United States Government | Department of Energy

memorandum

National Nuclear Security Administration
Pantex Site Office

DATE: MAR - 5 2003

REPLY TO ATTN OF: PXSO:FR:GRR

SUBJECT: Pantex Site Office Readiness Assessment Report for Transportation Safety Analysis Report Module Phase 1, Group 2 Controls

TO: Michael B. Mallory, President & General Manager, BWXT Pantex LLC

Attached is the Pantex Site Office Readiness Assessment Report for the Transportation Safety Analysis Report Module Phase 1 Group 2 Implementation. There were no Category A findings and two Category B findings noted during this assessment. Category B findings require the submittal of Corrective Action plans. Please submit documentation of proper action on these findings to this office by March 31, 2003.

Any questions regarding this report should be directed to Grady Rose at extension 3162.

Daniel E. Glenn
Manager

Attachment

cc w/attachment:
J. Kirby, PXSO, 12-36
D. Brunell, PXSO, 12-36
G. Rose, PXSO, 12-42
R. Moore, PXSO, 12-36
E. Burkholder, PXSO, 12-36
D. Rast, PXSO, 12-36
C. VanArsdale, BWXT, 12-11C
G. Watson, BWXT, 12-11A
V. Hughes, BWXT, 12-6D
S. Ufford, BWXT, 12-61
T. Ellis, BWXT, 12-2B
C. Turner, BWXT, 12-2B

S:AMOA/2003Memos/10013

National Nuclear Security Administration

Final Report

NNSA
Pantex Site Office
Readiness Assessment (RA)

Transportation Safety Analysis
Report Module Phase I Group II
Implementation

February 3-14, 2003
Revision 2

Determined to be Unclassified by
L.C. Phillips
Pantex Classification, BWXT/PX/710
Date: 2/03

Signature Page

The following members of the RA team reviewed their individual functional areas and assisted the team leader in making an overall evaluation of the readiness of this operation. The undersigned concur with the contents and conclusions of this report.

Emory Hogan (AB/NES) 2/28/03
Date

Roger Moore (TR/MS) 2/28/03
Date

Dave Rast (OP/MT) 2/28/03
Date

Grady Rose (CM/SEO) 2/28/03
Team Leader
Date

Executive Summary

A NNSA Pantex Site Office (PXSO) Readiness Assessment (RA) was conducted between February 3-14, 2003 in accordance with the "IMPLEMENTATION PLAN for the NATIONAL NUCLEAR SECURITY (NNSA) READINESS ASSESSMENT OF TRANSPORTATION SAFETY ANALYSIS REPORT MODULE PHASE I, GROUP II", dated January 30, 2003. Implementing the Transportation Safety Analysis Report (TSAR) Module Phase 1 controls has been designated as a restart activity by the Manager of the Pantex Site Office (PXSO) because of the imposition of new safety requirements and associated revisions to the safety basis of existing nuclear explosive and nuclear material operations. The purpose of the review was to assess the readiness of the personnel, procedures and facilities associated with Phase I Group II of these controls.

There were no concerns identified as a Category A Findings.

Two concerns were noted as Category B Findings:

AB – 1.5 *"The Safety Basis Database (SBDB) correctly shows the linkage between the authorization basis and the implementing documents."* The linkage between the SBDB and the Pantex Plant Hoisting & Rigging Standard (STD-3333) is incorrect. Specifically, the SBDB pointed to Step 3.1.3 (g) (h) vice step 3.1.4 (b) (d) (i) (g) of the Hoisting and Rigging standard for the TSR administrative control 4.3.3.31 (Crane Operation).

OP-2.3 *"Procedures are written in a manner such that they can be performed as written."* Administrative Control 4.3.3.2 implements the requirement of DF.55 to hold the Zone 4 magazine doors open. During operations it was observed that a magazine door was secured using an unevaluated attachment point. The door chain was passed "through" the door handle as procedure requires, but instead of attaching to the door handle or back upon itself the chain was attached to a security lock lug.

There were no observations identified.

Based on the results of this assessment, operations associated with the Phase I, Group II Transportation TSR controls are ready for NNSA/PXSO final approval to commence operations.

Introduction

This report provides the results of the readiness assessment of the Transportation TSR Phase I Group II Implementation Process performed at Pantex from February 3-14, 2003. The scope of the assessment was defined in the NNSA Plan of Action approved on January 27, 2003 and the NNSA Implementation Plan dated January 30, 2003.

The authorization basis documents at Pantex Plant are being integrated into a three-volume safety analysis report (SAR) and a technical safety requirements (TSR) document. When completed, these two documents will provide the documented safety analysis required by 10 CFR 830, *Nuclear Safety Management*. The three volumes of the safety analysis report will consist of: Volume I C, Sitewide SAR, Volume II C, Facility SAR Modules, and Volume III C, Weapon Program Hazard Analysis Reports (HARs). The Transportation SAR Module will be one of the facility SAR modules that will make up Volume II.

The Transportation SAR Module addresses the on-site transportation of nuclear explosives and nuclear materials. The Transportation SAR Module is being managed as three separate deliverables. Phase I includes the transportation activities for nuclear explosives that are packaged for off-site transportation to (or from) their ultimate user (UU). Phase II includes transportation activities for nuclear explosives in other configurations, Phase III includes the transportation activities for nuclear materials. Phases II and III are being worked in parallel. The scope of this review will assess the readiness of Phase II transportation activities for nuclear explosives that are packaged for off-site transportation to (or from) their ultimate user (UU).

Transportation controls will be implemented in three phases (each having multiple groups) in order to facilitate safety improvements as expeditiously as possible. A Readiness Verification and Contractor Readiness Assessment will be conducted after each stage has been implemented. Three NNSA/PXSO readiness validations will be performed to verify implementation.

The Phase I, Group II controls are as follows:

Administrative Controls

4.3.3.2	Zone 4 Magazine Doors
4.3.3.23	NE Convoy Right-of-Way
4.3.3.25	Transportation of Explosives In Zone 12 MAA
4.3.3.26	Transportation of Explosives on Site Roadways
4.3.3.31	Crane Operations
4.3.3.33	Transportation of Flammables

Design Feature(s)

DF.55	Zone 4 SAC Magazine Doors

Note: The numbering system used to identify the administrative controls and the design features have been taken from the Transportation Safety Analysis Module Chapter 4.

Conduct of Review

The RA consisted of a PXSO review of the flowdown of the Phase I, Group II Transportation TSR controls that apply to "plant wide" activities via BWXT plant standards and process procedures. The team leader assigned pre-designated team members to subject areas according to their background, working experience and previous experience performing readiness assessments. The team consists of the following PXSO employees:

RA Team Member	Assigned Functional Area
Emory Hogan	Authorization Basis and NES
Roger Moore	Management Systems & Training
David Rast	Operations and Maintenance
Grady Rose (Team Lead)	Configuration & Emergency Management

Facility walk-downs, demonstrations, personnel interviews and document reviews were performed in order to gauge the readiness to safely perform operations associated with these controls. The team met daily during the RA to facilitate team member discussion of significant observations or problems and ensure crosscutting issues were identified to other team members. The contractor was given the opportunity to validate and provide feedback of the technical accuracy of issues/concerns prior to issuance of this report.

The objectives and criteria selected and assessed during the review can be found in assessment forms in Appendix A.

Summary of Results

The assessment of each criteria are in the individual assessment forms in Appendix A. There were no Category A findings, two (2) Category B finding were identified and there were no observations. The following is a summary of the findings:

Category A (Pre-start):

None.

Category B (Post-Start):

AB – 1.5 *"The Safety Basis Database (SBDB) correctly shows the linkage between the authorization basis and the implementing documents."* The linkage between the SBDB and the Pantex Plant Hoisting & Rigging Standard (STD-3333) is incorrect. Specifically, the SBDB pointed to Step 3.1.3 (g) (h) vice step 3.1.4 (b) (d) (i) (g) of the Hoisting and Rigging standard for the TSR administrative control 4.3.3.31 (Crane Operation).

OP-2.3 *"Procedures are written in a manner such that they can be performed as written."* Administrative Control 4.3.3.2 implements the requirement of DF.55 to hold the Zone 4 magazine doors open. During operations it was observed that a magazine

door was secured using an unevaluated attachment point. The door chain was passed "through" the door handle as procedure requires, but instead of attaching to the door handle or back upon itself the chain was attached to a security lock lug.

Observation(s):

None.

Lessons Learned

The Plan of Action for this review was signed on January 27, 2003 and the final briefing to the approval authority on the results of the review took place on February 28, 2003. This review again shows that a defensible, appropriately scoped and focused assessment can be performed in a limited time frame.

Readiness Assessment Team Leaders do not have supervisory authority over team members nor is there a specific requirement that team members actively participate and follow through with their assigned obligations in a timely manner.

Conclusion

It is the recommendation of the review team that the PXSO Manager authorize BWXT-Pantex to proceed with operations associated with Phase I, Group II Transportation TSR controls.

Appendix A

Readiness Review Forms

READINESS REVIEW APPRAISAL FORM

FORM - 1

Objective Number: AB-1	Dates of Review: 2/3/02 - 2/14/02

Objective:

AB-1 Assumptions and controls from the Transportation Safety Analysis Report (SAR) and associated Technical Safety Requirements (TSRs) have been adequately implemented. (CR7)(CR9)(CR10)

Criteria:

1. The Transportation SAR and TSRs are approved by the U. S. Department of Energy (DOE), with all Conditions of Approval (COAs) formally resolved with the Pantex Site Office (PXSO) (prestart COAs are closed and poststart COAs have approved action plans).

2. Configuration of the systems, structures, or components (SSCs) credited in the Transportation SAR and TSRs agree with their descriptions in these authorization basis documents.

3. Assumptions and controls from the Transportation SAR and TSRs have been incorporated into procedures used by operating personnel.

4. The effective TSR document accurately reflects the applicability of Transportation TSRs.

5. The Safety Basis Database (SBDB) correctly shows the linkage between the authorization basis and the implementing documents.

Method of Appraisal:

Interviews:

AB Analyst/Team Lead for Transportation SAR, Phase I
Department Manager, Transportation Department
Department Manager, Production Stores Department

References:

1) DOE Order 425.1B
2) Management, Integration & Controls S/RID
3) ABC-258600 Rev 3, Change 68, "Albuquerque Operations Office & BWXT Pantex, LLC, Master Authorization Agreement for Nuclear Operation at the Pantex Plant; Amarillo, Texas", dated 1/27/2003.
4) RPT-SAR-199801, "Technical Safety Requirements", dated 01/13/2003.
5) RPT-SAR-199801, "Technical Safety Requirements", dated 01/24/2003.
6) RPT-SAR-199801, AB-01-0042, "Technical Safety Requirements", dated 04/01/2002.
7) STD-3180, Revision 40, "Traffic Safety Program"
8) STD-3333, Revision 7, "Hoisting and Rigging"
9) STD-3470, Revision 21, "On-site Packaging and Transfer of Hazardous Material"
10) F7-5001, Issue U; "Administrative Control Specific Requirements for Zone 4 and Zone 12-South Nuclear and Nuclear Explosive Facilities"
11) P3-1201, Issue I, "Waste Operations/Waste Transportation and Movements"
12) P3-1209, Issue H, "Off-site Shipment of Hazardous, Non-Hazardous, and Low-Level Radioactive Waste"
13) P7-5080, Issue V, "Safety Requirements - On-site Transportation of Chemical Explosives, Nuclear Explosives, & Weapon Components"
14) P7-5638.1, Issue DJ, "General Safety Requirements for Handling & Transporting Nuclear Explosives, Nuclear Components, and NELAs"
15) P7-5640, Issue F, "General Safety Requirements for Transporting Nonnuclear Explosives by Motor Vehicle"
16) IOP-00990, Revision 01, "Construction Contractor Crane Operations"
17) IOP-AP-01142, Revision 001, "Move Right System"

Evolutions/operations witnessed: None.

Discussion of Results:

A document review, cross-walk and validation of the Transportation TSR controls and the Safety Bases Database (SBDB) was performed and found to be adequate. However, in one instance the SBDB pointed to an incorrect procedural step in the Pantex Plant Hoisting & Rigging Standard (STD-3333). Specifically, the SBDB pointed to Step 3.1.3 (g) (h) vice step 3.1.4 (b), (d), (i) (g) of the Hoisting and Rigging standard for TSR administrative control 4.3.3.31 (Crane Operation). Further, a review and comparison of the Master Authorization Agreement and the Transportation SAR Applicability Matrix showed that both have been updated to include Phase I, Group II Transportation controls. Finally, the Transportation SAR & TSR's have been formally approved and all conditions of approval have been meet.

Criteria Met: **NO**

Findings/Observations:

Category B, Post Start Finding (Ref: Form 2 for AB-1.5) as follows:

The linkage between the SBDB and the Pantex Plant Hoisting and Rigging Standard (STD-3333) is incorrect. Specifically, the SBDB pointed to Step 3.1.3 (g) (h) vice step 3.1.4 (b) (d) (i) (g) of the Hoisting and Rigging standard for the TSR administrative control 4.3.3.31 (Crane Operation).

Assessed by: Emory Hogan 2/28-05 **Emory Hogan**	**Approved by:** /s/ L. Rose 2/28/03 **Grady Rose**

READINESS REVIEW APPRAISAL FORM
FORM 1

Objective Number: CM-1	Dates of Review: 2/3/02 - 2/14/02

Objective:

CM-1 Configuration management of the systems, structures or components (SSCs) credited in the Transportation SAR and TSRs, has been implemented. (CR7)

Criteria:

1. SSCs credited in the Transportation SAR and TSRs are controlled under the Plant's Configuration Management Program.

2. A safety evaluation is performed for temporary or permanent changes to the facility, and its process and utility systems as described in existing safety documentation.

3. Approved drawings for Zone 4 SAC Magazine Door Wind Restraints were completed and are included in Configuration Management.

4. Actual configuration of equipment or components matches the DFs credited in the Transportation SAR and TSRs.

Method of Appraisal:

Interviews:

Supervisor (1), Transportation & Staging Division
Design Engineer (2), Infrastructure/Construction Engineering Division

References:

1) SE-02-64, "SAC Magazine Door Weight Calculations", – System Engineering memo to Swanson, dated 11/20/2002.
2) Engineering Data Transmittal, E020400191, Walkdown Package for Zone 4 SAC Magazine Door Wind Restraints.
3) Design Drawing # D400S17, "SAC Magazine Door Wind Restraints", dated 1/20/2003.
4) BWXT Letter to PXSO, "Change Control Request (CCR #DSW-03-646)", dated 01/20/03.
5) NNSA/PXSO Memo White to Marison, dated 2/04/03.

Evolutions/operations witnessed: None.

Discussion of Results:

Two of the three (3) design features originally included in Phase I, Group II were removed from the scope of the review via a formal change control request from BWXT (CCR # DSW-03-646) and approved by PXSO memo (White to Marison, dated 2/04/03). Those two Design Features are: DF.49; "Loading Dock Hydraulic Levelers" and DF.50; "Bldg 4-26 Hydraulic Lift".

The remaining design feature, DF.55; "Zone 4 MAA Magazine Doors" was reviewed as follows: A physical walk-down of select SAC magazine door restraint systems against the as built drawings was satisfactory in that the actual configuration matched the design drawings. Interviews with the system design engineer(s) and document reviews of the design package to include review of calculations relied upon to ensure the systems ability to withstand 80 mph winds were also satisfactory. Specifically, the minimum Factor-of-Safety of any component in the restraint system was calculated as 3.3 and involves the "Hilit Kwik-Bolt" used as the attachment point in magazine Headwall blocks.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: R. Rose Jr. 2/28/03 Grady Rose	**Approved by:** R. Rose Jr. 2/28/03 Grady Rose

READINESS REVIEW APPRAISAL FORM
FORM 1

Objective Number: MS-1	Dates of Review: 2/3/02 - 2/07/02

Objective:

MS-1 Management systems have been established to ensure the Transportation SAR and TSRs are implemented and that transportation operations are safely restarted. (CR6)(CR12)(CR14)

Criteria:

1. The Transition to Operations Plan for the Transportation SAR and TSRs adequately details those activities necessary to ensure that operations can be safely conducted within the established safety envelope for the facility.

2. Sufficient quantities of new equipment have been procured to support anticipated transportation operations.

Interviews:

CRA Management Systems Functional Area Expert
CRA Authorization Basis Functional Area Expert

Records & other documents reviewed:

1) *Transition to Operations Plan for The Restart of Transportation Safety Analysis Report Module Phase I, Group 2*, Revision 0, December 17, 2002, Description of Facility Being Restarted
2) AB-SAR-314343, Transportation Safety Analysis Report Module, Dated April1, 2002
3) RPT-SAR-199801, *Technical Safety Requirements*, Section 5, Revision 18
4) PX-RA-IP-02-10, *RA Implementation Plan For Transportation Safety Analysis Report Phase I Implementation*, Revision 4, December 17, 2002
5) MIC-1000, *Management Integration & Controls (MIC) Standards/Requirements Identification Document (S/RID)*, Issue 9, Dated August 31, 2001
6) PX-RA-POA-02-20, *Readiness Assessment Plan-of-Action for the Restart of Transportation Safety Analysis Report Module Phase, Group 2*, Revision 2, December 17, 2002, Section 2.0 Description of Facility Being Restarted.
7) Declaration of Readiness to Proceed with the Transportation Safety Analysis Report Phase I, Group 2 Contractor Readiness Assessment Memo, Dated December 31, 2002.

Evolutions/operations witnessed: None

Discussion of Results:

As reported by the BWXT Contractor Readiness Assessment (CRA) Team in pre-start finding MS-1-1-1, the issued Transition to Operations Plan (Revision 0, Dated December 17, 2002) contained a number of deficiencies. Specifically, the plan was deficient in that it did not provide sufficient detail for implementing Transportation TSR controls (4.3.3.26 Transportation of Explosives on Site Roadways, and 4.3.3.25 Transportation of Explosives in Zone 12 MAA) after Phase 1, Group 2 of the CRA was completed. Also it did not address how the automated Move Right System, which will implement the above two controls, will be activated. Specific examples cited in the CRA include:

- Specific procedures which will be affected/changed/revised are not included in the plan
- Efforts needed to conclude that an adequate review has been made of revised procedures are not included in the plan.
- Efforts to assure that qualified personnel and other affected personnel are properly trained to accomplish the work are not adequately addressed in the plan.
- Validation of the software needed to implement the Move Right system is not addressed in the plan.
- The plan does not contain a timetable or schedule for completing the above.

These reported deficiencies were consolidated and correctly classified as CRA prestart Finding MS-1-1-1, *The Transition to Operations Plan for this group of Transportation SAR controls does not adequately detail the activities that are required after the CRA to fully implement the Group 2 Controls.* Corrective actions were promptly developed and implemented by cognizant BWXT organizational units to resolve these cited discrepancies. These corrective actions include developing and issuing revisions to the subject plan to address the reported discrepancies. These revisions were incorporated in Revision 1 to the Transition to Operations Plan dated January 20, 2003 and validated by the CRA Team. A detailed review of this issued plan and interviews with cognizant BWXT CRA personnel revealed that all of the cited discrepancies in CRA Prestart Finding MS-1-1-1 have been effectively resolved.

Pantex Master Authorization Agreement (MAA) ABC – 258600 is the vehicle by which the Transportation SAR, AB-SAR-314343, and associated TSRs are imposed for implementation. This vehicle has been updated and became effective on January 24, 2003. The Move Right software has been validated in accordance with Plant Standard STD-1875, *Software Quality Life Cycle*, and a Readiness Verification was completed on January 24, 2003.

As reported by the CRA team the only procurement of equipment made for the implementation of Phase 1, Group 2 was for a set of chains used for Zone 4 MAA doors, no other new equipment was needed for the implementation of the Controls associated with Phase I Group 2. Additional Equipment and SSC requirements will be implemented and examined during future implementations of Phase I controls.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: R. L. Moore	**Approved by:** Grady Rose 2/28/03

READINESS REVIEW APPRAISAL FORM

FORM 1

Objective Number: MT-1	Dates of Review: 2/3/02 - 2/14/02

Objective:

MT-1 Effective and complete preventive maintenance (PM), including any Surveillance Requirements (SRs) or In-Service Inspections (ISIs) for the systems, structures or components (SSCs) credited in the Transportation SAR and TSRs, has been implemented to ensure the operability of safety systems and safety-related utility systems. (CR8)

Criteria:

1. The necessary attributes of SRs and ISIs, or both, are implemented into maintenance procedures to ensure that these SSCs are operable.

2. New SRs and ISIs have been baselined.

Method of Appraisal:

Interviews:

Sectional Engineer - Maintenance Work Control Department (1)
Systems Engineer (1)
Manager – Systems Engineering (1)

References:

1) TP-MN-04514, Issue 05, January 28, 2003, *Annual Facility Structure Inspection*
2) DS-TP-04514-4/101 through DS-TP-04514-4/142, Issue 02, December 2, 2202, *Facility Structure Visual Inspection*

Evolutions/operations witnessed: None.

Discussion of Results:

The annual inspection on the Zone 4 SAC magazine doors is performed on the scheduled facility structure visual inspection performed annually by the systems engineer. This inspection is established in the PassPort system and has been routinely performed on maintenance procedure TP-MN-04514, *Facility Structure In-Service Inspection*. The new ISI step to visually inspect the

doors and door restraints for signs of significant physical damage or deterioration was added to the datasheets used for this inspection. The steps are appropriately marked as ISI. This inspection was conducted 11/27/02. The next scheduled inspection is 7/03.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: David Rast	**Approved by:** Grady Rose 2/28/03

READINESS REVIEW APPRAISAL FORM
FORM - 1

Objective Number: NES-1	Dates of Review: 2/3/02 - 2/14/02

NUCLEAR EXPLOSIVE SAFETY (NES)

Objective:

NES-1 Transportation activities are performed under the requirements of the Transportation SAR and TSRs. (CR1)(CR10)

Criteria:

1. Transportation of nuclear explosives, under the Transportation SAR and TSRs, comply with NES safety rules.

2. The configuration and condition of the nuclear explosive are known and remain unchanged during transportation operations.

3. Zone coverage requirements, if applicable, are satisfactorily specified in the transportation operating procedures, and followed by transportation workers.

4. There are no potential conflicts between NES safety rules and surety requirements, and the Transportation SAR and TSRs.

Method of Appraisal:

Interviews:

Transportation Department Supervisor (1)
Production Stores Supervisor (1)
NDE Satellite Operations Walker/Spotter (1)
NES Subject Matter Experts (2)

References:

1) DOE Order 425.1B
2) DOE Order 452.2B
3) NNSA/HQ/DP, Memo Beck to DOE/ALO, "Approval of Exemption Request for Nuclear Explosive Safety Master Study of General-Use Handling and Transportation Equipment at the Pantex Plant," dated 11/28/2001.
4) Management, Integration & Controls S/RID

5) ABC-258600 Rev 3, Change 68, "Albuquerque Operations Office & BWXT Pantex, LLC, Master Authorization Agreement for Nuclear Operation at the Pantex Plant; Amarillo, Texas", dated 1/27/2003.
6) RPT-SAR-199801, "Technical Safety Requirements", dated 01/13/2003.
7) RPT-SAR-199801, "Technical Safety Requirements", dated 01/24/2003.
8) RPT-SAR-199801, AB-01-0042, "Technical Safety Requirements", dated 04/01/2002.
9) STD-3180, Revision 40, "Traffic Safety Program"
10) STD-3333, Revision 7, "Hoisting and Rigging"
11) STD-3470, Revision 21, "On-site Packaging and Transfer of Hazardous Material"
12) F7-5001, Issue U; "Administrative Control Specific Requirements for Zone 4 and Zone 12-South Nuclear and Nuclear Explosive Facilities"
13) P3-1201, Issue I, "Waste Operations/Waste Transportation and Movements"
14) P3-1209, Issue H, "Off-site Shipment of Hazardous, Non-Hazardous, and Low-Level Radioactive Waste"
15) P7-5080, Issue V, "Safety Requirements - On-site Transportation of Chemical Explosives, Nuclear Explosives, & Weapon Components"
16) P7-5638.1, Issue DJ, "General Safety Requirements for Handling & Transporting Nuclear Explosives, Nuclear Components, and NELAs"
17) P7-5640, Issue F, "General Safety Requirements for Transporting Nonnuclear Explosives by Motor Vehicle"
18) IOP-00990, Revision 01, "Construction Contractor Crane Operations"
19) IOP-AP-01142, Revision 001, "Move Right System"

Evolutions/operations witnessed:

NE Convoy from Zone - 4 MAA to Z - 12 MAA.

Discussion of Results:
Document reviews showed no violations or conflicts between the TSR controls and NES requirements. In addition, procedural implementation of the Transportation SAR Phase I, Group II controls are in place and ensure NE configuration controls are maintained during transportation activities. Observation of an NE shipment revealed no NES safety rule violations. Furthermore, during interviews, both the walker-spotter and supervisors demonstrated a satisfactory knowledge and understanding of the NES requirements associated with the transportation of NE's.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: Emory Hogan 2-28-03 **Emory Hogan**	**Approved by:** K. Rose Jr 2/28/03 **Grady Rose**

READINESS REVIEW APPRAISAL FORM
FORM 1

Objective Number: OP-1	Dates of Review: 2/3/02 - 2/14/02

Objective:

OP – 1 The formality and discipline of operations is adequate to conduct work safely, and programs are in place to maintain this formality for transportation activities. (CR1)(CR13)

Criteria:

1. Transportation logs and other documents are properly maintained.

2. An operator aid program, if used, is established and maintained to ensure that operator aids are posted, they are current, and they are useful.

3. Pre-operational checks to verify the operability of SSCs are properly conducted and documented.

4. Operations are conducted in a formal manner that ensures compliance with applicable operating limits.

Method of Appraisal:

Interviews: None.

References:

1) Transportation SAR Module Phase I Implementation Plan, Revision 4
2) AB-SAR-314343, AB-01-0042, April 1, 2002 (applicable portions)
3) RPT-SAR-199801, AB-01-0042, April 1, 2002 (applicable portions)
4) F7-5001, *Administrative Control Specific Requirements for Zone 4 and Zone 12-South Nuclear and Nuclear Explosive Facilities*, Issue U
5) P1-1911, *Nuclear Material Transfers*, Issue AE
6) P7-5080, *Safety Requirements – On Site Transportation of Chemical Explosives, Nuclear Explosives and Weapon Components*, Issue V
7) P7-0999, *Explosive Movement*, Issue Y
8) 7-5638.1, *General Safety Requirements for Handling and Transporting Nuclear Explosives, Nuclear Components, and NELAs*, Issue DJ
9) Plant Standard STD-3333, *Hoisting and Rigging*, Issue 8
10) PX-4854, *Lift Plan for Mobile Crane Operations*
11) Plant Standard STD-3470, *Packaging, On-Site Transfer, and Off-Site Transportation of hazardous Materials*, Issue 21
12) Plant Standard STD-3180, *Traffic Safety Program*, Issue 40

Evolutions/operations witnessed: None.

Discussion of Results:

1. There are no transportation logs or other records that are relevant to the Administrative Controls being assessed as part of this Readiness Assessment.

2. No Operator Aids have been developed as a result of the Transportation SAR controls that are being introduced in Phase 1, Group 2. *However, due to the complexity of these controls with respect to the coordination of flammable liquids and flammable gasses, it is recommended that the EOC develop an Operator Aid to assist the PSSs in determining if moves called in meet SAR threshold quantities.*

3. There are no pre-operational checks that are applicable to the Phase 1 Group 2 Transportation TSR controls.

4. The operations associated with the movement of NELA and NE from several Zone 4 magazines to the transport trailers and from Zone 4 to Zone 12 over approved NE transport routes were conducted formally and correctly. In each case the door restraining chains were attached properly prior to the move and not removed until the items were well clear of the magazine. The transport over the approved NE route encountered no crane operations, other HE transfers, or flammable material transfers. It should be noted that all of the applicable Phase I Group 1 controls that are now effective TSR level controls were executed in a formal and correct manner.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: David Rast	**Approved by:** Grady Rose 2/28/03

READINESS REVIEW APPRAISAL FORM
FORM 1

Objective Number: OP-2	Dates of Review: 2/3/02 - 2/14/02

Objective:

OP – 2 There are adequate and correct procedures and safety limits for the transport of full-up nuclear explosives. (CR10)

Criteria:

1. Procedures are provided for the operation of systems and equipment during normal and postulated abnormal and emergency conditions.

2. Procedures are approved, readily available, and managed as controlled documents.

3. Procedures are written in a manner such that they can be performed as written.

Method of Appraisal:

References:

1) Transportation SAR Module Phase I Implementation Plan, Revision 4
2) AB-SAR-314343, AB-01-0042, April 1, 2002 (applicable portions)
3) RPT-SAR-199801, AB-01-0042, April 1, 2002 (applicable portions)
4) F7-5001, *Administrative Control Specific Requirements for Zone 4 and Zone 12-South Nuclear and Nuclear Explosive Facilities*, Issue U
5) P1-1911, *Nuclear Material Transfers*, Issue AE
6) P7-5080, *Safety Requirements – On Site Transportation of Chemical Explosives, Nuclear Explosives and Weapon Components*, Issue V
7) P7-0999, *Explosive Movement*, Issue Y
8) 7-5638.1, *General Safety Requirements for Handling and Transporting Nuclear Explosives, Nuclear Components, and NELAs*, Issue DJ
9) Plant Standard STD-3333, *Hoisting and Rigging*, Issue 8
10) PX-4854, *Lift Plan for Mobile Crane Operations*
11) Plant Standard STD-3470, *Packaging, On-Site Transfer, and Off-Site Transportation of hazardous Materials*, Issue 21
12) Plant Standard STD-3180, *Traffic Safety Program*, Issue 40

Evolutions/operations witnessed:

Movement of materials from Zone 4 to Zone 12
Operations Center review of lift plan

Discussion of Results:

The above documents were reviewed to assess that they adequately addressed implementation of Transportation Administrative Control requirements AC 4.3.3.2, AC 4.3.3.23, AC 4.3.3.25, AC 4.3.3.26, AC 4.3.3.31 and AC 4.3.3.3.33, including actions to be taken in the event of postulated abnormal and emergency conditions. The following portions of the procedures were found to flow down the Administrative Controls:

AC 4.3.3.2	F7-5001, Step 2.8.30; 7-5638.1, section 2.24
AC 4.3.3.23	F7-5001, Step 2.8.31; 7-5638.1, section 2.25; STD-3180, step 3.1.2(f)
AC 4.3.3.25	F7-5001, Step 2.8.1; P7-0999, General Instructions 1 and 1.6; P7-5080, General Instructions 15.1 and 15.2 (covers NELAs with 1.1 and 1.2 explosives only); P1-1911, General Instruction 19, Cautions 3&4 prior to steps 3.2, 5.2, 6.6, and 7.2
AC 4.3.3.26	F7-5001, Step 2.8.2; P7-0999, General Instruction 1.11, GI 1.6
AC 4.3.3.31	F7-5001, Steps 28.12 and 2.8.13; STD-3333, Step 3.2.4.(g); PX-4854
AC 4.3.3.33	F7-5001, Step 2.8.32; 7-5638.1, section 3.6 (all)

AC 4.3.3.2 implements the requirement of DF.55 to hold the Zone 4 magazine doors open F7-5001, Step 2.8.30 specifies the doors should be secured in the open position through the door handle. 7-5638.1 contains similar guidance. This guidance can present a problem observed during the movement of materials. The door chains have similar hardware but chain length can vary at different magazines. It was observed that the chain was passed through the door handle, meeting the requirement, but was then secured to the security lock lug. The lock lug is not an analyzed hold point for the door.

AC 4.3.3.23. F7-5001, Step 2.8.31 directs that signs warning persons to pull off the road for convoys and not pass be posted. STD-3180, step 3.1.2(f) states the operators of private and government vehicles pull off to the side of the roadway and stop when a NE or NM convoy approaches and to not pass a convoy.

AC 4.3.3.25 and AC 4.3.3.26 P7-0999 General Instruction 1.11 directs the coordination of explosive movements such that they will not pass NE transport trailers that are transporting NE on the same road.

Plant Standard STD-3333 implements AC 4.3.3.31, addressing crane operations, for both Construction (contractor) and Crafts (Site) cranes. PX-4854, Lift Plan for Mobile Crane Operations, is also utilized per the standard to regulate and approve lifts. The Standard requires that critical lifts be controlled with a PX-4854. The Operations Center has used the procedure to control movement while crane operations were on going since the implementation. One operations did impact NE transport routes and Move Right was used to issue a warning to movement while the lift was ongoing no NE movements were permitted.

AC 4.3.3.33, "Administrative procedures and training are implemented and maintained to prevent the transportation of substantial quantities of Hazard Division 2.1 Flammable Gas or Class 3 Flammable Liquid I the Limited Areas, Protected Areas, or Material Access Areas during NE transportation on Site roadways." 7-5638.1, Step 3.6 provides guidance on handling explosives, bulk fuel trucks, flammables and flammable gases.

Criteria Met: NO

Findings/Observations:

Category B, Post Start Finding (Ref: Form 2 for OP-2.3) as follows:

AC 4.3.3.2 implements the requirement of DF.55 to hold the Zone 4 magazine doors open F7-5001, Step 2.8.30 specifies the doors should be secured in the open position through the door handle. 7-5638.1 contains similar guidance. This guidance can present a problem observed during the movement of materials. The door chains have similar hardware but chain length can vary at different magazines. It was observed that the chain was passed through the door handle, meeting the requirement, but was then secured to the security lock lug. The lock lug is not an analyzed hold point for the door.

Assessed by: David Rast	**Approved by:** R. Rose 2/28/03 **Grady Rose**

READINESS REVIEW APPRAISAL FORM

FORM 1

Objective Number: SEO-1	Dates of Review: 2/03/03-2/07/03

Objective:

SEO – 1 The Transportation SAR and TSRs are implemented into approved documents and trained to security and plant shift superintendents. (CR1)(CR4)(CR10)(CR13)

Criteria:

1. Transportation SAR and TSR requirements have been implemented into approved documents to ensure that transportation activities are performed within the approved authorization basis.

2. Security police officers and plant shift superintendents have been adequately trained on the Transportation TSRs, and are able to demonstrate compliance with these requirements.

3. Support equipment is available that are necessary to the performance of the security police officers and plant shift superintendents. Training on this equipment and its use has been performed.

4. Management of nuclear explosive movement, in accordance with the Transportation SAR and TSRs, has been established.

Method of Appraisal:

Interviews:

Operations Center, Section Manager (1)
Plant Shift Superintendents (2)
Assistant Plant Shift Superintendents (2)
Fire Department, Assistant Chief (1)
Fire Department, Firefighter (1)

References:

1) F7-5001, Issue T; "Admin Control Specific Requirements for Zone 4 and Zone 12-South Nuclear and Nuclear Explosives Facilities"
2) P1-1911, Issue AD; "Nuclear Material Transfers"
3) P7-5080, Issue U; "On-Site Transportation of Chemical Explosives, Nuclear Explosives and Weapon Components"
4) P7-5638.1, Issue DI; "General Safety Requirements for Handling and Transporting Nuclear Explosives, Nuclear Components and NELA's"
5) P7-3400, Issue; "Material Move Authorization"
6) IOP-1142, "Move Right System"
7) IOP-1118, Scheduled Lift/Crane Operations Plan(s)

Evolutions/operations witnessed: None.

Discussion of Results:

Interviews with both Plant Shift Superintendents (PSS's), Assistant PSS's and the Operations Center Section Manager indicated a thorough understanding of the Transportation SAR and associated TSR's. In addition, document reviews show that previous and current TSR controls are incorporated into appropriate plant standards, internal operating procedures (IOP's) and approved operator checklists. Specific procedural changes (and associated training & testing) include:

1) Prohibitions regarding bulk fuel movements during HE & NE moves;
2) Convoy speed & right-of-way limits;
3) Security & emergency response personnel exceptions to convoy right-of-ways as well as,
4) Control/limitations regarding crane operations during NE move operations.

Finally, personnel have been successfully trained and tested on those document changes.

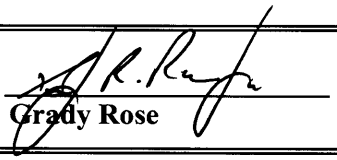
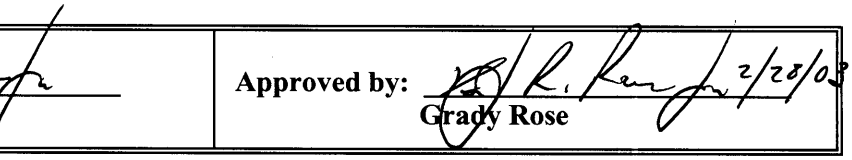
Although appropriate TSR Administrative Controls have been formally proceduralized into plant standards and IOP's, two specific Administrative Controls have been incorporated into the new Pantex Plant material move system known as "Move Right" – Those controls are:

Administrative Control 4.3.3.25, "Transportation of Explosives in Zone 12 MAA"
Administrative Control 4.3.3.26, "Transportation of Explosives on Site Roadways".

The Move Right System is a computer software program that is intended and used to schedule/authorize all movements of HE, Bulk Fuel, NE, NELA's and SNM on plant site. Only Verification and Validation (V&V) of that software system was done as part of this review. Although those two specific Administrative Controls were found to be functional, the Move Right software needs enhancement. Two (2) instances of ORPS reportable events involving the movement of items controlled via the Move Right System occurred during this review; however, neither was associated with the TSR Administrative Controls the software incorporates. BWXT is formally pursuing corrective actions for both events as well as further enhancements to the Move Right system.

Criteria Met: **YES.**

Findings/Observations: None.

Assessed by:  **Grady Rose**	**Approved by:**  **Grady Rose**

READINESS REVIEW APPRAISAL FORM

FORM 1

Objective Number: TR-1	Dates of Review: 2/03/02 - 2/14/03

Objective:

TR – 1 Level of knowledge of transportation workers and supervisors, and affected support personnel, is adequate to ensure compliance with the Transportation SAR and TSRs. (CR3)(CR4)(CR5)

Criteria:

1. Transportation workers and supervisors demonstrate adequate knowledge of the Transportation SAR and TSRs based on evolutions witnessed and level of knowledge interviews.

2. Examinations have been given and are of the appropriate level of difficulty for assessing whether the examinee understands the Transportation SAR and TSRs, and how to comply with them.

3. Only personnel trained on the Transportation SAR and TSRs are permitted to perform transportation activities.

4. Changes to transportation activities to support implementation of the Transportation SAR and TSRs have been reflected in the transportation workers and supervisors' training and qualifications.

Method of Appraisal:

Interviews:

CRA Training Functional Area Expert

References:

1) Lesson Plan No. 370.12, *Transportation & Staging*
2) Lesson Plan No. 370.13, *Operations Center (OC)/Plant Shift Superintendents (PSS), NE Handlers, Waste Operations and Traffic*
3) No. 370.16, *Safety*
4) Training Completion Report for Flexible Training Courses (PX-15B) 370.14, *Production Stores*
5) Needs Analysis Documents (PX-15C) for Flexible Continuing Training Courses 370.13, *Operations Center (OC)/Plant Shift Superintendents (PSS), NE Handlers, Waste Operations and Traffic* and 370.16, *Safety*

6) Training Effectiveness Plans for Flexible Continuing Training Courses 370.12, *Transportation & Staging* and 370.17, *Explosive Handlers*

7) Flexible Continuing Training Examinations (PX-3864) for courses 370.12, 370.13, *Operations Center (OC)/Plant Shift Superintendents (PSS), NE Handlers, Waste Operations and Traffic* and 370.16, *Safety*
8) Plant Standard STD-3180, *Traffic Safety Program*
9) Internal Operating Procedure, IOP-007700, *Explosives and Radioactive Material Movements*

Evolutions/operations witnessed:

None.

Discussion of Results:

As set forth in the criteria for assessing the readiness of training efforts the BWXT CRA Team examined implemented training efforts to support the initiation of transportation requirements for Phase I, Group 2 under the newly issued Transportation Technical Safety Requirements. Those results were validated by the corresponding NNSA RA team by examining the results of the CRA, confirming interviews with implementing personnel, reviewing implementing procedures and examining selected training records (lesson plans, needs analysis, examinations, effectiveness plans, completion reports).

The reported results of the CRA and NNSA validation efforts revealed that a very thorough and accurate review of training efforts in support of implementation efforts for the Pantex Transportation TSR requirements associated with Phase I, Group 2. Specifically, extensive efforts were made during the CRA to ensure that the administrative controls associated with Phase I, Group 2 were effectively flowed down to implementing entities, that implementing personnel were aware of and knowledgeable of these controls and the means by which they were to be implemented. The CRA demonstrated in considerable detail the various efforts made by line supervisory personnel to assure that personnel were aware of and clearly understood all respective requirements and the manner in which they were to be implemented. As revealed in corresponding training records, detailed examinations were given and remedial training was provided when weaknesses were indicated. Training examination records indicated effective understanding by all attendees.

Through checks required to be made by implementing procedures and the site TRAC System adequate assurance is being provided that ensures only qualified personnel suitably trained in respective SAR/TSR requirements are permitted to perform transportation activities.

As addressed in the CRA and validated during the NNSA RA, procedural processes are established and associated training/qualification records demonstrate that effective mechanism are in place that assure corresponding changes in Transportation SAR and TSR requirements are adequately reflected in the training and qualification requirements of transportation workers and supervisors.

A single Finding (TR-1-4-1) was identified during the CRA concerning the lack of available Plans of Instruction for the training of personnel on the two administrative controls to be implemented by the automated Move Right System. As demonstrated in the corresponding CRA resolution file, an adequate set of POIs have been developed and issued. These POIs were approved by the cognizant manager and reviewed by the responsible CRA team member with satisfactory results.

Criteria Met: **YES**

Findings/Observations: None.

Assessed by: R L More **Roger L. More**	**Approved by:** 2/20/03 **Grady Rose**

READINESS REVIEW DEFICIENCY FORM
FORM - 2

Objective Number: AB-1	Criteria Number: 5	Date of Review: 2/3/03-2/14/03

Issue:

The linkage between the SBDB and the Pantex Plant Hoisting and Rigging Standard (STD-3333) is incorrect. Specifically, the SBDB pointed to Step 3.1.3 (g) (h) vice step 3.1.4 (b) (d) (i) (g) of the Hoisting and Rigging standard for the TSR administrative control 4.3.3.31 (Crane Operation).

Requirement:

AC 4.3.3.31 Transportation Program – Crane Operations; "Procedures and training shall be in place to control the transport of NEs. These procedures and training shall address: The movement of NEs and NELAs outside of bays, cells, and magazines." The functional requirement specifies that, "Procedures and training shall be implemented and maintained to prohibit transportation activities from being performed in an area where crane operations could impact the NE being transported due to a dropped crane load or the crane falling."

Reference(s) (specific as to section):

The SBDB points to Step 3.1.3 (g) (h) vice step 3.1.4 (b) (d) (i) (g) of the Hoisting and Rigging standard for the TSR administrative control 4.3.3.31 (Crane Operation).

Discussion:

Although the criteria are formally incorporated into STD-3333, "Hoisting & Rigging" the SBDB provides incorrect linkage to the specific step in that procedure.

Finding Designation:

Category B

Assessed by: Emory Hogan 2-28-03	Approved by: K. Rose Grady Rose

READINESS REVIEW DEFICIENCY FORM
FORM - 2

Objective Number:	Criteria Number:	Date of Review:
OP-2	3	2/3/03-2/7/03

Issue: AC 4.3.3.2 implements the requirement of DF.55 to hold the Zone 4 magazine doors open F7-5001, Step 2.8.30 specifies the doors should be secured in the open position through the door handle. 7-5638.1 contains similar guidance. This guidance can present a problem observed during the movement of materials. The door chains have similar hardware but chain length can vary at different magazines. It was observed that the chain was passed through the door handle, meeting the requirement, but was then secured to the security lock lug. The lock lug is not an analyzed hold point for the door.

Requirement:

DF.55 Zone 4 SAC Magazine Doors
The functional requirement of the Zone 4 SAC Magazines Doors include the following

1. The restraints that secure the Zone 4 SAC Magazine Doors in the open position shall be sufficient to function in winds up to 80 mph.
2. The weight of each door shall be less than 3600 pounds.

Reference(s) (specific as to section):

AC 4.3.3.2 requires the use of DF.55 to hold the Zone 4 magazine doors open.
F7-5001, Step 2.8.30 specifies the doors should be secured in the open position through the door handle.

Discussion:

To meet this criteria chains and hooks have been install in Zone 4 on the SAC Magazines with a Hilti bolt attached to magazine side security panels. Hardware is similar at all secure points but some moderate variation of chain length is present. In analyzing the SAC Magazines doors only the door handle were evaluated for the securing of doors to meet the DF requirements. Attachment points for security locks are present on the doors but have not been evaluated as attachment points to meet this design feature. During operations it was observed that a magazine door was secured using an unevaluated attachment point - the door chain was passed "through" the door handle as procedure requires, but instead of attaching to the door handle or back upon itself the chain was attached to a security lock lug. The attachment in this manner did allow for the door to be more fully open, but did not meet the specified requirement.

Finding Designation:

Category B

Assessed by: David Rast David Rast	Approved by: 2/28/03 Grady Rose