

Interviews

- MHC Maintenance Work Control Manager
- MHC Maintenance Craft Manager
- MHC Electrical Supervisor
- MHC Electricians (.4)
- MHC Mechanics (5)
- MHC Plainer Supervisor
- MHC Deputy Maintenance Manager
- MHC Scheduler
- MHC Zone Manager

Observations

- High Voltage Electrical Outage
- Well Pump Trouble Shooting
- Hoist Monthly PM
- UPS Monthly PM
- Vehicle Maintenance
- POD Meetings
- Maintenance Meetings

Discussion of Results

Roles and responsibilities are clearly defined by IOP-FO-1049. Internal Operating Procedure, Processing Maintenance Work Orders. 1[is used for all maintenance personnel involved in planning, scheduling, performing and closing out work orders. Managers and supervisors interviewed understood that they were fully responsible for the safety of their employees, as well as being responsible for the ISM training of their employees.

Deficiencies were observed in [he work control process in the development of work packages. A work package did not identify the hazards associated with a pressurized system. Mechanics proceeded to remove a line from a pump that was used in the HE process. The system was still pressurized, and the mechanic came in contact with the solution in the pump. The Activity Hazards Analysis Screen Document and the planner failed to identify the pressurized system. (see SME.2-1)

A weakness in the work control process was observed when the procedure writer did not walk down a new UPS Monthly PM Procedure. The electricians were performing the review of this new procedure as they were performing the PM. The two electricians performing the work obtained the redline design drawings from the system engineer before performing the work. This was a good ISM initiative on the part of the electricians. They thoroughly understood the hazards identification and mitigation associated with maintenance on the UPS system. (see SME.2-3)

The work control process for Well 16 pump was not adequate. The original scope was to replace the electric motor, which was completed per the work package, but not closed out. Electricians were observed trouble shooting the control system with [he same motor installation work package. This work package should have been closed out and a new trouble shoot package developed. The work control process should identify the different hazards present with the new scope of work. (see SME.2-1)

Hazard identification and work planning control needed improvement. The Job Safety Hazards Analysis (JSHA) was not part of the Work Package for the high voltage electrical outage. The JSHA for the high voltage system was only a referenced document in the work package. There are no records to indicate that the craft actually read the applicable JSHA's referenced in work packages. (see SME.2-2) The JSHA should be included in the work package for the craft to review during the pre-job brief.

Readiness to perform work is established at the pre-job briefs by the craft supervisor, as well as the craft personnel performing the task. The craft personnel understand they have stop work authority if they are not comfortable with any aspect of a task. During a pre-job brief a mechanic was not ready to proceed until he was comfortable with additional PPE's. This was a good example of the craft being responsible for the confirmed readiness aspect of the ISM program. The pre-job brief for the high voltage electrical outage was adequate. Due to the increased hazards associated with the high voltage system, the electrical shop supervisor gave the pre-job brief. Diagrams of the electrical distribution system were reviewed by all the electricians to ensure they

were familiar with the scope of work. The other pre-jobs briefs attended have been adequate. The various craft, and supervisors interviewed have indicated that the maintenance organization does not always hold a pre-job brief.

Conclusion

The criteria for this objective have been met.

Issue

SME.2-1 Planners are not performing sufficient field verifications to become familiar with the job scope and hazards prior to initiating work packages.

SME.2-2 The Job Safety and Hazard Analysis Program are not an integral part of job work orders to improve worker safety. JSHAs are not reviewed with the craft at pre-job briefs.

SME.2-3 The procedure writer did not walk down a UPS Monthly PM procedure as required by STD-0 143, Technical Procedures System.

Team Member: <i>Larry Salants</i> Larry Salants	Team Leader: <i>Emil Morrow</i> Emil Morrow
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ISMS Verification Assessment Form

Functional Area: SME Radiation Health	Objective Number: SME.3 Date: June 26, 2000
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OBJECTIVE

Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE II-4, CE II-5, CE H-6)

Criteria

1. Procedures **and/or** mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures **and/or** mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons **learned have** been effectively used within the subject area. Review training records of personnel in the subject area to determine ~~that~~ they meet competency standards. “

Interviews: Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

Observations: Observe events such as the development of a procedure. development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the subject area.

Record Review

- “ 10 CFR 835, Radiation Protection Program (RPP) for the Pantex Plant, Rev. 4, October 29, 1999
- 10 CFR 835, Self-Assessment. Subpart M: Sealed Radioactive Source Control and Appendix E: Sealed Source Accountability, submitted June 1, 2000
- “ MHC S/RID 2.2.1, Radiation Protection. Document #HC-22 10, Issue 3, June 1, 2000
- STD-O 170, Temporary Technical Procedure System, Issue 17, March 24, 2000
- DIR-0001. Roles and Responsibilities for the Management and Operation of Pantex Plant, Issue 7, April 25, 2000
- STD-3013, Centralized Review System, Issue 10, April 14, 2000
- STD-32 17, As Low As Reasonably Achievable (ALARA) Program, Issue 10, March 23, 2000
- RSD Workplace Monitoring and Control Manual, MNL 180410, Issue 2, Rev. E, May 30, 2000
- RSD Organizational and Administration Manual, MNL 180411, Issue 2, Rev. B, May 19, 2000
- RSD Internal Dosimetry Manual, MNL 180414, Issue 2, January 14, 2000
- RSD External Dosimetry Manual, MNL 180413, Issue 2, May 17, 1999
- RSD Radiological Measurements Laboratory Manual, MNL 180697, Issue 2, January 14, 2000
- RSD Operations Control Manual, MNL 180412, Issue 2, May 27, 2000
- Pantex Radiological Control Records Management Program Manual, MNL 00038, Issue 4, April 12, 1999
- Examples of recent Management Assessments for the Operations Support Non-MAA Division (6)
- RSD Permanent Required Reading File
- RSD Immediate Required Reading File
- Pantex and RSD Organizational Charts
- Health and Safety Plan (HASP) for the Pantex Plant Hazardous Waste Treatment and Processing Facility. PLAN-PTX-278346, Rev. O, June 2, 2000
- Process Hazard Analysis, Hazardous Waste Treatment and Processing Facility, Building 16--18 and 16-18A, October 1999
- Integrated Safety Management Plan for the Management and Operation of Pantex, Rev. 6, April 26, 2000
- “ Tracking and Trending Charts of RSD Mentoring Activities for Year-to-Date FY2000
- MHCISM Phase II Self-Assessment for Radiation Health

Interviews

- MHC Radiation Safety Department Manager
- “ MHCMAA Operations Support Section Supervisor
- “ MHCMAA Operations Support Section Operations Manager
- “ MHC Technical Support Group Health Physicist
- MHC Non-MAA Operations Support Section Supervisor

The Department Training Coordinators (TC) work as Lessons Learned Coordinators. The TC evaluates lessons learned to determine applicability to functional areas within their department, which are then presented as required reading. There are provisions and procedural documentation to disseminate lessons learned information from a department or other source and be more generalized and made available to the balance of the plant population.

The Maintenance Department, for example, utilizes a feedback and improvement process on work control packages that provide the crafts an opportunity to identify problems/concerns. The maintenance or crafts personnel can also submit a PX Form change to work control planning as another method for feedback and improvement. The contractor conducts line self-assessments as another method of enhancing operational safety through feedback and improvement. The maintenance department, for example, recently completed a self-assessment that identified crafts personnel recommended changes for work control packages were not being incorporated into the change control process. The Maintenance Department took immediate action, based on this self-identified oversight, to implement corrective measures to remedy this issue.

Conclusion

The criteria for this objective have been met.

Issue

SME.1-1 There have been problems noted on program start-ups regarding technician proficiency.

Team Member: <u>John Bernier</u> John Bernier	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS Verification Assessment Form

Functional Area: SME	Objective Number: SME.2
Maintenance and Work Control	Date: June 26, 2000

OBJECTIVE

Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE 11-4, CE H-5, CE H-6)

Criteria

1. Procedures and/or mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated. and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area. Review training records of personnel in the subject area to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item. which includes interactions with personnel of the subject area.

Record Review

- MHC IOP-FO- 1049, Internal Operating Procedure, Processing Maintenance Work Orders
- MHC TP-MN-04126, Chain Hoists
- MHC TP-MN-04127, Wire Rope Hoist
- MHC DS-TP-04127, Hoist Inspection and Testing Checklist
- “ MHC WO 29054055-01, UPS Monthly PM
- MHC WO 29056713-01, 12-104 Bays 1-8 Hoist Monthly
- MHC WO 29052131-01, 12-98-C1, Install E-Lights “
- “ MHC WO 29033800-02, Replace Motor – Well 16
- MHC PX-30, Safety Work Permit
- MHC PX-2872B, Excavation Permit
- MHC PX-3 169, Facility/Building Transfer Permit
- MHC STD-3118, Lockout/Tagout
- MHC PX-3 170, Work Order Performance Record
- MHC WO 29049261-01, 11-17 Sub-#983Y 544
- MHC STD-0143, Technical Procedure System

Interviews

- MHC Maintenance Work Control Manager
- MHC Maintenance Craft Manager
- MHC Electrical Supervisor
- MHC Electricians (,4)
- MHC Mechanics (5)
- MHC Planner Supervisor
- MHC Deputy Maintenance Manager
- MHC Scheduler
- MHC Zone Manager

Observations

- High Voltage Electrical Outage
- Well Pump Trouble Shooting
- Hoist Monthly PM
- UPS Monthly PM
- Vehicle Maintenance
- PCD Meetings
- Maintenance Meetings

Discussion of Results

Roles and responsibilities are clearly defined by IOP-FO-1049. Internal Operating Procedure, 'Processing Maintenance Work Orders. It is used for all maintenance personnel involved in planning, scheduling, performing and closing out work orders. Managers and supervisors interviewed understood that they were fully responsible for the safety of their employees, as well as being responsible for the ISM training of their employees.

Deficiencies were observed in the work control process in the development of work packages. A work package did not identify the hazards associated with a pressurized system. Mechanics proceeded to remove a line from a pump that was used in the HE process. The system was still pressurized, and the mechanic came in contact with the solution in the pump. The Activity Hazards Analysis Screen Document and the planner failed to identify the pressurized system. (see SME.2-1)

A weakness in the work control process was observed when the procedure writer did not walk down a new UPS Monthly PM Procedure. The electricians were performing the review of this new procedure as they were performing the PM. The two electricians performing the work obtained the redline design drawings from the system engineer before performing the work. This was a good ISM initiative on the part of the electricians. They thoroughly understood the hazards identification and mitigation associated with maintenance on the UPS system. (see SME.2-3)

The work control process for Well 16 pump was not adequate. The original scope was to replace the electric motor, which was completed per the work package, but not closed out. Electricians were observed trouble shooting the control system with [the same motor installation work package. This work package should have been closed out and a new trouble shoot package developed. The work control process should identify the different hazards present with the new scope of work. (see SME.2-1)

Hazard identification and work planning control needed improvement. The Job Safety Hazards Analysis (JSHA) was not part of the Work Package for the high voltage electrical outage. The JSHA for the high voltage system was only a referenced document in the work package. There are no records to indicate that the craft actually read the applicable JSHA'S referenced in work packages. (see SME.2-2) The JSHA should be included in the work package for the craft to review during the pre-job brief.

Readiness to perform work is established at the pre-job briefs by the craft supervisor, as well as the craft personnel performing the task. The craft personnel understand they have stop work authority if they are not comfortable with any aspect of a task. During a pre-job brief a mechanic was not ready to proceed until he was comfortable with additional PPE's. This was a good example of the craft being responsible for the confirmed readiness aspect of the ISM program. The pre-job brief for the high voltage electrical outage was adequate. Due to the increased hazards associated with the high voltage system, the electrical shop supervisor gave the pre-job brief. Diagrams of the electrical distribution system were reviewed by all the electricians to ensure they

were familiar with the scope of work. The other pre-jobs briefs attended have been adequate. The various craft, and supervisors interviewed have indicated that the maintenance organization does not always hold a pre-job brief.

Conclusion

The criteria for this objective have been met.

Issue

- SME.2-1 Planners are not performing sufficient field verifications to become familiar with the job scope and hazards prior to initiating work packages.
- SME.2-2 The Job **Safety** and Hazard Analysis Program are not an integral part of job work orders to improve worker safety. **JSHAs** are not reviewed with the craft at **pre-job** briefs.
- SME.2-3 The procedure writer did not walk down a UPS Monthly PM procedure as required by STD-0143, Technical Procedures System.

Team Member: <u><i>Larry Lafants</i></u> Larry Lafants	Team Leader: <u><i>Emil Morrow</i></u> Emil Morrow
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ISMS Verification Assessment Form

Functional Areas: SME Radiation Health	Objective Number: SME.3 Date: June 26,2000
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OBJECTIVE

Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE II-4, CE II-5, CE H-6)

Criteria

1. Procedures and/or mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area. Review training records of personnel in the subject area to determine that they meet competency standards. “

Interviews: Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the subject area.

Record Review

- 10 CFR 835, Radiation Protection Program (RPP) for the Pantex Plant, Rev. 4, October 29, 1999
- 10 CFR 835, Self-Assessment. Subpart M: Sealed Radioactive Source Control and Appendix E: Sealed Source Accountability, submitted June 1, 2000
- MHC S/RID 2.2.1, Radiation Protection. Document #HC-22 10. Issue 3, June 1, 2000
- STD-01 70, Temporary Technical Procedure System, Issue 17, March 24,2000
- DIR-000 1. Roles and Responsibilities for the Management and Operation of Pantex Plant, Issue 7, April 25, 2000
- STD-3013, Centralized Review System, Issue 10, April 14, 2000
- STD-32 17, As Low As Reasonably Achievable (ALARA) Program, Issue 10, March 23, 2000
- RSD Workplace Monitoring and Control **Manual**, MNL 180410, Issue 2, Rev. E, May 30, 2000
- RSD Organizational and Administration Manual, MNL 180411, Issue 2, Rev. B, May 19, 2000
- RSD Internal Dosimetry Manual, MNL 180414, Issue 2, January 14,2000
- RSD External Dosimetry Manual, MNL 180413, Issue 2, May 17, 1999
- RSD Radiological Measurements Laboratory Manual, MNL 180697, Issue 2, January 14, 2000
- RSD Operations Control Manual, MNL 180412, Issue 2, May 27,2000
- Pantex Radiological Control Records Management Program Manual, MNL 00038, Issue 4, April 12, 1999
- Examples of recent Management Assessments for the Operations Support Non-MAA Division (6)
- RSD Permanent Required Reading File
- RSD Immediate Required Reading File
- Pantex and RSD Organizational Charts
- Health and Safety Plan (HASP) for the Pantex Plant Hazardous Waste Treatment and Processing Facility. PLAN-PTX-278346, Rev. O, June 2,2000
- Process Hazard Analysis, Hazardous Waste Treatment and Processing Facility, Building 16--18 and 16-18A, October 1999
- Integrated Safety Management Plan for the Management and Operation of Pantex, Rev. 6, -- April 26, 2000
- Tracking and Trending Charts of RSD Mentoring Activities for Year-to-Date FY2000
- MHCISM Phase II Self-Assessment for Radiation Health

Interviews

- MHC Radiation Safety Department Manager
- “MHCMAA Operations Support Section Supervisor
- MHCMAA Operations Support Section Operations Manager
- “MHC Technical Support Group Health Physicist
- MHC Non-MAA Operations Support Section Supervisor

- MHC Non-MAA Operations Support Section Operations Manager
- MHC Non-MAA Operations Support Section Radiation Safety Technician
- “ DOE Radiation Protection SME

Observations

- W56 Disassembly Operations.
 - “ Waste Management Facilities in Buildings 11-09 and 16-18.
- AL-R8 Sealed Container Packaging Process
- B61 D & I Operation
- W62 D & I Operation

Discussion of Results

The review of records demonstrated that the roles and responsibilities of the Radiation Safety Department are clearly defined, and the responsibilities and **functions** of the Department are integrated into the Plant-wide set of Directives and Standards. The interfaces **between** various Pantex groups and the Radiation Safety Department (RSD) are defined. Plant procedures define an adequate process for the review and authorization of work with respect to RSD, and include processes for identifying opportunities for feedback and improvement.

The Radiation Safety Department has recently combined a large number of Plant Standards dealing with the conduct of the RSD's activities into a smaller collection of manuals grouped by functional areas. This effort has resulted in an improved system for conveying the necessary procedural information, along with relevant roles and responsibilities, to the Radiation Safety Technicians (RST) for use during their day-to-day activities.

A review of other relevant Plant Standards verified that the responsibilities of other organizations with regards to radiation safety, and the interfaces between them and RSD, have been clearly and broadly disseminated within the Plant.

During interviews with various RSD personnel, it was clear that they were aware of and follow their particular roles and responsibilities as assigned by the RSD Manager. These personnel also demonstrated a satisfactory level of **technical** competence for their positions, along with an adequate understanding of the facilities ~~within~~ which they were---

There were no concerns identified during the observation of work evolutions. It was apparent that the RSTS and the workers they were supporting understood each other's roles and responsibilities, and there appeared to be a good level of cooperation.

One particular RSD program is noteworthy. The RST Mentoring Program encourages the RSTS to mentor workers with regards to radiological work practices when they observe a situation of concern. The RSTS then submit a note to RSD describing the mentoring activity, and those notes are tracked and trended by the RSD Training Group. On a quarterly basis, the RSD Training Group reviews the results of the trending, and considers improvements to the training material or the need for supplemental training or additional operator aids. (see SME.3- 1)

Conclusion

The criteria for this objective have been met. There were no issues identified for this functional area. One noteworthy practice was identified, the RST Mentoring Program. Pantex might consider applying this concept to other fictional areas.

Issue

- None

Noteworthy Practice

NP-SME.3-1 The RST Mentoring Program is a noteworthy practice for providing feedback and improvement into both the work practices of the individuals mentored, and into the overall radiation safety training program.

Team Member: <u>Douglas Minnema</u> Douglas Minnema	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS Verification Assessment Form

Functional Area: SME High Explosives	Objective Number: SME.4 Date: June 26, 2000
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OBJECTIVE

Within the individual subject area the planning of work includes an integrated analysis of hazards and development and specification of necessary controls. There is an adequate process for the authorization and control of work and a process for identifying opportunities for feedback and continuous improvement. Within the individual subject area, line managers are responsible for safety; clear roles and responsibilities have been established; and there is a satisfactory level of competence. (CE II-2, CE II-3, CE H-4, CE II-5, CE H-6)

Criteria

1. Procedures and/or mechanisms for the individual subject area require adequate planning of individual work items to ensure that hazards are analyzed and controls are identified.
2. Procedures and/or mechanisms for the individual subject area contain clear roles and responsibilities. The individual subject area is effectively integrated with line support managers to ensure that line managers are responsible for safety.
3. Procedures and/or mechanisms for the individual subject area require controls to be implemented, that these controls are effectively integrated, and readiness is confirmed prior to performing work.
4. Procedures and/or mechanisms for the individual subject area require that personnel who are assigned to the subject area have a satisfactory level of competence.
5. Procedures and/or mechanisms for the individual subject area require that within the subject area feedback and continuous improvement results.

Approach

Record Review: Review the manuals of practice and selected records that define the procedures and interactions required for the subject area at the facility or activity. Assess the adequacy of the documents to meet the criteria above and determine that the individual subject area is effectively integrated into the facility or activity procedures. Review any lessons learned that provide an opportunity to assess that lessons learned have been effectively used within the subject area. Review training records of personnel in the subject area to determine that they meet competency standards.

Interviews: Interview personnel and responsible managers in the subject area assigned. Interview line managers to assess the establishment of clear roles and responsibilities and the understanding of the support provided to line managers. Interview personnel assigned to the subject area to assess the level of competence.

Observations: Observe events such as the development of a procedure, development of a hazards analysis such as a radiological work permit or job hazard analysis, or the approval process for an individual work item, which includes interactions with personnel of the subject area.

Record Review

- Pantex Plant-s Integrated Safety Management Description. Rev. 6. April 26.2000
- Management Integration & Controls S/RID, Issue #8, 4/26/00
- 131 R-000 1._Policy Directive. Issue 7, April 25, 2000
- Development Instruction D. I. No. 00-127, Machining of W 84/87 Production Core Samples, April 17, 2000
- Index No. PX-3257, Daily Machine Tool Checklist, Machine Tool Number 736-2824, Bldg. 12-121, Bay 11, 6-20-00
- Index No. PX-4343, Pre-Job Briefing Building 12-121, Issue No. 4, June 8, 2000
- Index No. PX-3399, Explosives Control Checklist, Issue No. 13, 11/15/99
- Index No. PX-34 16, Movement Request Form, Issue No. 11, May 18, 1999
- Plant Standard STDO 143, Technical Procedures System, Issue 21, 3/23/00
- Plant Standard STD-3470, On-Site Packaging& Transfer of Hazardous Material, Issue 17, June 5,2000
- Plant Standard STD-3080, Handling of Explosives Contaminated Equipment& Expended Items, Issue 23, 4/7/00
- Plant Standard STD-3 125, On-Site Explosive Hazard Classification, Issue 6, 5/1 8/00
- Plant Standard STD-3307, Electroexplosive Device Bonding Requirements. Issue 14, 4/6/00
- Plant Standard STD-3350, Heating Explosives, Issue 11, 3/13/00
- Plant Standard STD-3700, Vacuum Cleaner& Transfer System for Explosives, Issue 4, 9/22/97
- Plant Standard STD-9540, Receipt& Release of Non-Nuclear Explosives From &To External Sources. Issue 2. 915i99
- Process Hazard Analysis - High Explosives Machining – Building 12-121. February, 1998
- 12!21-SB. Building 12-121 Safety Basis Documents. 10/2999
- Operations and Inspections Standard 88-0202. HE Charge. Charge A and Charge B Machining W 88-0. Issue T, 6/1/00 (U)
- Operating Procedure P7-0895, Burning Grounds Waste Treatment, Issue A. 1/12/00
- Operating Procedure P7-0898, Burning Grounds Operating Procedure. Issue I. 1/10/00
- Operating Procedure P7-0999, Explosives Movement, Issue J, 6/8/00
- Operator Training Records (10)

Interviews

The following MHC personnel were interviewed:

- PSM Program Manager, Applied Technology
- Bldg. 12-121 Facility Manager (2)
- Bldg. 12-121 Operations Leader
- Bldg. 12-121 Engineering Technician (3)
- Explosives Tracking Center Section Manager
- Explosives Tracking Center Planner/Scheduler
- Plant Procedures Manager
- Safety Engineer

- Bldg. 12-65/83 Operations Manager
- Explosives Storage Operations Expediter
- Waste Operations General Explosives Operations Leader
- Waste Operations Explosives Operator (2)

Observations

- Machining of LX-17 HE in Bldg.12-121, Bay 11
- Explosives Movement – Bldg. 12-121 to Bldg.12-83 to Burning Grounds
- “Heat Treatment at Burning Grounds
- Applied Technology Plan-of-the-Week Meeting

Discussion of Results

Ten operator-training records were reviewed to evaluate currency and applicability of training. The training records are maintained in a system known as TRAC (Training and Certification Database). The Database contains required training, dates of last training, and expiration dates. Training for the operators is current and applicable to the assigned job tasks.

The listed records were reviewed to evaluate incorporation of requirements relating to explosives safety and applicability to the operations observed. The Process Hazard Analysis – High Explosives Machining – Building 12-121, February, 1998, is a well-written document and adequately identifies the hazards resident in explosives machining operations. Controls are identified and flow down into the procedures. The Process Hazard Analysis was developed using the 29 CFR 1910.119 (Process Safety Management) process, as required by the DOE Explosives Safety Manual.

Operating procedures, which include the Operations and Inspection and the Developmental Instruction, were current and applicable to the operations observed. The procedures contained the appropriate cautions. Personal Protective Equipment requirements and operational steps.

MHC has established a hierarchy of procedures addressing technical operations, which is basically divided into Plant Standards and Operating Procedures. Plant Standards are generally divided into Critical Use, General Use, and Reference Use. Reference Use standards are not required to be maintained at the workstation where the operation is being performed. Plant standards are considered to be administrative documents, without prescriptive step-by-step requirements for the operation. However, some Reference Use documents contain the step-by-step operational requirements, not all of which may be included in operation procedures. An example of this is in the paragraph below.

There is some confusion as to the content of Standards and Procedures. One example is STD 3470, On-Site Packaging and Transfer of Hazardous Material. Section 3.6, On-Site Transfer Requirements, contains warning statements and prescriptive, step-by-step instructions. For example, 3.6.2 states, ‘-Load, transfer, or store together during on-site transfer, hazardous materials only as provided in this procedure.’ Steps 3.6.2 (b) through (g) are sequential, step-by-step instructions on how to do the work. However, this document is considered to be an

administrative document. marked Reference Use. Again, Reference Use documents are not required to be at the location at which the operation is being performed. STD-O 143, Technical Procedures System, states that the Standard covers procedures for all processing, handling, transportation, and staging operations involving nuclear explosives, high explosives, and other hazardous materials. By MHC's own requirements, STD-3470 more closely approximates a technical operating procedure than it does a general administrative document. In a meeting with a team member, the Plant Procedures Manager, the Safety Engineer, and the Applied Technology PSM Program Manager, MHC agreed that the STD-3470 should indeed be a Technical Operating Procedure, rather than an administrative Reference Use document. MHC should review the process for determining the content of Plant Standards and Technical Operating Procedures, as prescribed by Plant Standard STD-0143, Technical Procedures System, to assure operational requirements are properly contained in operation documents. (SME.4-1) This will help ensure procedures are incorporated into the appropriate review cycles.

The DOE Explosives Safety Manual (DOE M 440.1-1) states that explosives operating procedures should be reviewed every year, with a mandatory annual review for new, changed, or reactivated procedures. OSHA, in the 29CFR 1910.119, Process Safety Management Statute, requires an annual review and certification of procedures. MHC established a two-year review cycle on explosives operating procedures. Through the S/RIDS process, MHC adopted the 29 CFR 1910.119 (Process Safety Management) requirements as an equivalency to the Explosives Safety Manual requirements. However, MHC excepted themselves from the annual certification requirement in 29 CFR 1910.119, claiming the two-year review cycle was equivalent to the annual certification requirement. DOE approved the S/R-ID, with the exception to the annual review/certification requirement. The DOE and OSHA requirements for an annual review of operating procedures is to assure procedures are current and applicable to the operation. With an extended review cycle, the probability of not incorporating processes, facility and equipment changes into an active procedure increases. MHC should reconsider the exception to the annual review requirements to ensure the currency and adequacy of explosives operating procedures and incorporate feedback and improvement opportunities. (SME.4-2)

MHC personnel were interviewed to ascertain their level of knowledge regarding roles and responsibilities, support of line management, and depth of knowledge of the ISMS principles. The personnel interviewed were line managers, supervisors, and operators. Specific questions were asked in regard to roles and responsibilities specific to the individual's assigned job functions; and general questions were asked regarding other personnel's roles and responsibilities. All personnel interviewed were cognizant of their individual roles and responsibilities and exhibited knowledge regarding the roles and responsibilities of other positions. The responsibility of line management for implementing safety at the Pantex Plant was clearly stated by the personnel interviewed.

Specific questions were asked of the personnel interviewed regarding their understanding and roles in the seven ISMS elements identified at the Pantex Plant. Personnel were knowledgeable regarding their responsibilities and involvement in the process. Stop work authority is clearly understood. Indications are that management readily accepts worker input into the process and adopts recommended changes, which would enhance the safety of the operations. Personnel are

actively involved in procedure development and changes to procedures. While it is recognized that scope, schedule, and cost are important, several personnel related that production considerations do not appear to take precedence over safety.

The Applied Technology Plan-of-the-Week meeting was attended. The meeting addressed facility status, upcoming maintenance activities, and other issues which may impact on the ability to conduct explosives operations.

Machining of High Explosives (LX-17) was observed in Bldg. 12-121, Bay 11. The operation was performed in accordance with Development Instruction, D. 1. No. 00-127, Machining of W 84/87 Production Core Samples, April 17, 2000. Daily Machine Tool Checklist, Index No. PX-3257, Machine Tool number 736-2824. Bldg. 12-121, Bay 11, 6/20/00, was used as part of the pre-operational check to ensure proper operation of equipment prior to the start of the operation. Index No. PX-4343, Pre-Job Briefing Building 12-121, Issue No. 4, June 8, 2000, was used as a checklist to ensure applicable procedures and equipment were in place prior to the start of the operation. A positive feature of the Pre-Job Briefing form is that it contains specific requirements for validation of currency of the technician's training requirements and the technician's machine qualification requirements. The form is in checklist format, with date and initials required to validate compliance with each item. The class of the explosive operation, personnel and explosives limits, suitability of the facility and equipment for the operation, and operational parameters were in consonance with prescribed requirements.

An explosives movement was conducted from Bldg. 12-121 to the Bldg. 12-83 loading dock, then to the Burning Grounds for disposal. The explosives material was waste from machining operations. Forms PX-3399, Explosives Control Checklist, Issue No. 13, 11/15/99 and PX-3416, Movement Request Form, Issue No. 11, May 18, 1999, were used in conjunction with Operating Procedure P7-0999, Explosives Movement, Issue J, 6/9/00, for the movement. Implementation of the Operating Procedure, with the listed forms, precluded inadvertent delivery of explosives to a site which may not be able to receive the explosives. Transport equipment was properly inspected and equipped for transporting explosives.

Burning Ground operations, for the disposal of waste explosives, were observed. Operations were conducted in accordance with Operating Procedure P7-0895, Burning Grounds Waste Treatment, Issue A, 1/12/00 and Operating Procedure P7-0898, Burning Grounds Operating Procedure, Issue I, 1/10/00.

Evidence of implementation of the ISMS principles relating to Control Hazards and Perform Work was present in the observed operations.

Conclusion

Criteria for 2, 3, 4, and 5 have been met. Criteria for 1 have not been met.

Issue

SME.4-1 Operational requirements were found in Plant standard instead of Technical Operating Procedures, as prescribed by Plant Standard STD-0143, Technical Procedures System.

SME.4-2 The exception to the annual review requirement does not ensure the currency and adequacy of explosives operating procedures and incorporate feedback and improvement opportunities.

Team Member: <u>Allan M. Herrbach</u> Allan Herrbach	Team Leader: <u>Emil Morrow</u> Emil Morrow
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ISMS Verification Assessment Form

Functional Area: VAL	Objective Number: VAL.1
	Date: June 26,2000

OBJECTIVE

Actions taken by AAO in response to Opportunity for Improvement #5 contained in the April 2000 Pantex Phase IISMS Verification Report are adequate. (AL Manager Direction)

Criteria

1. AAO has fully addressed the scope of Opportunity for Improvement #5. (The AAOISM System Description needs improvement)
2. Objective evidence indicating AAO has validated implementation of actions associated with OFI#5 is available -
3. Actions taken in response to OFI#5 adequately address issues raised under OFI#5.

Approach

Review Objective Evidence from AAO. Sample implementation of actions taken in response to OFI#5.

Record Review

- Amarillo Area Office ISM System Description, Rev. 1
- AAO Procedure 103.2.0 (Authorization Agreements), Rev. 2
- AAO Procedure 103.4.0 (Functions, Responsibilities and Authorities Manual), Rev. 2
- AAO Procedure 110.2.1 (Assessment Program), Rev. 3

Interviews

- DOE Area Office Manager
- DOE Deputy Area Office Manager
- Staff Manager
- Senior Scientific Technical Advisor

Discussion of Results

The record review and interviews with senior DOE management support the conclusion that AAO has taken adequate action to close all items listed under Opportunity for Improvement #5 contained in the April, 2000 Phase I Verification Report.

Conclusion

The criteria for this objective have been met.

Issue

- None.

Team Member: <u>Emil Morrow</u>	Team Leader: <u>Emil Morrow</u>
Emil Morrow	Emil Morrow

ISMS Verification Assessment Form

Functional Area: VAL	Objective Number: VAL.2
	Date: June 26, 2000

OBJECTIVE

Actions taken by MHC in response to Opportunity for Improvement #2 contained in the April 2000 Pantex Phase I ISMS Verification Report are adequate. (AL Manager Direction)

Criteria

1. MHC has fully addressed the scope of Opportunity for Improvement #2. (The MHC ISM System Description needs improvement to achieve consistency)
2. MHC's declaration of readiness for Phase II includes a statement the all issues under OFI#2 have been resolved.
3. Objective evidence indicating MHC has validated implementation of actions associated with OFI#2 is available
4. Actions taken in response to OFI#2 adequately address issues raised under OFI#2.

Approach

Review Objective Evidence from MHC. Sample implementation of actions taken in response to OFI#2.

Record Review

- June 13, 2000. Letter from Benjamin J. Pellegrini, Ph. D., Pantex General Manager, to Daniel E. Glenn, Area Manager, Amarillo Area Office, reporting declaration of readiness for Phase II ISM verification
- MHC Readiness Review and Assessment Group. Report of Integrated Safety Management Phase II. Line Management Self-Assessments, dated June 12, 2000
- Plant Standard STD-7012, Functions of Weapons Program Managers, June 12, 2000
- Plant Standard STD-7043, Operations Directorate, June 7, 2000
- Internal Operating Procedure 729, Program Management Directorate Project Plan Development, May 23, 2000
- MNL 289226, MHC Feedback and Improvement Manual, June 8, 2000

Interviews

- " Pantex General Manager, MHC "
- Director, Program Management, MHC
 - Director, Operations, MHC
 - Director, Support Services, MHC
 - Director, Applied Technology, MHC
- " Director, ESH&Q, MHC "

- Director, Security and Emergency Semites, MHC
- Senior Scientific Technical Advisor, DOE, AAO

Discussion of Results

Senior MHC management and the Senior Scientific Technical Advisor of DOE and AAO were interviewed with regard to the closure of Opportunity for Improvement #2. Based on the interviews and review of both the MHC General Manager letter declaring readiness for Phase II and the MHC Line Management Self-Assessment, selected documents were reviewed in order to spot-check that reported actions were accomplished. An audit of MHC standards and publications revealed that a few standards and publications still require revision.

Conclusion

The criteria for this objective have been met

Issue

VAL2.1 The revision of plant standards and procedures that reflect the roles and responsibilities of the MHC reorganization of March 2000 has not yet been completed. Ten standards, two IOP'S, two manuals and six O&I's had not been revised as of June 23, 2000. Change requests have been initiated for all items that have not yet been revised.

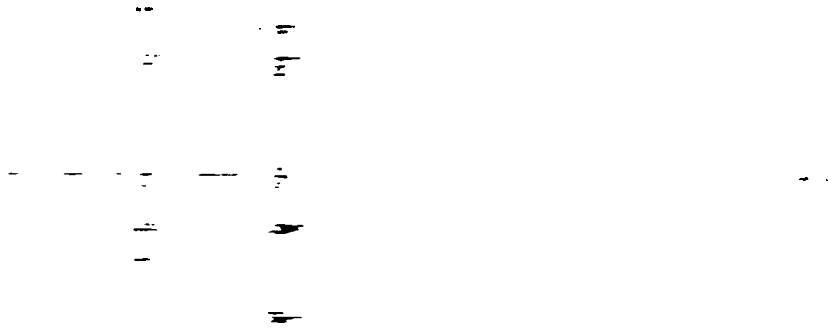
Team Member: <u>Emil Morrow</u> Emil Morrow	Team Leader: <u>Emil Morrow</u> Emil Morrow
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Appendix B

Acronyms

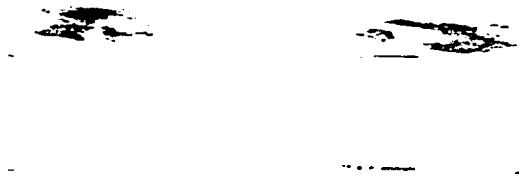
Acronyms

AAO	Amarillo Area Office
AL	Albuquerque Operations Office
AB	Authorization Basis
CAP	Corrective Action Plan
CRAD	Criteria Review and Approach Document
DOE	Department of Energy
HE	High Explosives
ISMS	Integrated Safety Management System
ISMSV	Integrated Safety Management System Verification
MHC	Mason and Hanger Corporation
OFI	Opportunity for Improvement



Appendix C

Team Member Biographies



Team Member Biographies

“ Emil D. Morrow

Mr. Morrow joined the Department of Energy (DOE) in June 1995. He is the Senior Technical Advisor for Safety and Operations in Defense Programs (DP). His duties have included involvement in Defense Nuclear Facilities Safety Board (DNFSB) Recommendations, international liaison with nuclear programs of other nations and advisor to senior DP Headquarters (HQ) line management.

Mr. Morrow has been involved with the DNFSB Recommendation 95-2 (Integrated Safety Management) since its beginning. For two years he performed additional duties as the Assistant Director, Safety Management Implementation Team. In this capacity, he has traveled extensively throughout the DOE complex on Integrated Safety Management issues. He holds a B.S. Degree from the U.S. Naval Academy and a M.S. Degree from the George Washington University. Mr. Morrow has over 30 years operational experience in the U.S. Navy. He was directly involved in the management, supervision and operation of naval nuclear reactors. He served on seven submarines. His ship based experience includes a 54 month tour as an Engineer Officer and command of two nuclear submarines, the USS Whale (SSN 638) and the USS Providence (SSN 719). He was the commissioning commanding officer of the USS Providence, the first vertical launch Tomahawk Missile SSN and the first Naval ship to go to sea with a digital rod control system. As a member of the Naval Nuclear Propulsion Examining Board he conducted over 80 assessments of reactor plants and nuclear facilities and developed the initial sets of drills, evolutions and tests for the 688 class submarine reactor safeguards examinations. Mr. Morrow is the founding director of the Navy's Nuclear Field A School where he supervised the instruction of 5000 students annually. Senior Officer assignments included tours as a Submarine Squadron Commander, two Pentagon tours and Chief of Staff, Battle Force Seventh Fleet. In the latter capacity he was the chief investigator of three significant incidents, one of which received considerable international coverage.

John M. Bernier

Mr. Bernier is currently the Deputy Area Manager for the Amarillo Area Office. He is directly responsible for self-assessments, issues management, Price Anderson Amendment Act, and employee concerns; Prior to this, he was the Executive Officer to the Albuquerque Operations Manager. Mr. Bernier worked for the Under Secretary of Energy as the Field Office Liaison Officer responsible for providing daily oral briefs to the Secretary of Energy and his senior staff on significant occurrences throughout the DOE complex. Prior to this, Mr. Bernier was the Chief of Facilities Planning Branch at DOE Albuquerque Office responsible for facilities program implementation at the design and production agencies and lead special facilities moth ball task force. He was also the facilities engineer at the Mound Plant during production operations. He has over 20 year of experience in the areas of nuclear weapons, nuclear materials, authorization basis, configuration management, maintenance, facilities planning, training, environmental restoration, and project management. He has been on several Operational Readiness Reviews for both chemical and nuclear facility start-up operations. Mr. Bernier has a B.S. Degree in Civil Engineering from the University of New Mexico.

Robert T. (R. T.) Brock

Mr. Brock is the Senior Scientific and Technical Advisor for the Amarillo Area Office and has over fifteen years of nuclear experience. He is responsible for independently reviewing and evaluating: nuclear weapon assembly, disassembly and testing operations; nuclear material storage and handling operations; and high explosive synthesis, fabrication and disposition operations to determine the adequacy of safety. Mr. Brock is a Certified ISMS Verification Team Leader. He served in varying capacities with the Savannah River Operations Office from 1987-1998, and was involved in the operation of a wide range of nuclear facilities, including laboratory research and development, spent fuel storage, special nuclear material storage, and chemical separation processes for tritium, uranium, plutonium and other special isotopes. He has experience in developing tooling, radiological controls, and written technical procedures for refueling of naval nuclear reactors. Mr. Brock has a B.S. Degree in Nuclear Engineering from the University of Tennessee.

Larry D. Earley

Mr. Earley is a Facility Representative (FR) Team Leader for the Richland Operations Office and performs as a FR for the Spent Nuclear Fuel Project. Mr. Earley is responsible for the daily operational and safety oversight for his assigned project and for the day-to-day performance of his team members. He has eleven years of experience in nuclear facility operations and oversight. Mr. Earley joined the Department of Energy (DOE) in 1994 where he helped design and implement the Richland Operations Office FR program. He was selected as a FR in 1995. Larry has performed as a FR for the Hanford waste treatment, storage, and disposal facilities, the analytical laboratories, and for the spent nuclear fuel project. In 1999, Mr. Earley was promoted to FR Team Leader. Prior to his DOE experience, Mr. Earley worked for the Department of Defense (DOD) in the Naval Nuclear Propulsion Program as a Nuclear Shift Test Engineer at Mare Island Naval Shipyard. Larry began his government service with his DOD assignment in 1989. He has been a team member on four Conduct of Operations Assessments, one Readiness Assessment and one Line Management Assessment to verify readiness prior to an operational readiness review. In addition, Mr. Earley has individually performed over one hundred surveillances to verify contractor performance in the operations, nuclear/occupational safety, engineering, maintenance, radiological control, environmental, waste management, and quality assurance programs. Mr. Earley has a B.S. Degree in Chemical Engineering from the University of Washington in 1989.

Richard (Dick) Englehart

Mr. Englehart has twenty years technical and management direction experience for nuclear safety and environmental analyses for nuclear power, uranium fuel cycle, Pu-238 radioisotope thermoelectric generator (RTG) NASA missions, and DOE non-reactor nuclear facilities. He also has seven years experience in nuclear safety policy and standards development and implementation advice. He has participated in ISMS Verifications at Y-12 Plant, Pantex, and a mini verification at the LLNL plutonium facility (B332) in the area of Hazards (identification and controls). He has participated in verifications at INEEL in the areas of DOE and all areas for a subset of INEEL facilities. He is certified as an ISM Implementation Team Leader.

Dr. Englehart joined DOE in 1990 in the New Production Reactors Program. He was on the staff of the Chief Engineer as a senior advisor and also was Director, Office of Environment for the Program. In 1992 he joined the Office of Nuclear Safety Policy and Standards, where he has had responsibility for the Safety -Analysis Report (54 S0.23), Technical Safety Requirements (5480.22), Unreviewed Safety Question (5480.21), and Nuclear Safety Design Criteria (420. 1, section 4.1) Orders. This includes drafting guidance, interpretations and advice regarding implementation. Prior to DOE. Dr. Englehart was employed by NUS Corporation for 18 years, providing services [o the nuclear power industry and to DOE as a principle investigator, project manager, department manager (radiological! programs), and assistant division manager. He was an assistant professor of Nuclear Engineering at the University of Florida and was director of the University research reactor for four years. He holds a B. S. Degree in Mechanical Engineering from Carnegie Mellon University, a M. S. Degree. and a Ph.D. in Nuclear Engineering from the Pennsylvania State University.

Joseph J. (Joe) **Hassenfeldt**

Mr. **Hassenfeldt** holds a B.S. Degree from the U.S. Naval Academy, where he graduated with Merit in 1986. He entered the Navy's Nuclear Propulsion Program and served as a Division Officer on a TRIDENT class Ballistic Missile Submarine. In 1991, he joined the Department of Energy's (DOE) New Production Reactors (NPR) Program as a Nuclear Engineer guiding and reviewing Heavy Water Reactor design. Mr. **Hassenfeldt** was DOE'S Action Officer for the development of DOE's Business Management Oversight Pilot, the process by which performance expectations are developed, self-assessed, and overseen by the Field and Headquarters offices. This is the model upon which Policy 450.5, *Line ES&H Oversight*, was based. From 1994 to 1999, he led the Department's Facility Representative Program for the Office of Field Management, including liaison with the Defense Nuclear Facilities Safety Board (DNFSB), policy development, and program improvements. He now works in the Office of the Departmental Representative to the DNFSB, on safety issues regarding Pantex, the Chicago Operations Office, and the National Labs, specifically, DNFSB Recommendations 98-1, 98-2, and 99-1. Mr. **Hassenfeldt** was the contractor feedback and improvement reviewer for Lawrence Livermore National Laboratory Integrated Safety Management phase I/II Verification.

Tim Henderson

Mr. Henderson is a qualified Facility Representative for Laser Systems with the National Nuclear Security Administration (NNSA), Defense Programs, Oakland Operations Office. He holds a B.S. Degree in Physics from North Georgia College and has 12 years of professional experience including over five years with the Department of Energy (DOE). Mr. Henderson has completed the DNFSB 93-3 DOE Technical Qualification Program in Mechanical Systems during his tenure at Savannah River under the Assistant Manager for High Level Waste. Mr. Henderson has led and participated in various Environmental, Safety, and Health (ES&H) assessments, audits, and reviews including the startup of Savannah River's Defense Waste Processing Facility, Replacement High Level Waste Evaporator, In-Tank Precipitation, and Tank Closure activities. Since 1998, Mr. Henderson has worked at the Lawrence Livermore National Laboratory (LLNL) as a Facility Representative and Laser Safety Officer for DOE Oakland. In this capacity, he has participated on several DOE reviews at LLNL including leading the Laser Safety "For Cause". Review and participating in the Electrical Safety "For Cause" Assessment. He reports to the Assistant Manager for the Livermore Site (Livermore Safety Oversight

Division) responsible for the ES&H oversight of LLNL as a General Engineer/Physicist. His duties task him to provide line management contractor oversight on ES&H issues, high hazard laser systems, and nuclear and non-nuclear facility point-of-contact. Specific facilities of oversight include the National Ignition Facility, AVLIS, NOVA projects, and miscellaneous Defense Program laser research. Mr. Henderson has also led the effort to approve the SAR and development of the SER for Site 300 Weaponization Program. He is also a member of the Core Technical Group, American Nuclear Society, and the Bay Area Laser Safety Officers Organization on the West Coast. As a Program Manager at Savannah River Site from 1995 to 1998, he was instrumental in developing the Tank Closure Plan and subsequent closure of the Departments and the world's first High Level Radioactive Waste Tank. Also in that capacity, he was the interface between DOE and the Citizen's Advisory Board, a public body for disseminating information on DOE issues. Prior to DOE, Mr. Henderson's relevant experiences include Instructor of Physics and Japanese within the University of Georgia System for four years. He has also worked for Rockwell Power Systems in concert with the Department of Defense (Defense Advance Research Project Agency) involving laser tracking systems on the Star Wars and Strategic Defense Initiative Projects for NASA space shuttle in-flight tracking and bow-shock missile experiments.

Allan Herrbach

Mr. Herrbach has a B. A. Degree in Public Service Administration/ Management Systems Analysis. His technical background was gained in the U.S. Naval Explosive-Ordnance Disposal (EOD) School, numerous explosive safety courses, and weapons training. He has also received extensive technical safety training in various safety disciplines. He has been named on two NRC licenses for U.S. Army Commands. He was the Nuclear Surety Officer for Kirtland Air Force Base. He has twenty years experience as a Safety Specialist/Manager in the DOD and DOE communities. Safety experience included industrial safety program management and assessments in heavy industrial and reasearch and development areas. He is a voting member of the DOE Explosive Safety Committee and a working member of the DOE NASA Pressure Safety Working Group. He is also a voting member on the DOE Construction Safety Committee and the Hoisting and Rigging Technical Advisory Committee. Mr. Herrbach was a Team Member on the Operational Readiness Review for the Isotope Fuels Impact Test Facility at Los Alamos National Laboratory; the RAMROD Readiness Assessment at Los Alamos National Laboratory; the DARHT Readiness Assessment at Los Alamos National Laboratory; the WALS Readiness Assessment (RA) at the Pantex Plant; the TSR RA at the Pantex Plant; and the 1-125 RA at Sandia National Laboratories TA-40MMIFT RA at Los Alamos.

Jo Kersh

Ms. Kersh is a Technical Assistant for XL Associates, Inc. Prior to her employment with XL Associates, Inc., she was a Program Assistant in Defense Programs, Department of Energy (DOE). She has 13 years of government service, including 12 years with the Department of Energy. As a Program Assistant at DOE and in her current position, Ms. Kersh plans and schedules Operational Readiness Reviews (ORRs), Readiness Assessment (RAs), and Integrated Safety Management System Verifications (ISMSVs) encompassing comprehensive, functional, managerial, and programmatic verification of DP nuclear facility safety. She coordinates logistics, travel, and other arrangements for ORRs, RAs, and ISMSVs of DOE programs which deal with DP's (and other programs as requested) nuclear projects, operations, and facilities. She

assists in selected aspects of ORRS, RAs, and ISMSVs by reviewing and analyzing limited areas of an administrative nature where well-established policies and procedures are in place; and contributes factual information for incorporation into reports. She coordinates and oversees the processes involved in report preparation. She assures documents receive appropriate classification designation and handling.

Ms. Kersh has provided administrative coordination and technical support for the Technical Safety Assessment at Kansas City Plant, Kansas City, Missouri. ORRS have included: Building 371 at Rocky Flats Site; Replacement Tritium Facility; F-Canyon Phase I and Phase II, FB-Line, In-Tank Precipitation, Defense Waste Processing Facility, Consolidated Incinerator Facility, H-Canyon, Replacement High Level Waste Evaporator, and K-Area Material Storage at the Savannah River Site, Aiken, South Carolina; Combined Device Assembly Facility, at Nevada Test Site, Mercury, Nevada; Waste Isolation Pilot Plant, Carlsbad, New Mexico; Buildings 9212 and 9215 Enriched Uranium Operations at Y-12; and Building 9212 Resumption of Fissile Material Handling at Y-12, OROO. She coordinated the RA for Receipt, Storage, and Shipment at the Y-12 Site, OROO, and assisted with the administrative support for the RA for Disassembly and Assembly at the Y-12 Site, OROO, Oak Ridge, Tennessee. Ms. Kersh was the administrative support for Environment, Safety and Health on the Highly Enriched Uranium Vulnerability Assessment at the Pantex Site in Amarillo, Texas. Ms. Kersh has also provided the administrative coordination for the ISMSV Phase I at Savannah River Site, and Phase II at FB-Line Savannah River Site; Phase I and II ISMSV at Rocky Flats Site; Phase I ANL-W at Idaho; Phase I at Nevada Test Site; and Phase I at LLNL.

Douglas M. Minnema

Mr. Minnema is a Certified Health Physicist and a nuclear engineer with the Office of Technical Support in the Office of Defense Programs, DOE. Dr. Minnema joined DOE in November, 1995, and is currently the Radiological Control Program Advisor to Defense Programs. He holds a B.S. E. and M.S.E. in Nuclear Engineering, and a M.S. in Radiological Health, all from the University of Michigan, and a Ph.D. in Nuclear Engineering from the University of New Mexico. Dr. Minnema previously worked at Sandia National Laboratories (SNL) for over 16 years with his time divided equally between health physics and research reactor operations. He has been a qualified health physicist at the SPR and ACRR reactor facilities and the SNL Hot Cell Facility, a certified reactor operator of the SPR II, SPR III, and Critical Assembly reactors, and has performed accident analyses and criticality safety evaluations in support of SNL nuclear material operations and experiments. He has also been involved in a variety of environmental and field test operations. For almost three years, Dr. Minnema was assigned to DOE/DP Headquarters assisting the program offices with radiological operations issues, primarily the implementation of the Occupational Radiation Protection Rule, 10 CFR 835, and the DOE Radiological Control Manual. As a DOE employee, he participated on the H-Canyon and the KAMS ORRS at the Savannah River Site, the Enriched Uranium Operations Restart ORR at the Y-12 Plant, the ISM Phase I/II Verification at the Superblock Facility at LLNL, and conducted an assessment of the LLNL radiation protection program. He is also a reviewer and contributing author for the LANL and SNL/NM Site-Wide Environmental Impact Statements, and the LLNL Supplement Analysis

Dan Pellegrino

Mr. Pellegrino has a B. S. Degree in Electrical Engineering. He has 19 years of experience in program management, operations, and quality assurance. Dan has been closely involved with the Department of Energy (DOE) implementation of Integrated Safety Management (ISM). He is a Certified ISMS Verification Team Leader, and was the Deputy Team Leader for Pantex (PX) and Sandia National Laboratories (SNL) ISMS Verifications. Dan led the ISM Verifications at the Kansas City Plant, the Nonproliferation and National Security Institute (NNSI), and the Grand Junction Office (GJO). Dan also was the Deputy Team Leader for the Los Alamos National Laboratory (LANL) FY99 Special Assessment. Dan's operational experience includes project team membership for restart of the Dynamic Balancer at PX. Other recent duties include: Albuquerque Operations Office (AL) representative on the Pantex ISM Facilitation Team responsible for facilitation of ISM at PX; Conduct of Operations subject matter expert Team Member for the Annual Core Research Reactor (ACRR) Operational Readiness Review (ORR); Primary AL liaison for Defense Nuclear Facility Safety Board (DNFSB) activities; AL Price Anderson Coordinator; and, Member of the Type A investigation team for the fatal shooting incident at the Los Alamos National Laboratory (LANL). From May 1981 to June 1991, Dan was involved in DOE/AL's weapon quality program. He provided oversight of weapon component quality and final assembly for products produced at DOE/AL production facilities. These sites include the Kansas City Plant, the Mound Plant, the PX Facility, and the Rocky Flats Plant. He provided direction, guidance, and evaluation to assure product quality met specifications during development, preproduction, and production. He also performed weapon quality assurance surveys, analyzed and approved DOE Area Office survey schedules, and reviewed quality data to detect trends.

Teresa Sena

Ms. Sena has 18 years experience in nuclear weapons, nuclear material, nuclear and hazardous waste management, nuclear facility operations, manufacturing systems, project and program management and environmental protection. This experience was gained at the Pantex Plant, Los Alamos National Laboratory, Kansas City Plant, Sandia National Laboratory, Y-12 Plant, Rocky Flats Plant, and Hanford. From 1998 to 2000, Ms. Sena managed the Stockpile Life Extension Program for DOE Defense Programs, coordinating and integrating the weapons requirements, research and development, production, and resource planning for the refurbishment of the nuclear weapon stockpile, with DOE Defense Programs, Los Alamos National Laboratory, Sandia National Laboratory, Lawrence Livermore National Laboratory, Pantex Plant, Kansas City Plant, Y-12 Plant, and Savannah River. During 1996 through 1998, Ms. Sena was the Program Manager for Pit Production and Certification in support of the nuclear weapon stockpile. She was responsible for managing the development of new technologies required for the production of pits at the Los Alamos National Laboratory, managed all aspects of producing nuclear and non-nuclear pit components at Los Alamos, represented program concerns associated with the operation of nuclear facilities at Los Alamos, and represented program interests on supporting construction projects at the Lab. From 1991 to 1996, Ms. Sena was responsible for providing counsel on compliance with environmental regulations for hazardous, radioactive mixed, classified hazardous, and sanitary waste management operations in support of the nuclear weapons complex. Prior to joining the DOE, Ms. Sena provided regulatory, engineering systems analysis and program management support as a contractor at the Rocky Flats Plant and as a Research Engineer with Battelle at the Hanford Site. Ms. Sena has a B. S. Degree in Industrial Engineering. Ms. Sena has been formally trained in readiness reviews and

nuclear explosive and weapon surety.

L a r r y Zalants

Mr. Zalants has a B. S. Degree in Civil Engineering from the University of South Carolina. He worked as a Naval Architect (structural engineer) and Nuclear Engineer at the Charleston Naval Shipyard from 1983 to 1991. He was responsible for the design and installation of various engineering features for surface ships and submarines. Performed waterfront support for production shops for ships and submarines in overhaul. Conducted liaison between various civilian and government shipyards for ships in regular overhaul. Lead Tiger Teams to make emergency ship repairs.

Mr. Zalants worked as a DOE Project Manager from 1991 to 1996, where he managed General Plant, Capital Equipment, and Major Projects. He was responsible for maintaining technical scope, schedule and budget for assignment projects throughout the site. He was responsible for the Sitewide Chiller Upgrade Project, where he received extensive training in Heating, Ventilation and Air Conditioning. Mr. Zalants worked as a Facility Representative in the **Tritium** Facility from 1996 to 1998. He provided oversight of **tritium** extraction, gas processing, reservoir loading and unloading, and reservoir reclamation. Mr. Zalants became the **Maintenance** Program Manager for the Tritium Facility in 1998. He provided interface between operations and maintenance to ensure production schedules. Provided program support for expanding the predictive maintenance program to include thermography, oil analysis, and vibration analysis. Mr. Zalants is currently a Facility Representative overseeing the operations of the Savannah River Technology Center, which is a fully functional radiological and chemical research facility with radiological waste treatment systems, high level robotic containment cells, and complex ventilation systems.