99-0001471

Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400
June 03, 1999

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

Dear Mr. Chairman:

Consistent with the Department's implementation plan (98-2 Plan) for the Defense Nuclear Facilities Safety Board's (DNFSB) Recommendation 98-2, the following commitment deliverable is enclosed.

The transition of Critical Safety System Manuals to Technical Safety Requirements (TSR) has been executed in accordance with step one of the Defense Nuclear Facilities Safety Board's (DNFSB) Recommendation 98-2, Commitment 5.6.3. Attachment 1 is the approval letter for the TSRs for Pantex Facilities and the Evaluation Report developed by the Department of Energy (DOE) Review Team. Attachment 2 is a copy of the TSR.

At this time, we do not consider that the first deliverable under Commitment 5.6.3 has been fully satisfied. You will note that our approval letter and the Review Team Evaluation Report identify a number of issues that require resolution through follow-on actions, including implementation of the TSR. We view approval of the TSR as the first major step in improving the quality of operational controls at Pantex and in achieving consistency of approach with other DOE nuclear facilities. However, until such time that all of the issues have been resolved and the TSR fully implemented, we do not believe the intent of commitment 5.6.3 has been fulfilled.

The Amarillo Area Office is working with Mason & Hanger Corporation to develop an acceptable plan for implementation of the TSR and to develop a path forward to address the remaining technical issues. DOE will keep the DNFSB informed of progress towards full TSR implementation. If you have any questions, please contact me, or have your staff contact Dan Glenn at 505-665-6028.

R E Glass
R. E. Glass
Manager

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DNF SAFETY BOARD

Attachments

Cc w/attachments: (See page 2)

Cc w/ attachments:
J. McConnell, DNFSB
625 Indiana Avenue, NW
Suite 700
Washington, D.C. 20004-2901
M. Whitaker, S-3.1
E. Morrow, DP-3
E. Ives. DP-20
S. Puchalla, DP-21
M. Baca, ONDP, AL
S. Goodrum, AAO

United States Government | ATTACHMENT 1 | 99·1471
Department of Energy

memorandum

Albuquerque Operations Office
Amarillo Area Office

DATE: MAY 29 1999

REPLY TO ATTN OF: AAO:ABS:JMC

SUBJECT: Approval of the Pantex Plant Facility TSRs

TO: W. A. Weinreich, General Manager, Mason & Hanger Corporation (MHC)

Re: Memorandum, Weinreich/Goodrum, "Transmittal of Revision 2 Technical Safety Requirements for Pantex Plant Facilities, Proposed Change DCR #29000201," May 27, 1999

This memorandum is in response to the referenced letter presenting the MHC Technical Safety Requirements for DOE approval. The attached DOE Evaluation Report provides the DOE basis for approval. MHC is to be commended for bringing this important project to the point where the TSRs can be approved. The proposed TSRs, excluding the Bases, are approved for implementation pending resubmission of the TSR implementation plan.

The implementation plan included in your April 26 initial submission does not meet DOE expectations for timely implementation of the TSRs. It is expected that TSR implementation will occur in phases based on the amount of work required to perform the implementation. As an example, TSRs that are a straightforward conversion of the existing CSSM requirement should take less time than new or significantly revised TSRs. The importance of timely and successful implementation of the new TSRs cannot be overstated. They provide the foundation for the BIO Upgrade program and for the integrated safety basis for nuclear and nuclear explosive work at Pantex, and are an important step forward in achieving a modern safety basis. You are requested to provide the revised implementation plan by June 11, 1999.

The revision to the implementation plan must also include incorporation of comments and clarifications detailed in the Evaluation Report. Incorporation of comments and clarifications obviously must be completed before implementation of the controls begins. Please ensure that actions recommended in the Evaluation Report are addressed in appropriate authorization basis project and implementation plans. If you should have any further questions regarding this matter, please contact Jim Conti of my staff at extension 3638.

William S. Goodrum
Area Manager

Attachment

cc:
See page 2
ABS #98-036

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DNF SAFETY B

cc w/attachment:
Ives, DP-20, HQ
D. Rhoades, DP-24, HQ
F. Rowsome, DP-45, HQ
D. Chung, DP-45, HQ
R. Glass, OOM, AL
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R. Brock, SSTA, AAO
D. Brunell, ABS, AAO
J. Dyke, ABS, AAO
R. Moore, ABS, AAO
S. Spivey, RMD, MHC

cc w/o attachment:
H. Berman, Dep Mgr, MHC
S. Young, RMD, MHC

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DOE EVALUATION REPORT
for
PANTEX PLANT FACILITY
TECHNICAL SAFETY REQUIREMENTS

Authorization Basis Staff
Amarillo Operations Office
U.S. Department of Energy

Concurrence: Concur with approval of the TSRs 28 MAY 99
Francis Rowsome DP-45 Date

Concurrence: Concur with approval of the TSRs 28 MAY 99
Lynn Maestas SASD, DOE-AL Date

Prepared by: 28 MAY 99
J. M. Conti Date
DOE-AAO TSR Review Team Lead

Reviewed: 5/28/99
D. C. Brunell Date
Manager, Authorization Basis Staff

Approved: 5/29/99
W. S. Goodrum Date
Manager, Amarillo Area Office

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1. EXECUTIVE SUMMARY

This Evaluation Report (ER) documents the Department of Energy (DOE) review of the Pantex Plant (PX) Technical Safety Requirements (TSRs) (Reference 1) and provides the basis for the Amarillo Area Office (AAO) approval. The scope of the Pantex Plant TSR development is the conversion of existing controls found in the Pantex Plant Critical Safety Systems Manual (CSSM) (Reference 2), and Basis for Interim Operation (BIO) (Reference 3) to Technical Safety Requirements format, including any additional controls, enhancements from present studies and upgrade projects far enough along in development to identify needed controls. This scope is documented in the DOE-AAO approved Project Plan for the PX TSRs (Reference 4). The new TSRs also include programmatic and specific Administrative Controls that are currently identified in the BIO.

This ER recommends approval of the TSRs, excluding the Bases. The TSRs are judged to be adequate, and represent an incremental improvement of the existing CSSM/BIO controls. Future improvements of the TSRs are recommended to be addressed during implementation and in future authorization basis document upgrades. These recommendations are contained in the ER Appendices.

The facilities covered by the TSRs include all nuclear and nuclear explosive facilities at Pantex Plant, with the exception of Building 12-116 (which has its own approved SAR and TSRs), Building 12-104A (which is not currently authorized to perform nuclear activities), and transportation activities (which has an upgraded authorization basis nearing completion). The currently authorized activities which are encompassed by the new TSRs include nuclear explosive staging and operations, and nuclear component staging and operations. Nuclear facilities covered by the TSRs are divided into the following functional modules:

- Nuclear Explosive Bays
- Nuclear Explosive Cells
- Nuclear Explosive Special Purpose Facilities
- Zone 4 Staging
- Zone 12 Staging

A complete description of facility systems and operations is contained in the Pantex Plant BIO. The PX Facility TSRs were prepared to meet the requirements of DOE Order 5480.22, Technical Safety Requirements. The Defense Program TSR guide (Reference 5) and DOE approved Building 12-116 TSRs (Reference 6) were also used a templates.

The format and content of the Evaluation Report is based on the guidance provided in DOE-STANDARD-1104-96, Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports (Reference 7). Since the review and approval was for TSRs, the criteria contained in Reference 7 were modified and enhanced to be more applicable to the review of TSRs alone. These criteria were approved by the AAO Manager in the TSR Review Plan (Reference 8).

Section 2 discusses the review process used by the Review Team in determining the acceptability of the PX facility TSRs.

Section 3 addresses the adequacy of the PX TSRs in meeting the qualitative acceptance criteria approved in the TSR Review Plan. This section provides the bases for DOE's approval of the TSRs.

Section 4 contains any conditions of approval for the TSRs, i.e., action that need to be complete as part of the approval.

Section 5 is a summary conclusion stating that the TSR may be approved with a general discussion of the basis for approval.

Section 6 completes the body of the report with a list of references.

Appendix A identifies issues identified during the TSRs review that must be addressed prior to the completion of final implementation of the TSRs. Appendix B contains issues to be addressed by future BIO upgrade projects. Appendix C contains issues to be addressed within six months, that cannot be deferred until BIO upgrade modules, or are associated with other site AB documents.

The Pantex Plant Technical Safety Requirements have adequately carried forward appropriate existing authorization basis (AB) document controls, written to the requirements of DOE Order 5480.22. The bases for this conclusion are presented in Sections 3 and 5. Approval authority of the TSRs has been delegated to the DOE-AAO Manager (Reference 9). With the approval of this Evaluation Report, DOE-AAO approves Revision 2, May, 1999 version of the TSRs (Reference 1), subject to the completion of implementation actions specified in Appendix A.

2. REVIEW PROCESS

A TSR Project team was formed by Mason & Hanger Corporation (MHC) to develop the PX TSRs, in accordance with a Project Plan approved by DOE-AAO Authorization Basis Staff Manager. The Project Team included one DOE-AAO ABS member, to provide DOE guidance and feedback during the development process. As previously stated, the scope of the project was to convert existing controls contained in the PX BIO and CSSM to a TSR format meeting the requirements of DOE Order 5480.22. The TSRs also capture conclusions of studies of safety issues (i.e., lightning, fire protection, seismic), for potential inclusion in the TSRs. Note: AAO 12/30/98 memo directs the inclusion of lightning controls in the TSRs. As part of this TSR project the following documentation is issued with the TSRs:

Selection of Controls for Inclusion in the TSR (Controls Selection) - This document identifies

and evaluates existing AB document facility controls. These controls are screened to determine if they provide a Critical Safety Function on a facility level. The bases for the evaluations are documented. Once selected, linkage to Derivation Document section is provided. Where a control is not selected for inclusion in the TSRs, the basis for exclusion of controls is provided.

Analytical Basis for the Controls (Analytical Bases) - This document captures the existing assumptions, calculations, and engineering judgment that are the bases for controls. Where analytical basis is found in a document maintained under change control, the analysis is referenced, not repeated.

Derivation of the Pantex Facility TSRs (Derivation Document) - This document provides the TSR bases. The event with credited control will be linked to the Limiting Condition for Operation (LCO). System classification, safety function, and functional requirement are listed, along with a description of how the control meets these requirements. This document also includes the derivation of operating modes. The Derivation Document combines information in one location that would normally be contained in Chapters 4 and 5 of the SAR. The Derivation Document is issued as Appendix K of the Pantex Plant BIO. The first two documents form the basis of the Derivation Document. They are safety basis documents, subject to controlled documentation requirements, under contractor approval authority following initial DOE review.

A core DOE review team with expertise in hazard/accident analysis and controls development was established to accomplish the DOE review of the TSRs. The core review team core makeup was as follows:

- J. Conti AAO-Authorization Basis Staff (ABS) team leader, DOE
- L. Maestas AOO-Safety Analysis and Support Division (SASD) technical reviewer, DOE
- R. Williams AOO-SASD support service contractor technical reviewer
- F. Rowsome DP-45 technical reviewer
- J. Stachew DP-45 support service contractor technical reviewer

Note: The two DP-45 members were added after the initial draft document review and participated in the final review only.

Additional support and Subject Matter Expert (SME) review was established in the areas of nuclear explosive operations, nuclear material operations, facility representatives, lightning, engineering, radiation protection, fire protection, explosives, seismic, and nuclear explosives safety to perform reviews in their area of expertise.

The review by core review team members of initial draft of the TSRs was performed in January 1999, focusing on the format and content of the TSRs The review team provided gross feedback to MHC on the level of detail required in the TSRs. Following that review, informal feedback was provided by the RT leader to the AAO project team member on interim products.

The TSRs were submitted for final approval to DOE on April 26, 1999, along with the Derivation Document (Reference 8). The Controls Selection and Analytical Bases documents were not available for review. The RT performed a preliminary review and concluded that there was insufficient detail in the TSR Bases to support recommendation of approval. Accordingly, the review scope was reduced to the TSRs alone, not including the Bases. Review of the TSR Bases, Derivation Document, Analytical Bases, and Controls Selection documents was deferred until the TSR Bases were rewritten, and all of the supporting documents were issued in final form for DOE review. The review scope was focussed on the structure and content of the TSRs to determine if the controls were effective, and to ensure the TSRs contained sufficient information and detail to support implementation. Since the TSRs were developed from existing controls, the RT did not attempt to verify that the controls adequately prevent or mitigate all accident scenarios of concern at Pantex. (This did not preclude raising obvious or known issues with control selection.) The adequacy of the TSRs to address all accident scenarios of concern to Pantex will be addressed by subsequent review of the Bases, Derivation Document, and associated safety basis documents.. A revision to the TSR Review Plan incorporated this approach and was approved on May 17, 1999.

Following the review and approval of the TSRs, a similar review and subsequent approval action shall be conducted for the TSR Bases, Derivation Document and the associated safety basis documents. The review scope shall at that time focus on controls selection and analytical bases, including consistency with the approved TSRs. The review and approval of the Derivation Document shall be completed, including controlled documentation issuance and implementation actions, prior to implementation of the TSRs. While informal facility walkdowns have been performed by individual review team members, formal walkdowns will be performed as part of the Derivation Document/TSR Bases review. A revision to the approved TSR Evaluation Report shall be issued as part of approval. This issue is addressed in Appendix A.

The RT, including SMEs, then provided comments on the TSRs to the RT leader, who assembled and performed preliminary screening. The RT met to discuss the comments and come to consensus. Following this meeting, the RT leader provided a preliminary list of comments to the contractor. The RT leader met with the contractor and came to resolution. The RT leader formally transmitted the comments and resolutions to the contractor under Authorization Basis Staff Manager signature (Reference11). Reference 11 provides a documented list of all comments and resolution on the site TSRs. Issues that were deferred to future action may be listed in the Appendices to the ER and not specifically discussed in the subsequent sections. The revised final TSRs were submitted for DOE approval following incorporation of DOE comments by the contractor (Reference 1).

3. ASSESSMENT OF THE TSRs

The following criteria were used in the assessment of the acceptability of the TSRs. These criteria were developed and approved in the TSR Review Plan. A discussion follows each criterion, with reference to any actions contained in the ER Appendices.

a. The TSRs are written to the format and content of TSR guidance documents.
The PX TSRs are written to the guidance of the DP TSR Guide, and met the requirements of Attachment 1 of DOE Order 5480.22. This criterion is met.

b. Modes and applicability (including facility) for each of the Safety Limits (SLs) and LCOs are correctly identified.
No existing controls or proposed new controls were identified that warrant SLs. The TSRs contain a table (matrix) at the front of the TSRs, identifying the specific TSR control applicable to each nuclear or nuclear explosive facility at Pantex. Each LCO has an applicability section that specifies mode and/or facility condition. The applicability of LCOs was specifically reviewed. This criterion is met.

c. The SLs and the LCOs are written in a three-column format to facilitate their implementation and to ensure consistency with recent approved TSRs throughout the DOE complex.
The LCOs are written in the three column format consistent with DOE-AL complex TSRs and B12-116 TSRs. This criterion is met.

d. The LCOs operability requirements (including bases) identify functional requirements and system/component definition.
The LCOs satisfactorily address the level of detail required for LCO statements and surveillance requirements. As previously stated, the Bases did not contain a sufficient level of detail, and review of the bases is deferred. This is addressed in Appendix A.

e. Appropriate Conditions, Required Actions, and Completion Times are established for each of the operability requirements defined in the LCOs.
The LCO conditions satisfactorily identify the level of degraded system operability or condition and the required compensatory actions. The required actions are appropriate for the individual conditions, and establish appropriate compensatory measures and operational restrictions, with reasonable completion times. The TSRs use the definition IMMEDIATELY as the completion time for a majority of required actions, which requires initiating actions as soon as possible and working these actions continuously until complete. The RT discussed this approach and accepted it, subject to review of implementing procedures. This issue is addressed in Appendix A.

f. Surveillance Requirements (including frequency) ensure that the engineered control safety function is operable when needed.
The TSR surveillance requirements mostly carry forward existing CSSM requirements. The proposed surveillances were judged to adequately ensure that system operability were maintained, with a limited number of exceptions requiring action prior to implementation listed in Appendix A

g. Facility or Site administrative control elements are identified under each of the Administrative Control Programs in the TSR. Both programmatic and specific administrative controls are identified. Programmatic ACs provide a general description of the program, and include key elements of the program. Specific AC Requirements capture existing AB document specific controls that provide a safety function.
The Team reviewed the TSRs against this criterion, and judged them to be acceptable, following incorporation of review comments. The following two issues were identified:

- The Emergency Preparedness and Unreviewed Safety Question programs did not have key elements listed out separately; however, a general description of each program is provided. The wording is consistent with the DP TSR guide (Reference 5).
- There are administrative control programs and specific administrative controls not addressed by the TSRs. The existing site NESS Master Studies and individual weapons program NESS studies were not reviewed to include any appropriate specific or administrative controls, nor were the existing HARs/ABCDs. Many ACP and ACP elements currently required by existing and in progress HARs/ABCDs are not identified. This condition should be reconciled as an update to the TSR and/or the HARs/ABCDs. These actions are appropriate following approval of these TSRs. This issue is addressed in Appendix A.

h. TSR Bases are included as Appendix A to the TSRs. Appendix A provides the bases for selection for each LCO Condition and Surveillance Requirement. The rationale for the selection of compensatory actions and completion is provided. Bases for selection of surveillance requirements, and assurance that such surveillance requirements will meet the operability or functional requirements defined in the LCOs are provided.
The Team was unable to justify approval of these bases. The Bases in too many cases contained repeated 'boilerplate" language, or repeated the wording of the LCO/SR. MHC failed to capture the reasoning/rationale of why the controls, actions, and completions times were chosen. The review of the Bases will be deferred until review and approval of all of the "bases" documents. This issue is addressed in Appendix A.

i. All passive engineered features that provide a safety function are identified under the Design Features (DFs) section of the TSR (Appendix B), if not covered under an LCO. Under each of these, the safety function is summarized or further referenced. Appropriate surveillances are provided for the design features.
Passive design features are captured in the design features appendix of the TSRs. In several cases the RT applied engineering judgment in review of the DFs. For example, design features are not

separately included for engineered systems with LCOs. For the dynamic balancer, it was deemed appropriate to capture mounting screw design and hydraulic oil analysis as design features. Another example is that cell blast valves have active function to shut upon sensing blast overpressures. The surveillances included both inservice inspections (disassembly and inspection), and verification of latching pressures. The contractors approach was to capture these controls as design features., and the RT concluded this was an acceptable alternative. Issues with regard to implementation of new in service inspections are captured in Appendix A.

4. CONDITIONS OF APPROVAL

The Pantex Plant facility TSRs are recommended for approval to allow the contractor to proceed with for implementation activities, with the exception of the Bases, Appendix A. The following actions are recommended to be completed as part of the conditions of approval of the TSRs:

- The contractor should submit the Derivation Document, the Analytical Bases and Controls Selection documents, and the TSR Bases for DOE approval. These documents should be reviewed and approved, and any associated implementation actions complete, prior to implementation completion date for the TSRs.

- The contractor should make the necessary revisions to the TSRs listed in the issues in Appendix A of the ER. These issues represent minor clarifications, and deferred actions where the necessary level of detail has to be developed. Revisions to the TSRs and associated documents should be reviewed and approved, and any associated implementation actions complete, prior to implementation completion date for the TSRs. The contractor should ensure that implementation issues listed in Appendix A are specifically addressed in implementation planning, and reviewed during readiness assessments.

- The contractor should ensure that issues identified in Appendix B are incorporated in the appropriate AB document upgrade projects, and that issues identified in Appendix C are resolved or have approved action plans within six months of approval of the TSRs.

5. SUMMARY CONCLUSION

The Review Team assessment of the new proposed TSRs is that they are adequate, and represent an improvement of the existing controls contained in the BIO and CSSM. They represent a set of controls more focussed on the critical safety issues created by Pantex operations, and written to the requirements of DOE Order 5480.22. While they could be subject to further refinement and improvement, there are no fatal shortcomings. The RT recommends DOE approval of the TSRs as an incremental improvement in operational controls at Pantex. The RT further recommends actions contained in the Evaluation Report Appendices be completed in order to establish an adequate technical bases for controls, and to ensure the controls set is complete.

6. RECORDS/REFERENCES

1. Memorandum, W.A. Weinreich to W.S. Goodrum, subj: Transmittal of Revision 2 Technical Safety Requirements, dtd May 27, 1999
2. Critical Safety Systems Manual for the Pantex Plant, MNL-1101
3. Basis for Interim Operation for the Pantex Plant, MNL-00076
4. Project Plan for the Pantex Plant Facility Technical Safety Requirements
5. DOE Memorandum, "Document of Example Technical Safety Requirements DP-31, June 23, 1994
6. Building 12-116 Technical Safety Requirements, MNL-184468
7. DOE-STD-1104-96, Review and Approval of Nonreactor Nuclear Facility Safety Analysis Reports
8. DOE-AAO Review Plan for Pantex Plant Facility Technical Safety Requirements, 5/17/99
9. Memorandum,
10. Memorandum, W.A. Weinreich to W.S. Goodrum, subj: Transmittal of Technical Safety Requirements for Pantex Facilities, Draft Revision 1, Proposed Change DCR #29000201 and Basis for Interim Operation Appendix K, Derivation of the TSRs, BIO Revision 3 Proposed Change, DCR #29000200, dtd April 26, 1999
11. Memorandum, Brunell to Weinreich, subj: Comments/Resolutions to the Technical Safety Requirements for Pantex Facilities, RPT-SAR-1998091, Revision 1, April 1999, dtd May 28, 1999

Appendix A
Issues /Comments to be Addressed on Implementation of Pantex Plant Technical Safety Requirements

Note: Necessary document revisions shall be submitted and approved, and implementation activities complete prior to final implementation date.

1. Review the existing NESS Master Studies to determine if there are any appropriate common controls to capture in the Site TSRs.
2. Review the existing approved ABCDs to determine if there are; 1) Any conflicting controls requiring revision to the ABCDs and /or the TSRs.. 2) Any common facility controls that are appropriate to elevated and captured in the Site TSRs Note: There are some reviewer comments that were deferred to this review. (Reference 11)
3. Determine the specific inspection/surveillance that are appropriate to be performed on the CWIV to address log-term leak containment capability, including periodicity. Submit appropriate TSR revisions.
4. Determine the specific functional test surveillance requirements to be performed on the LPWS to annual verify operability. Submit appropriate TSR revisions.
5. Submit a revision to the existing BIO deleting the existing controls replaced by the TSRs.
6. Complete the DOE review and approval of TSR Bases and Derivation Document, including the Analytical Bases and Control Selection documents.
7. Revise Evaluation Guidelines for Safety Class and Safety Significant per the resolution agreed upon in DOE review. AAO action: Revise the AAO guide for use with DOE-STD-3009.
8. Revise Criticality Safety Program description contained in Appendix G of the BIO, to reflect controls shifted to the TSRs.
9. As part of the revisions to the Derivation Document (Appendix K), delete the material limit control tables, and revise the discussion to provide the bases for the derivation of the controls.
10. Address the formal submission of DD the bases for dropping fire suppression controls, and Bays BDI
11. In the Derivation Document, address the bases for revision to Modified Richmond magazine controls to allow either HE limit, and the revision to the TP-20-7 notes for B12-64
12. Revise the LCO statement for LCO 3.5.1 to state what safety function is being provided by a fully operable system with all field mills and impact detectors operational.
13. Submit a further revision to the AC clarifying that the ACs are contractually bound to approved SRID, and delete those order references that have been deleted by SRIDs and reference correct orders.
14. Delete reference to NFPA design in LCO statements, and add a bullet listing nominal flow density, sprinkler head/heat head setpoint, and reference to the fusible links.
15. B12-94: Delete B12-94 from the facility listing and Material Limits AC. It presently is listed as a nuclear facility, with nuclear material limits limited to zero inventory. This is in conflict with the definition in the TSRs, which state a facility is above the threshold

quantities of DOE Standard 1027. There is not justification for maintaining this facility in the nuclear listing.

17. Reporting requirements for specific AC Requirements. Revise the general ACs to define that an AC specific requirement violation occurs when a requirement is not met.
18. Facility Listings Table:
    - B12-50 and B12-60, revise to include facility lightning protection as design feature
    - General programmatic ACs – sections 5.2 to 5.5 apply to the site
    - The severe weather program has listed programmatic elements and is not listed in the general ACs
    - The specific AC requirement to maintain blast doors shut applies to B12-64 due to external natural phenomena and external events
    - Criticality safety program has specific AC requirements and is not listed anywhere in the tables for specific requirements
19. The definition of cased HE is now circular. It includes definitions that are uncased IHE. Resolve and revise.
20. Capitalize the word STAGING in the last three Modes.
21. Revise section 1.4.3 third paragraph to clarify that within a facility multiple entries into a condition are not allowed, and leave that conditions may be entered in multiple facilities implicitly understood.
22. LCO 3.4.3 detection and alarm:
    - Revise the LCO statement to clarify that the battery does not support detection and alarm alone. It supports that, and remote alarm notification, and deluge activation.
    - Revise Required Action A.2 to notify fire department is detection is inoperable.
    - Revise Required Action B to repair inoperability within 14 days or enter the limited operations mode.
    - Add required Action C.2 consistent with A.2.
23. Lightning protection Administrative Control: Revise Section 5.6.5.4 wording to be consistent with 5.6.5.1, i.e., instead of full-ups/partials describe in terms of configurations that do not have faraday cage protection.
24. Material Controls Administrative Control: Add controls for B12-41 and 12-64 consistent with Zone 4 staging precluding staging of items that do not have faraday cage protection.

Specific issues to be addressed and assessed on implementation of the Site TSRs:
Note: These are specific issues flagged for review as a result of TSR review, and are not to be construed as the total scope of implementation readiness review.

1. Site procedures implementing the philosophy of the use of the definition IMMEDIATELY. Under the new format of the TSRs, actions should be worked continuously until complete.
2. Site Procedure implementing the preparation and AAO approval of the Limited Operations. This is a new concept, and procedures have to be developed by MHC and AAO to allow timely preparation and approval of Limited Operations.
3. Procedures implementing in-service inspection requirements for Design Features, including the procedures for performance of the inspections, procedures for actions to be followed.

Specific inservice inspection procedures need to be developed and reviewed for facility cranes inspection, low voltage AC surge suppressors, and pit containers.

4. Procedures for implementation of AC controls that replace the existing LCO controls on Bays BDIs, Alpha and Beta CAMs, and Radsafe interlocks.
5. Facility procedures for implementing the LCO required actions to Administratively Control cells doors when BDIs are inoperable.
6. Site procedures implementing the new definitions of fire patrol and fire watch, where now entry is required to perform fire patrol surveillances.
7. Several comments were received on the contractors inappropriate use of frequency extensions for surveillances (25% extension). Under the TSRs, this will constitute a programmatic violation.
8. Use of STAGING definition: The proposed definition allows movement of material into facilities in the maintenance modes and in operations modes while in safe and stable configuration. While this appears logically inconsistent, the further restriction added to only allow material in approved containers is judged not to significantly increase risk. The specific procedures implementing this philosophy should be reviewed.
9. Site procedures and standards that implement AC specific requirements: A comprehensive review of the appropriateness of the actions and time frames, including configuration control should be performed.
10. Site procedures and standards implementing the new SAFE and STABLE definition.

Appendix B
Issues /Comments to be Addressed in Future AB Document Upgrades, Subsequent to Implementation of the TSRs.

1. Fire Suppression in Pit Handling Areas: There is inconsistent application of controls for facility controls during nuclear material handling. The 12-44 Cell 8 relies on combustible loading controls to preclude pit breach. The 12-116 SAR postulates breach and analyzes offsite consequences, and applies administrative controls for both combustible controls and fire suppression. The TSRs allow staging higher inventories of nuclear material and apply fire suppression controls as the LCO. The issue of consistent controls should be addressed as part of the fire protection BIO module. Appropriate revisions to the B12-116 SAR/TSRs should be submitted.
2. Dock Controls: Material Limit Controls were deferred to the Transportation BIO for docks. Ensure that the Transportation BIO addresses these controls.
3. Bays BDIs: As part of the Bays Module upgrade, re-evaluate the appropriateness/implementation of Bays BDI administrative control.
4. Establishment of appropriate lighting levels for emergency Lights: As part of the Bays Module upgrade, establish appropriate controls to monitor and maintain the lighting level (0.5 footcandle) in work areas.
5. Battery surveillances: (AAO action) Review the practice of annually load testing UPS batteries against existing loads, vice full design discharge test.
6. Further expand on analytical bases for dropping wetpipe fire suppression in bays/cells outside of operating areas/round rooms in the fire protection BIO module.
7. As part of the Lightning Protection BIO module, provide expanded bases for the rationale for design of impact detectors and voltage monitors for the Lightning Detection and Warning System. Provide an expanded bases for the required actions for system condition of degraded operability. Evaluate whether surveillances that check system operation against actual lightning data (impact detectors and voltage settings are appropriate). Further expand the LDWS LCOs to provide maximum times that systems may be in degraded condition, and actions to be taken on exceeding these times, consistent with other Site TSR LCOs.
8. As part of the transportation BIO module upgrade, develop an additional attribute under the explosive safety program for site explosive limits that addresses how reviews are conducted to ensure that nuclear AB document external event accident analyses are reviewed for impact, above the limiting quantity distance reviews.
9. As part of the fire protection BIO module , evaluate whether the fire extinguisher controls and operator training recommended by the fire protection report are appropriate to be added as attributes of the fire protection program.

Appendix C
Issues /Comments to be Addressed in Near-Time Frame (Six Months)

1. Resolve the inconsistencies between the tritium dose calculations and the B12-116 SAR. Provide a revision to the B12-116 SAR/TSRs to make controls consistent with the site TSRs.
2. Evaluate the whether controls are appropriate to be applied for the SST staging pads, parking pads, NELA magazines in Zone 4, and submit a TSR revision if appropriate, with a complete bases.
3. Establish a longterm plan to address the commitment to Appendix G of the BIO as the safety management program description equivalent to the SARs, address the longterm disposition of the General Information Document, and revise the BIO upgrade program plan to incorporate contractor commitments.

ATTACHMENT 2

99-1471

since 1827

MASON & HANGER CORPORATION

MAY 27 1999

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

Re: Transmittal of Revision 2 Technical Safety Requirements (TSRs) for Pantex Facilities, Proposed Change DCR #29000201

Dear Mr. Goodrum:

Attached is Revision 2 of the Technical Safety Requirements (TSRs) for Pantex Facilities, Proposed Change DCR #29000201. Comments provided by the DOE Safety Basis Review Team (SBRT) and the resolution of those comments chaired by Mr. Jim Conti of your staff have been incorporated in this revision. An expedited review has also been performed by Mason & Hanger Corporation (MHC) personnel, with the resolution to those comments included in this submission. The changes resulting from the MHC review were also coordinated with Mr. Conti.

During the week of June 7, 1999, the implementation plan submitted to your office on April 26, 1999, will be revised and resubmitted. MHC is committed to implementing this new authorization basis document and will exploit every avenue to expedite implementation of these TSRs. The revised implementation plan will reflect the actual approval date and the approach to expedite the implementation of these TSRs. It is expected that due to potential hardware modifications, full implementation of the lightning protection controls will require a phased implementation that may exceed the implementation of the remaining TSR controls.

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

Very truly yours,

W.A. Weinreich
General Manager

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Attachment: As Stated

GM99-00428-985

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GM99-00428-985

TECHNICAL SAFETY REQUIREMENTS FOR PANTEX FACILITIES

Mason & Hanger Corporation
Pantex Plant
Operated for the
U. S. Department of Energy
Under Government Contract
DE-AC04-91AL-65030

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List of Acronyms and Abbreviations

AAO	Amarillo Area Office
AB	Authorization Basis
AC	Administrative Control
ABCCC	Authorization Basis Change Control Committee
ABCD	Activity Based Controls Document
ALARA	As Low As Reasonably Achievable
BIO	Basis for Interim Operation
BDI	Blast Door Interlock
CFR	Code of Federal Record
CHE	Conventional High Explosives
CWIV	Contaminated Waste Isolation Valve
DF	Design Feature
DOE	Department of Energy
FACP	Fire Alarm Control Panel
FHA	Fire Hazard Analysis
FTIR	Fourier Transform Infra Red
Gpm	gallons per minute
HE	High Explosives
HPFL	High Pressure Fire Loop
IHE	Insensitive High Explosive
LCO	Limiting Condition for Operation
LCS	Limiting Control Setting
LLPS	Lightning Location and Protection System
LWDS	Lightning Warning and Detection System
M&H	Mason and Hanger
MOI	Moment of Inertia
M-R	Modified Richmond
N/A	Not Applicable
NCS	Nuclear Criticality Safety
NE	Nuclear Explosive
NELA	Nuclear Explosive Like Assembly
NESD	Nuclear Explosives Safety Department
NEXRAD	Next Generation Radar
NFPA	National Fire Protection Association
NM	Nuclear Material
NV	North Vault
ORO	Oak Ridge Ordnance
OS&Y	Outside Screw and Yoke
PIV	Post Indicator Valve
psi	pounds per square inch
PSS	Plant Shift Superintendent
PV	Pit Vault
QA	Quality Assurance
rpm	revolution per minute
RTG	Radioisotopic Thermoelectric Generator
RWP	Radiation Work Permit
SAC	Steel Arch Construction
SAR	Safety Analysis Report
SC	Safety Class

SL	Safety Limit
SNM	Special Nuclear Material
SPMS	Static Potential Monitoring System
SR	Surveillance Requirement
SS	Safety Significant
SSCs	Structures, Systems, and Components
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
V/m	Volts per meter

List of Effective Pages

Page #	Revision/Issue #
All	Draft Revision 2

Revision Log

Revision #	Approval Date	Implementation Date	Summary of Change
Revision 1			

Facility Listing

FACILITY LISTINGS

Introduction

The Facility Listings are used to identify the FACILITY applicability of each control. The listings are grouped according to each module with additional tables for Plant Wide SSCs and ACs. The listing for a module contains the SSCs and ACs, with corresponding LCO, DF, or AC number, which may apply to those FACILITIES in that module. An "x" is designated beneath the FACILITY for which the control applies. The Plant Wide AC Program table gives a listing of all the AC Programmatic and Specific Requirements that are generically applied across the site. These programs have no specific applicability to FACILITIES, however are applicable at all times to overall plant operations.

The Plant Wide SSCs table lists the SSCs that are required to continually support plant operations. These systems are broken out into a separate table because they are not the responsibility of any one FACILITY, but are maintained and controlled by departments outside the Manufacturing Division.

Nuclear Explosive Bays							
Critical Safety Control	**LCO**	**DF**	**AC**	**12-64**	**12-84**	**12-99**	**12-104**
Facility Structure		DF 1.1		X	X	X	X
Wet Pipe Fire Suppression System	LCO 3.4.1			X Operations/ Staging Area	X Bays 1, 10, 14 Operations/ Staging Area	X Bays 2, 4 Operations/ Staging Area	X Bay 16 Operations/ Staging Area
Deluge Fire Suppression System	LCO 3.4.2				X Excluding Bays 1, 10, and 14	X Excluding Bays 2, 4	X Bays 1-15
Fire Detection and Alarm System	LCO 3.4.3			X	X	X	X
Emergency Lighting System	LCO 3.2.1			X	X	X	X
Sandbag Barrier System		DF.2		X Bays 13-17 Only			
Facility Crane Assembly		DF.3		X	X	X	X
Facility Lightning Protection System		DF.5			X	X	X
AC – Lightning Protection Program			AC 5.6.5.1 AC 5.6.5.2 AC 5.6.5.3 AC 5.6.5.4		X	X	X
AC – NM and EXPLOSIVEs Inventory Control Program			AC 5.6.13.1	X	X	X	X
AC – Explosive Safety Program			AC 5.6.4.1		X	X	X

Nuclear Explosive Cells							
Critical Safety Control	**LCO**	**DF**	**AC**	**12-44 Cells 2-6**	**12-85**	**12-96**	**12-98**
Facility Structure		DF.1.2		X	X	X	X
Equipment Blast Door Interlock System	LCO 3.1.1			X			
Equipment Blast Door Interlock System	LCO 3.1.2				X	X	X
Blast Valve		DF.4		X	X	X	X
Wet Pipe Fire Suppression System	LCO 3.4.1			X	X	X	X
Deluge Fire Suppression System	LCO 3.4.2			X	X	X	X
Fire Detection and Alarm System	LCO 3.4.3			X	X	X	X
Contaminated Waste Isolation Valve System	LCO 3.3.2				X	X	X
Emergency Lighting System	LCO 3.2.1			X	X	X	X
Facility Crane Assembly		DF.3		X	X	X	X
Facility Lightning Protection System		DF.5		X	X	X	X
AC – Lightning Protection Program			AC 5.6.5.1 AC 5.6.5.2 AC 5.6.5.3 AC 5.6.5.4	X	X	X	X
AC – NM and EXPLOSIVEs Inventory Control Program			AC 5.6.13.2	X	X	X	X
AC – Interim Cell Personnel Door Control Program			AC 5.6.18	X Cells 3, 4	X		X Cell 4

Nuclear Explosives Special Purpose Facilities							
Critical Safety Control	**LCO**	**DF**	**AC**	**12-41**	**12-50**	**12-60**	**12-94**
Facility Structure		DF.1.3		X	X	X	X
Wet Pipe Fire Suppression System	LCO 3.4.1			X	X	X	X
Fire Detection and Alarm System	LCO 3.4.3			X	X	X	X
Emergency Lighting System	LCO 3.2.1			X	X	X	X
Facility Crane Assembly				X	X	X	X
Facility Lightning Protection System		DF.5		X	X	X	X
Dynamic Balancer	LCO 3.3.1	DF.6				X Bay 2	
AC – Lightning Protection Program			AC 5.6.5.1 AC 5.6.5.2 AC 5.6.5.3 AC 5.6.5.4		X	X	
AC – NM and EXPLOSIVEs Inventory Control Program			AC 5.6.13.3	X	X	X	X
AC – Severe Weather Program			AC 5.6.10	X			

Zone 12 Staging Facilities							
Critical Safety Control	**LCO**	**DF**	**AC**	**12-26 Pit Vault**	**12-42 North Vault**	**12-44 Cell 8**	**12-58 Bays 4 & 5**
Facility Structure		DF.1.4		X	X	X	X
Wet Pipe Fire Suppression System	LCO 3.4.1						X
Fire Detection and Alarm System	LCO 3.4.3			X	X	X	X
AC – NM and EXPLOSIVEs Inventory Control Program			AC 5.6.13.4	X	X	X	X
AC – Fire Protection Program			AC.5.6.3.1			X	

Zone 4 Staging Facilities					
Critical Safety Control	**LCO**	**DF**	**AC**	**Modified Richmond (M-R)**	**Steel Arch Construction (SAC)**
Facility Structure		DF.1.5		X	X
Sandbag Barrier System		DF.2		X	X
AC – NM and EXPLOSIVEs Inventory Control Program			AC 5.6.13.5	X	X
AC – Severe Weather Program			AC 5.6.10	X	X

Plant Wide SSCs		
Critical Safety Control	**LCO**	**DF**
High Pressure Fire Loop	LCO 3.4.4	
Lightning Detection and Warning System	LCO 3.5.1	
Pit Containers		DF.7

Plant Wide Administrative Control Programs	
Critical Safety Control	**AC**
Staff Qualification and Training Program	AC 5.6.2
Fire Protection Program	AC 5.6.3
Explosive Safety Program	AC 5.6.4
Lightning Protection Program	AC 5.6.5
Preventive Maintenance Program	AC 5.6.6
Configuration Management Program	AC 5.6.7
NM Storage, Handling and Shipping Program	AC 5.6.8
Approved Container and Storage System Program	AC 5.6.9
Radiation Safety Program	AC 5.6.11
Criticality Safety Program	AC 5.6.12
Quality Assurance Program	AC 5.6.14
Emergency Response Program	AC 5.6.15
Inservice Inspection Program	AC 5.6.16
Procedures Program	AC 5.6.17
Surveillance Program	AC 5.6.19
Pantex Operating Records Program	AC 5.6.20
USQ Program	AC 5.6.21

Section 1

Use and Application

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1.0 USE AND APPLICATION

1.1 Introduction and Scope

1.1.1 Technical Safety Requirement Applicability

This document contains the Technical Safety Requirements (TSRs) developed to address Pantex Plant nuclear FACILITY(s) as described in MNL-00076, Basis for Interim Operation Pantex Plant (BIO). Currently, Building 12-104A, Building 12-116, and transportation activities are not included in the scope of these TSRs. Building 12-104A will have the applicable TSRs developed and added to this document on a case by case operation basis. Building 12-116 has a DOE approved SAR/TSR combination under which it is currently operating. TSRs concerning transportation activities are currently being developed and will be included in this document when completed.

The FACILITY(s) contained in these TSRs are divided into the following functional modules:

- Nuclear Explosive Bays
- Nuclear Explosive Cells
- Nuclear Explosive Special Purpose FACILITY(s)
- Zone 4 Staging
- Zone 12 Staging

In addition to TSRs that pertain to the above-mentioned nuclear FACILITY(s), this document also contains requirements for various Pantex Plant support departments. The non-production departments listed below, are directly responsible for performing Required Action(s) within the LCOs of this TSR document.

- Pantex Fire Department
- Pantex Operations Center

Weapons Programs are evaluated under the Nuclear Explosive Safety Program. For each program, a hazard analysis is performed and the required controls are identified. Based on these analyses, Weapons Program specific TSRs are developed. These weapons program TSRs will be added as addendums to the plant wide TSR. The weapons specific TSRs will supplement these plant wide TSRs. Any approved weapon specific TSR control may supersede the controls dictated in these plant wide TSRs, even if the weapon program controls are less restrictive.

1.1.2 Methodology

This document was prepared in accordance with guidance contained in Department of Energy (DOE) Order 5480.22," Technical Safety Requirements." The items selected for TSRs consist of the Administrative Controls (ACs), Design Features (DFs), and Limiting Conditions for Operations (LCOs) which perform a Safety Class or Safety Significant function required to ensure that the operations performed in Pantex Nuclear FACILITY(s) are within the analyses contained, or referenced in, the BIO.

This TSR document was created by consolidating the analyses, and engineering judgements, which existed in multiple locations and forms, into a clear and concise set of authorization basis and safety basis documents. The derivation of these TSRs is documented in the BIO. Any analytical bases used to support this derivation or these TSRs are maintained in one of two forms of safety basis documents. Analytical bases not in a controlled format during the creation of these TSRs were consolidated to form RPT-SAR-209895, Analytical Basis for the Pantex Nuclear Facilities Technical Safety Requirements.

Analytical bases existing as controlled information during the creation of these TSRs were referenced in the Analytical Basis for the Pantex Nuclear Facilities Technical Safety Requirements, RPT-SAR-209895 and maintained in their controlled form.

1.1.3 Use of TSRs

This TSR document represents a commitment between Pantex Plant management and the Department of Energy (DOE) on the requirements which define the conditions, safe boundaries, management of administrative controls and the bases thereof required to assure the safe operation of these FACILITY(s). This TSR will serve as the documented basis for operation for the covered FACILITY(s).

1.2 Definitions

Defined terms in this list appear in capitalized type throughout this TSR.

Term	Definition
ACTION(S)	That part of a TSR that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTIVE OPERATIONS	Handling, processing, or physical activity on or involving NM or EXPLOSIVES. STAGING or operations in support of STAGING are not considered ACTIVE OPERATIONS.
ADMINISTRATIVE CONTROL	ADMINISTRATIVE CONTROLs are the provisions relating to organization and management, procedures, record keeping, reviews, and audits necessary to ensure safe operation of the facility and maintain the underlying assumptions in the TSR Bases. The requirements of these programs are identified as either Administrative Control Programmatic Requirements or Administrative Control Specific Requirements.
ADMINISTRATIVELY CONTROL	The act of manually providing a Safety Function when an SSC, that is required by an LCO to be OPERABLE, has been declared INOPERABLE but the Safety Function is still required to complete Action Statements of the LCO. These actions required to provide the manual Safety Function of the SSC should established within procedures and controlled by the Configuration Control Program
APPROVED CONTAINERS	A container described in Pantex Manual MNL-180409 "Type B and Other DOE Approved Containers for Pantex Plant Applications," latest issue, prepared by Pantex Engineering and Design Division, Packaging and Shipping Department.
CALIBRATE/ CALIBRATED/ CALIBRATION	The set of operations which establish, under specified conditions, the relationship between values indicated by a measuring instrument or measuring system, and the corresponding measurement standard or known values derived from the standard. A requirement to perform a CALIBRATION on an instrument (e.g., an interlock or an alarm) requires a CALIBRATION be performed on all components in the circuit or loop that are subject to drift and that could adversely affect the performance of the instrument.

Term	Definition
CASED EXPLOSIVES	Explosives that are enclosed in a physical protective cover that will retain the explosives securely and will offer protection against accidental detonation during approved handling and intraplant transportation operations to SC & SS evaluation criteria. The following are CASED EXPLOSIVES: • HE or IHE in APPROVED CONTAINERS, or • Nuclear Explosives in Configurations A, C, or D
CRITICAL SAFETY SSC	SAFETY CLASS or SAFETY SIGNIFICANT structures, systems, and components.
CRITICAL SAFETY FUNCTION	The safety function performed by a Safety Class or Safety Significant control.
EXPLOSIVE(s)	The term used to describe Conventional High Explosives (CHE or HE), Insensitive High Explosives (IHE), or a combination of both HE and IHE. Detonators, squib valves, and release assemblies are not considered EXPLOSIVEs, HE, or IHE for the purposes of these TSRs.
FACILITY(s)	The term FACILITY is used to define a specific bay, cell, or vault in a building with a minimum designation of category 3 nuclear FACILITY as defined by DOE Standard DOE-STD-1027-92.
FIRE PATROL	A person meeting the qualifications of a FIRE PATROL, as specified by the Fire Protection Program, that must initially enter the affected facility to ensure the minimization of combustibles and ignition sources and then reenter the area at least once every 4 hours to monitor for fire, or signs of fire. FIRE PATROL may be performed in addition to other duties.
FIRE WATCH	Continuous monitoring of the area of concern for fire or signs of fire by at least one person. Personnel assigned to FIRE WATCH duties may perform no other duties other than that of FIRE WATCH.
FUNCTIONAL TEST	A test of a system or component to determine the functional OPERABILITY. These tests can range from a manual test to determine system operability to inputting a CALIBRATED electrical signal to verify component response.
FREQUENCY	FREQUENCY is the prescribed length of time allowed between the successful completion of a Surveillance Requirement on a particular piece of equipment and the successful completion of the next Surveillance on the same piece of equipment as prescribed in the FREQUENCY column of the individual Surveillance Requirement. FREQUENCY does not include the 25% time allowance that is described in the INTERVAL definition. NOTE: See section 1.5, FREQUENCY, for actual defined FREQUENCY duration definitions.

Term	Definition
IMMEDIATELY	IMMEDIATELY is used as a Completion Time when a Condition cannot be permitted to continue and the corresponding Required Action shall be initiated without delay and continuously pursued until completed.
IN-SERVICE INSPECTION	An inspection or verification to ensure the CRITICAL SAFETY FUNCTION(s) of Design Features are maintained.
INTERVAL	The INTERVAL is the maximum amount of time allowed for any given FREQUENCY. The INTERVAL is equivalent to 125% of the FREQUENCY.
MODE	FACILITY MODEs designate various distinguishable FACILITY conditions and are used with applicable operational limits to ensure an adequate level of safety while in each operating condition. The MODEs of operation for the FACILITIES in these TSRs are contained in Table 1.2-1.
NUCLEAR MATERIAL	The term used to describe the radioactive materials. For the purposes of these TSRs, the term NUCLEAR MATERIAL includes, but is not limited to, isotopes of plutonium (Pu), isotopes of Uranium (U), and tritium.
OPERABLE/ OPERABILITY	A system, subsystem, component, or device shall be OPERABLE when it is capable of performing its specified CRITICAL SAFETY FUNCTION(s) and when all necessary support equipment (e.g., instrumentation, controls, electrical power, lubrication, or other auxiliary equipment) required for the system, subsystem, component, or device to perform its specified CRITICAL SAFETY FUNCTION(s) is also capable of performing its related CRITICAL SAFETY FUNCTION(s). The OPERABILITY of a system, subsystem, component, or device shall be verified by performing Surveillance Requirements at the identified FREQUENCY.
RESIDUAL	The quantity of material allowed in a FACILITY in any MODE. RESIDUAL materials include any of the following: • Radioactive contamination • Sealed radioactive check sources • Hazardous materials used in exempted, commercially available products as described in 10 CFR 30 Parts 30.11 through 30.19. • Trace quantities of explosives visible to the unaided eye but not capable of being detonated.

Term	Definition
SAFE AND STABLE CONFIGURATION	When NUCLEAR MATERIAL and/or EXPLOSIVES are in a configuration where the material is at rest and being protected from the events of concern. Actions may be required, as defined in plant approved procedures, to transition material to a SAFE AND STABLE CONFIGURATION.
SECURED	A FACILITY is considered SECURED when it is unoccupied and the door locks are in place.
STAGING	The storage of NUCLEAR MATERIAL, EXPLOSIVES, or Nuclear Explosives in a FACILITY. Operations in support of STAGING consist of movement of material in APPROVED CONTAINERs into and out of the FACILITY and safeguards verification activities that do not involve opening of containers. Both STAGING and Operations in support of STAGING may be conducted in both OPERATION and MAINTENANCE Mode.
TECHNICAL SAFETY REQUIREMENTS	Those requirements that define the conditions, safe boundaries, and the management or Administrative Controls necessary to ensure the safe operation of a nuclear facility and to reduce the potential risk to the public and facility workers from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. A TSR consists of Safety Limits, operating limits, Surveillance Requirements, Administrative Controls, use and application instructions, and the basis thereof. TSRs were formerly known as Operational Safety Requirements for nonreactor nuclear facilities and technical specifications for reactor facilities

Table 1.2-1, Facility MODEs

MODE	Description
OPERATION	A MODE in which the FACILITY is capable of performing its intended operations with up to design basis quantities of NM and/or EXPLOSIVE materials.
LIMITED OPERATION	A MODE entered when an LCO statement has not been met, and only at the direction of a Required Action statement in that LCO. An action plan documenting the actions to be taken in this MODE is required to be completed and approved by the AAO Manager prior to entering this MODE. When a FACILITY is in this mode, all other LCOs required to be met for OPERATION MODE are still applicable. The time allowed to be in this MODE shall be specified in the approved action plan.
MAINTENANCE	A MODE in which ACTIVE OPERATIONS involving greater than RESIDUAL quantities of NM and/or EXPLOSIVE are not permitted. Operations involving greater than RESIDUAL quantities of NM and/or EXPLOSIVE are restricted to those involving STAGING and operations in support of STAGING. Operations may be performed in the FACILITY with RESIDUAL quantities of NM and/or EXPLOSIVE present.

(continued)

Table 1.2-1, Facility Modes
(continued)

REPAIR	A MODE in which no ACTIVE or staging operations in the FACILITY involving greater than RESIDUAL quantities of NM and/or EXPLOSIVE are conducted. The FACILITY does not contain greater than RESIDUAL quantities of NM and/or EXPLOSIVE. Operations may be performed in the FACILITY with RESIDUAL quantities of NM and/or EXPLOSIVE present.
STANDBY	A MODE in which a FACILITY is capable of performing its mission, but no operations, ACTIVE or staging, involving greater than RESIDUAL quantities of NM and/or EXPLOSIVE are conducted due to lack of production requirements. The FACILITY does not contain greater than RESIDUAL quantities of NM and/or EXPLOSIVE. Operations may be performed in the FACILITY with RESIDUAL quantities of NM and/or EXPLOSIVE present.
SHUTDOWN	A MODE in which no operations, ACTIVE or staging, are conducted in the FACILITY. The FACILITY does not contain greater than RESIDUAL quantities of NM and/or EXPLOSIVE. DOE approval is required before the FACILITY can be moved to any other MODE.

1.3 Logical Connectors

1.3.1 Purpose

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in this TSR to discriminate between, and yet connect, Conditions, Required Actions, Completion Times, surveillances, and FREQUENCIES. The only logical connectors that appear in the TSR are "**AND**" and "**OR**." The physical arrangement of these connectors constitutes logical conventions with specific meanings.

1.3.2 Description

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left-justified with the number of the Required Action). The successive logic levels are identified by additional digits of the Required Action number and by successive indention of the logical connectors.

When logical connectors are used to state a Condition, only the first level of logic is normally used. In this case, the logical connector is left justified with the Condition statement. In a few cases, successive levels of logic are used and are identified solely by indenting the logical connector, since subparts of a Condition statement are not numbered separately.

When logical connectors are used to state a Completion Time, surveillance, or FREQUENCY, only the first level of logic is used.

1.3.3 Examples

The following examples illustrate the use of logical connectors.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO is not met.	A.1 Verify . . . **AND** A.2 Restore . . .	

In this example, the logical connector "**AND**" is used to demonstrate that while in Condition A, both Required Actions A.1 and A.2 shall be completed.

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO is not met.	A.1 Trip . . .	
	OR	
	A.2.1 Verify . . .	
	AND	
	A.2.2.1 Reduce . . .	
	OR	
	A.2.2.2 Perform . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1 and A.2.1 are alternative choices. Only one of these choices shall be performed, as indicated by the use of the left justified logical connector "**OR.**" Either of these two Required Actions may be chosen. If Required Action A.2.1 is chosen, then Required Actions A.2.1 must be performed and either A.2.2.1 or A.2.2.2 must be performed.

1.4 Completion Times

1.4.1 Purpose

The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.

1.4.2 Background

LCOs specify minimum requirements for ensuring safe operation of the FACILITY. The ACTIONS section associated with an LCO states Actions required to address an identified condition not meeting the LCO. One or more Required Actions and associated Completion Times are specified with each stated Condition.

1.4.3 Description

The Completion Time is the amount of time allowed for completing a Required Action. The Completion Time starts when it is determined that the FACILITY no longer meets an LCO statement and a Condition Statement is entered (e.g., INOPERABLE equipment or variable not within limits), provided the FACILITY is in a MODE or specified condition stated in the Applicability section of the LCO. Required Actions shall be completed prior to the expiration of the specified Completion Time. A Condition remains in effect, and the Required Actions apply, until the Condition no longer exists or the FACILITY is not within the LCO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition shall be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition, starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent equipment or variables expressed in the Condition found to be INOPERABLE or not within limits for each separate FACILITY, will result in separate entry into the Condition and separate tracking of Completion Time for each discovery. The Required Actions and the associated Completion Times of the Condition then apply to each additional discovery.

When "IMMEDIATELY" is used as a special Completion Time there is no definitive associated time frame for completing the Required Action. However, the Required Actions using "IMMEDIATELY" as a Completion Time shall be initiated without delay and continuously pursued until completed.

1.4.4 Examples

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions. It is assumed for this example that this LCO is applicable in OPERATION MODE.

EXAMPLE 1.4-1

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. LCO is not met.	A.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	A.2 Place FACILITY in MAINTENANCE MODE	8 Hours

When the SSC of the LCO has been declared INOPERABLE, Condition A is entered. All ACTIVE OPERATIONS are to be suspended IMMEDIATELY. The FACILITY is to be placed in MAINTENANCE MODE within 8 Hours of entry into the action under Condition A.

1.5 FREQUENCY

1.5.1 Purpose

The purpose of this section is to define the proper use and application of FREQUENCY requirements.

1.5.2 Description

Each Surveillance Requirement (SR) has a specified FREQUENCY in which the surveillance shall be successfully met in order to meet the OPERABILITY requirements of the associated LCO. An understanding of the correct application of the specified FREQUENCY is necessary for compliance with the Surveillance Requirement.

1.5.3 Examples

The following examples illustrate the various ways that frequencies are specified. In these examples, the Applicable MODE is OPERATION.

EXAMPLE 1.5-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.x.x.x	Perform a FUNCTIONAL TEST	WEEKLY

This example contains a FREQUENCY (WEEKLY) during which the associated surveillance shall be performed at least one time. The Successful Completion of a surveillance initiates the subsequent FREQUENCY. Although the FREQUENCY is stated as WEEKLY, Surveillance Requirement 4.0.2 allows an extension of 25% of the stated FREQUENCY is intended for operational flexibility both for scheduling and for performing surveillances. The 25% extension should be used on an "as-needed" basis and should not be considered as a "normally-relied-upon" time frame. The measurement of this surveillance FREQUENCY/INTERVAL continues at all times, even when the Surveillance Requirement is not required to be met according to Surveillance Requirement 4.0.1 (such as when the equipment is INOPERABLE, a variable is outside of specified limits, or the FACILITY is outside the Applicability of the LCO). If a Surveillance Requirement is not performed within the INTERVAL, and the LCO is applicable, then Surveillance Requirement 4.0.3 becomes applicable.

If the INTERVAL specified by Surveillance Requirement 4.0.2 is exceeded but the FACILITY is in a MODE, or other specified condition, for which the particular LCO is not applicable, performance of the Surveillance is NOT required. However, the Surveillance shall be performed prior to entry into a MODE or other specified condition for which the particular Surveillance is required. Failure to do so would violate Surveillance Requirement 4.0.4.

Special conditions may dictate when a surveillance is to be met. These conditions apply to the surveillance, the FREQUENCY, or both. They are "otherwise-stated" conditions allowed by Surveillance Requirement 4.0.1. They may be stated as clarifying notes in the surveillance, the FREQUENCY, or both.

Surveillance Requirements are an integral part of the LCO and ensure compliance with the LCO. The surveillances are performed on a FREQUENCY schedule as specified in the FREQUENCY column of the individual Surveillance Requirement. The following table indicates each Surveillance FREQUENCY and it's meaning:

Notation	FREQUENCY	INTERVAL
SHIFTLY	Performed prior to beginning initial ACTIVE OPERATIONS within a shift or every 24 Hours for continuous operations.	N/A
WEEKLY	Performed 4 times a month	Not > 10 days
MONTHLY	Performed 12 times a year	Not > 38 days
QUARTERLY	Performed 4 times a year	Not > 114 days
SEMIANNUALLY	Performed 2 times a year	Not > 228 days
ANNUALLY	Performed once a year	Not > 456 days
(X) YEARS	Performed once every (X) years	Not > every (X) times 456 days

2.0 SAFETY LIMITS

2.1 Safety Limits

As defined in Department of Energy (DOE) Order 5480.22, Safety Limits (SLs) are limits on process variables associated with those physical barriers, generally passive, that are necessary for the intended facility function and which are found to be required to guard against the uncontrolled release of radioactivity and other hazardous materials. Presently, there are no authorized operations conducted that have a process variable that, if exceeded, could cause the failure of a barrier that prevent uncontrolled release of radioactive material in excess of the off-site evaluation guidelines. Therefore, there have been no SLs identified within the TSR at this time.

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Section 3/4

Operating Limits and Surveillance Requirements

3/4 Limiting Control Settings and Limiting Conditions for Operations

Limiting Control Settings (LCSs) - are settings on Critical Safety Systems that control process variables to prevent exceeding a Safety Limit. As described in section 2.1, FACILITY evaluation of the operations performed in the PANTEX BIO in accordance with the established criteria determined that no Safety Limits were required. Therefore *there will be no Limiting Control Settings in this TSR* at this time.

Limiting Conditions for Operations (LCOs) - describe the lowest functional capability or performance level of Critical Safety structures, systems, component and their support systems required for normal safe operation of the FACILITY. Each separate limiting condition has an LCO statement with associated MODE Applicability, ACTION Statements, and Surveillance Requirements. The following generic LCOs are applicable at all times for each FACILITY in this document.

3.0 Generic LCOs

LCO 3.0.1 LCO statements shall be satisfied for the MODEs, or other specified conditions in the LCO Applicability, and applicable FACILITY(s) as listed in the Facility Listing Section of these TSRs, except as provided in LCO 3.0.2.

LCO 3.0.2 Upon discovery of a failure to satisfy an LCO statement, the associated Required Action(s) and associated Completion Time(s) shall be met, except as provided in LCO 3.0.6. If compliance with the associated LCO statement is restored or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated. Conditions in an LCO ACTIONS section may be concurrently applicable.

The Completion Time(s) for Required Action(s) are also applicable when a system or component is intentionally removed from service.

LCO 3.0.3 When an LCO statement is not satisfied and the associated Required Action(s) are not satisfied, or an associated Required Action is not provided, steps shall be initiated IMMEDIATELY, to place operations in the affected FACILITY in a SAFE AND STABLE CONFIGURATION and, if required, transition to LIMITED OPERATION MODE.
When corrective measures are completed that permit operation in accordance with the LCO or its Required Action(s), completion of the Required Action specified by LCO 3.0.3 is not required.

LCO 3.0.3 is applicable in all MODEs. Exceptions to LCO 3.0.3 may be stated in the individual LCOs. LCO 3.0.3 shall not be interpreted to require placing a FACILITY in a higher MODE (e.g., requiring a FACILITY in MAINTENANCE to be placed in OPERATION).

LCO 3.0.4 Entry into any MODE or other specified condition in the LCO Applicability shall not be made unless all LCOs that apply in that MODE are met, or unless the associated Required Action(s) permit continued Operation of the affected FACILITY in that MODE for an unlimited period of time. The FACILITY can only be moved between MODE(s) with permission of the Facility Manager.

LCO 3.0.5 Equipment removed from service or declared INOPERABLE in order to comply with Required Action(s) may be returned to service, under Administrative Control, to perform testing required to demonstrate OPERABILITY of the affected equipment or associated equipment. This LCO is an exception to LCO 3.0.2 for the system or component returned to service under Administrative Control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6 When a support system is INOPERABLE and an LCO for that support system is specified in the TSR, the supported system is not required to be declared INOPERABLE due solely to support system INOPERABILITY. Only the Required Action(s) of the support system's LCO are required to be entered. This LCO is an exception to the definition of OPERABILITY. LCO 3.0.2 still applies to the supported system. Consideration shall be given to the impact on the CRITICAL SAFETY FUNCTION, and appropriate Required Action(s) shall be entered when the CRITICAL SAFETY FUNCTION of the supported system is lost.

When a support system is found to be INOPERABLE and there is not an LCO for that support system specified in the TSR, the impact of the INOPERABILITY or degradation of the support system's function on the OPERABILITY of the supported system shall be evaluated. Upon determination that the supported system is found to be INOPERABLE, the Required Action(s) of its LCO shall apply.

4.0 Generic Surveillance Requirements

Surveillance Requirements (SRs) identify surveillances required to be performed to ensure compliance with an LCO and their associated FREQUENCY. The following generic Surveillance Requirements are applicable at all times for each FACILITY in this document.

SR 4.0.1 Surveillance Requirements shall be met for the MODEs, or other specified conditions in the Applicability for the individual LCOs, unless otherwise stated in the Surveillance Requirement. Failure to meet a Surveillance Requirement within the specified INTERVAL shall constitute failure to meet the LCO, except as provided in Surveillance Requirement 4.0.3. Surveillance Requirements do not have to be performed on INOPERABLE equipment or variables outside specified limits on the surveillance. However, successful performance of applicable surveillances is necessary to return equipment to OPERABLE status.

SR 4.0.2 The INTERVAL of each Surveillance Requirement is met if the Surveillance Requirement is performed within 1.25 times of the FREQUENCY schedule as specified in the FREQUENCY column of the individual Surveillance Requirement. The 25% extension allowance is not applicable to non-periodic or conditional Surveillance Requirements. This extension is intended for operational flexibility both for scheduling and for performing surveillances. It should not be relied upon as a routine extension of the specified FREQUENCY.

SR 4.0.3 Failure to perform a Surveillance Requirement within the INTERVAL of Surveillance Requirement 4.0.2, as well as any failure to satisfy a Surveillance Requirement, shall constitute a failure to meet the OPERABILITY requirements of the LCO. The LCO ACTIONS shall be entered at the time it is determined that the Surveillance Requirement has not been performed or is not met, except as provided below.

If it is discovered that a Surveillance Requirement was not performed within the required INTERVAL, a delay period of 24 Hours or an additional period equivalent to the INTERVAL, whichever is less, is provided to permit completion of the Surveillance Requirement prior to requiring the ACTIONS to be entered.

Not performing a Surveillance Requirement within the allowed INTERVAL is a TSR violation. The delay period identified in this generic Surveillance Requirement only allows the FACILITY a period of time to demonstrate the OPERABILITY of the affected equipment; it does not remove the violation resulting from the missed Surveillance Requirement.

If the Surveillance Requirement is not performed within the delay period, entry into the applicable Required Action(s) occurs IMMEDIATELY upon expiration of the delay period. When the Surveillance Requirement is performed within the delay period and the Surveillance Requirement is not met, entry into the applicable Required Action(s) occurs IMMEDIATELY upon failure to meet the Surveillance Requirement. The delay period is not applicable to conditional Surveillance Requirements unless specifically noted in the FREQUENCY. Exceptions to the delay period of Surveillance Requirement 4.0.3 are stated in the individual Surveillance Requirements.

SR 4.0.4 Entry into any MODE or other specified condition in the Applicability of an LCO shall not be made unless the Surveillance Requirements for the applicable LCOs have been met.

Exceptions to Surveillance Requirement 4.0.4 may be stated in the individual Surveillance Requirements.

3/4.1 INTERLOCK SYSTEMS

3.1.1 12-44 EQUIPMENT BLAST DOOR INTERLOCK SYSTEM

LCO 3.1.1: The Cell Equipment Blast Door Interlock System shall be OPERABLE assuring that at least one Equipment Blast Door remains closed with the associated Blast Door Closure Pins engaged and Blast Door Floor Gasket down. The following CRITICAL SAFETY SSCs associated with each Equipment Blast Door shall be OPERABLE for the Equipment Blast Door Interlock System to be OPERABLE

- Pneumatic Control subsystem
  Note: An inoperable condition of this subsystem is the Reserve Tank Discharge Valve in the open position
- Electronic Control subsystem
  Note: An inoperable condition of this subsystem is the Maintenance Bypass Switch in the bypass position
- Blast Door Floor Gasket Assembly
  Note: The OPERABILITY of Blast Door Floor Gasket Assembly includes the OPERABILITY condition of the Blast Door Floor Gasket springs
- Blast Door Latching Assembly
  Note: The OPERABILITY of Blast Door Latching Assembly includes the OPERABILITY condition of the Latching Air Cylinder springs

MODE APPLICABILITY:		
	OPERATION	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY
	MAINTENANCE	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The CRITICAL SAFETY SSCs listed in the LCO Statement above, except for the Reserve Tank Discharge Valve and the Maintenance Bypass Switch, are found to be INOPERABLE	A.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION until Action A.2 is implemented	IMMEDIATELY
	AND	
	A.2 ADMINISTRATIVELY CONTROL to assure that at least one Equipment Blast Door remains closed with Blast Door Closure Pins engaged and Blast Door Floor Gasket down at all times	IMMEDIATELY
	AND	
	A.3 Restore to OPERABLE	15 DAYS

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Either Reserve Tank Discharge Valves of the Pneumatic Control subsystem is found opened	B.1 Close Reserve Tank Discharge Valve.	IMMEDIATELY
	OR	
	B.2.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION until Action B2.2 is implemented	IMMEDIATELY
	AND	
	B.2.2 ADMINISTRATIVELY CONTROL to assure that at least one Equipment Blast Door remains closed with Blast Door Closure Pins engaged and Blast Door Floor Gasket down at all times	IMMEDIATELY
	AND	
	B.2.3 Restore to OPERABLE	15 DAYS

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. A Maintenance Bypass Switch of the Electronic Control subsystem is found in the Bypass position	C.1 Return the Maintenance Bypass Switch to the non Bypass position	IMMEDIATELY
	OR	
	C.2.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION until Action C2.2 is implemented	IMMEDIATELY
	AND	
	C.2.2 ADMINISTRATIVELY CONTROL to assure that at least one Equipment Blast Door remains closed with Blast Door Closure Pins engaged and Blast Door Floor Gasket down at all times	IMMEDIATELY
	AND	
	C.2.3 Restore to OPERABLE	15 DAYS

(continued)

ACTIONS (continued)

D. If any of the Required Action(s) of Conditions A, B, or C can not be met	D.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	D.2 Prohibit the introduction of additional NM or EXPLOSIVES into the FACILITY	N/A
	AND	
	D.3 Place the FACILITY in LIMITED OPERATIONS MODE	15 DAYS
E. The Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED per Required Action A.2, B.2.2, or C.2.2	E.1 Continue to ADMINISTRATIVELY CONTROL the Equipment Blast Doors	N/A
	AND	
NOTE: The 15 Day Completion Time requirement to complete the Required Actions of either Condition A.2, B.2.2, or C.2.2 does not stop by entering this Condition	E.2 OPERATIONS, staging or ACTIVE, may be resumed	N/A

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.1.1.1	FUNCTIONAL TEST the Equipment Blast Door Interlock System	SHIFTLY
SR 4.1.1.2	Visual Check the Reserve Tank Discharge Valve	SHIFTLY
SR 4.1.1.3	FUNCTIONAL TEST the Cell BDI System	SEMIANNUALLY
SR 4.1.1.4	Visual Inspect the Blast Door Floor Gasket Assembly	ANNUALLY
SR 4.1.1.5	Visual Inspect the Latching Air Cylinder Assembly	ANNUALLY

3/4.1 INTERLOCK SYSTEMS

3.1.2 12-85. 12-96. and 12-98 EQUIPMENT BLAST DOOR INTERLOCK SYSTEM

LCO 3.1.2: The Equipment Blast Door Interlock System shall be OPERABLE assuring that at least one Equipment Blast Door remains closed with the associated Blast Door Closure Pins engaged and Blast Door Floor Gasket down. The following CRITICAL SAFETY SSCs associated with each Equipment Blast Door shall be OPERABLE for the Equipment Blast Door Interlock System to be OPERABLE.

- Pneumatic control subsystem
- Electronic Control subsystem
  Note: An inoperable condition of this subsystem is the Maintenance Bypass Switch in the bypass position
- Blast Door Floor Gasket Assembly
  Note: The OPERABILITY of Blast Door Floor Gasket Assembly includes the OPERABILITY condition of the Blast Door Floor Gasket springs
- Blast Door Latching Assembly
  Note: The OPERABILITY of Blast Door Latching Assembly includes the OPERABILITY condition of the Latching Air Cylinder springs

MODE APPLICABILITY:		
	OPERATION	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY
	MAINTENANCE	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The CRITICAL SAFETY SSCs listed in the LCO Statement above, except for the Maintenance Bypass Switch, are found to be INOPERABLE	A.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION until Action A.2 is implemented	IMMEDIATELY
	AND	
	A.2 ADMINISTRATIVELY CONTROL to assure that at least one Equipment Blast Door remains closed with Blast Door Closure Pins engaged and Blast Door Floor Gasket down at all times	IMMEDIATELY
	AND	
	A.3 Restore to OPERABLE	15 DAYS

(continued)

ACTIONS (continued)

B. A Maintenance Bypass Switch of the Electronic Control subsystem is found in the Bypass position	B.1 Return the Maintenance Bypass Switch to the non Bypass position	IMMEDIATELY
	OR	
	B.2.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION until Action C2.2 is implemented	IMMEDIATELY
	AND	
	B.2.2 ADMINISTRATIVELY CONTROL to assure that at least one Equipment Blast Door remains closed with Blast Door Closure Pins engaged and Blast Door Floor Gasket down at all times	IMMEDIATELY
	AND	
	B.2.3 Restore to OPERABLE	15 DAYS
C. If any of the Required Action(s) of condition A can not be met	C.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	C.2 Prohibit the introduction of additional NM or EXPLOSIVES into the FACILITY	N/A
	AND	
	C.3 Place the FACILITY in LIMITED OPERATIONS MODE	15 DAYS

(continued)

ACTIONS (continued)

D. The Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED per Required Action A.2	D.1 Continue to ADMINISTRATIVELY CONTROL the Equipment Blast Doors	N/A
	AND	
	D.2 OPERATIONS, staging or ACTIVE, may be resumed	N/A

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.1.2.1	FUNCTIONAL TEST the Equipment Blast Door Interlock System	SHIFTLY
SR 4.1.2.2	FUNCTIONAL TEST the Cell BDI System	SEMIANNUALLY
SR 4.1.2.3	Visual Inspect the Blast Door Floor Gasket Assembly	ANNUALLY
SR 4.1.2.4	Visual Inspect the Latching Air Cylinder Assembly	ANNUALLY

3/4.2 ELECTRICAL SYSTEMS

3.2.1 EMERGENCY LIGHTING SYSTEM

LCO 3.2.1: Emergency Lights within a Bay operation/staging area or Cell round room shall be OPERABLE with the following:

- All emergency lighting lamps OPERATIONAL
- A 30 minute backup power source

MODE APPLICABILITY: OPERATION When ACTIVE OPERATIONS involving greater than RESIDUAL quantities of HE are being conducted

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Only one Emergency Lighting lamp is found to be INOPERABLE	A.1 Place FACILITY in MAINTENANCE MODE	By the end of the current shift
B. More than one Emergency Light lamp is found to be INOPERABLE **OR** 30 Minute Backup Power Source found to be INOPERABLE	B.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION **AND** B.2 Place the FACILITY in the MAINTENANCE MODE	IMMEDIATELY 4 Hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.2.1.1	Visually Inspect all Emergency Lights	SHIFTLY
SR 4.2.1.2	FUNCTIONAL TEST Emergency Lights	MONTHLY
SR 4.2.1.3	FUNCTIONAL TEST Backup Power for the E-Lights	MONTHLY
SR 4.2.1.4	Verify Emergency Lights Operate on Backup Power	ANNUALLY

3/4.3 PROCESS SYSTEMS

3.3.1 DYNAMIC BALANCER

LCO 3.3.1: The following CRITICAL SAFETY components of the Dynamic Balancer shall be OPERABLE to shut down the Dynamic Balancer:

- The Shunt Field Monitor
- The Motor Armature Over-voltage Control Module
- Low hydraulic pressure auto shutdown interlock on thrust and radial bearings
- Case Vibration Shut-off Interlock
- The Emergency Shut-Off Circuit

MODE APPLICABILITY: OPERATION When performing Dynamic Balancing operations with a NE or NELA (containing EXLOSIVES) present in the bay

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Any of the CRITICAL SAFETY SSCs of the Dynamic Balancer is found to be INOPERABLE	A.1 Suspend Dynamic Balancer Operations and Secure the Balancer	IMMEDIATELY
	AND	
	A.2 Remove the NE or NELA from the FACILITY	IMMEDIATELY

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.3.1.1	Verify the Shunt Field Monitor is Capable of Detecting a Loss of Shunt Field Current	SEMIANNUALLY
SR 4.3.1.2	CALIBRATE the Motor Armature Over-voltage Control Module	SEMIANNUALLY
SR 4.3.1.3	CALIBRATE the Low Hydraulic Pressure Auto Shutdown Interlock	SEMIANNUALLY
SR 4.3.1.4	CALIBRATE the Case Vibration Shut-off Interlock	SEMIANNUALLY
SR 4.3.1.5	Verify Emergency Shut-Off Circuit	SEMIANNUALLY

3/4.3 PROCESS SYSTEMS

3.3.2 CONTAMINATED WASTE ISOLATION VALVE SYSTEM

LCO 3.3.2: Contaminated Waste Isolation Valve (CWIV) shall remain closed with the Closed Indicator Light lighted. The following components shall remain OPERABLE:

- Contaminated Waste Isolation Valve
- Valve Closed Position Indication System

MODE APPLICABILITY:

OPERATION	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY
MAINTENANCE	When greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The CWIV Closure Indicator Light is not lighted	A.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	A.2 Verify that the CWIV is closed	IMMEDIATELY **AND** SHIFTLY thereafter until LCO is restored or no longer applies

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. The Contaminated Waste Isolation Valve is not closed	B.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	B.2 Place FACILITY in MAINTENANCE MODE	4 Hours
	AND	
	B.3 Restore Contaminated Waste Isolation Valve System to OPERABLE and confirm that the Closure Indicator Light is lighted	15 DAYS
C. If the Required Action(s) of Condition B can not be met	C.1 Place FACILITY in LIMITED OPERATION MODE	15 DAYS
D. The CWIV is being verified closed per Condition A	D.1 Continue to Verify the CWIV Closure per Required Action A.2	SHIFTLY until LCO is restored or no longer applies
	AND	
	D.2 Active Operations may be resumed	N/A

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.3.2.1	Verify CWIV Closure Indicator Light is Lighted	SHIFTLY And when water has been introduced into the sump.
SR 4.3.2.2	Calibrate the Valve Closed Position Indication System	SEMIANNUALLY

3/4.4 FIRE PROTECTION SYSTEMS

3.4.1 WET PIPE FIRE SUPPRESSION SYSTEM

LCO 3.4.1: The Wet Pipe Fire Suppression System is designed to the requirements of NFPA 13 (including valves and sprinkler heads) and shall be OPERABLE with the following components:

- An unobstructed and intact Water Delivery System from the FACILITY PIV to the sprinkler heads
- OPERABLE High Pressure Fire Loop supplying adequate water supply at the FACILITY PIV

MODE APPLICABILITY:

OPERATION	When greater than RESIDUAL quantities of NM or EXPLOSIVES is present
MAINTENANCE	When greater than RESIDUAL quantities of NM or EXPLOSIVES is present

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The Wet Pipe Fire Suppression System is found to be INOPERABLE in a Bay	A.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	A.2 Place affected FACILITY in MAINTENANCE MODE	4 Hours
	AND	
	A.3 Implement a FIRE PATROL in the affected Area	4 Hours
	AND	
	A.4 Implement a FIRE WATCH in the affected Area	48 Hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Actions are required to transfer FACILITY to MODE or condition in which the LCO does not apply	B.1 Place FACILITY in LIMITED OPERATION MODE	AS REQUIRED
C. The Wet Pipe Fire Suppression System is found to be INOPERABLE within a Cell Staging Cubicle	C.1 Place all NM in a SAFE AND STABLE CONFIGURATION **AND** C.2 Implement a FIRE PATROL for the affected Staging Cubicle	IMMEDIATELY 1 Hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.4.1.1	Flow Test Main Drain	QUARTERLY
SR 4.4.1.2	Inspect Control Valves are Open Position and Locked	QUARTERLY
SR 4.4.1.3	Inspect Exterior (Alarm Valve) PIV/Trim	QUARTERLY
SR 4.4.1.4	Visually Inspect the Mechanical Condition of the Wet Pipe Fire Suppression System	ANNUALLY
SR 4.4.1.5	Test Control Valve Operation	ANNUALLY
SR 4.4.1.6	Inspect Interior of Alarm Check Valve	5 YEAR

3/4.4 FIRE PROTECTION SYSTEMS

3.4.2 DELUGE FIRE SUPPRESSION SYSTEM

LCO 3.4.2: The Deluge Fire Suppression System is design to the applicable portions of NFPA 13 and NFPA 15 for the deluge piping system (including valves and sprinkler heads / nozzles) and NFPA 72 for the detectors. The Deluge Fire Suppression System shall be capable of detecting a fire, actuating the system and spraying water on a FACILITY Fire. The Deluge Fire Suppression System shall be OPERABLE with:

- An unobstructed and intact Deluge Water Delivery System from the FACILITY PIV to the open sprinkler/nozzle
- An OPERABLE High Pressure Fire Loop supplying adequate water supply at the FACILITY PIV
- OPERABLE Heat Detectors and Automatic Actuation System

MODE APPLICABILITY:		
	OPERATION	When greater than RESIDUAL quantities of NM or EXPLOSIVES is present in a FACILITY
	MAINTENANCE	When greater than RESIDUAL quantities of NM or EXPLOSIVES is present in a FACILITY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The Deluge Fire Suppression System is found to be INOPERABLE and the fire detection and Fire Department notification is OPERABLE	A.1 Place all NM and EXPLOSIVES in SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	A.2 Place FACILITY in MAINTENANCE MODE	4 Hours
	AND	
	A.3 Implement a FIRE WATCH for the affected Area	48 Hours
B. The Deluge Fire Suppression System is found to be INOPERABLE with the fire detection and Fire Department Notification INOPERABLE	B.1 Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION	IMMEDIATELY
	AND	
	B.2 Place the affected FACILITY in MAINTENANCE MODE	4 Hours
	AND	
	B.3 Implement a FIRE PATROL in the affected Area	4 Hours
	AND	
	B.4 Implement a FIRE WATCH in the affected Area	48 Hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Activities are required to transfer FACILITY to a MODE or condition for which the LCO does not apply with the Deluge Fire Suppression System is INOPERABLE	C.1 Place the FACILITY in LIMITED OPERATION MODE	AS REQUIRED

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.4.2.1	Flow Test Main Drain	QUARTERLY
SR 4.4.2.2	Inspect Control Valve is open and Locked	QUARTERLY
SR 4.4.2.3	Inspect Exterior Deluge Valve Riser/Trim Open	QUARTERLY
SR 4.4.2.4	Test Fire Alarm Control Panel Interface Equipment circuitry	ANNUALLY
SR 4.4.2.5	Visually Inspect the Mechanical Condition of the Wet Pipe Fire Suppression System	ANNUALLY
SR 4.4.2.6	Test Fire Alarm Control Panel Batteries and Chargers	ANNUALLY
SR 4.4.2.7	Test Fire Alarm Control Panel Equipment	ANNUALLY
SR 4.4.2.8	Deluge Valve Trip Test	ANNUALLY
SR 4.4.2.9	Inspect Interior of Deluge Valves	ANNUALLY
SR 4.4.2.10	Test Control Valve Operation	ANNUALLY
SR 4.4.2.11	Full FUNCTIONAL TEST Deluge Initiation Devices	ANNUALLY

3/4.4 FIRE PROTECTION SYSTEMS

3.4.3 FIRE DETECTION AND ALARM SYSTEM

LCO 3.4.3: The Fire Detection and Alarm System shall meet the applicable portions (those relating to local alarms only) of NFPA 72 and NFPA 101. The system shall be capable of detecting a fire, actuating the local fire alarms and notify the Fire Department of a alarm at the FACP. The Fire Detection and Alarm System shall have OPERABLE:

- fire detection devices
- local audible and/or visual alarm(s)
- signal from the FACP to the Fire Department
- FACP Batteries

MODE APPLICABILITY:

OPERATION	When greater than RESIDUAL quantities of NUCLEAR MATERIAL and/or EXPLOSIVES are present in a FACILITY
MAINTENANCE	When greater than RESIDUAL quantities of NUCLEAR MATERIAL and/or EXPLOSIVES are present in a FACILITY

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Local Audible and/or Visible Alarms are found to be INOPERABLE **OR** One or more of the Fire Detection Devices are found to be INOPERABLE	A.1 ADMINISTRATIVELY CONTROL the notification of FACILITY occupants of a fire **AND** A.2 Place FACILITY in LIMITED OPERATION MODE	IMMEDIATELY 14 Days
B. Fire Alarm Control Panel Battery(s) and/or Charger(s) are INOPERABLE	B.1 Follow Required Actions of Condition A above	14 Days
C. The Fire Department is incapable of receiving a Fire Alarm Signal from the FACP	C.1 ADMINISTRATIVELY CONTROL the notification of the Fire Department of a fire alarm at the FACP	IMMEDIATELY

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE REQUIREMENT	FREQUENCY
SR 4.4.3.1	Test Alarm Initiating Devices	ANNUALLY
SR 4.4.3.2	Test Fire Alarm Control Panel Batteries and Chargers	ANNUALLY
SR 4.4.3.3	Test Fire Alarm Control Panel equipment	ANNUALLY
SR 4.4.3.4	Test Alarm Notification Devices (Operation)	ANNUALLY
SR 4.4.3.5	Test Fire Alarm Control Panel interface equipment circuitry	ANNUALLY
SR 4.4.3.6	Test Fire Alarm Signal from Fire Alarm Control Panel to Fire Department	ANNUALLY
SR 4.4.3.7	Test Area Smoke Detector Sensitivity	2 YEAR

3/4.4 FIRE PROTECTION SYSTEMS

3.4.4 HIGH PRESSURE FIRE LOOP

LCO 3.4.4: The High Pressure Fire Loop (HPFL) shall meet the applicable sections of NFPA 20 and be OPERABLE with the following:

- Unobstructed and intact water delivery system from the tank(s) through the FACILITY PIVs
- One of the following minimum tank and pumping system configurations in Table 3.4.4-1

Table 3.4.4-1, Minimum HPFL Operations Configuration

	Building 15-24 Pump Station			Building 15-25 Pump Station		
Configuration	Tank	Electric Pump	Diesel Pump	Tank	Electric Pump	Diesel Pump
1	X	X	X			
2				X	X	X
3	X	X		X		X
4	X		X	X	X	
5	X		X	X		X

- To be considered OPERABLE, a tank shall contain a minimum of 159,120 gallons with an OPERABLE Water Level Alarm System
- A combined Pump System, with Automatic Start, to maintain discharge of at least 1,326 gpm at 100 psi at the base of riser in 12-99

MODE APPLICABILITY: At all times

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. High Pressure Fire Loop System is found to be INOPERABLE **NOTE:** An automatic start, except during testing, of the HPFL pumps as a result of detecting Low Pressure within the Fire Loop System shall constitute the HPFL System to be declared INOPERABLE and Required Action A.1 is required	A.1 Fire Department shall determine which FACILITY(s) Fire Suppression Systems are affected and notify the respective FACILITY Managers via Operations Center **AND** A.2 On receipt of notification from the Fire Department, the FACILITY Manager of the affected FACILITY shall declare the FACILITY(s) Fire Suppression System(s) INOPERABLE and enter the appropriate LCO Action Statements	IMMEDIATELY IMMEDIATELY
B. Water Level Alarm System Indicator is found to be INOPERABLE	B.1 Manually verify tank level **AND** B.2 Repair Water Level Alarm System Indicator	IMMEDIATELY **AND** SHIFTLY thereafter 30 Days

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT		FREQUENCY
SR 4.4.4.1	Inspect Fire Pump System	WEEKLY
SR 4.4.4.2	Test Fire Pump OPERABILITY	WEEKLY
SR 4.4.4.3	Inspect the Fire Pumps Electrical and Diesel Systems	WEEKLY
SR 4.4.4.4	Inspect Water Supply Control Valves (position Open and Locked)	QUARTERLY.
SR 4.4.4.5	Test Tank Water Level Alarm Indicators	SEMIANNUALLY
SR 4.4.4.6	Fire Pump Flow Test	ANNUALLY
SR 4.4.4.7	Operate Control Valves	ANNUALLY
SR 4.4.4.8	Flow Test of Underground Piping	5 YEARS

3/4.5 LIGHTNING WARNING SYSTEMS

3.5.1 Lightning Detection and Warning System

LCO 3.5.1: The Lightning Detection and Warning System shall be OPERABLE to detect elevated electric fields in close proximity to Pantex Plant and to monitor for the presence of lightning. The following components shall be OPERABLE for the Lightning Detection and Warning System to be OPERABLE:

Static Potential Monitoring System (SPMS)

- Three Field Mills each capable of detecting static potential up to 8,000 V/m with communication link to SPMS computer
- SPMS computer hardware and software
- Local display and annunciation at the PSS console

Lightning Location and Protection System (LLPS)

- Four impact detectors each capable of detecting a lightning strike within a 50 mile radius from the plant center with communication link to the LLPS computer
- LLPS computer hardware and software
- Local display and annunciation at the PSS console

MODE APPLICABILITY: At all times

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two Field Mill(s) of the SPMS are INOPERABLE	A.1* Upon detection of electrical fields in excess of 2,000 V/m and Less than 8,000 V/m from an OPERABLE Field Mill, issue static potential warnings	IMMEDIATELY
	AND	
	A.2 Upon detection of electrical fields in excess of 8,000 V/m from an OPERABLE Field Mill, issue Lightning Warnings	IMMEDIATELY
	AND	
	A.3 Upon identification of NEXRAD reflectivity of 35 dBz or higher within a 25 mile radius of the Pantex Plant, issue Lightning Warnings	IMMEDIATELY
	* **Should the initial detection of an electrical field exceed 8,000 V/m, Required Action A.2.1 shall be the entry Required Action for Condition A. The issuance of a Static Potential Warning, of Required Action A.1, IS NO LONGER REQUIRED once a Lightning Warning has been issued.**	

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Three Field Mills are INOPERABLE	B.1 Issue static potential warnings	IMMEDIATELY
OR	**AND**	
SPMS computer or local display and annunciation is INOPERABLE	B.2.1 Upon identification of NEXRAD reflectivity of 35 dBz or higher within a 25 mile radius of the Pantex Plant, issue Lightning Warnings	IMMEDIATELY
	OR	
	B.2.2 If NEXRAD is not available, issue Lightning Warnings	IMMEDIATELY
	AND	
	B.3.1 Restore at least one Field Mill to OPERABLE	7 DAYS
	OR	
	B.3.2 Upgrade to Lightning Warnings that shall remain in effect until Condition B is no longer applicable	7 DAYS
C. One impact detector of the LLPS INOPERABLE	C.1 Upon detection of a lightning strike within a 15 mile radius of the Pantex Plant, issue Lightning Warnings	IMMEDIATELY
	AND	
	C.2 Upon detection of a lightning strike within a 30 mile radius of the Pantex Plant, when static potential warnings are in effect, issue Lightning Warnings	IMMEDIATELY

(continued)

ACTIONS (continued)

D.	Two impact detectors of the LLPS INOPERABLE	D.1 Upon detection of a lightning strike within a 20 mile radius of the Pantex Plant, issue Lightning Warnings	IMMEDIATELY
		AND	
		D.2 Upon detection of a lightning strike within a 35 mile radius of the Pantex Plant, when static potential warnings are in effect, issue Lightning Warnings	IMMEDIATELY
		AND	
		D.3.1 Restore system to have at least three OPERABLE impact detectors	14 DAYS
		OR	
		D.3.2 Issue Lightning Warnings that shall remain in effect until Condition D is no longer applicable	14 DAYS
E.	More than two impact detectors of the LLPS INOPERABLE **OR** LLPS computer or local display and annunciation is INOPERABLE	E.1 Issue Lightning Warnings that shall remain in effect until Condition E is no longer applicable	IMMEDIATELY

SURVEILLANCE REQUIREMENTS

SURVEILLANCE REQUIREMENT	FREQUENCY
SR 4.5.1.1 Visually verify Operability of Lightning Detection and Warning System	SHIFTLY
SR 4.5.1.2 FUNCTIONAL TEST of equipment	ANNUALLY

Section 5

Administrative Controls

5.1 Purpose

The purpose of the Administrative Controls (ACs) is to state the provisions relating to organization and management, procedures, record keeping, review and audit, reporting, and safety control programs necessary to ensure safe operation in accordance with the TSRs.

The administrative control programs shall meet the applicable portions and revisions of authorizing documents as specified in the Pantex S/RIDS. These TSRs do not impart any additional order requirements not contained in the S/RIDS.

5.2 Management Responsibilities

The Plant Manager shall be responsible for the overall safe operation and management of the FACILITY(s) and shall have control over those activities necessary for safe operation of the FACILITY(s). The Plant Manager can formally designate, in writing, the succession to this responsibility. The Plant Manager or designee shall ensure that the operation of the FACILITY(s) is in accordance with approved TSRs and that On-Call Support Personnel are assigned and that technical support personnel will be available to provide technical assistance to the production staff.

The Plant Manager delegates the responsibility for FACILITY operations to a Division Manager of a FACILITY, which in turn delegates to a Facility Manager. In accordance with this safety chain of command, the responsibilities of the Facility Manager or designee

1. Coordinates contractor activities in the building
2. Maintains copies of current building standards, procedures, and safety documentation
3. Reviews/performs management walkthroughs
4. Directs FACILITY MODE changes
5. Ensures that material limits do not exceed those specified in section 5.6.13
6. Follows Pantex Conduct of Operations Manual
7. Supports building preventive maintenance, predictive maintenance, and surveillance schedules.

5.2.1 Staffing Requirements

The following represents the minimum staffing required to support the commitments made within the TSRs:

- One Plant Shift Superintendent directing overall Plant activities from the Operations Center at all times
- One Facility Manager or alternate when ACTIVE OPERATIONS are being conducted in a FACILITY
- One Operations Supervisor for ACTIVE OPERATIONS in a FACILITY.
- Adequately staffed plant Fire Department available at all times

5.3 Technical Safety Requirements

5.3.1 General

The TSR shall:

1. Be prepared, independently reviewed, and approved in accordance with DOE Order 5480.22.
2. Define the controls to ensure that the FACILITY remains within the safe operating envelope defined in the BIO.
3. Be complied with except for reasonable action taken (as defined in section 5.3.6) in an emergency when this action is immediately needed to protect the public health and safety and when action consistent with the TSRs is not immediately apparent
4. Be procedurally controlled to require that changes are:
   a. Prepared with a submittal package, including a description of the revision, justification for the change, and supporting analyses
   b. Reviewed by the Management and Operations (M&O) Contractor
   c. Approved by DOE prior to incorporation and implementation of the TSR change
      NOTE: Changes to the TSR bases do not require DOE approval if they meet the conditions of Section 5.3.5.

5.3.2 Compliance

The contractor is responsible for ensuring that the requirements of the TSRs are met. Compliance shall be demonstrated by:

1. Operating within the LCOs during their Applicability
2. Operating within the Actions of LCOs when required
3. Performing all SRs as required
4. Establishing, implementing, and maintaining the required ACs

5.3.3 Violation of a TSR

Violations of a TSR occurs as the result of the following:

1. Failure to perform a ACTION within the required Completion Time after:
   a. Failing to meet an LCO Statement
      OR
   b. Failing to successfully meet an SR
2. Failure to perform a Surveillance within the required INTERVAL
3. Failure to comply with an AC Specific Requirement and failure to comply with the allowable Actions associated with the AC Specific Requirements documented in an approved procedure or standard
4. A systematic breakdown of an AC Programmatic Requirement

5.3.4 Response to TSR Violations

5.3.4.1 Response to an LCO Violation

If an LCO is violated, as defined by Criterion 1 of Section 5.3.3, proceed as follows:

1. Place the facility in a safe condition by entering LCO 3.0.3
2. Notify the DOE of the violation in accordance with DOE O 232.1
3. Prepare and Report an Occurrence in accordance with DOE O 232.1.

5.3.4.2 Response to a Surveillance Requirement Violation

If a SR has not been performed within the required INTERVAL, (Criterion 2 of Section 5.3.3) proceed as follows:

1. Enter SR 4.0.3 and complete the SR within 24 Hours, or an additional period equivalent to the INTERVAL (whichever is less), of discovery
   a. If the SR is successfully met, exit SR 4.0.3 and continue operation in a compliant condition.
      Note: Actions 2 and 3 must still be completed
   b. If the SR is not successfully met, enter the ACTIONS of the applicable LCO.
      Note: Actions 2 and 3 must still be completed
2. Notify the DOE of the violation in accordance with DOE O 232.1.
3. Prepare an Occurrence Report in accordance with DOE O 232.1.

5.3.4.3 Response to an AC Specific Requirement Violation

If an AC Specific Requirement is violated, as defined by Criterion 3 of Section 5.3.3, proceed as follows:

1. Notify DOE of the violation in accordance with DOE O 232.1.
2. Prepare an Occurrence Report in accordance with DOE O 232.1.
3. Prepare a recovery plan describing the steps leading to compliance with the AC Specific Requirement.

5.3.4.4 Response to an AC Programmatic Requirement Violation

A violation of an AC Programmatic Requirement is a procedural violation, not a violation of a TSR or TSR program.

If an individual deficiency within an AC Programmatic Requirement is discovered, proceed as follows:

1. Notify DOE of the procedural violation in accordance with DOE O 232.1.
2. Prepare an Off-Normal Occurrence Report in accordance with DOE O 232.1.
3. Conduct an assessment to determine the stability of the program containing the requirement, if deemed necessary.

If the program is determined to have had a systematic breakdown, then proceed as follows:

1. Notify DOE of the AC violation in accordance with DOE O 232.1
2. Prepare an Occurrence Report in accordance with DOE O 232.1
3. Prepare a recovery plan describing the steps leading to compliance with the AC

5.3.5 TSR Basis Control

The contractor may make changes to the TSR Bases without prior DOE approval provided the changes do not involve any of the following:

a. A change in the TSR (the Bases are excluded).
b. A change to the Authorization Basis that involves a USQ, or
c. A change to the way that OPERABILITY or the TSR Bases could be met, applied or interpreted.

Proposed changes that meet the above criteria shall be reviewed and approved by DOE prior to implementation. Changes not meeting the above criteria and implemented without DOE approval are reported to DOE ANNUALLY.

5.3.6 Conditions Outside the TSR

In an emergency, if a situation develops that is not addressed by the TSR, site personnel are expected to use their training and expertise to take actions to correct or mitigate the situation.

Actions that depart from a requirement in the TSRs may be taken provided that all of the following conditions exist:

(1) an emergency situation exists,
(2) these actions are needed immediately to protect the public health and safety, and
(3) no action consistent with the TSR can provide adequate or equivalent protection.

As a minimum a qualified Facility Manager or Operations Manager must approve such action. If emergency action is taken, verbal notification shall be made to the DOE Area Manager within 2 Hours and by written reports to the DOE within 24 Hours.

5.4 Occurrence Reporting

An Occurrence Reporting System shall be established, implemented, and maintained for reporting of operation occurrences in accordance with DOE O 232.1 and the associated contract requirements.

5.5 Review and Audits

5.5.1. General

Reviews and audits shall be conducted to provide senior level facility management with an assessment of facility operation and to recommend Actions to improve nuclear safety and facility reliability.

Methods shall be established to conduct independent reviews and audits of all activities associated with maintaining compliance with the TSR. Management shall specify the functions, organizational arrangement, responsibilities, appropriate qualifications of reviewers, and reporting requirements of each functional element or unit that contributes to these processes.

The goal of the independent review is to provide an outside look at day-to-day operations. The goal of the independent audit program is to verify compliance with established M&O Contractor policies and programs.

5.5.2 Reviews

5.5.2.1 Independent Reviews

Reviews shall be conducted by a group independent of Facility Management. These reviews shall sample all applicable functional areas to assess level of performance, ensure adherence to applicable DOE directives and regulatory requirements, as defined in the contractor requirements, and evaluate the adequacy of the ongoing self-assessment program.

5.5.2.2 Authorization Basis Change Control Committee (ABCCC)

An ABCCC shall be established to advise the Plant Management on the adequacy of proposed Authorization Basis (AB) changes requiring DOE approval. The charter of this committee shall specify, at a minimum, the functions, organizational arrangement, responsibilities, appropriate qualifications of members, and reporting requirements of each functional element or unit that contributes to this committee.

5.5.3 Audits

An audit program shall be established, implemented and maintained to ensure that the plant is being operated in accordance with the TSRs and other operating contract requirements.

5.6 Programs

5.6.1 General

This section contains the commitments for the programs necessary to preserve assumptions made in the analysis. There are two classifications of Administrative Controls (ACs): AC Programmatic Requirements and AC Specific Requirements. The following sections discuss both of these.

5.6.1.1 ADMINISTRATIVE CONTROL Specific Requirements

AC Specific Requirements are those requirements that have been credited to prevent or mitigate accidents resulting in consequences that could exceed the Safety Class or Safety Significant evaluation Criteria. Compensatory Actions to be taken when an AC Specific Requirement has not been met are contained in approved plant standards or procedures. Violation of an AC Specific Requirement is defined in Section 5.5.3 criterion 3. Only AC program elements indicated to be AC Specific Requirements are considered as such. If an element is not directly stated to be an AC Specific Requirement, then it shall be considered a general element of the AC program, and thus an AC Programmatic Requirement.

5.6.1.2 ADMINISTRATIVE CONTROL Programmatic Requirements

AC Programmatic Requirements are elements of AC programs generically applied in the hazards and accident analyses. The programs and programmatic elements that define the AC Programmatic Requirements encompass a large number of details that are discussed in the BIO. If an individual deficiency of an AC Programmatic Requirement is discovered, it is not considered a violation of a TSR or the TSR program. The requirements contained in Sections 5.2 through 5.5 are considered AC Programmatic Requirements.

5.6.2 Staff Qualification and Training Program

A Staff Qualification and Training Program shall be established and implemented to ensure that FACILITY staff performing TSR related activities or operations with NUCLEAR MATERIAL are provided sufficient training to be qualified or certified for their positions. This program shall meet established training and qualification requirements of DOE Order 5480.20A and the associated contract requirements.

Procedures shall be in place to implement the Staff Qualification and Training Program requirements such as:

- All personnel who perform operations on NEs shall be trained on the two person program .
- All personnel who perform operations with NUCLEAR MATERIAL or TSR related activities shall be trained in their assigned activities
- Training records shall be maintained on required training

The Staff Qualification and Training Program is considered an AC Programmatic Requirement.

5.6.3 Fire Protection Program

A Fire Protection Program shall be established, implemented, and maintained for control of FACILITY fire protection in accordance with DOE Order 5480.7A and the associated contract requirements. The elements of the Fire Protection Program shall be considered AC Programmatic Requirements.

The Fire Protection Program shall include the following AC programmatic requirements:

- preparing and maintaining Fire Hazard Analysis (FHA) for each nuclear FACILITY
- establishing and maintaining combustible, flammable, and ignition controls
- establishing and maintaining Fire Department Response criteria
- establishing and maintaining requirements for performing a FIRE WATCH or FIRE PATROL

The Fire Protection Program shall establishing requirements for performing a FIRE WATCH or FIRE PATROL to include the following attributes:

- Personnel performing a FIRE PATROL shall:
  - aware of the impaired state of the FACILITY Fire Protection System(s)
  - aware of FACILITY fire suppression actuation methods
  - educated in the use of portable fire extinguishers and methods to notify pertinent FACILITY and Fire Department personnel in the event of a fire
- Personnel performing a FIRE WATCH shall:
  - have an approved portable fire extinguisher at al times
  - be aware of the impaired state of the FACILITY Fire Protection System(s)
  - be aware of FACILITY fire suppression actuation methods
  - be trained in the use of portable fire extinguishers
  - be trained in how to notify pertinent FACILITY and Fire Department personnel in the event of a fire

5.6.3.1 Fire Protection Program AC Specific Requirements

The Fire Protection Program shall include the following AC Specific Requirements

- the combustible loading for 12-44 Cell 8 shall be maintained per the FHA

5.6.4 Explosive Safety Program

An Explosive Safety Program shall be established, implemented and maintained in accordance with the DOE Explosive Safety Manual (DOE M 440.1-1) requirements for operations and activities involving the development, testing, handling, and processing of EXPLOSIVEs or assemblies containing EXPLOSIVEs.

Procedures shall be in place to implement the Explosive Safety Program AC Programmatic Requirements such as:

- Class II level of protection, as defined in the DOE Explosive Safety Manual, shall be provided for personnel in occupied areas
- EXPLOSIVEs shall be stored in approved containers when not in use

5.6.4.1 Explosive Safety Program AC Specific Requirements

The following are AC Specific Requirements of the Explosive Safety Program

- maintain a 3 foot separation between bare HE and walls common to two FACILITIES (12-84 Bays 2 through 8)
- maintain at least one blast door per corridor in the Nuclear Explosives Bays closed at all times, unless the specific situation has been evaluated to show the Critical Safety Function of the blast doors as part of the Facility Structure is not required.

5.6.5 Lightning Protection Program

A Lightning Protection Program shall be established, implemented, and maintained and shall perform the following functions:

- Determining the requirements for the Lightning Detection and Warning System
- Determine the requirements for declaring a lightning warning and a static potential warning
- Determine actions to be taken during lightning warnings and static potential warnings
- Determining the requirements for the FACILITY Lightning Protection System
- Determining isolation requirements for NE operations
- Establishing the configurations of NEs, shipping containers, and tooling containers that afford Faraday cage protection

The general elements of the Lightning Protection are considered AC Programmatic Requirements.

5.6.5.1 Isolation

FACILITY specific standoff requirements shall be maintained at all times for applicable NEs. This is an AC Specific Requirement. Standoff shall be based on a dual control philosophy that combines engineered design features with the isolation administrative control to achieve a high level of protection for NE operations. Standoff does not apply to NEs in configurations that are afforded Faraday cage protection, either inherently, or through a shipping container or tooling container, as determined by the Lightning Protection Program. There may be other NE configurations, as specified by the Lightning Protection Program, which are provided adequate protection from lighting and are not subject to the FACILITY standoff requirements. Minimum standoff distances from FACILITY walls shall be clearly marked on the FACILITY floor.

At a minimum, standoff shall be provided from FACILITY walls or NEs not provided with adequate Faraday cage protection. This standoff is based on the maximum voltage available in the FACILITY due to a lightning strike, regardless of the number and location of utility penetrations. This voltage is dependent on the number and type of discontinuities in the

FACILITY Faraday cage. Table 5.6.5.1-1 provides the minimum standoff distances from FACILITY walls.

Table 5.6.5.1-1 Minimum Standoff Distances from FACILITY Walls

FACILITY	VOLTAGE	STANDOFF
12-44	141 kV	20 inches
12-50	TBD	84 inches
12-60	TBD	84 inches 2 inches (bay 2 only)
12-64 (1-9)	97 kV	8.5 inches
12-64 (10-17)	98 kV	8.5 inches
12-84 East (bays 1-8)	33 kV	3 inches
12-84 West (bays 9-15, 17, 19 & 20)	115 kV	10 inches
12-84, Bays 16 & 18	12 kV	1 inch
12-85	13 kV	1 inch
12-96	13 kV	1 inch
12-98	13 kV	1 inch
12-99	115 kV	10 inches
12-104	84 kV	8 inches

In addition to providing standoff between the FACILITY walls and applicable NEs, FACILITIES housing operations involving applicable NEs shall adopt one of the following schemes to achieve isolation from the FACILITY utility penetrations. The method chosen, based on a specific process or activity, shall be documented and retained for the duration of that activity.

- A uniform standoff distance, from every penetration, based on unbonded standoff as provided in the following table. This scheme requires a single engineered bond on each metallic penetration of the Faraday cage. Note that the distances shown for both unbonded and bonded standoff represent minimum values

Table 5.6.5.1-2 Minimum Standoff Distances from FACILITY Penetrations

FACILITY	UNBONDED VOLTAGE	UNBONDED STANDOFF	BONDED VOLTAGE	BONDED STANDOFF
12-44	441 kV	64 inches	141 kV	20 inches
12-50	TBD	84 inches	TBD	TBD
12-60	TBD	84 inches	Bay 1 – 23 kV Bay 2 – 23 kV	Bay 1 – 3 inches Bay 2 - 2 inches
12-64 (bays 1-9)	210 kV	30 inches	97 kV	8.5 inches
12-64 (bays 10-17)	300 kV	43 inches	98 kV	8.5 inches
12-84 East (bays 1-8)	256 kV	37 inches	33 kV	3 inches
12-84 West (bays 9-15, 17, 19, 20)	219 kV	32 inches	115 kV	10 inches
12-84 (Bay 16 & 18)	219 kV	32 inches	13 kV	1 inch
12-85	156 kV	22 inches	13 kV	1 inch
12-96	156 kV	22 inches	13 kV	1 inch
12-98	241 kV	34.5 inches	13 kV	1 inch
12-99	194 kV	28 inches	115 kV	10 inches
12-104	144 kV	21 inches	84 kV	7.5 inches

- A uniform standoff distance, from every penetration, based on bonded standoff as provided in the above table. This scheme requires each metallic penetration to have two bonds to the Faraday cage (the bonds can be an intrinsic bond in conjunction with a single engineered bond, or two engineered bonds). In addition, low voltage (110 volt and less) circuits shall have at least one surge suppressor installed and referenced to the Faraday cage.
- A combination of bonded and unbonded standoff distance based on a particular process layout. If a penetration has two bonds to the Faraday cage (through intrinsic bonding and/or engineered bonding), bonded standoff from that penetration shall be acceptable as long as all adjacent penetrations within bonded distance are also protected with two bonds. All unbonded or singularly bonded penetrations must be at unbonded distance from the double

bonded penetration. For low voltage circuits that do not contain surge suppressors, unbonded standoff distances must be maintained.

5.6.5.2 Insulation

Operation/FACILITY specific insulation devices shall be utilized at all times. Allowable exceptions to this requirement are contained in Section 5.6.5.4. This is an AC Specific Requirement. If specifically approved by Nuclear Explosive Safety, the ability to disconnect and isolate when lightning warnings are in effect meets this requirement. A NE is afforded adequate insulation if protection from maximum voltages available as a result of a lightning strike to the FACILITY is provided through air gap and/or dielectric insulation.

5.6.5.3 Lightning Warning Communication

When lightning warnings are required, FACILITY personnel shall be notified of the lightning warning. Within 30 minutes of the identification of conditions that warrant a Lightning Warning, the warning shall be issued and a confirmation of that notification shall be provided from FACILITY personnel to the Operations Center. This is an AC Specific Requirement.

5.6.5.4 Operational Restrictions

The following operational restrictions must be observed when lightning warnings are in effect:

- Disconnect and isolate NEs from FACILITY Crane Assembly during lightning warnings unless they are in a full up configuration or afforded adequate insulation
- No transporting of partial NEs shall be initiated during lightning warnings unless in a cart approved for transportation during lightning warnings
- Task exhaust operations on partial NEs shall be discontinued during lightning warnings or afforded adequate insulation
- AC-powered Master Tester List (MTL) equipment shall be disconnected and isolated from a NE during lightning warnings unless afforded adequate insulation
- AC-powered Master Equipment List equipment making a physical connection to a NE (excluding mass property equipment) shall be disconnected from the NE and isolated during lightning warnings unless adequate insulation is afforded. This equipment includes portable purge and backfill carts.

These OPERATIONAL restrictions are considered AC Specific Requirements.

5.6.6 Preventive Maintenance Program

A Preventive Maintenance Program shall be established, implemented and maintained to establish requirements for the preventive maintenance inspections. This program shall identify the applicable SSCs and preventive maintenance inspections and establish the required intervals for these inspections.

Procedures shall be maintained and followed that identify the AC Programmatic Requirements for a Preventive Maintenance Program such as:

- establishing SSCs to be included in the program. At a minimum, the following specific SSCs shall be included: Wet Pipe Fire Suppression System, Deluge Fire Suppression System, Facility Crane System, Facility Structure, and forklifts
- establishing the maintenance to be performed
- establishing the required intervals for the preventive maintenance

There are no AC Specific Requirements for the Preventive Maintenance Program.

5.6.7 Configuration Management Program

A Configuration Management Program shall be established, implemented, and maintained to meet the configuration elements of DOE STD 1073-93 and the associated contract requirements. This program shall be maintained and followed that identify the requirements for Critical Safety SSC configuration management.

Procedures shall be maintained and followed that identify the AC Programmatic Requirements for the Configuration Management Program such as:

- ensuring all changes to Critical Safety SSCs are reviewed for an impact to the safety basis, approved, and authorized prior to being implemented
- ensuring all changes to Critical Safety SSCs' controlled documentation are reviewed, approved, and distributed prior to operations commencing
- ensuring Critical Safety requirements are identified, incorporated into flow down documentation, and implemented at the shop floor level.

There are no AC Specific Requirements for the Configuration Management Program.

5.6.8 NM Storage, Handling, and Shipping Program

An NM Storage, Handling, and Shipping Program shall be established, implemented and maintained to define the requirements for the storage, handling and shipping of radioactive materials. Procedures shall be in place to implement the AC Programmatic Requirements of the NM Storage, Handling, and Shipping Program such as:

- NM shall be staged and shipped in APPROVED CONTAINERS
- NM is kept inside APPROVED CONTAINERS unless involved in operations requiring the handling of bare NM
- Forklifts are not allowed in Building 12-64 Weapons Staging Bays.
- Only approved forklifts are allowed in Nuclear FACILITY(s) containing greater than RESIDUAL quantities of NM
- All NE or NM movements must be scheduled, coordinated, and controlled
- Use of squib valve shorting plugs on tritium reservoirs, where required
- Tritium reservoirs are not permanently staged at Pantex if the limited life has expired

There are no AC Specific Requirements for the NM Storage, Handling, and Shipping Program.

5.6.9 APPROVED CONTAINER and Storage System Program

A program shall be established. implemented and maintained that identifies and qualifies. containers for handling of NUCLEAR MATERIAL and EXPLOSIVES at Pantex Plant. Procedures shall be in place to implement the Approved Container and Storage System Program AC Programmatic Requirements such as:

- Containers shall be identified and qualified for use in nuclear FACILITIES and activities on Pantex Plant.
- APPROVED CONTAINERS are captured in Pantex Manual MNL-180409 "Type B and Other DOE Approved Containers for Pantex Plant Applications,"

There are no AC Specific Requirements for the APPROVED CONTAINER and Storage System Program.

5.6.10 Severe Weather Program

A program shall be established, implemented and maintained to detect adverse weather conditions (e.g., tornado) and notify personnel performing operations requiring actions to be taken in severe weather. Procedures shall be in place to implement Severe Weather Program AC Programmatic Requirements such as:

- develop and implement a criteria for determining the conditions that require a severe storm warning to be issued (i.e., weather conditions that indicate a high risk of a tornado)
- implement methods to detect an approaching storm and to issue a severe storm warning when the weather conditions exceed the criteria
- implement a severe storm warning program to require sensitive operations / equipment be identified and operating procedures be developed to provide steps to stop those operations when a severe storm warning is issued.

Procedures shall be in place to implement the following AC Specific Requirements:

- Upon receipt of a severe storm warning, activities shall be initiated to remove NE from Building 12-41 and place in a SAFE AND STABLE CONFIGURATION within a FACILITY
- Upon receipt of a severe storm warning, activities shall be initiated to close the Zone 4 Storage Facilities and to replace the concrete barriers

5.6.11 Radiation Safety Program

A Radiation Safety Program shall be maintained consistent 10 CFR 835 so that the radiation exposure of employees, subcontractors, visitors, and members of the general public will be controlled to applicable DOE limits.

Procedures shall be in place to implement the Radiation Safety Program AC Programmatic Requirements such as:

1. Ensure that individual and collective radiation exposures will be minimized through the following programs:
   a. As low as reasonably achievable (ALARA) program
   b. Radiation work permit (RWP) program.
2. Ensure that radioactive contamination of personnel, areas, and equipment shall be minimized through a radioactive contamination control program
3. Ensure that operations involving NM are monitored by radiation protection instrumentation (e.g., Alpha and Tritium CAMS), as required.
4. Ensure the operation of radiation generating devices are operated in accordance with industry standards

There are no AC Specific Requirements for the Radiation Safety program.

5.6.12 Criticality Safety Program

A Criticality Safety Program shall be established, implemented, and maintained to meet the requirements of DOE Orders 420.1 and the associated contract requirements. The program shall be a formal, documented system for controlling nuclear criticality safety parameters and their analysis, basis, identification, and verification.

For purposes of this AC Program, bare fissile components/assemblies are fissile material components/assemblies that are removed from their respective NE unit or DOE APPROVED CONTAINER.

The following elements of the Criticality Safety Program are AC Programmatic Requirements:

1. Use inherently safe process designs that control one or more of the factors affecting criticality.
2. Perform NCS reviews, evaluations, and walkdowns for new, existing, and modified operations with fissile material.
3. Maintain appropriate controls for onsite transportation and staging of fissile materials.

5.6.12.1 Stacking Requirements

There are only AC Specific Requirements for the Stacking Requirements of Criticality Program

The following are the AC Specific Requirements for the Stacking Requirements of Criticality Program:

- No stacking of bare fissile components/assemblies is permitted.

- Fissile components/assemblies in APPROVED CONTAINERS shall be restricted to configurations specifically analyzed and approved by Criticality Safety.

5.6.12.2 Handling Requirements

There are only AC Specific Requirements for the Handling Requirements of Criticality Program

The following are the AC Specific Requirements for the Handling Requirements of Criticality Program:

- Parts containing fissile materials shall not be submerged in cleaning mixtures or other liquids, except as explicitly instructed by the program-specific operating procedure.

- If components/assemblies containing fissile material are damaged such that the fissile material or cladding may be breached, cease operations and follow the approved Operating Procedure. Notify the Operations Center immediately.

- Bays or cells that do not contain EXPLOSIVES are allowed to concurrently conduct bare fissile material operations and staging operations involving more than twelve containerized fissile material items provided a Nuclear Criticality Safety (NCS) approved physical barrier is used to prevent physical co-mingling of the above operations.

- Plutonium pits shall not be intermixed with other types of fissile material components/assemblies within a staging array.

5.6.12.3 Criticality Limits

Table 5.6.12.3-1 identifies the allowed fissile configurations that can be out of DOE APPROVED CONTAINERS at the same time in a bay or cell. These limits are considered AC Specific Requirements.

Table 5.6.12.3-1. Allowed Types of Bare Fissile Items[1]

Fissile Material Type	Maximum Limit
Pits (excluding W48)	6 pits
Pits (W48 or W48 with others)	4 pits
OROs	12 OROs
OROs & Pits (same program)	Total of 12, w/ no more than 6 pits
OROs & Pits (mixed programs)	Operations will be analyzed in accordance with the Criticality Safety Program as required.

Note (1): For the purposes of this table, Oralloy pits are counted as plutonium pits.

5.6.13 NUCLEAR MATERIAL and EXPLOSIVES Inventory Control Program

An NM and EXPLOSIVES Inventory Control Program shall be established, implemented and maintained to ensure the FACILITY material inventory limits contained in the following tables are not exceeded. The FACILITY limits in the following sections are considered AC Specific Requirements.

An NM and EXPLOSIVES Inventory Control limits table is given for each FACILITY or group of FACILITIES with identical limits. A FACILITY may be in any one of the allowable configurations identified in the table. The material limits and the associated configurations and restrictions in the remainder of this program are considered AC Specific Requirements.

For the pit staging FACILITIES, accident analysis conservatively assumes all material in a pit is weapons grade plutonium. Based on this assumption, is it not necessary to specifically control any of the materials associated with a pit other than Pu-239 where only pits are being staged. The U-235 limits listed in the tables are for controlling the presence of U-235 in components other than pits.

In addition to specific material limits, the configurations of Nuclear Explosives allowed to be present in the facility are also specified. These configurations are defined as follows

- Configuration A – CASED EXPLOSIVEs or UNCASED IHE with a plutonium-containing pit assembly
- Configuration B – UNCASED EXPLOSIVEs with Oralloy pit assembly
- Configuration C – CASED EXPLOSIVES with a plutonium pit assembly short of the ultimate user configuration
- Configuration D – Ultimate user configuration

The following rules apply generically to all the FACILITIES:

- Mixtures of HE and IHE are subject to the HE inventory limits
- Inventory limits do not include items which make up RESIDUAL materials
- Pu must be kept in an APPROVED CONTAINER unless operations require the handling of bare Pu
- EXPLOSIVES must be staged in an APPROVED CONTAINER unless operations with bare EXPLOSIVES are required

5.6.13.1 Nuclear Explosive Bays

The following items are generic to Nuclear Explosive Bays:

- UNCASED HE may not be present in a bay containing Pu. HE, in conjunction with Pu and/or weapons components, is permitted in bays provided the HE is in an unopened APPROVED CONTAINER. Only operations in conjunction with staging are permitted in this situation.
- APPROVED CONTAINERs containing HE may not be opened when staged with U-235.

5.6.13.1.1 Building 12-64

Table 5.6.13.1-1. Building 12-64 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Bays	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
1-17	0	600	0	0	0	1.4 EXPLOSIVES can be present
1-17	100	0	1000	0	0	
1	25	100	1000	20	390	
2, 4	25	100	1000	50	390	
3	25	100	1000	140	390	
5-17	25	100	1000	230	390	
13-17	25 per compart-ment	100 per bay	1000 per bay	105 per compart-ment	105 per compart-ment	These limits are only allowable when the bay contains a Sandbag Barrier System, as described in TP 20-7. Weapons staging must be in accordance with TP 20-7. Up to 5 Compartments per bay
1	0	0	3000	20	390	
2, 4	0	0	3000	50	390	
3	0	0	3000	140	390	
5-17	0	0	3000	230	390	

The following restrictions apply:

Only NEs in Configurations C or D are allowed in 12-64

5.6.13.1.2 Buildings 12-84 and 84A

Table 5.6.13.1-2. Building 12-84 and 84A NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Bays	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
2-9, 11-20	100	0	1000	0	0	
2-9, 11-20	25	100	1000	300	390	
2-9, 11-20	0	0	3000	300	390	
1, 10	25	100	1000	300	390	Radiography Operations Only EXPLOSIVEs that are part of a partially or completely assembled NE or NE component are allowed while NM is present.

The following restrictions apply:

Only NEs in Configurations A, C or D are allowed

5.6.13.1.3 Building 12-99

Table 5.6.13.1-3. Building 12-99 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Bays	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
1-9	100	0	1000	0	0	
1-9	25	100	1000	300	390	
1-9	0	0	3000	300	390	

The following restrictions apply:

Only NEs in Configurations A, C or D are allowed

5.6.13.1.4 Building 12-104

Table 5.6.13.1-4. Building 12-104 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Bays	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
1-16	100	0	1000	0	0	
1-16	25	100	1000	300	390	
1-16	0	0	3000	300	390	

The following restrictions apply:

Only NEs in Configurations A, C or D are allowed

5.6.13.2 Nuclear Explosive Cells (12-44 Cells 2-6, 12-85, 12-96, and 12-98 Cells 1-4)

The following items are generic to Nuclear Explosive Cells

- Pu-239 limits in a cell apply to total of both the round room and cubicle(s).
- Plutonium in a cell cubicle shall be staged in APPROVED CONTAINERS, within the marked area unless the containers are being moved into or out of a cell.
- Main Charge EXPLOSIVES may only be staged in the round room.
- Limits in Table 5.6.13.2-1 shall be used in conjunction with the weapons program specific cell dispersion report (RPT-MIS-163913) to ensure site evaluation criteria are not exceeded.
- NEs in Configurations A, B, C, or D are allowed in the NE Cells

Table 5.6.13.2-1. Nuclear Explosive Cells NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Cells	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
All Cells	0	0	3000	No Main Charge		
All Cells	30	100	1000	423	550	
All Cells	130	0	1000	0	0	

5.6.13.3 Nuclear Explosive Special Purpose Facilities

5.6.13.3.1 Building 12-41

Table 5.6.13.3-1. Building 12-41 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
12-41	25	40	1000	430	800	

The following restrictions apply:

- Mixtures of EXPLOSIVES & NM are only allowed as NEs in Configurations C or D

5.6.13.3.2 Building 12-50

Table 5.6.13.3-2. Building 12-50 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
12-50	6	20	1000	60	78	

The following restrictions apply:

- No UNCASED HE allowed.
- No NEs are allowed in the control or mechanical equipment room.
- No EXPLOSIVEs staging in the facility.
- Mixtures of EXPLOSIVES & NM are only allowed as NEs in configurations C or D in a full-up weapons configuration

5.6.13.3.2 Building 12-60

Table 5.6.13.3-3. Building 12-60 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
12-60 Bay 1	25	20	1000	50	300	
12-60 Bay 2	25	20	1000	50	300	
12-60 Bays 3-6	25	20	1000	50	300	
12-60 Bays 3-6	0	0	3000	No Main Charge		

The following restrictions apply:

- Only one NE allowed in Building 12-60
- No NEs allowed in Bay 2 during setup, balancing, and removal of POI fixture and during maintenance of the Dynamic Balancer
- No NEs are allowed in the control or mechanical equipment room.
- No W-62 main charge is allowed in Building 12-60 Bay 2.
- Mixtures of EXPLOSIVES & NM are only allowed as NEs in Configurations C or D

5.6.13.3.4 Building 12-94

Table 5.6.13.3-4. Building 12-94 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
12-94	0	0	0	250	325	

The following restrictions apply:

- No UNCASED EXPLOSIVES are allowed in Building 12-94
- No NEs are allowed in 12-94

5.6.13.4 Zone 12 Staging

5.6.13.4.1 Building 12-26 PV

Table 5.6.13.4-1. Building 12-26 PV NM and EXPLOSIVES Inventory Limits

	Radionuclides		EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	HE	IHE	Comments
12-26 PV	1008	0	0	0	

The following restrictions apply:

- The containers in the Building 12-26 PV are not opened during operations conducted within the vault.

5.6.13.4.2 Building 12-42 NV

Table 5.6.13.4-2. Building 12-42 NV NM and EXPLOSIVES Inventory Limits

	Radionuclides		EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	HE	IHE	Comments
12-42 NV	0	0	0	0	Only Pu-238 is allowed

The following restrictions apply:

- All Pu-238 must be in an APPROVED CONTAINER

5.6.13.4.3 Building 12-44 Cell 8

Table 5.6.13.4-3. Building 12-44 Cell 8 NM and EXPLOSIVES Inventory Limits

	Radionuclides		EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	HE	IHE	Comments
12-44 Cell 8	2184	0	0	0	

The following restrictions apply:

- No more than 20 pits, in APPROVED CONTAINERS, are allowed in the Building 12-44 Cell 8 equipment passageway.
- No more than 336 pits are allowed in Building 12-44 Cell 8, including both pits inside and outside containers.
- Only Pits containing plutonium may be staged in Building 12-44 Cell 8.
- Inert Pits may be used for training purposes in Building 12-44 Cell 8 without restrictions.

5.6.13.4.4 Building 12-58 Bays 4 and 5

Table 5.6.13.4-4. Building 12-58 Bays 4 and 5 NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Facility	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
12-58 Bays 4, 5	0	0	4300	No Main Charge		

5.6.13.5 Zone 4 Staging Facilities

A Modified Richmond (M-R) or a Steel Arch Construction (SAC) magazine may be categorized as either of the following:

- Nuclear explosive assembly magazines – These facilities shall only contain NE assemblies, NELAs, and ORO components. For a M-R, the entire magazine is considered a NE assembly magazine when either side is used for staging NE assemblies or NELAs.
- Special nuclear material magazines – These facilities may contain a combination of either Pits and RTGs, or, ORO components and RTGs. Pits and ORO components shall not be staged together.

The following ACs are generic to Zone 4 Staging Facilities

- Bulk EXPLOSIVES are not allowed in the Zone 4 Staging Facilities
- There are no specific limits on the quantity of pits, ORO components, or RTGs that can be placed in a Zone 4 Staging Facility.
- If all NE assemblies in a magazine contain IHE only, there are no limits on either Pu or IHE.
- Zone 4 Staging Facilities may contain Stage Right or planar array staging configurations for pits
- Mixtures of EXPLOSIVES & NM are only allowed as NEs in Configurations C or D which have adequate protection from lightning events provided by the NE case or shipping container.

5.6.13.5.1 4-19, 4-21, 4-25, 4-30 to 4-44 Modified Richmonds

If a M-R magazine is compartmentalized for the use as a NE Assemblies Magazines, only one side of this double-sided magazine may contain plutonium or HE with the other side empty.

Table 5.6.13.5-1. M-R (4-19, 4-21, 4-25, 4-30 to 4-44) NM and EXPLOSIVES Inventory Limits

		Radionuclides			EXPLOSIVES (lbs.)		
Configuration	Side	Pu-239 (kg)	Tritium (g)	U-235 (kg)	HE	IHE	Comments
Open		No Limit	No Limit	No Limit	0	No Limit	IHE NE Staging
Open		No Limit	0	No Limit	0	0	Pit Staging
Open		30	No Limit	No Limit	2000	0	HE NE Staging
Compartmented	A	30	No Limit	No Limit	105 or 210	No Limit	HE limits for compartments are program specific and specified in TP 20-7 Limits are per compartment
	B	0	0	0	0	0	

5.6.13.5.2 4-101 to 4-142 SAC

Table 5.6.13.5-2. SAC(4-101 to 4-142) NM and EXPLOSIVES Inventory Limits

	Radionuclides			EXPLOSIVES (lbs.)		
Configuration	Pu-239	Tritium	U-235	HE	IHE	Comments
Open	30	No Limit	No Limit	2000	No Limit	NE Staging
Open	No Limit	No Limit	No Limit	0	No Limit	Pit Staging
Compartmented	30	No Limit	No Limit	210 or 105	No Limit	HE limits for compartments are program specific and specified in TP 20-7 Total magazine EXPLOSIVEs limits shall not exceed 840 lbs. Limits are per compartment

5.6.14 Quality Assurance Program

A program shall be established and implemented for control of the FACILITY quality assurance that is consistent with 10 CFR 830.120 and the associated contract requirements. The facility QA program shall:

a. Be implemented through written procedures and instructions
b. Be applicable to construction, operation, maintenance, and design
c. Require that sufficient records be maintained to preserve the technical baseline documentation
d. Support individual audit verification requirements to determine compliance with the site Quality Assurance Program

5.6.15 Emergency Response Program

An Emergency Response Program shall be developed and implemented based on DOE O 151.1 and the associated contract requirements. The site emergency plan shall define specific measures, policies, and actions to prevent or minimize injuries, damage to property, and an impact on the environment caused by accidents, natural disasters, or deliberate damage within the area of responsibility. DOE Orders and Site Emergency Planning shall be implemented through the Pantex Plant Emergency Management Plan.

5.6.16 In-service Inspection Program

An In-service Inspection (ISI) Program shall be established, implemented, and maintained. This program shall ensure the TSR Design Features' ISIs are performed as prescribed in Appendix B of these TSRs. The ISI Program shall, at a minimum,

- Establish procedures for performing ISIs for design features
- Establish procedures for actions to be taken on discovery of a nonconformance of a Design Feature as identified through the ISIs

5.6.17 Procedure Programs

Procedures shall be established, implemented and maintained to address NE operations, NUCLEAR MATERIAL operations, and the controls and programs captured in these TSRs. Procedures shall be approved by defined management levels. All changes to procedures that implement TSR requirements are evaluated against current Authorization Basis documents to ensure the changes do not affect the safety envelope.

Procedures shall be in place to

- define NE and NUCLEAR MATERIAL operations
- implement the AC programmatic and specific requirements contained in these TSRs
- implement the SRs specified in the LCOs

There are no AC Specific Requirements for the Procedures Program.

5.6.18 Interim Cell Personnel Door Control Program

An Administrative Control Program shall be established and implemented to maintain the personnel swinging leaf door closed whenever both HE and Pu is present within the FACILITY except for brief periods.

Procedures shall be in place to implement the following AC Specific Requirements:

- administratively control the personnel doors for 12-44 Cells 3 and 4, 12-85, and 12-98 Cell 4 to ensure that the time for the personnel doors to be in the opened position is limited to as short a time as reasonably possible whenever there is Pu and HE in the facility

5.6.19 Surveillance Program

A Surveillance Program shall be established, implemented, and maintained. This program shall ensure the LCO Surveillance Requirements of the LCOs are performed as described in the LCOs and their bases.

5.6.20 Pantex Operating Records Program

The following records shall be retained for the FACILITY(s) covered by these TSRs for a period as defined by the specific program requiring the records

1. Records and logs of facility operation

2. Records and logs of maintenance activities, inspections, repairs, and replacements of Critical Safety equipment

3. Reportable events/occurrences

4. Records of surveillance activities, inspections, and calibrations required by TSRs

5. Records of changes made to procedures

6. Records and drawing changes reflecting facility design modifications made to systems and equipment described in the Authorization Basis Documents

7. Records of radiation exposure for all individuals entering radiologically controlled areas

8. Records of facility tests and experiments

9. Records of training and qualification for personnel as required by 5480.20A

10. Records of USQ screens and determinations performed for changes made to Critical Safety SSCs or for tests and experiments

5.6.21 Unreviewed Safety Question Program

A program shall be established, implemented, and maintained for USQDs, based on the requirements in DOE Order 5480.21.

Appendix A

Bases

B3/4.0 APPLICABILITY

B3.0 Bases for Limiting Control Settings and Limiting Conditions for Operation

BASES

GENERAL

These generic LIMITING CONDITIONS FOR OPERATION (LCOs) establish the general requirements applicable to all LCOs in this document. These requirements are based on DOE Order 5480.22, "Technical Safety Requirements."

LCO 3.0.1

LCO 3.0.1 establishes the Applicability statement within each LCO as the requirement for conformance to the LCO statement for safe Operation of the FACILITY (i.e., when the FACILITY is in the MODEs or other specified conditions of the Applicability statement of each LCO). LCO 3.0.2 establishes the exception for requiring each LCO to be met.

LCO 3.0.2

LCO 3.0.2 establishes that, upon discovery of a failure to meet an LCO statement, the associated Required Action(s) shall be met. The Completion Time of each Required Action for a given Condition is applicable from the point in time that the Condition is discovered. The Required Action(s) establish those remedial measures that shall be taken within specified Completion Times when the requirements of an LCO statement are not met. The purpose of this specification is to clarify the following:

a. Implementation of the Required Action(s) within the specified Completion Time(s) constitutes compliance with an LCO, and

b. Completion of the remedial measures of the Required Action(s) is not required when compliance with an LCO is restored, unless otherwise specified.

Conditions in an LCO ACTIONS section may be concurrently applicable. For example, an LCO that requires two systems to be OPERABLE will typically have a Condition addressing the situation where one system is found to be INOPERABLE and another Condition addressing the situation where both systems are found to be INOPERABLE. When both systems are found to be INOPERABLE, both Conditions are applicable concurrently. The effect of this requirement is to ensure that the Completion Times associated with the Conditions are tracked correctly.

The Completion Times for the Required Action(s) are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the Required Action(s) include, but are not limited to, performance of Surveillance Requirements, preventive maintenance, corrective maintenance, or investigation of OPERATIONAL problems.

The "Discovering" amplification is to better define when an INOPERABLE condition is to be declared and TRS Action Statements are to be entered. It was determined that several of the Required Actions within this document must have a Completion time of IMMEDIATELY. It is important to know precisely when the discovery took place to determine if the Required Actions where, "initiated without delay and continuously pursued until completed." It is to be clear that once an INOPERABLE Condition has been discovered, requiring entry into a Required Action with a Completion Time of IMMEDIATELY, that any delay of action taken thereafter, without proper justification, until the Required Action has been satisfied, may be consider not meeting the Required Action time requirements and a TSR violation.

(continued)

BASES (continued)

LCO 3.0.3

LCO 3.0.3 establishes the Required Actions that shall be implemented when an LCO statement is not satisfied and when one of the following conditions occurs:

a. An associated Required Action is not satisfied in the specified Completion Time, and no other Condition applies, or

b. The associated ACTIONS section does not specifically address the Condition.

This LCO requires that the affected FACILITY(S) be placed in a MODE where the LCO does not apply if the limits for OPERATION, as defined by the LCO and its ACTIONS section, cannot be met or associated Required Actions are not provided. This Required Action shall be initiated IMMEDIATELY. The used of IMMEDIATELY is necessary in order to transition the FACILITY to a MODE where the LCO does not apply as soon as a plan can be developed and appropriate actions taken.

Placing the FACILITY in STANDBY or in a MODE where the LCO does not apply in accordance with LCO 3.0.3 may be terminated and LCO 3.0.3 exited if any of the following occurs:

a. The LCO statement is now met.

b. A Condition exists for which the Required Actions have now been performed.

c. Required Actions exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time LCO 3.0.3 is exited.

Exceptions to LCO 3.0.3 may be provided in instances where requiring the FACILITY to be placed in a MODE where the LCO does not apply or in STANDBY, in accordance with LCO 3.0.3, would not provide appropriate remedial measures for the associated condition of the FACILITY. Also, LCO 3.0.3 shall not be interpreted to require placing a FACILITY in a higher MODE (e.g., requiring a move from MAINTENANCE to OPERATIONS)

(continued)

Bases(Continued)

LCO 3.0.4

LCO 3.0.4 establishes limitations for MODE changes when an LCO statement is not met. It precludes placing the FACILITY in a different MODE when the following exist:

a. The requirements of an LCO for that MODE have not been met, and

b. Continued noncompliance with these requirements would result in the FACILITY being placed in a MODE or other specified condition in which the LCO does not apply to comply with the Required Action(s).

This LCO ensures that the OPERATIONAL activities within the FACILITY are not initiated when corrective action is being taken.

Compliance with Required Action(s) that permit continued Operation of the FACILITY for an unlimited period of time provides an acceptable level of safety for continued OPERATION without regard to the status of the FACILITY before or after a MODE change. Therefore, in this case, entry into a MODE or other Condition may be made in accordance with the provisions of the applicable Required Action(s). The provisions of this LCO should not be interpreted as endorsing the failure to exercise good Operating practice in restoring systems or components to OPERABLE status before beginning Operations.

The provisions of LCO 3.0.4 shall not prevent changes in MODEs or other specified conditions in the Applicability that are required to comply with Required Actions. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODEs or other specified conditions in the Applicability that result from a normal shutdown. When a FACILITY is to be removed from OPERATION to comply with Required Action(s), LCO 3.0.4 does not apply if it would delay placing the FACILITY in a lower MODE.

Exceptions to LCO 3.0.4 are stated in the individual LCOs. Exceptions may apply to all the Required Actions or to a specific Required Action. Where exceptions to LCO 3.0.4 are specified, they remove the capability to rely on Required Actions for an unlimited period of time before entry into a MODE and they require compliance with the LCO prior to entry into the MODE.

When changing MODEs or other specified conditions while in a Required Action's Condition, in compliance with LCO 3.0.4, or where an exception to LCO 3.0.4 is stated, the Required Actions define the remedial measures that apply. Surveillances do not have to be performed on the associated INOPERABLE equipment (or on variables outside the specified limits), as permitted by Surveillance Requirement 4.0.1. Therefore, a change in MODE or other specified condition in this situation does not violate Surveillance Requirement 4.0.1 or Surveillance Requirement 4.0.4 for those surveillances that do not have to be performed due to the associated INOPERABLE equipment. However, Surveillance Requirements shall be met to demonstrate OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

(continued)

BASES (continued)

LCO 3.0.4 (continued)

When changing MODEs or other specified conditions while in a Required Action's Condition, in compliance with LCO 3.0.4, or where an exception to LCO 3.0.4 is stated, the Required Actions define the remedial measures that apply. Surveillances do not have to be performed on the associated INOPERABLE equipment (or on variables outside the specified limits), as permitted by Surveillance Requirement 4.0.1. Therefore, a change in MODE or other specified condition in this situation does not violate Surveillance Requirement 4.0.1 or Surveillance Requirement 4.0.4 for those surveillances that do not have to be performed due to the associated INOPERABLE equipment. However, Surveillance Requirements shall be met to demonstrate OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.5

LCO 3.0.5 establishes criteria to allow testing of equipment removed from service or declared INOPERABLE to comply with Required Action(s). This LCO provides an exception to LCO 3.0.2 to allow testing to demonstrate one of the following:

a. OPERABILITY of the equipment being returned to service, or
b. OPERABILITY of other equipment.

It is reasonable to allow such testing to be conducted under Administrative Control to prove OPERABILITY and to return equipment to service. Typically, the return of equipment to service places the FACILITY in a more reliable and, therefore, safer condition. The return of equipment to service to test OPERABILITY shall be performed in accordance with approved procedures. Approved procedures are controlled administratively by the Administrative Controls Section of this TSR.

The Administrative Controls are to ensure that the time the equipment is returned to service in conflict with the requirements of the Required Actions is limited to the time absolutely necessary to perform the allowed Surveillance Requirements. This LCO does not provide time to perform any other preventive or corrective maintenance.

(continued)

BASES (continued)

LCO 3.0.6

When a support system is found to be INOPERABLE and there is no LCO for that support system, the supported system shall be evaluated for INOPERABILITY or degradation. In this case, INOPERABILITY of a support system may or may not affect the OPERABILITY of the supported system. OPERABILITY of the supported system will depend on whether it can still perform its intended Critical Safety function taking into consideration the status of the support system. Until it is determined that the supported system is OPERABLE, the Required Action(s) of the applicable supported system's LCO shall apply.

B3/4.0 APPLICABILITY

B4.0 Bases for Surveillance Requirements

BASES

GENERAL

These generic Surveillance Requirements (SRs) establish the general requirements applicable to all Surveillance Requirements in this document. These requirements are based on DOE Order 5480.22, "Technical Safety Requirements."

SR 4.0.1

Surveillance Requirement 4.0.1 establishes the requirement that surveillances shall be met during the MODEs or other conditions specified in the Applicability statement of the LCO, unless otherwise specified in an individual Surveillance Requirement. Surveillance Requirement 4.0.1 ensures that surveillances are performed to verify the OPERABILITY of systems and components and that parameters are within specified limits. This Surveillance Requirement produces a high degree of confidence that Operation of the FACILITY will be as predicted in the accident analysis. Failure to satisfy a Surveillance Requirement within the required INTERVAL shall constitute a Surveillance Requirement failure.

Surveillances do not have to be performed when the FACILITY is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified.

Surveillance Requirement(s) do not have to be performed on INOPERABLE equipment because the applicable Required Actions define the remedial measures that apply. However, applicable Surveillance Requirements may have to be met to demonstrate OPERABILITY prior to declaring the equipment OPERABLE.

When surveillances are performed to demonstrate OPERABILITY prior to declaring equipment OPERABLE, the time and date of the successful performance may be used to reestablish the periodicity for the Surveillance Requirement in accordance with the specified INTERVAL.

(continued)

BASES (continued)

SR 4.0.1 (continued)

Upon completion of maintenance, appropriate post-maintenance testing is required to declare equipment OPERABLE. This testing includes meeting applicable Surveillance Requirements in accordance with Surveillance Requirement 4.0.2. Post-maintenance testing may not be possible in the current MODE or other specified conditions.

In situations where the necessary parameters have not been established, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its Critical Safety function. This Surveillance Requirement will allow Operation to proceed to a MODE or other specified condition where other necessary post-maintenance tests can be completed.

SR 4.0.2

Surveillance Requirement 4.0.2 establishes the conditions under which the FREQUENCY schedule as specified in the FREQUENCY column of the individual Surveillance Requirement may be extended. This requirement permits an allowable extension (25%) of the FREQUENCY schedule as specified in the FREQUENCY column of the individual periodic Surveillance Requirement and is defined as the term INTERVAL within this TSR. This extension is intended to facilitate surveillance scheduling in consideration of FACILITY Operating conditions that may not be suitable for conducting the surveillance (e.g., transient conditions or other ongoing maintenance activities). However, this allowance is not to be applied to non-periodic or conditional Surveillance Requirements (i.e., Surveillance Requirements whose FREQUENCY requires that the surveillance be performed at a particular point in time based on FACILITY conditions, impending process evolutions, and equipment conditions). The FREQUENCY for conditional Surveillance Requirements (e.g., "Prior to...", "Immediately") has been specified to ensure that a given condition exists or that ACTION(s) are taken to preclude challenging the safe Operating envelope as defined by the accident analysis.

The allowable extension time is based on engineering judgment as well as Operating experience that indicates the most probable result of any particular surveillance is the verification of conformance to the acceptance criteria. Good Operating practice would dictate that this extension is used only on an as-needed basis and is not normally relied upon as an OPERATIONAL convenience to extend surveillance intervals or periodic Completion Time intervals beyond those specified.

(continued)

BASES (continued)

SR 4.0.2 (continued)

The 25% extension also does not apply to non-periodic or conditional Completion Times.. The 25% extension applies to each performance after the initial performance. This extension is intended for Surveillances Requirements ONLY and is NOT intended to apply to completion times specified within the Required Actions column of the LCO. The initial performance of the Required Action, whether it is a particular surveillance or some other remedial action, is considered a single action with a single Completion Time.

SR 4.0.3

Surveillance Requirement 4.0.3 establishes the failure to perform a Surveillance Requirement within the allowed INTERVAL as defined by the provisions of Surveillance Requirement 4.0.2, as well as any failure to satisfy a Surveillance Requirement acceptance criterion, as a condition that constitutes a failure to meet the OPERABILITY requirements for an LCO. This requirement clarifies that the Required Actions are applicable when Surveillance Requirements have not been completed or met within the allowed INTERVAL. The Completion Times of the applicable Required Actions apply from the time it is identified that a surveillance has not been performed or is not met. Completion of the Surveillance Requirement within the allowed Completion Time restores compliance with the LCO.

Failure to perform the surveillance within the INTERVAL allowed by Surveillance Requirement 4.0.2 requires the associated equipment to be declared INOPERABLE and the applicable Required Action(s) to be entered. When an LCO is not met as a result of failure to perform a Surveillance Requirement within the specified INTERVAL of Surveillance Requirement 4.0.2, an allowance period of 24 Hours or an additional period equivalent to the INTERVAL, whichever is less, is provided prior to entering the Required Action(s) to permit completion of the Surveillance Requirement and thus allow recovery in accordance with LCO 3.0.2. This allowance provides adequate time to plan and perform most routine Surveillance Requirements that have been missed, recognizing that the most probable result is a verification of conformance to the acceptance criteria. This allowance avoids challenges to FACILITY systems from an unnecessary transient. However, this allowance period is not to be applied to non-periodic or conditional Surveillance Requirements (Surveillance Requirements whose FREQUENCY requires that the surveillance be performed at a particular point in time based on FACILITY conditions, impending process evolutions, equipment conditions, etc.) unless a specific exception is

(continued)

BASES (continued)

SR 4.0.3 (continued)

included in the FREQUENCY. The FREQUENCY for non-periodic and conditional Surveillance Requirements (e.g., "Prior to..., Immediately") has been specified to ensure that a given condition exists or that ACTION(s) are taken to preclude challenging the safe Operating envelope as defined by the accident analysis.

Not performing a Surveillance Requirement within the allowed INTERVAL is a TSR violation. Again it shall be understood that the 24-hour allowance is meant to avoid unnecessary challenges to the FACILITY and does not affect the violation declaration.

The delay period commences at the time it is identified that a surveillance has not been performed. The Required Actions apply upon expiration of the delay period if the Surveillance Requirement is not completed. When the surveillance is performed and the acceptance criteria are not met, the Completion Times of the Required Action(s) apply from the time that the results are known.

Surveillance Requirement 4.0.3 is not to be used to allow a MODE change prohibited by Surveillance Requirement 4.0.4.

Failure to comply with specified frequencies for Surveillance Requirements is expected to be an infrequent occurrence. Use of the delay period established by Surveillance Requirement 4.0.3 is a flexibility that is not intended to be used as an operational convenience to extend surveillance intervals.

If a surveillance is not completed within the allowed delay period, then the equipment is considered INOPERABLE, or the variable is considered outside the specified limits, and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. When the surveillance is performed and the acceptance criteria are not met within the delay period, then the equipment is considered INOPERABLE, or the variable is considered outside the specified limits, and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the surveillance.

Completion of the surveillance within the delay period allowed by this LCO restores compliance with Surveillance Requirement 4.0.1.

(continued)

BASES (continued)

SR 4.0.4

Surveillance Requirement 4.0.4 establishes the requirement that all applicable Surveillance Requirements shall be met before entry into a MODE or other specified condition in the Applicability statement. The purpose of this requirement is to ensure that system and component OPERABILITY requirements, or parameter limits, are met before they apply. Unless otherwise stated, the required Surveillance Requirements shall have been performed within their specified FREQUENCY prior to a change in MODE.

The precise requirements for performance of Surveillance Requirements are specified such that exceptions to Surveillance Requirement 4.0.4 should not be necessary. The specific time frames and conditions necessary for meeting the Surveillance Requirements are specified in the FREQUENCY, in the surveillance, or both. This Surveillance Requirement allows performance of surveillances when the prerequisite condition(s) specified in a surveillance procedure require entry into the MODE prior to the performance or completion of a surveillance. A surveillance that could not be performed until after entering the LCO Applicability would have its FREQUENCY specified such that it is not "due" until the specific conditions needed are met.

The Surveillance Requirements are annotated consistent with the requirements of Section 1.5, FREQUENCY, of this TSR.

B3/4.1 INTERLOCK SYSTEMS

3.1.1 12-44 EQUIPMENT BLAST DOOR INTERLOCK SYSTEM

BASES

BACKGROUND SUMMARY	The CRITICAL SAFETY FUNCTION OF THE building 12-44 (cells 2-6) is to mitigate the release of plutonium in the event of accidental High Explosive Detonation with Dispersion event. These cells are Gravel Gertie type structures, characterized by a round room covered with a mounded gravel/earth overburden. The structure serves to limit the offsite and onsite consequences to below the evaluation criteria for Safety Class and Safety Significant. The FACILITY structure consists of a round room where Operations are conducted, two staging cubicles, an individual cell equipment room, equipment and personnel passageways, blast doors, and an earthen overburden. Separate passageways are provided for personnel and equipment access to the each cell. Each equipment passageway contains two steel blast doors. The doors are each hinged on one side and close against rubber gaskets around the tops and sides of the wall jambs. The bottom of the blast doors are sealed by a Blast Door Floor Gasket.
APPLICATION TO SAFETY ANALYSIS	The Equipment BDI System controls the pneumatic-operated latches on the Equipment Blast Door Closure Pins, to ensure that one Equipment Blast Door is closed and latched at all times when greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY. The Equipment BDI System also controls the Blast Door Floor Gaskets to reduce the leak area around the equipment doors. This LCO specifies controls for the 12-44 (Cells 2 through 6) Equipment Blast Door Interlocks that support the building structure CRITICAL SAFETY FUNCTION(s) by mitigating Internal High Explosive Detonation with Dispersion. The system is required to ensure that at least one of the two Equipment Blast Doors is closed during the Internal High Explosive Detonation with Dispersion event.

LCO

This LCO requires that 12-44 (Cells 2 through 6) Equipment Blast Door Interlock System shall be OPERABLE assuring that at least one Equipment Blast Door remains closed with the Blast Door Closure Pins engaged. The following subsystems associated with each Equipment Blast door shall be OPERABLE for the Equipment Blast Door Interlock System to be OPERABLE:

Pneumatic Control subsystem – The Reserve Tank Discharge Valve is component of the Pneumatic Control subsystem. There is two possible positions of the Bypass Switch, the "open" and "closed." The CRITICAL SAFETY FUNCTION of this component will be explained as a part of Condition C of this LCO Bases.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Electronic Control subsystem – The Maintenance Bypass Switch is component of the Electronic Control subsystem. There is 2 possible positions of the Bypass Switch, the "bypass" and "non-bypass." The CRITICAL SAFETY FUNCTION of this component will be explained as a part of Condition C of this LCO Bases.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Blast Door Floor Gasket Assembly – The bottom of the Blast Doors are sealed by a Blast Door Floor Gasket. Although this assembly is not required to keep the Blast Door closed it does support of the CRITICAL SAFETY FUNCTION of the Facility Structure. By keeping the Blast Door Floor Gasket Assembly closed the release of radioactive material is mitigated. If this assembly is found to be INOPERABLE Condition A is to be entered.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Blast Door Latch Assembly – Important components of The Blast Door Latch Assembly is the Latching Rod Pin and Cylinder. CRITICAL SAFETY FUNCTION of the Latching Rod Pin is to prevent the Blast Door Closure Pin from being disengaged inadvertently. The Latching Rod Pins are spring loaded (Latching Air Cylinder Springs) and remain engaged until they are raised out of position by the Latching Rod Cylinder.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

MODE APPLICABILITY	This LCO is applicable whenever greater than RESIDUAL quantities of Pu and HE are both present within the FACILITY. These materials may only be present in OPERATION and MAINTENANCE MODE. Therefore, this LCO is only applicable during OPERATION and MAINTENANCE MODE.

(continued)

BASES (continued)

ACTION STATEMENTS

A.1 Being CRITICAL SAFETY SSCs, if one of either the Electronic Control or the Pneumatic Control subsystem(s) or the Blast Door Floor Gasket Assembly or the Blast Door Latching Assembly are INOPERABLE, the Blast Door Closure Pins and the Floor Gaskets may be allowed to be disengaged on both Equipment Blast Doors at the same time. Once one or more of these SSCs are declared to be INOPERABLE, Condition A is to be entered. The only exception to this is The Reserve Tank Discharge Valve, of the Pneumatic Control subsystem, and the Maintenance Bypass Switch, of the Electronic Control subsystem, in which Conditions B or C, respectfully, are to be entered.

Action A.1 directs all NM and EXPLOSIVES are to be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will prevent the postulated event from occurring even if both Equipment Blast Doors are allowed to be open. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the possibility of having both Equipment Blast Doors open.

The NM and EXPLOSIVES within the FACILITY are to remain in the SAFE AND STABLE CONFIGURATION until the Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED in accordance with the Required Action A.2 and Condition E is entered or the LCO has been restored.

A.2 Placing all NM and EXPLOSIVES within the FACILITY in the SAFE AND STABLE CONFIGURATION of Required Action A.1 does not provide the required CRITICAL SAFETY FUNCTION of having one Equipment Blast Door closed with the Blast Door Closure Pins engaged, satisfying the LCO Statement. This CRITICAL SAFETY FUNCTION may be provided by ADMINISTRATIVELY CONTROLLING the Equipment Blast Doors. Required Action A.2 allows for the Equipment Blast Doors are to be ADMINISTRATIVELY CONTROLLED.

The Completion Time of Required Action A.2 is IMMEDIATELY. This is appropriate because, even though compensatory, it is necessary to provide the CRITICAL SAFETY FUNCTION as soon as possible while there is Pu and EXPLOSIVES in the FACILITY

(continued)

BASES (continued)

A.3 Even though the CRITICAL SAFETY FUNCTION is being ADMINISTRATIVELY CONTROLLED, this is a compensatory measure but must not be allowed to continue indefinitely. If this restoration of the LCO takes more than 15 days from the time of discovery that the BDI SSC was lost, Condition D shall be entered. The Completion Time of 15 Days is considered safe because the CRITICAL SAFETY FUNCTION of the LCO is being assured by the Administrative Control of A.2. It is recognized the an AC control is not as reliable as an SSC; that is why the time is limited to 15 Days. The 15 Days was based on engineering judgement and has no other documented basis.

B.1 The function provided by the Reserve Tank is to store pressurized air that may be made available to the Equipment Blast Door Interlock (BDI) System in case there is a loss of plant air. The Reserve Tank has no CRITICAL SAFETY FUNCTION. The Reserve Tank Discharge Valve is to isolate the air within the Reserve Tank until the air stored in the tank is needed to open the Equipment Blast Doors should there be a loss of plant air. Therefore, maintaining the Reserve Tank Discharge Valve closed is the CRITICAL SAFETY FUNCTION. However, should the valve be left open the air within the tank would inadvertently override the Equipment Blast Door Interlock system that would result in a loss of the BDI's CRITICAL SAFETY FUNCTION. Therefore when the Reserve Tank Discharge Valve of the Pneumatic Control subsystem is found opened it shall be shut IMMEDIATELY. It can not be predicted when there may be a loss of plant air. Should the Reserve Tank Discharge Valve be in the open position at the same time as the plant air is lost, the CRITICAL SAFETY FUNCTION of the BDI System would be defeated. Therefore, the Required Action Completion Time of IMMEDIATELY is required.

B.2.1, B.2.2, & B.2.3 The Reserve Tank Discharge Valve is a part of the Pneumatic Control subsystem. If it is not mechanically possible to close the Reserve Tank Discharge Valve IMMEDIATELY per Required Action B.1, the Pneumatic Control subsystem shall declared INOPERABLE and Condition B.2.1 shall be entered.

If the Pneumatic Control subsystem is INOPERABLE the Required Actions are the same as if the entire BDI System is INOPERABLE. Therefore Required Actions B.2.1, B.2.2 and B.2.3 are the same as Required Actions A.1, A.2 and A.3 respectively. They also have the same Required Actions, Completion Times and the same Bases.

(continued)

BASES (continued)

C.1	The Maintenance Bypass Switch provides a means to electrically override the Equipment BDI System. When the Maintenance Bypass Switch is found in the bypass position, the Equipment BDI System is overridden electrically and both Equipment Blast Doors could be opened at the same time thus losing the required CRITICAL SAFETY FUNCTION. Should the Maintenance Bypass Switch be found in the bypass position it shall be switched to the non-bypass position IMMEDIATELY. Should the Maintenance Bypass Switch be in the bypass position the CRITICAL SAFETY FUNCTION of the BDI System would be defeated. Therefore, the Required Action Completion Time of IMMEDIATELY is required.
C.2.1, C.2.2, & C.2.3	The Maintenance Bypass Switch is a part of the Electronic Control subsystem. If it is not mechanically possible to close the Maintenance Bypass Switch IMMEDIATELY per Required Action C.1, the Electronic Control subsystem shall declared INOPERABLE and Condition C.2.1 shall be entered. If the Electronic Control subsystem is INOPERABLE the Required Actions are the same as if the entire BDI System is INOPERABLE. Therefore Required Actions C.2.1, C.2.2 and C.2.3 are the same as Required Actions A.1, A.2 and A.3 respectively. They also have the same Required Actions, Completion Times and the same Bases.
D.1	If the Equipment Blast Door Interlock System has been declared INOPERABLE and can not be restored by the Required Actions of Condition A, B, or C within the allowed time Condition D.1 requires that all NM and EXPLOSIVES be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. This is required because Condition E may have been entered and ACTIVE OPERATION may have resumed. Just as in Condition A, placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the possibility of having both Equipment Blast Doors open.

(continue)

BASES (continued)

D.2 At this point the FACILITY has been unable to return the Blast Door Interlock System to an OPERABLE status. The next Required Action (D.3) is to enter LIMITED OPERATION MODE. The introduction of additional NM or EXPLOSIVES into the FACILITY is to be prohibited while the transitioning to the LIMITED OPERATION MODE. This Required Action is necessary as to not contribute to the material of concern within the FACILITY. The Completion time of N/A is appropriate for this Required Action because this is actually "non-action." As such there is no start time or completion time. From the time the Condition is entered until the time the condition is exited, the introduction of any additional NM or EXPLOSIVES into the FACILITY is prohibited.

D.3 LIMITED OPERATION MODE, by definition, is to limit operations. So, Condition D.3 shall be entered in order to develop a plan to safely prepare the FACILITY to remain in the SAFE AND STABLE CONFIGURATION of Required Action D.1 until either the CRITICAL SAFETY FUNCTION has been restored or the FACILITY is transitioned a condition for which the LCO is no longer applicable.

E.1 Once the Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED has been established by following Required Action A.2, B2.2 or C.2.2, operations may be continued. Since the CRITICAL SAFETY FUNCTION provided by the Equipment BDI System has been re-established, operation may be continued while the Equipment BDIs are being repaired.

NOTE: It must be understood that entry into Condition E does not cancel the 15 Day Completion Time requirement for restoring the BDI System to OPERABLE required by Condition(s) A, B, or C.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

4.1.1.1 FUNCTIONAL TEST the Equipment Blast Door Interlock System – SHIFTLY – Test the system to assure that it is not possible for the Blast Door Closure Pins to be disengaged from both Equipment Blast Doors at the same time. The fact that the BDI System may have been taken out of service for routine maintenance since the last time ACTIVE OPERATIONS were performed in the FACILITY, the SHIFTLY FREQUENCY is required to assure that the BDIs are OPERABLE and activated.

4.1.1.2 Visual Check on the Reserve Tank Discharge Valve – SHIFTLY – Visual check of each Equipment Blast Door is to be conducted prior to Operations involving greater than RESIDUAL quantities of both HE and Pu. This is to assure that the Equipment BDI System can not be overridden without proper notification. Since this valve could have been opened for several reasons while the FACILITY was not in ACTIVE OPERATIONs the SHIFTLY FREQUENCY is required to assure that the Reserve Tank Discharge Valves are in the closed position.

4.1.1.3 FUNCTIONAL TEST the Cell BDI System – SEMIANNUALLY – Test the system to assure the correct Operation of the system and each Critical Safety component of the subsystem and assemblies listed in the LCO statement. The subsystems and components are designed for the usage that they will receive during normal cycling of the BDI System though out the year. In order to assure the subsystems or components will not be overburdened SEMIANNUAL FREQUENCY is appropriate.

4.1.1.4 Visual Inspect the Blast Door Floor Gasket Assembly – ANNUALLY – Inspect for sign of abnormal wear or damage. The SR is to assure the Blast Door Floor Gasket springs, Gasket Air Cylinder, Gasket Air Cylinder Rod are in good working order and maintained though out the year. These subsystems and components will be cycled each time the Equipment Blast Doors are opened and closed again. Any major failures of these subsystem or components will be detected at these times. The ANNUAL FREQUENCY is adequate to detect any abnormal conditions that may lead to possible failures.

4.1.1.5 Visual Inspect the Latching Air Cylinder Assembly – ANNUALLY – Inspect for sign of abnormal wear or damage. The SR is to assure the Latching Rod Pin, and Latching Air Cylinder are in good working order and maintained though out the year. These subsystems and components will be cycled each time the Equipment Blast Doors are opened and closed again. Any major failures of these subsystem or components will be detected at these times. The ANNUAL FREQUENCY is adequate to detect any abnormal conditions that may lead to possible failures.

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.1 INTERLOCK SYSTEMS

3.1.2 12-85, 12-96, AND 12-98 EQUIPMENT BLAST DOOR INTERLOCK SYSTEM

BASES

BACKGROUND SUMMARY

The CRITICAL SAFETY FUNCTION of buildings 12-85, 12-96,and 12-98 cells is to mitigate the release of plutonium in the event of accidental High Explosive Detonation with Dispersion event. These cells are Gravel Gertie type structures, characterized by a round room covered with a mounded gravel/earth overburden. The structure serves to limit the offsite and onsite consequences to below the evaluation criteria for Safety Class and Safety Significant.

The FACILITY structure consists of a round room where Operations are conducted, staging cubicle, an individual cell equipment room, equipment and personnel passageways, blast doors, and an earthen overburden.

Separate passageways are provided for personnel and equipment access to the each cell. Each equipment passageway contains two steel blast doors. The doors are each hinged on one side and close against rubber gaskets around the tops and sides of the wall jambs. The bottom of the blast doors are sealed by a Blast Door Floor Gasket.

APPLICATION TO SAFETY ANALYSIS

The Equipment BDI System controls the pneumatic-operated latches on the Blast Door Closure Pins, to ensure one blast door is closed and latched at all times when greater than RESIDUAL quantities of HE and Pu are both present in the FACILITY. The Equipment BDI System also controls the Blast Door Floor Gaskets to reduce the leak area around the doors.

This LCO specifies controls for the 12-85, 12-96, and 12-98 Equipment Blast Door Interlock System that support the building structure CRITICAL SAFETY FUNCTION(s) by mitigating internal High Explosive Detonation with Dispersion. The system is required to ensure that at least one of the two Equipment Blast Doors is closed during the internal High Explosive Detonation with Dispersion event.

LCO

This LCO requires that 12-85, 12-96, and 12-98 Equipment Blast Door Interlock System shall be OPERABLE assuring that at least one Equipment Blast Door remains closed with the Blast Door Closure Pins engaged. There are specific components that are critical to the Operability of the BDI System and are therefore listed in the body of the LCO statement. The following subsystems associated with each Equipment Blast door shall be OPERABLE for the Equipment Blast Door Interlock System to be OPERABLE:

Pneumatic Control subsystem

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Electronic Control subsystem – The Maintenance Bypass Switch is component of the Electronic Control subsystem. There is 2 possible positions of the Bypass Switch, the "bypass" and "non-bypass." The CRITICAL SAFETY FUNCTION of this component will be explained as a part of Condition C of this LCO Bases.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Blast Door Floor Gasket Assembly – The bottom of the Blast Doors are sealed by a Blast Door Floor Gasket. Although this assembly is not required to keep the Blast Door closed it does support of the CRITICAL SAFETY FUNCTION of the Facility Structure. By keeping the Blast Door Floor Gasket Assembly closed the release of radioactive material is mitigated. If this assembly is found to be INOPERABLE Condition A is to be entered.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

Blast Door Latch Assembly – Important components of The Blast Door Latch Assembly is the Latching Rod and Cylinder. CRITICAL SAFETY FUNCTION of the Latching Rod is to prevent the Blast Door Closure Pin from being disengaged inadvertently. The Latching Rod Pins are spring loaded (Latching Air Cylinder Springs) and remain engaged until they are raised out of position by the Latching Rod Cylinder.

Note: For additional components of this subsystem see appendix K of Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

MODE APPLICABILITY

This LCO is applicable whenever than RESIDUAL quantities of Pu and HE are both present within the FACILITY. These materials may only be present in OPERATION and MAINTENANCE MODE. Therefore, this LCO is only applicable during OPERATION and MAINTENANCE MODE.

(continued)

BASES (continued)

ACTION STATEMENTS

A.1

Being CRITICAL SAFETY SSCs. if one of either the Electronic Control or the Pneumatic Control subsystem(s) or the Blast Door Floor Gasket Assembly or the Blast Door Latching Assembly are INOPERABLE. the Blast Door Closure Pins and the Floor Gaskets may be allowed to be disengaged on both Equipment Blast Doors at the same time. Once one or more of these SSCs are declared to be INOPERABLE, Condition A is to be entered. The only exception to this is The Maintenance Bypass Switch, of the Electronic Control subsystem, in which Condition B is to be entered.

Action A.1 directs all NM and EXPLOSIVES are to be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will prevent the postulated event from occurring even if both Equipment Blast Doors are allowed to be open. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the possibility of having both Equipment Blast Doors open.

The NM and EXPLOSIVES within the FACILITY are to remain in the SAFE AND STABLE CONFIGURATION until the Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED in accordance with the Required Action A.2 and Condition E is entered or the LCO has been restored.

A.2

Placing all NM and EXPLOSIVES within the FACILITY in the SAFE AND STABLE CONFIGURATION of Required Action A.1 does not provide the required CRITICAL SAFETY FUNCTION of having one Equipment Blast Door closed with the Blast Door Closure Pins engaged, satisfying the LCO Statement. This CRITICAL SAFETY FUNCTION may be provided by ADMINISTRATIVELY CONTROLLING the Equipment Blast Doors. Required Action A.2 allows for the Equipment Blast Doors are to be ADMINISTRATIVELY CONTROLLED.

The Completion Time of Required Action A.2 is IMMEDIATELY. This is appropriate because, even though compensatory, it is necessary to provide the CRITICAL SAFETY FUNCTION as soon as possible while there is Pu and EXPLOSIVES in the FACILITY.

(continued)

BASES (continued)

A.3 Even though the CRITICAL SAFETY FUNCTION is being ADMINISTRATIVELY CONTROLLED, this is a compensatory measure but must not be allowed to continue indefinitely. If this restoration of the LCO takes more than 15 days from the time of discovery that the BDI SSC was lost, Condition D shall be entered. The Completion Time of 15 Days is considered safe because the CRITICAL SAFETY FUNCTION of the LCO is being assured by the Administrative Control of A.2. It is recognized the an AC control is not as reliable as an SSC; that is why the time is limited to 15 Days. The 15 Days was based on engineering judgement and has no other documented basis.

B.1 The Maintenance Bypass Switch provides a means to electrically override the Equipment BDI System. When the Maintenance Bypass Switch is found in the bypass position, the Equipment BDI System is overridden electrically and both Equipment Blast Doors could be opened at the same time thus losing the required CRITICAL SAFETY FUNCTION. Should the Maintenance Bypass Switch be found in the bypass position it shall be switched to the non-bypass position IMMEDIATELY. Should the Maintenance Bypass Switch be in the bypass position the CRITICAL SAFETY FUNCTION of the BDI System would be defeated. Therefore, the Required Action Completion Time of IMMEDIATELY is required.

B.2.1, B.2.2, & B.2.3 The Maintenance Bypass Switch is a part of the Electronic Control subsystem. If it is not mechanically possible to close the Maintenance Bypass Switch IMMEDIATELY per Required Action B.1, the Electronic Control subsystem shall declared INOPERABLE and Condition B.2.1 shall be entered.

If the Electronic Control subsystem is INOPERABLE the Required Actions are the same as if the entire BDI System is INOPERABLE. Therefore Required Actions B.2.1, B.2.2 and B.2.3 are the same as Required Actions A.1, A.2 and A.3 respectively. They also have the same Required Actions, Completion Times and the same Bases.

C.1	If the Equipment Blast Door Interlock System has been declared INOPERABLE and can not be restored by the Required Actions of Condition A, or B within the allowed time Condition C.1 requires that all NM and EXPLOSIVES be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. This is required because Condition E may have been entered and ACTIVE OPERATION may have resumed. Just as in Condition A, placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the possibility of having both Equipment Blast Doors open.
C.2	At this point the FACILITY has been unable to return the Blast Door Interlock System to an OPERABLE status. The next Required Action (C.3) is to enter LIMITED OPERATION MODE. The introduction of additional HE or SNM into the FACILITY is to be prohibited while the transitioning to the LIMITED OPERATION MODE. This Required Action is necessary as to not contribute to the material of concern within the FACILITY. The Completion time of N/A is appropriate for this Required Action because this is actually "non-action." As such there is no start time or completion time. From the time the Condition is entered until the time the condition is exited, the introduction of any additional HE or SNM into the FACILITY is prohibited.
C.3	LIMITED OPERATION MODE, by definition, is to limit operations. So, Condition C.3 shall be entered in order to develop a plan to safely prepare the FACILITY to remain in the SAFE AND STABLE CONFIGURATION of Required Action C.1 until either the CRITICAL SAFETY FUNCTION has been restored or the FACILITY is transitioned a condition for which the LCO is no longer applicable.

(continued)

BASES (continued)

D.1 Once the Equipment Blast Doors are being ADMINISTRATIVELY CONTROLLED has been established by following Required Action A.2, or B.2.2, operations may be continued. Since the CRITICAL SAFETY FUNCTION provided by the Equipment BDI System has been re-established, operation may be continued while the Equipment BDIs are being repaired.

NOTE: It must be understood that entry into Condition E does not cancel the 15 Day Completion Time requirement for restoring the BDI System to OPERABLE required by Condition(s) A, or B.

SURVEILLANCE REQUIREMENTS

4.1.2.1 FUNCTIONAL TEST the Equipment Blast Door Interlock System – SHIFTLY – Test the system to assure that it is not possible for the Blast Door Closure Pins to be disengaged from both Equipment Blast Doors at the same time. The fact that the BDI System may have been taken out of service for routine maintenance since the last time ACTIVE OPERATIONS were performed in the FACILITY, the SHIFTLY FREQUENCY is required to assure that the BDIs are OPERABLE and activated.

4.1.2.2 FUNCTIONAL TEST the Cell BDI System – SEMIANNUALLY – Test the cell Equipment BDI System shall be to assure the correct Operation of the system and each Critical Safety component of the subsystem and assemblies listed in the LCO statement. The subsystems and components are designed for the usage that they will receive during normal cycling of the BDI System though out the year. In order to assure the subsystems or components will not be overburdened SEMIANNUAL FREQUENCY is appropriate.

4.1.2.3 Visual Inspect the Blast Door Floor Gasket Assembly – ANNUALLY – Inspect for sign of abnormal wear or damage. The SR is to assure the Blast Door Floor Gasket springs, Gasket Air Cylinder, Gasket Air Cylinder Rod are in good working order and maintained though out the year. These subsystems and components will be cycled each time the Equipment Blast Doors are opened and closed again. Any major failures of these subsystem or components will be detected at these times. The ANNUAL FREQUENCY is adequate to detect any abnormal conditions that may lead to possible failures.

(continued)

BASES (continued)

4.1.2.4 Visual Inspect the Latching Air Cylinder Assembly – ANNUALLY – Inspect for signs of abnormal wear or damage. The SR is to assure the Latching Rod Pin, and Latching Air Cylinder are in good working order and maintained though out the year. These subsystems and components will be cycled each time the Equipment Blast Doors are opened and closed again. Any major failures of these subsystem or components will be detected at these times. The ANNUAL FREQUENCY is adequate to detect any abnormal conditions that may lead to possible failures.

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.2 ELECTRICAL SYSTEMS

B3.2.1 EMERGENCY LIGHTING SYSTEM

BASES

BACKGROUND SUMMARY	The Emergency Lighting is only those lights located in the Bay Operation/Staging Area or Cell Round Room of a FACILITY that have a back up power supply. In some FACILITY(s) the Emergency Lights are a part of the normal lighting system in that they remain on all the time that the normal lights are lit. However should there be a loss on normal lighting these Emergency Lights will remain on. In other FACILITY(s) the Emergency Lights remain off until they are needed at the loss of normal lighting.
APPLICATION TO SAFETY ANALYSIS	Installed in every FACILITY is a normal lighting system. This normal lighting system supplies sufficient illumination to perform every OPERATIONAL evolution safely as long as the normal lighting source remains OPERABLE. Should there be a loss of normal power this normal lighting system will fail also. As long as there are no ACTIVE OPERATIONS involving High Explosives in progress this loss of normal lighting is not a Critical Safety Concern. It is when there are ACTIVE OPERATIONS involving High Explosives in progress and a loss of normal lighting that The Emergency Lighting is required to provide this CRITICAL SAFETY FUNCTION.
LCO	Based on engineering judgement and present practices, it has been determined that when all installed Emergency Lights are lighted within any given FACILITY's Operating area that there is sufficient lighting available to transition from ACTIVE OPERATIONS to a SAFE AND STABLE CONDITION should there be a loss of normal lighting. It is on this basis that the Emergency Lighting LCO requires that, "All Emergency Lights within a Bay operation/staging area or Cell round room of a FACILITY shall be OPERABLE with all Emergency Lighting lamps Operational [without giving a specific foot candle measurement] and a 30 minute backup lighting source." It is assumed that any activity involving High Explosives can safely be stopped within 30 minutes so the Emergency Backup Power Source is only required to keep the Emergency Lighting System OPERABLE for 30 minutes.

(continued)

BASES (continued)

MODE APPLICABILITY	This LCO is applicable whenever ACTIVE OPERATIONS, involving greater than RESIDUAL quantities of HE, are being conducted. This is only allowed during OPERATION MODE, this LCO is only applicable during OPERATION MODE.
ACTION STATEMENTS	A.1 The LCO requires the "All Emergency Lights within the Bay Operation/Staging Area or Cell Round Room of a FACILITY shall be OPERABLE with all Emergency Lighting lamps Operational..." It is assumed that the present FACILITY Emergency lighting configuration is sufficient and therefore no specific foot candle measurement is required to determine Operability of the system. Because of the reliability of Normal Lighting it was determined that if only one Emergency Light bulb goes out during the shift, it would not be necessary stop Operations IMMEDIATELY in order to replace it. However it would not be acceptable to begin the next shift after the initial discovery of any Emergency Lighting lamp being burnt out. It is for these reasons that Condition A states, "Only one Emergency Lighting lamp is found to be INOPERABLE." Action A.1 "Place FACILITY in MAINTENANCE MODE." The Completion Time is "By the end of the current Shift." Should there be a loss of more than one lamp during any one period while the LCO is applicable, Condition B shall be entered.
	B.1 If more than one Emergency Light lamp is found to be INOPERABLE, or burns out, during a shift, or the 30 minute Backup Power Source is found to be INOPERABLE Required Action B.1 shall be entered. Action B.1 states, "Place all NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION" IMMEDIATELY. This is required because should there be a loss of normal lighting during Operations involving HE, based on engineering judgement, there may not be sufficient lighting for a safe termination of Operations.
	B.2 Without sufficient Emergency Lighting available, should there be a loss of normal lighting, the Emergency Lighting System shall be repaired prior to resuming ACTIVE OPERATIONS involving HE. In order to make repairs safely, the FACILITY must be placed in the MAINTENANCE MODE within 4 Hours. The HE has been placed in a SAFE AND STABLE CONFIGURATION and the required Safety Function for the Emergency Lights are to only have enough lighting to place the NE in a SAFE AND STABLE CONFIGURATION they are not required again until ACTIVE OPERATIONS begin again therefore the Completion time of 4 Hours is acceptable. It should be noted that before the resuming ACTIVE OPERATIONS the Emergency Lights must be restore to OPERABLE.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 4.2.1.1 Visually Inspect all Emergency Lights – SHIFTLY – Inspect for signs of wear while Inspecting that all Emergency Lights remain lighted within the bay or cell proper area of the FACILITY (Except 12-41, 12-50, and 12-84 Bay 10) During the SHIFTLY pre-op check when the LCO is applicable – This Surveillance Requirement consists of visually verifying that all Emergency Lights in the OPERATIONAL area are lighted. It is required to be completed during a pre-op check for a FACILITY when Operations involving HE will be conducted. It is difficult to predict when a single light bulb will blow out. A bulb can blow out overnight and go undetected until the next time it is required to light. The SHIFTLY FREQUENCY is required in order to assure that the ACTIVE OPERATIONS will not begin with the LCO statement not met.

SR 4.2.1.2 FUNCTIONAL TEST Emergency Lights – MONTHLY – Test the lights to assure all Emergency Lights Operate at a loss of normal lighting. For the FACILITY(s) where the Emergency Lights are off when the normal lights are burning and only come on at the loss of normal lighting, the full FUNCTIONAL TEST is required. Included in the FUNCTIONAL TEST is a visual inspection of the fixture hardware for damage and/or wear. The MONTHLY FREQUENCY is bases on Engineering Judgement and past operating experiences.

SR 4.2.1.3 FUNCTIONAL TEST Backup Power for the E-Lights – MONTHLY – Test the automatic transfer of the backup power for the e-lights (except 12-41, 12-50, and 12-84 Bay 10). The Emergency Lights depend on an automatic Backup Power Source, UPS, in order to continue to meet the CRITICAL SAFETY FUNCTION on a loss of electricity. The successful completion of this FUNCTIONAL TEST will also affirm that the Manual Transfer Switches are in the proper position. The MONTHLY FREQUENCY is bases on Engineering Judgement and past operating experiences.

(continued)

BASES (continued)

SR 4.2.1.4 Verify Emergency Lights Operate on Backup Power – ANNUALLY – Verify the lights operate for 30 minutes minimum on loss of normal power with all potential loads energized. The Emergency Lights depend on a Backup Power Source, in case there is a loss of electricity to them. This Backup Power Source is Required to Operate the Emergency Lights for a Minimum of 30 Minutes to supply their CRITICAL SAFETY FUNCTION. The successful completion of this FUNCTIONAL TEST will also affirm that the Automatic Transfer Switch functions properly and that the Manual Transfer Switches a re in the proper position. This test is to be performed while all potential loads on the normal power systems a connected and energized ANNUALLY. This test is to verify that this 30-Minute Safety Function is provided.

The Emergency Lighting Battery System shall be designed and installed to applicable Sections of NFPA 110, Emergency and Standby Power Systems, and NFPA 70, National Electric Code, criteria.

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.3 PROCESS SYSTEMS

B3.3.1 DYNAMIC BALANCER

BASES

BACKGROUND SUMMARY	The Dynamic Balancer is piece of non-destructive evaluation equipment that supports and spins the NE or NELA under test to determine the amount and location of imbalance, its moment of inertia (MOI), static balance and Dynamic Balance parameters. If the Dynamic Balancer malfunctions while performing these operations, it could result in several events that would cause damage to the FACILITY, FACILITY Worker, Site Worker, or Public.
APPLICATION TO SAFETY ANALYSIS	The CRITICAL SAFETY FUNCTION of the Dynamic Balancer is to properly shut down should a malfunction occur during operations and to prevent fire due to Dynamic Balancer malfunction. The components listed within the LCO statement are in-place to assure that the Dynamic Balancer shuts-down should a malfunction occur. The events of concern are internal fire and Impact. Limiting the combustible materials and ignition sources prevent the fire while the impact initiated event is prevented by providing speed control and an imbalance monitor shutdown.

(continued)

BASES (continued)

LCO

The Dynamic Balancer shall be able to shut down should there be a malfunction that would cause harm to the FACILITY. The following components of the Dynamic Balancer shall meet their Operability requirements to prevent a malfunction:

- The Shunt Field Monitor shuts downs machine on loss of shunt field current
- The Motor Armature Over-voltage Control Module interrupts power to the motor on detection of over-voltage to the motor armature 325 ± 5 V DC resulting in a corresponding faceplate speed of 600 rpm.
- Low hydraulic pressure auto shutdown interlock on thrust and radial bearings shuts off power to the Dynamic Balancer motor when the hydraulic pressure in the Dynamic Balancer less than15 bars on the thrust bearing and less than 78 bars on the radial bearing.
- Case Vibration Shut-off Interlock remove power on detection of an imbalance moment of greater than 300 Newton-meters
- The Emergency Shut-Off Circuit allows Operator to shut down balancer drive motor on activation of console emergency stop button.

This LCO specifies the Critical Safety Components of the Dynamic Balancing Equipment that shall be OPERABLE for the Dynamic Balancer to be OPERABLE. The Dynamic Balancer shall be shut down if declared INOPERABLE either as a result of a failed Surveillance Requirement or mechanical failure.

MODE APPLICABILITY

This LCO is applicable only when NE or NELA (containing EXPLOSIVEs) is present within the Bay and Dynamic Balancing operations are being performed. The LCO is only applicable when the FACILITY is in the OPERATIONS MODE because operation of the dynamic balancer, which creates the hazard that required the control, is only allowed in OPERATION MODE.

(continued)

BASES (continued)

ACTION STATEMENTS	A.1	If any of the CRITICAL SAFETY Systems of the Dynamic Balancer are found to be INOPERABLE all balancing operations are to be suspended and the Dynamic Balancer shall be secured. The Completion Time of IMMEDIATELY is required to prevent the balancer from inadvertently releasing the NE or NELA and resulting an Impact event.
	A.2	Once the Dynamic Balancer has been shutdown per the Required Action A.1, the NE or NELA shall be removed from the FACILITY IMMEDIATELY. The Completion Time of IMMEDIATELY is required because, with the Dynamic Balancer found to be INOPERABLE, continued presence of the NE or NELA within the FACILITY would still leave the material unprotected from the postulated Fire event.
SURVEILLANCE REQUIREMENTS	SR 4.3.1.1	Verify the Shunt Field Monitor is Capable of Detecting a Loss of Shunt Field Current – SEMIANNUALLY – Verify that upon detection of a loss of shunt field current, initiating immediate Dynamic Balancer shutdown. Certain failures of the shunt field may cause over-speed of the DC drive motor. This over-speed introduces kinetic energy into the unit that could increase the consequences of a unit being released from the balancer. The shunt field monitor detects a loss of shunt field current and removes power from the motor. Verifying that when the Shunt Field Monitor detects a loss of shunt field current and removes power from the Dynamic Balancer motor will prevent over-speeding. Based on pass operations experiences, a verification that this component performs the intended CRITICAL SAFETY FUNCTION shall be done SEMIANNUALLY

(continued)

BASES (continued)

SR 4.3.1.2 CALIBRATE the Motor Armature Over-voltage Control Module – SEMIANNUALLY – CALIBRATE the system to detect a motor armature voltage of 325 ± 5 V DC, and initiate removal of power from the Dynamic Balancer drive motor on detection of setpoint voltage. Certain failures of the Dynamic Balancer may cause an increase in armature voltage and over-speed of the DC drive motor. This over-speed introduces kinetic energy into the unit that could increase the consequences of a unit being released from the balancer. The motor armature over-voltage control module limits armature voltage to a maximum set point of 325 ± 5 V DC which limits the faceplate speed to 600 rpm or less. Detection of an over-voltage condition removes power from the motor. To prevent over-speed of the Dynamic Balancer motor, the Motor Armature Over-voltage Control Module shall disconnect the power to the motor when it detects a voltage that would result in a corresponding faceplate speed of 600 rpm or greater. Based on pass operations experiences, a verification that this component performs the intended CRITICAL SAFETY FUNCTION shall be done SEMIANNUALLY

SR 4.3.1.3 CALIBRATE the Low Hydraulic Pressure Auto Shutdown Interlock – SEMIANNUALLY – CALIBRATE the system to detect a pressure of less than 15 bars for the thrust bearing and less than 78 bars for the radial bearings, and remove the on-permissive signal from the Dynamic Balancer motor controller on detection of setpoint pressures. Loss of proper fluid supply to the thrust and radial bearings may cause unintended deceleration of the unit. The low hydraulic pressure shutdown interlock provides an on-permissive signal to the motor controller when minimum fluid pressure is reached. The detection of a low hydraulic pressure set point out-of-tolerance reading also removes power from the motor. Verify that should there be a pressure less than 15 bars for the thrust bearing and a pressure less than 78 bars for the radial bearings that the Low Hydraulic Pressure Auto Shutdown Interlock does not provide an on-permissive signal to the motor controller. Based on past operations experiences, a verification that this component performs the intended CRITICAL SAFETY FUNCTION shall be done SEMIANNUALLY.

(continued)

BASES (continued)

SR 4.3.1.4	CALIBRATE the Case Vibration Shut-off Interlock – SEMIANNUALLY – CALIBRATE the system to detect an imbalance of greater than 300 Newton-meters, and initiate removal of power from the Dynamic Balancer drive motor on detection of setpoint. To prevent excessive vibrations verify that the Case Vibration Shut-off Interlock removes power from the Dynamic Balancer motor when imbalance >300 Newton-meters is detected. Based on past operations experiences, a verification that this component performs the intended CRITICAL SAFETY FUNCTION shall be done SEMIANNUALLY
SR 4.3.1.5	Verify Emergency Shut-Off Circuit – SEMIANNUALLY – Verify the system removes power from the Dynamic Balancer drive motor on activation of console emergency stop button. To assure that the Emergency Shut-Off Circuit functions properly, a SEMIANNUAL surveillance shall be conducted that demonstrates that the power is removed from the motor when the Emergency Shut-Off Circuit is activated. This FREQUENCY of SEMIANNUAL is Based on past operations experiences.

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.3 PROCESS SYSTEMS

B3.3.2 CONTAMINATED WASTE ISOLATION VALVE SYSTEM

BASES

BACKGROUND SUMMARY	FACILITY(s) containing Contaminated Waste Isolation Valves (CWIV) are Buildings 12-85, 12-96 and 12-98. The Contaminated Waste Isolation Valve System is used to automatically allow wastewater to flow from the FACILITY's sump outside to a waste tank. The Contaminated Waste Isolation Valve is designed as wafer-sphere, high performance, 6 inch, butterfly valve and is a normally closed valve in each FACILITY. The valve is designed to automatically opened when the water level in the FACILITY sump exceeds a predetermined level.
APPLICATION TO SAFETY ANALYSIS	The CRITICAL SAFETY FUNCTION(s) of the Contaminated Waste Isolation Valve System are to aid in the confinement CRITICAL SAFETY FUNCTION of the FACILITY Structure in the event of an High Explosive Detonation with Dispersal of radioactive material and Prevent Blast Overpressure in adjoining FACILITY. The CWIV prevents blast overpressures and the release of hazardous materials by closing off the drain line from the contaminated waste sump located outside each round room. In Buildings 12-85 and 12-96, the Contaminated Waste Isolation Valve drains are cross connected and in only these cells the CWIVs prevent the communication of blast pressure between the cells. This is not applicable to Building 12-98 cells due to the installation of a flange in the manifold leading to the waste tank.

(continued)

BASES (continued)

LCO		This LCO specifies the CRITICAL SAFETY Components for the Contaminated Waste Isolation Valve System within the FACILITY. With this valve in the closed position the system supports the building structure CRITICAL SAFETY FUNCTION(s) by mitigating the releases to the public and site workers following an High Explosive with Detonation and Dispersion by isolating the contaminated waste lines.
MODE APPLICABILITY		This LCO is applicable when greater than RESIDUAL quantities of BOTH Pu and HE are present within the FACILITY. This is only allowed during OPERATION and MAINTENANCE MODEs, so this LCO is only applicable during these two MODEs.
ACTION STATEMENTS	A.1	When the CWIV Closure Indicator Light is not lighted indicates two possible conditions. The first condition is that the CWIV is not closed. Should that be the case, entry in to Condition A is required until the valve is once again closed. The second condition is that there is a malfunction in the Valve Closure Position Indication System. Either the light is burnt out or the limit switch that sends the signal from the closed CWIV to the light is INOPERABLE. Regardless of the reason, if the CWIV Closure Indicator Light is not Lighted it shall be assumed that the CWIV valve is not closed and Condition A shall be entered. Required Action A.1 required that the NM and EXPLOSIVES be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. This action will reduce the risk of the postulated event with the possibility of the CWIV being open.
	A.2	Once the NM and EXPLOSIVES are in the SAFE AND STABLE CONFIGURATION it is safe to investigate the cause of the light not being lighted. Required Action C.2 says to "Verify that the CWIV is closed." As long as the CWIV is closed, the required CRITICAL SAFETY FUNCTION is present. The FACILITY may continue Operations while they are restoring the CWIV Closure Position Indicator System to an OPERABLE status as long as the CWIV remains closed and this shall be verified on a SHIFTLY bases.
	NOTE:	Once Required Action A.2 is completed, should it be found that the CWIV is not closed, declare the CWIV INOPERABLE and enter Condition B. Should it be found that the CWIV light is burnt out or the limit switch that sends the signal from the closed CWIV to the light is INOPERABLE then as long as the LCO is applicable, then only the verification that the CWIV remains closed per Required Action A.2 is required. However, if the FACILITY wants to continue ACTIVE OPERATIONS Condition D must be entered.

(continued)

BASES (continued)

B.1 The Contaminated Waste Isolation Valve System can not provide the required CRITICAL SAFETY FUNCTION when the Contaminated Waste Isolation Valve is not in the closed position. Therefore should the CWIV be found in the open position, all Operations are to be stopped within the affected FACILITY and the NM and EXPLOSIVES placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The Completion Time of IMMEDIATELY is required because having NM and EXPLOSIVES in a SAFE AND STABLE CONFIGURATION will prevent the postulated events from occurring.

B.2 Closing the CWIV can not be fully accomplished from inside the FACILITY. So the proper action is to place the FACILITY in MAINTENANCE MODE in preparation to close, or repair if necessary, the INOPERABLE CWIV. This Action is required within 4 Hours of discovery that the CWIV is open. Because the NM and EXPLOSIVES are in a SAFE AND STABLE CONFIGURATION per Required Action B.1, having CWIV open is not a Safety concern. However, the closing of the CWIV should be delayed without a reasonable explanation. While changing MODEs from time-to-time unpredictable constraints my surface. Allowing 4 Hours to go to MAINTENANCE MODE will allow for any unforeseen obstacles but yet require completion within a reasonable time period.

B.3 While the NM and EXPLOSIVES are in a SAFE AND STABLE CONFIGURATION per Required Action B.1, having the CWIV open is not a Safety concern. The Required Action B.3 allows the FACILITY 15 Days to restore the CWIV back to OPERABLE Condition. This Completion Time is appropriate because should the valve require replacing it is estimated that it will not take that long. However if the CWIV can not be restored to OPERABLE within the 15 Day period Condition C shall be entered.

C.1 If after 15 DAYS, the CWIV Valve has not been closed, or replaced, place the FACILITY into LIMITED OPERATIONS MODE. LIMITED OPERATIONS MODE which, by definition, is for that specific purpose, to limit Operations. So Condition C.1 shall be entered in order to develop a plan to safely remove the Pu or HE from the FACILITY in order that the CWIV will no longer be require to be closed. Based on engineering judgement the Completion Time of 15 Days has been chosen because in it difficult to predict what ACTION(s) will be required to prepare to remove the Pu and HE from the FACILITY.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS	SR 4.3.2.1	Verify CWIV Closure Indicator Light is Lighted – SHIFTLY and when water has been introduced into the sump – Verify that the CWIV that the Closure Indicator Light is lighted to make sure that the CWIV is capable of providing the CRITICAL SAFETY FUNCTION required of mitigating the releases following an internal High Explosive Detonation with Dispersion or High Explosive Detonation by isolating the contaminated waste lines. A light bulb can blow out at any time during the day or night and go undetected until the next time the FACILITY personnel must rely on it to give a position indication of the CWIV. The SHIFTLY FREQUENCY is required in order to assure that the ACTIVE OPERATIONS will not begin with the LCO statement not met.
	SR 4.3.2.2	Calibrate the Valve Closed Position Indication System – SEMIANNUALLY – Calibrate the system to turn off the "Valve Closed Position Indicator Light" when the CWIV is open at all. If the valve is opened only slightly, the CRITICAL SAFETY FUNCTION is not performed. Therefore, on any amount of opening of the valve, the light should turn off. The Valve Closed Position Indication System mainly relies on a limit switch CWIV to send a signal to turn on the Valve Closed Position Indicator Light when the CWIV is in the closed position. The limit switch is designed for the usage that it will receive during normal cycling of the CWIV system though out the year. In order to assure the relay switch has not be overburdened SEMIANNUAL FREQUENCY is appropriate.

REFERENCES

asis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.4 FIRE PROTECTION SYSTEMS

B3.4.1 WET PIPE FIRE SUPPRESSION SYSTEM

BASES

BACKGROUND SUMMARY	The Wet Pipe Fire Suppression System(s) described in this document include all piping and hardware up to, but not including, the facility Post Indicator Valve (PIV). The Wet Pipe Fire Suppression Systems maintain an unobstructed water delivery flow path from the PIV through all outlets in a facility. The Wet Pipe Fire Suppression System also includes the frangible bulbs or fusible links used for system actuation. The Wet Pipe Fire Suppression System must have an adequate supply of water, an unobstructed flow path, and be free of impairments to be considered OPERABLE.
APPLICATION TO SAFETY ANALYSIS	The Wet Pipe Fire Suppression System mitigates the consequence of an Internal Fire by preventing the fire from progressing to a severe fire.
LCO	This LCO specifies that the Wet Pipe Fire Suppression System is designed to the requirements of NFPA 13. The National Fire Protection Association (NFPA) has certain codes and standards the a properly designed and installed sprinkler system is supposed to follow in order to be considered reliable. The section of the NFPA code that is specifically followed for the Wet Pipe Fire Suppression System are: • An unobstructed and intact Water Delivery System from the FACILITY PIV to the sprinkler heads • OPERABLE High Pressure Fire Loop supplying adequate water supply at the FACILITY PIV
MODE APPLICABILITY	This LCO is applicable whenever any greater than RESIDUAL quantities of NM and EXPLOSIVES are present within the FACILITY. This material is only allowed during OPERATION and MAINTENANCE MODEs, thus this LCO is only applicable during OPERATION and MAINTENANCE MODEs

(continued)

BASES(continued)

ACTION STATEMENTS

A.1 In a Bay the Wet Pipe Fire Suppression System is relied on mitigate the consequence of an Internal Fire by preventing the fire from progressing to a Severe Fire. However if the Wet Pipe Fire Suppression System is INOPERABLE then ACTIVE OPERATION must be discontinued and Condition A must be entered. Required Action A.1 of Condition A directs all NM and EXPLOSIVES are to be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will reduce the risk of a Fire affecting the NM and EXPLOSIVES prevent within the Bay FACILITY. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the Wet Pipe Fire Suppression System INOPERABLE.

A.2 With an INOPERABLE Wet Pipe Fire Suppression System the system shall be repaired prior to resuming ACTIVE OPERATIONS involving NM or EXPLOSIVES. In order to make repairs safely, the FACILITY must be placed in the MAINTENANCE MODE within 4 Hours. Both the NM and EXPLOSIVES have been placed in a SAFE AND STABLE CONFIGURATION, which requires that all ACTIVE OPERATIONS have stopped. The Safety Function provided by the Wet Pipe Fire Suppression System has been lost and must be restored before ACTIVE OPERATION can resume. The Completion time of 4 Hours to place the Bay FACILITY in to MAINTENANCE MODE is acceptable because it not always predictable what actions need to be taken to transition to the MAINTENANCE MODE.

A.3 Once the NM or EXPLOSIVES are in a SAFE AND STABLE CONFIGURATION a FIRE PATROL must be established within 4 Hours. A Fire event is less likely without ACTIVE OPERATIONS taking place but a FIRE PATROL shall be set per Required Action A.3 to further reduce the likelihood of a potential Fire going undetected. The Completion Time of 4 Hours is appropriate to set the FIRE PATROL because when performing Required Action A.1 the FACILITY will assure, through the Fire Protection Program that combustibles will be limited within the Bay and therefore the likelihood of a Fire is reduced.

A.4 After 48 Hours of attempting to restore the INOPERABLE Wet Pipe Fire Suppression System the FIRE PATROL is to be replaced with a FIRE WATCH. The FIRE WATCH is more intensive in that personnel are required to remain in the Bay FACILITY at all times. This should result in a even a faster response should a fire occur.

(continued)

BASES (continued)

ACTION STATEMENTS (continued)

B.1 Condition B may be entered at the discretion of the FACILITY Manger. Within 48 Hours of the discovery that the Wet Pipe Fire Suppression System is INOPERABLE, per Required Action A.3 above, a FIRE WATCH is to be implemented. Although the FACILITY shall not do ACTIVE OPERATIONS it may remain in this Condition indefinitely. It is anticipated however, that the FACILITY Manager will not want to continue with a FIRE WATCH and not return to ACTIVE OPERATIONS. If after a period of time the Wet Pipe Fire Suppression System has not been returned to the OPERABLE status the FACILITY must enter Condition B.1 and enter the LIMITED OPERATIONS MODE.

LIMITED OPERATIONS MODE which, by definition, is for that specific purpose, to limit Operations. So Condition B.1 shall be entered in order to develop a plan to safely remove the Pu or HE from the FACILITY in order that the Wet Pipe Fire Suppression System will no longer be require to be OPERABLE. Based on engineering judgement the Completion Time of 15 Days has been chosen because in it difficult to predict what ACTION(s) will be required to prepare to remove the Pu and HE from the FACILITY.

C.1 If the Wet Pipe Fire Suppression System is found to be INOPERABLE within a Cell Staging Cubicle Required Action C.1 shall be entered. The NM shall be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will reduce the risk of a Fire affecting the NM prevent within the Cell Staging Cubicle FACILITY. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM being exposed to the postulated event with the Wet Pipe Fire Suppression System INOPERABLE.

C.2 Once the NM is in a SAFE AND STABLE CONFIGURATION a FIRE PATROL must be established within 4 Hours. A Fire event is less likely without ACTIVE OPERATIONS taking place but a FIRE PATROL shall be set per Required Action C.2 to further reduce the likelihood of a potential Fire going undetected. The Completion Time of 4 Hours is appropriate to set the FIRE PATROL because when performing Required Action C.1 the FACILITY will assure, through the Fire Protection Program that combustibles will be limited within the Staging Cubicle and therefore the likelihood of a Fire is even further reduced.

Bases (continued)

GENERAL NOTE: All Surveillance FREQUENCIES for this LCO are based of NFPA codes and/or DOE Exemption EX-2 (STD – 4281 Appendix E)

SURVEILLANCE REQUIREMENTS

SR 4.4.1.1 Flow Test Main Drain – QUARTERLY - Ensures that pressure gages are checked to verify normal water supply pressures are being maintained. Static and residual water pressures are recorded as part of this test to ensure an adequate amount of water is available at the PIV

SR 4.4.1.2 Inspect Control Valves are Open Position and Locked - QUARTERLY - Secured/Supervised valve inspections are conducted to ensure the valves are Open in the normal Operating position, locked or supervised, accessible, and there is no evidence of leaks present.

SR 4.4.1.3 Inspect Exterior (Alarm Valve) Riser/Trim - QUARTERLY – Exterior inspection for valve alignment, physical damage, visible leaks and proper operating pressure

SR 4.4.1.4 Visually Inspect the Wet Pipe Fire Suppression System – ANNUALLY – assure of the Mechanical Condition of the Wet Pipe Fire Suppression System

- Condition of hangers
- Condition of piping and fittings
- Conditions of sprinkler heads, including verifying they are free of external obstructions

SR 4.4.1.5 Test Control Valve Operation – ANNUALLY – Operate Valve through the full range and return to normal position

SR 4.4.1.6 Inspect Interior of Alarm Check Valve –5 YEAR - Verification that all components Operate properly, move freely, and are in good condition.

(continued)

BASES (continued)

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.4 FIRE PROTECTION SYSTEMS

B3.4.2 DELUGE FIRE SUPPRESSION SYSTEM

BASES

BACKGROUND SUMMARY	The Deluge Fire Suppression System(s) described in this document include all piping and hardware, up to, but not including the FACILITY Post Indicator Valve (PIV). The Deluge Fire Suppression Systems is design to the applicable portions of NFPA 13 and NFPA 15 for the deluge piping system (including valves and sprinkler heads / nozzles) and NFPA 72 for the detectors and is to maintain an unobstructed water delivery flow path from the PIV through all outlets in a FACILITY. The Deluge Fire Suppression System also includes the fire detection devices and the Fire Alarm Control Panel used for system actuation. The system must have unobstructed flow path and be free of impairments to be considered OPERABLE. Additionally, the system must also have electrical or air supply, as applicable, to support the actuation function.
APPLICATION TO SAFETY ANALYSIS	The Deluge Fire Suppression System mitigates the consequence of an Internal Fire by preventing the fire from progressing to a severe fire.
LCO	The Deluge Fire Suppression System shall be capable of detecting a fire, actuating the system and suppressing a FACILITY Fire. The Deluge Fire Suppression System shall be OPERABLE with • An unobstructed and intact Deluge Water Delivery System from the PIV to the open sprinkler/nozzle • OPERABLE High Pressure Fire Loop supplying adequate water supply at PIV • OPERABLE Heat Detectors and Automatic Actuation System • OPERABLE Heat Actuation Device supervisory low air pressure alarm (12-44, cells 2-6 only)
MODE APPLICABILITY	This LCO is applicable whenever any greater than RESIDUAL quantities of Pu or HE are present within the FACILITY. This material is only allowed during OPERATION and MAINTENANCE MODES, thus this LCO is only applicable during OPERATION and MAINTENANCE MODES.

(continued)

BASES(continued)

ACTION STATEMENTS

A.1 In a FACILITY the Deluge Fire Suppression System is relied on mitigate the consequence of an Internal Fire by preventing the fire from progressing to a Severe Fire. However if the Deluge Fire Suppression System is INOPERABLE then ACTIVE OPERATION must be discontinued and Condition A must be entered. Required Action A.1 of Condition A directs all NM and EXPLOSIVES are to be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will reduce the risk of a Fire affecting the NM and EXPLOSIVES prevent within the FACILITY. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the Deluge Fire Suppression System INOPERABLE..

A.2 With an INOPERABLE Deluge Fire Suppression System the system shall be repaired prior to resuming ACTIVE OPERATIONS involving NM or EXPLOSIVES. In order to make repairs safely, the FACILITY must be placed in the MAINTENANCE MODE within 4 Hours. Both the NM and EXPLOSIVES have been placed in a SAFE AND STABLE CONFIGURATION, which requires that all ACTIVE OPERATIONS have stopped. The Safety Function provided by the Deluge Fire Suppression System has been lost and must be restored before ACTIVE OPERATION can resume. The Completion time of 4 Hours to place the FACILITY in to MAINTENANCE MODE is acceptable because it not always predictable what Actions need to be taken to transition to the MAINTENANCE MODE.

A.3 Once the NM or EXPLOSIVES are in a SAFE AND STABLE CONFIGURATION a FIRE WATCH must be established within 48 Hours. A Fire event is less likely without ACTIVE OPERATIONS taking place but a FIRE WATCH shall be set per Required Action A.3 to further reduce the likelihood of a potential Fire going undetected. In the case of a FIRE WATCH in a FACILITY with an INOPERABLE Deluge Fire Suppression System and an OPERABLE Fire Detection and Alarm System, the primary job of the FIRE WATCH will be early detection, extinguish the fire with hand-held extinguisher or activate the Deluge Fire Suppression by hand. The Completion Time of 48 Hours is appropriate to set the FIRE WATCH because when performing Required Action A.1 the FACILITY will assure, through the Fire Protection Program that combustibles will be limited within the Bay and therefore the likelihood of a Fire is reduced.

(continued)

BASES (continued)

ACTION STATEMENTS (continued)

B.1 If the Deluge Fire Suppression System is INOPERABLE with no available means of detection and Fire Department Notification, Condition B shall be entered. Required Action B.1 requires that the NM and EXPLOSIVES shall be placed in a SAFE AND STABLE CONFIGURATION IMMEDIATELY. The SAFE AND STABLE CONFIGURATION will reduce the risk of a Fire affecting the NM and EXPLOSIVES prevent within the FACILITY. Placing the NM and EXPLOSIVES in a SAFE AND STABLE CONDITION IMMEDIATELY is necessary to reduce the time at risk of the NM and EXPLOSIVES being exposed to the postulated event with the Deluge Fire Suppression System INOPERABLE..

B.2 With an INOPERABLE Deluge Fire Suppression System and Fire Detection and Fire Alarm System, the system shall be repaired prior to resuming ACTIVE OPERATIONS involving NM or EXPLOSIVES. In order to make repairs safely, the FACILITY must be placed in the MAINTENANCE MODE within 4 Hours. Both the NM and EXPLOSIVES have been placed in a SAFE AND STABLE CONFIGURATION, which requires that all ACTIVE OPERATIONS have stopped. The Safety Function provided by the Deluge Fire Suppression System has been lost and must be restored before ACTIVE OPERATION can resume. The Completion time of 4 Hours to place the FACILITY in to MAINTENANCE MODE is acceptable because it not always predictable what Actions need to be taken to transition to the MAINTENANCE MODE.

B.3 Once the NM or EXPLOSIVES are in a SAFE AND STABLE CONFIGURATION a FIRE PATROL must be established within 4 Hours. A Fire event is less likely without ACTIVE OPERATIONS taking place but a FIRE PATROL shall be set per Required Action B.3 to further reduce the likelihood of a potential Fire going undetected. The Completion Time of 4 Hours is appropriate to set the FIRE PATROL because when performing Required Action B.1 the FACILITY will assure, through the Fire Protection Program that combustibles will be limited within the FACILITY and therefore the likelihood of a Fire is reduced.

B.4 After 48 Hours of attempting to restore the INOPERABLE Deluge Fire Suppression System the FIRE PATROL is to be replaced with a FIRE WATCH. The FIRE WATCH is more intensive in that personnel are required to remain in the FACILITY at all times. This should result in a even a faster response should a fire occur.

C.1 Condition C may be entered at the discretion of the FACILITY Manger. Within 48 Hours of the discovery that the Wet Pipe Fire Suppression System is INOPERABLE, per Required Action A.3 or B.4 above, a FIRE WATCH is to be implemented. Although the FACILITY shall not do ACTIVE OPERATIONS it may remain in this Condition indefinitely. It is anticipated however, that the FACILITY Manager will not want to continue with a FIRE WATCH and not return to ACTIVE OPERATIONS. If after a period of time the Deluge Fire Suppression System has not been returned to the OPERABLE status the FACILITY must enter Condition C.1 and enter the LIMITED OPERATIONS MODE.

LIMITED OPERATIONS MODE which, by definition, is for that specific purpose, to limit Operations. So Condition C.1 shall be entered in order to develop a plan to safely remove the Pu or HE from the FACILITY in order that the Deluge Fire Suppression System will no longer be require to be OPERABLE. Based on engineering judgement the Completion Time of "As Required" has been chosen because in it difficult to predict what ACTION(s) will be required to prepare to remove the Pu and HE from the FACILITY.

(continued)

Bases (continued)

GENERAL NOTE: All Surveillance FREQUENCIES for this LCO are based of NFPA codes and/or DOE Exemption EX-2 (STD – 4281 Appendix E

SURVEILLANCE REQUIREMENTS

SR 4.4.2.1 Flow Test main drain – QUARTERLY - Ensures that pressure gages are checked to verify normal water supply pressures & air pressures (if applicable) are being maintained. Static and residual water pressures are recorded as part of this test to ensure an adequate amount of water is available at the PIV

SR 4.4.2.2 Inspect Control Valve positioning - QUARTERLY - Secured/Supervised valve inspections are conducted to ensure the valves are in the normal Operating position, locked or supervised, accessible, and there is no evidence of leaks present.

SR 4.4.2.3 Inspect Exterior (Deluge Valve) Riser/Trim - QUARTERLY – Exterior inspection for valve alignment, physical damage, visible leaks and proper operating pressure

SR 4.4.2.4 Test Fire Alarm Control Panel interface equipment circuitry – ANNUALLY - Perform OPERATIONAL circuitry test.

SR 4.4.2.5 Visually Inspect – ANNUALLY – the mechanical condition of the Wet Pipe Fire Suppression System

- Condition of hangers
- Condition of piping and fittings
- Condition of sprinklers / nozzles including verifying free of external obstructions

SR 4.4.2.6 Test Fire Alarm Control Panel Batteries – ANNUAL – The following surveillances are performed:

Measure open-circuit voltage
Measure battery voltage under full load (battery charger disconnected)
Check Operability of battery charger
Discharge (Nickel-cadmium batteries for 2 hrs and let battery carry load for 2 hrs)

(continued)

Bases (continued)

SURVEILLANCE REQUIREMENTS (continued)	SR 4.4.2.7	Test the Fire Alarm Control Panel equipment – ANNUALLY – Verify testing of lamps, LEDs, and all control unit functions.
	SR 4.4.2.8	Deluge Valve trip test – ANNUAL - The noted test are conducted per manufacturer's instructions. For deluge systems where water discharge is not practical, the water supply valve is closed to prevent water discharge in accordance with NFPA.
	SR 4.4.2.9	Inspect Interior of Deluge valves – ANNUAL - Verification that all components Operate properly, move freely, and are in good condition.
	SR 4.4.2.10	Test Control Valve Operation – ANNUALLY – Operate Valve through the full range and return to normal position
	SR 4.4.2.11	Full FUNCTIONAL TEST Deluge Initiation Devices – ANNUALLY – Heat test with heat source or mechanically and electrically for function per manufacturer's recommendations

REFERENCES	Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.4 FIRE PROTECTION SYSTEMS

B3.4.3 Fire Detection and Alarm System

BASES

BACKGROUND SUMMARY	The Fire Detection and Local Alarm System provides warning to FACILITY workers to evacuate the FACILITY in the event of a Fire. The system also transmits a signal to the Fire Department when a fire alarm is present at the Fire Alarm Control Panel (FACP). When a Fire is detected in an affected area, a Fire Detection Device sends a signal to the Fire Alarm Control Panel (FACP) which then transmits a signal to the Local Notification Device and to the Fire Department. To be considered OPERABLE, a Fire Detection Device must be capable of detecting a fire and electronically signaling the FACP; the FACP must be capable of receiving the signal from the Fire Detection Device and transmitting a signal to the Local Notification Device and the Fire Department; and the Local Notification Device must be capable of receiving the signal and providing a warning (audible or visual). The Fire Alarm Control Panel is powered by normal electrical power. In the event of a power loss, the FACP batteries maintain auxiliary power to these systems.
APPLICATION TO SAFETY ANALYSIS	The Fire Detection and Alarm System mitigates the consequence of a Burning Dispersal Fire by detecting and notifying FACILITY occupants of the fire. The system also provides significant defense-in-depth protection against the consequences of an Internal Fire by notifying the Fire Department of a fire alarm in the FACILITY.
LCO	In order to notify the FACILITY occupants of a potential fire dispersal of NM, the Fire Detection and Alarm System is designed to the applicable portions of NFPA 72 and NFPA 101. As a result, the system shall be capable of detecting a fire with OPERABLE fire detection devices and actuating the local fire alarms to provide audible or visual notification to the FACILITY occupants. As an additional defense-in-depth function, the system shall have an OPERABLE signal from the FACP to the Fire Department to notify the Fire Department of a fire signal at the FACP.

MODE APPLICABILITY	This LCO is applicable when greater than RESIDUAL quantities of NM and/or EXPLOSIVES are present within the FACILITY while the FACILITY is in OPERATION or MAINTENANCE MODE. The detection and local notification capabilities are only required to be OPERABLE when the FACILITY is unsecured. However, to support the defense-in-depth function of Fire Department notification, the signal from the FACP to the Fire Department must be OPERABLE whenever NM or EXPLOSIVEs are present in the FACILITY.

(continued)

BASES(continued)

ACTION STATEMENTS

A.1 If the Local Audible and/or Visual Alarms or one or more Fire Detection Devices are found to be INOPERABLE then Condition A shall be entered. Required Action A.1 requires the Facility Manager to ADMINISTRATIVELY CONTROL notification of FACILITY occupants of a Fire in the FACILITY. The Administrative Control is only required to be performed when the FACILITY is not SECURED. The Completion Time of IMMEDIATELY is required to minimize the time at risk by providing a Compensatory measure for the degraded condition of the system.

A.2 Once the FACILITY has entered A.1, the established Administrative Control will assure manual detection of a fire condition and notification of the FACILITY personnel to evacuate. Consideration for repairing the Fire Detection and Local Alarm System or going to a MODE in which the LCO does not apply must begin. If the system is restored before 14 Days, the LCO will be restored and no further action will be required. However, if the Fire Detection and Local Alarm System has not been restored within the 14 Days and the Mode Applicability still applies, the FACILITY must be transitioned to LIMITED OPERATION MODE. Per the definition, prior to transitioning to this MODE, a DOE approved plan must be in place to document the activities required to be accomplished in this MODE.

Based on engineering judgement, it has been determined that 14 Days allows adequate time to restore Fire Detection and Alarm System to OPERABLE, transition to a MODE in which the control does not apply, or develop the plan required for LIMITED OPERATION MODE.

B.1. If the Fire Alarm Control Panel Batteries and/or the associated Chargers are not OPERABLE, a 14-day period is allowed to return the batteries to OPERABLE prior to declaring the Fire Detection and Alarm System is OPERABLE. Prior to the expiration of the 14-day period the batteries must be OPERABLE or the Fire Detection and Alarm System shall be declared INOPERABLE and Condition A of this LCO shall be entered. This 14-day Completion Time is acceptable because the batteries are not required for normal operation of the Fire Detection and Alarm System, but are necessary to support the operation of the system in the event of highly reliable normal power is lost. Therefore, the batteries serve a defense-in-depth function and are allowed to be INOPERABLE for the 14-day period. If normal power is lost during this time, the Condition A must be entered.

C.1 If the Fire Department is incapable of receiving a fire signal from the FACP, then the notification shall be ADMINISTRATIVELY CONTROLLED IMMEDIATELY. ADMINISTRATIVELY CONTROL of the notification to the Fire Department replaces the Safety Function provided by the automatic alarm, so the Action may be continued Indefinitely. If it is not possible to perform the Administrative Control, then the Fire Detection and Alarm System shall be considered INOPERABLE and Condition A of the LCO shall be entered.

Bases (continued)

GENERAL NOTE: All Surveillance FREQUENCIES for this LCO are based of NFPA codes and/or DOE Exemption EX-2 (STD – 4281 Appendix E

SURVEILLANCE REQUIREMENTS

SR 4.4.3.1 Test Alarm Initiating Devices – ANNUAL - Test are conducted for the following devices:
System alarm switches
Signal initiating devices (low air, high air, temperature sensors, water level) Detectors

SR 4.4.3.2 Test Fire Alarm Control Panel Batteries and Chargers – ANNUAL – The following surveillances are performed:

Measure open-circuit voltage
Measure battery voltage under full load (battery charger disconnected)
Check Operability of battery charger
Discharge (Nickel-cadmium batteries for 2 hrs and let battery carry load for 2 hrs)

SR 4.4.3.3 Test Fire Alarm Control Panel Equipment – ANNUAL
Verify testing of lamps, LEDs, and all control unit functions.

SR 4.4.3.4 Test Alarm Notification Devices (Operations) – ANNUALLY
Verify Adequate Audible and Visual Signals

SR 4.4.3.5 Test Fire Alarm Control Panel Interface Equipment Circuitry – ANNUALLY
Perform OPERATIONAL circuitry test

SR 4.4.3.6 Test Fire Alarm Signal from Fire Alarm Control Panel to Fire Department – ANNUALLY
Verify signal sent from FACP and received at Fire Department

SR 4.4.3.7 Test Area Smoke Detector Sensitivity – 2 YEAR
CALIBRATE and test area smoke detectors.

NOTE: This Surveillance Requirement only applies to area smoke detectors in Building 12-44 Cells 2-6, Building 12-94 and Building 12-99 Bays 2 & 4. Per USQD-96-13-B, Duct smoke detectors are not credited to perform a CRITICAL SAFETY FUNCTION.

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.3 FIRE DETECTION & SUPPRESSION SYSTEMS

B3.4.4 High Pressure Fire Loop

BASES

BACKGROUND SUMMARY	The High Pressure Fire Loop shall be designed to provide water at a pressure, flow rate, and quantity to meet the demands of the Fire suppression system in each Nuclear FACILITY. Only one FACILITY Fire may be considered at a time. The worst case water demand for the Pantex Plant is established for Building 12-99, which requires 1,326 gpm @ 100 psi at the base of the riser. This demand would provide a two-hour supply with 159,120 gallons available for suppression purposes.
APPLICATION TO SAFETY ANALYSIS	The CRITICAL SAFETY FUNCTIONS of the High Pressure Fire Loop (HPFL) is to mitigate the consequence of a Fire Initiated event by providing fire suppression water to the Nuclear FACILITY(s) Fire Suppression Systems.

LCO	To be OPERABLE, the HPFL shall be in one of the minimum tank/pump configurations listed in Table 3.4.4-1. These configurations were created to enable the HPFL to have a high confidence of supplying the required pressures and flow necessary to suppress the design FACILITY Fire. For a combination of pumps to be considered in the minimum configuration, they must be able to provide a system flow of 1,326 gpm with a flow pressure of 100 psi at the base of the riser in the design FACILITY (12-99). For a tank to be considered in the minimum configuration, it must contain at least 159,120 gallons of available water, the amount required to supply the design flow for 2 hours. In addition to the minimum configurations, the HPFL must have an unobstructed and intact water delivery system from the tanks through (including) the FACILITY PIV(s).
MODE APPLICABILITY	This LCO is applicable At All Times for the entire High Pressure Fire Loop. There is no direct FACILITY applicability associated with this system.

(continued)

B.2 While manual measurements of the tank level are being made, the Water Level Alarm System should be returned to service. The 30 day Completion Time is based on the acceptability of the interim manual measurements, and the judgement on the duration required to repair or replace the system. If the system can not be repaired or replaced in the 30 days, Condition A of this LCO shall be entered prior to the expiration of the Completion Time.

(continued)

BASES (continued)

ACTION STATEMENTS	A.1	On discovery of an INOPERABLE High Pressure Fire Loop, the Pantex Fire Department shall evaluate the INOPERABILITY, minimize the INOPERABILITY, and determine which FACILITY(S) are affected. Once this information has been determined, the Fire Department shall notify the Facility Managers for those FACILITY(s). An automatic start of the fire pumps as a result of low pressure in the system, except during testing, is a condition requiring the declaration of the HPFL INOPERABLE. The cause of the pump start could be from a large scale leak in the system or from water demand from a connected Fire Suppression System. In either case, that level of flow in the system would not allow for the system to meet the flow requirements to the other FAICLITIES. During testing, the pumps may be expected to start. This is acceptable without declaring the system INOPERABLE, so long as the system returns to normal state within a reasonable time after completion of the test.
	A.2	On receipt of notification from the Fire Department that the HPFL supply to a FACILITY is not available, the Facility Manager for the affected FACILITY shall declare the FACILITY Fire Suppression System to be INOPERABLE. The ACTION(s) given for Condition A of LCO 3.4.1 and/or 3.4.2 of these TSRs shall be performed, as required. The FACILITY Manager shall perform this Action IMMEDIATELY after the notification is received, as the unavailability of the HPFL means an immediate Inoperability of the FACILITY Fire Suppression System.
	B.1	Required Actions of Condition B shall be entered if a Water Level Alarm System of either one of the High Pressure Fire Loop Delivery System Storage Tanks is found to be INOPERABLE. Required Action B.1 directs that a manual measurement of the tank level be taken. The Minimum Tank Level shall be verified manually IMMEDIATELY upon discovery of the Alarm System INOPERABILITY and SHIFTLY thereafter. There are different ways this manual measurement can be taken one of which is a visual measure by plunging a graduated rod down into the tank and converting inches of depth into volume. This Compensatory Action provides adequate assurance that the water tank level is adequate on a SHIFTLY basis, provided no major flow conditions are noted.

BASES (continued)

GENERAL NOTE: All Surveillance FREQUENCIES for this LCO are based of NFPA codes and/or DOE Exemption EX-2 (STD – 4281 Appendix E

SURVEILLANCE REQUIREMENTS

SR 4.4.4.1 Inspect Fire Pump System – WEEKLY – The following checks are conducted to verify the overall Operability of the pump house:

Pump House Condition:
- Check pump house heating (cold season)
- Check Ventilation Louvers are free to operate

Pump System Conditions:
- Pump Valves are open
- Piping is free of leaks
- Suction line and system line pressure gauge readings are normal.
- Reservoir Level

Electrical System Conditions:
- Control Pilot light is illuminated
- Transfer Switch normal pilot light illuminated
- Isolating Switch is Closed
- Phase Alarm Pilot Light is Normal

Diesel Engine System Conditions:
- Fuel Tank Level, Float Switch, Hoses and Connections, Water in Tank
- Control Selector is in Auto Position
- Batteries Voltage, Charge Current, Indicator Lights, Electrolyte Levels and Terminals.

Engine Time Meter, Oil Level, Cooling Level Water Pump, Hose Connections, Exhaust System.

SR 4.4.4.2 Test Fire Pump Operability – WEEKLY – Perform weekly operating test to include the following

Pump System:
- Record Suction Discharge Pressure Gauge Readings
- Adjust Gland Nuts if Necessary
- Check Noise or Vibration
- Check Packing Boxes, Bearing and Pump Casing for Overheating
- Record the Pump Starting Pressure.

SURVEILLANCE REQUIREMENTS (continued)

SR 4.4.4.3 Inspect the Fire Pump Electrical and Diesel System – WEEKLY

Electrical System:
- Observe the Time for Motor to Accelerate to Full Speed
- Record the Time Controller
- Record Time Pump Runs Auto Stop

Diesel Engine System:
- Observe Time for Engine to Crank and attain Full Speed
- Observe Oil Pressure Speed Indicator. Water and Oil Temperature
- Check Heat Exchangers

SR 4.4.4.4 Inspect Water Supply Control Valves (Position Open and Locked) – QUARTERLY

Inspect the controls valves on the HPFL system to ensure proper position and control

SR 4.4.4.5 Test Tank Water Level Alarm Indicators – SEMIANNUALLY

Storage Water System
- Test Water Level Alarm

SR 4.4.4.6 Fire Pump Flow Test – ANNUALLY

Pump
- No-Flow Test
- Flow Test
- Stand-by Power Test
- Lubrication Bearing, Check End Play, Check Coupling
- Check Gauge Accuracy

SR 4.4.4.8 Operate Control Valves – ANNUALLY

Perform physical operation of the HPFL control valves

SR 4.4.4.7 Flow Test of Underground Piping – 5 YEARS

Underground Distribution System
- Flow Test
- Cycle Valves

NOTE: All Surveillance FREQUENCIES for this LCO are based of NFPA codes and/or DOE Exemption EX-2 (STD – 4281 Appendix E)

REFERENCES

Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076

B3/4.5 LIGHTNING WARNING SYSTEM

B3.5.1 Lightning Detection and Warning System

BASES

BACKGROUND SUMMARY	There is currently a Lightning Protection Project Team consisting of M&H, DOE and Labs appointed with the task of evaluating the Lightning event and the associated controls. Although this effort has not been completed, it was recommended that Lightning Detection and Warning System be included in this TSR document. Therefore this LCO and its Bases are all based upon preliminary recommendations of this Team. It should be understood that the Compensatory Action and Required Action sequences are all based on this Team's preliminary discussions and past operating practices. It is expected that this information will be confirmed or revised once the Lightning Team has concluded its work.
APPLICATION TO SAFETY ANALYSIS	The purpose of the SPMS is to detect the presence of elevated electric fields in the immediate vicinity of the Pantex Plant so that static-sensitive operations may be safely discontinued until the threat has ended. This warning allows those operations most at risk from static electricity to be placed into a SAFE AND STABLE CONFIGURATION until the threat has ended. The purpose of the LLPS is to provide a 30-minute advance warning of impending lightning to allow Administrative Controls to be implemented regarding sensitive operations. This 30-minute warning allows those operations most at risk from a lightning strike the time to be placed into a SAFE AND STABLE CONFIGURATION until the threat has ended. With a fully OPERABLE LWDS, Lightning Warning are issued under conditions specified by the Lightning Protection Program.

LCO	The Lightning Detection and Warning System shall be OPERABLE to assure elevated electric fields in close proximity to the Pantex Plant will be detected and to monitor for the presence of lightning. To provide detection of elevated electrical fields, the SPMS requires three OPERABLE field mills each with communication capabilities back to the SPMS computer; a SPMS computer hardware and software: and local display and annunciation at the PSS console. The SPMS Field Mills must be capable of detecting static potential of at least 8,000 V/m. Normal "fair weather" electric fields in the Pantex vicinity typically range between 300 and 500 V/m. Static levels of 5,000 to 6,000 V/m are normally encountered during dry, dusty or windy conditions. As a result, 8,000 V/m was chosen as the threshold for issuing Lightning Warnings as this value should not be exceeded unless conditions are favorable for lightning in the immediate vicinity. To provide the warning for approaching storms, the LLPS must have 4 OPERABLE impact detectors, each capable of detecting a lightning strike within 50 miles of the plant; LLPS computer hardware and software: and Local display and annunciation at the PSS console. When one or more SPMS Field Mills are INOPERABLE, it is assumed that one is contributing to the alarm condition being considered. For example, is one field mill is INOPERABLE, it is assumed to read greater than 2,000 V/m and only one other filed mill must read over 2,000 V/m and a static potential warning is declared.
MODE APPLICABILITY	This LCO is applicable at all times. There is no direct FACILITY applicability associated with this system as long as a NE sensitive to lightning is present on the site.

ACTION STATEMENTS	A.1*	If one or two of the three Static Potential Monitoring System Field Mills are found to be INOPERABLE and there is a detection of electrical fields in excess of 2,000 but less than 8,000 V/m from an OPERABLE Field Mill, issue Static Potential Warnings IMMEDIATELY. Static Warnings do not directly impact Operations; they only heighten the awareness that an increased likelihood for lightning may exist. The Completion Time of IMMEDIATELY is required to minimize the time at risk because of the degraded condition of the overall system. *NOTE: **Should the initial detection of an electrical field exceed 8,000 V/m Required Action A.2.1 shall be the entry Required Action for Condition A. The issuance of a Static Potential Warning, of Required Action A.1, IS NO LONGER REQUIRED once a Lightning Warning has been issued.**
	A.2	If one or two of the three Static Potential Monitoring System Field Mills are found to be INOPERABLE and there is a detection of electrical fields in excess of 8,000 V/m from an OPERABLE Field Mill, issue Lightning Warnings IMMEDIATELY. Once Lightning Warnings are issued Operations are restricted in order not to allow a pathway by which stray lightning may enter the FACILITY and cause harm. The Completion Time of IMMEDIATELY is required because once Lightning has been detected there is no way to predict the location or timing of the next strike.
	A.3	If one or two of the three Static Potential Monitoring System Field Mills are found to be INOPERABLE and the NEXRAD has identified a reflectivity of 35 dBz or higher within a 25 mile radius of the Pantex Plant, issue Lightning Warnings IMMEDIATELY. Once Lightning Warnings are issued Operations are restricted in order not to allow a pathway by which lightning may enter the FACILITY and cause harm. The Completion Time of IMMEDIATELY is required because once Lightning has been detected there is no way to predict the location or timing of the next strike.

B.1	If all three Static Potential Monitoring System Field Mills are found to be INOPERABLE, the Static Potential Monitoring System (SPMS) computer is INOPERABLE, or the Local Display and Annunciation is INOPERABLE, Pantex has lost the capability to detect static electrical fields and adequately warn of an electrical storm forming in the immediate area. Therefore, static potential warnings must be issued IMMEDIATELY.
B.2.1 and B.2.2	With Static Potential Warnings issued per Required Action B.1, Required Action B.2.1 requires that NEXRAD be monitored for Reflectivity levels. If the Reflectivity Levels are 35 dBz or Higher within a 25-mile radius of the Pantex Plant, Lightning Warnings Shall be issued IMMEDIATELY. The detection of 35 dBz within 25 miles will allow for an acceptable interim measure to detect the potential for lightning within the immediate area of the plant. If the NEXRAD System is not available, Lightning Warnings Shall be issued IMMEDIATELY, as no Compensatory Actions will be available to detect the potential for lightning in the immediate are of the plant.
B.3.1	While FACILITY activities continue while either the Potential Static or Lightning Warnings are in effect per Required Action(s) B.1and/or B.2, efforts shall me made to restore the INOPERABLE Field Mills. Required Action B.3.1 Directs that upon discovery that all Three Field Mills are INOPERABLE at least one of them shall be restored within 7 Days. The 7-day time to return a field mill to service is based on engineering judgement and operating experience.
B.3.2	Required Action B.3.2 requires that if any one of the three INOPERABLE Field Mills can not be restored within seven days the FACILITY shall issue Lightning Warnings before the same seven day time period expires.

C.1 At Pantex, there are Three Field Mills strategically located to reliably detect area static potentials. If this system does not detect sufficient static in the area it is assumed that, even though actual lightning is spotted visually beyond a 15-mile radius, a lightning strike on site is not likely. Therefore, if one Impact Detector of the LLPS is INOPERABLE and a Lightning Strike is detected within a 15 mile radius of Pantex Plant, prior detection of static is not required in order to require Lightning Warnings. Action C.1 directs that Lightning Warning Shall be given if a Lightning Strike is detected within a 15 mile radius of Pantex IMMEDIATELY. The time of IMMEDIATELY is required because the next Lightning Strike can not be predicted so the FACILITY(s) must be warned as soon as possible.

C.2 Based on the discussion of Required Action C.1 above, if there are already Static Potential Warnings issued and a Lightning Strike is detected within 30 miles of Pantex, Required Action C.2 Requires Lightning Warnings to be issued IMMEDIATELY. The time of IMMEDIATELY is required because the next Lightning Strike can not be predicted so the FACILITY(s) must be warned as soon as possible.

NOTE: Using the same logic for when Lightning Warnings are issued explained in the BASES for Required Actions C.1 and C.2, it is understood when there are two Impact Detectors of the LLPS INOPERABLE that the ability of accurately predicting the exact timing and location of the next lightning strike are somewhat reduced.

D.1.1 Condition D address ACTION(s) to be taken if two Impact Detectors of LLPS are INOPERABLE. Required Action D.1.1, based on the required conservatism of above, requires the Lightning Warning to issued if Lightning is Detected within 20 Miles of the plant, IMMEDIATELY.

D.1.2 Based on the discussion of Required Action D.1.1 above, if there are already Static Potential Warnings issued and a Lightning Strike is detected within 35 miles of Pantex, Required Action D.1.2 Requires Lightning Warnings to be issued IMMEDIATELY. The time of IMMEDIATELY is required because the next Lightning Strike can not be predicted so the FACILITY(s) must be warned as soon as possible.

D.2.1	While FACILITY activities continue while either the Potential Static or Lightning Warnings are in effect per Required Action(s) D.2.1 and/or D.2.2, efforts shall me made to restore the INOPERABLE System back to having at least three Impact Detectors OPERABLE within 14 Days. The 14 Days was Based on the fact that Impact Detectors are for detecting Lightning Strikes and typically before a Lightning Strike is detected that may cause harm to Pantex the three Field Mills have already detected Potential Static. The combination of these systems gives some margin for error and therefore the 14-day restore period is justified.
D.2.2	D.2.2 directs that if any at least Three of the Impact Detectors can not be restored within 14 Days the FACILITY shall issue Lightning Warnings before the same 14-Day time period expires.
E.1	With more than two Impact Detectors of the LLPS is INOPERABLE, or the LLPS Computer or Local Display and Annunciation is INOPERABLE Lightning Warning shall be Issued and remain in effect until the SSCs of Condition E are restored.

SURVEILLANCE REQUIREMENTS	SR 4.5.1.1	Visually Verify Operability of the Lightning Detection and Warning System – SHIFTLY – This Surveillance consists of visually checking the PSS console displays to ensure no trouble signals are indicated and the displays are working properly.
	SR 4.5.1.2	FUNCTIONAL TEST of Equipment – ANNUALLY – Test the system per the Lightning Protection Project Team's and the manufacturer's recommended specifications.
REFERENCES	Basis for Interim Operation, Nuclear Facilities, Derivation of Technical Safety Requirements, Pantex Plant, MNL-00076	

Appendix B

Design Features

APPENDIX B - DESIGN FEATURES

Appendix B identifies the passive design features, which, if altered or modified, could have an effect on safe operation within the respective FACILITY(s).

The feature and/or function being controlled is the actual CRITICAL SAFETY FUNCTION of the SSC. All the design features are being controlled to the existing design drawings and/or design specifications as of January 1998. The actual operation of the SSC itself is not being controlled since the CRITICAL SAFETY FUNCTION is passive. The design feature is being controlled to ensure that if the SSC is modified or replaced that the modification or new equipment provides the same CRITICAL SAFETY FUNCTION as the original SSC. Typically, the material, construction, or actual physical dimensions of the SSC are controlled as a design feature. Some examples are fire wall ratings, FACILITY dimensions, or location of an item. Other things that may be controlled as design features include the requirement to meet national codes and standards (e.g., IEEE, NFPA, or NEC).

Design features will have a Safety Class or Safety Significant classification per the existing analysis. However, the SC/SS designation will apply only to the feature required to provide the credited CRITICAL SAFETY FUNCTION from the safety analysis.

DF.1 FACILITY STRUCTURE

DF.1.1 Nuclear Explosive Bays (12-64, 12-84, 12-99, 12-104)

The design features for the Nuclear Explosive Bays are documented in Appendix K of the BIO, Section 4.1.6.1.

In-Service Inspection	FREQUENCY
Inspect the Facility Structure Critical Safety Components for signs of wear and erosion	ANNUAL
Inspect Faraday Cage of Facilities required to provide lightning protection	5 Years

DF.1.2 Nuclear Explosive Cells (12-44 Cells 2 through 6, 12-85, 12-96, and 12-98 Cells 1 through 4)

The design features for the Nuclear Explosive Cells are documented in Appendix K of the BIO, Section 4.1.6.2.

In-Service Inspection	FREQUENCY
Inspect the Facility Structure Critical Safety Components for signs of wear and erosion	ANNUAL
Inspect the Facility Structure Leak Area	ANNUALLY
Inspect Faraday Cage of Facilities required to provide lightning protection	5 YEAR

DF.1.3 Nuclear Explosives Special Purpose Facilities (12-41, 12-50, 12-60, and 12-94)

The design features for the Nuclear Explosive Special Purpose Facilities are documented in Appendix K of the BIO, Section 4.1.6.3.

In-Service Inspection	FREQUENCY
Inspect the Facility Structure Critical Safety Components for signs of wear and erosion	ANNUAL
Inspect Faraday Cage of Facilities required to provide lightning protection	5 YEAR

DF.1.4 Zone 12 Staging Facilities (12-26 PV, 12-42 NV, 12-44 Cell 8, and 12-58 [Bays 4 and 5])

The design features for the Zone 12 Staging Facilities are documented in Appendix K of the BIO, Section 4.1.6.4.

In-Service Inspection	FREQUENCY
Inspect the Facility Structure Critical Safety Components for signs of wear and erosion	ANNUAL

DF.1.5 Zone 4 Staging (4-19, 4-21, 4-25, 4-30 through 4-44, and 4-101 through 4-142)

The design features for the Zone 12 Staging Facilities are documented in Appendix K of the BIO, Section 4.1.6.5.

In-Service Inspection	FREQUENCY
Inspect the Facility Structure Critical Safety Components for signs of wear and erosion	ANNUAL

DF.2 Sandbag Barrier System

The design of the Sandbag Barrier System shall be in accordance with Technical Manual - Nuclear Safety Criteria (U), DOE-DNA TP 20-7, latest revision.

In-Service Inspection	FREQUENCY
Verify compliance with TP 20-7	ANNUAL

DF.3 Facility Crane Assembly

The Facility Crane Assemblies shall be designed and installed in accordance with the applicable Sections of 29 CFR 1910.179 and ASME B30 Series.

The following special design features apply:

- 12-64 – maintain the enhanced structural fasteners to the current configuration
- 12-85, 12-96, and 12-99 – maintain the Pivot Bearing Restraint to the current configuration

IN-SERVICE INSPECTION	FREQUENCY
Perform load test (100 Percent)	3 YEAR AND upon completion of load path modification
Inspection of Safety Features per applicable sections of 29 CFR 1910.179 ASME B30 Series	Per source document requirements

DF.4 Blast Valves

The Blast Valves shall be designed to close and latch under the following applied force:

- Supply ducts: 150 pounds or more
- Exhaust ducts: 95 pounds or more

The Blast Valves shall be designed to provide the following sealing capabilities:

- Building 12-44 – sustain a pressure differential of 90 psig for 0.6 Hours with not more than a 1 psig drop
- Buildings 12-85 and 12-96 – sustain a pressure differential of 90 psig for 100 seconds with not more than 1 psig drop and sustain a pressure differential of 90 psig for 2 Hours with not more than a 75 psig drop

Building 12-98 – sustain a pressure differential of 100 psig for 2 Hours with not more than 1 psig drop in pressure

In-service Inspection Requirements:

In-service Inspection	FREQUENCY
The close and latching capability of the Blast Valves shall be inspected.	ANNUAL
The valves shall be removed and the sealing surfaces of the Blast Valves shall be inspected.	3 YEARS

DF.5 Facility Lightning Protection System

The Facility Lightning Protection System shall have "fast acting" surge suppressors installed in all 120 V receptacle circuits into the round room of the Cells and the operations / staging area of the bays. The surge suppressors shall clamp the differential mode voltages on the conductors to a maximum of 1200 Volts, with a maximum response time of 5 nanoseconds. Surge suppressors shall be referenced to the Faraday Cage or an extension of the Faraday Cage.

All metallic penetrations into the round room of the Cells and assembly / disassembly room of the Bays shall have engineered bonds to the facility's Faraday Cage. Bonding conductors shall be #6 AWG or larger stranded, woven, or soft drawn copper wire.

In-service Inspection	FREQUENCY
Inspect the penetration mechanical bonds for damage.	2 YEAR
Inspect the surge suppressors per manufacturers recommendations	Per manufacturer's recommendations
Resistance check of the building penetrations bonding (less than or equal to 1.5 Ohms)	5 YEAR

DF.6 Dynamic Balancer

The Dynamic Balancer shall have the following Design Features:

- The hydraulic oil shall be Mobil DTE Oil Heavy Medium
- Mounting Screws attaching the faceplate to the spindle shall meet manufacturer's specifications.

In-service Inspection	FREQUENCY
Replace faceplate to spindle mounting screws	5 YEAR
Chemical Analysis (FTIR and open cup flashpoint) of oil or replace	6 YEAR

DF.7 Pit Containers

Containers used to stage pits shall be designed and maintained in accordance with the requirements of the APPROVED CONTAINER and Storage System Program.

In-service Inspection	FREQUENCY
Test Statistical Sample of Pit Containers per the specifications of the APPROVED CONTAINER and Storage System Program	ANNUALLY