

REQUEST FOR BOARD ACTION BY A BOARD MEMBER

Requester: Daniel J. Santos July 31, 2018

Brief description of Requested Action:

Approve sending the attached letter and its enclosure to the Secretary of Energy.

Attachments (init) 1 (included clean version of any proposed document or modified document)

Summarize any time sensitive considerations:

Requestor signature signature on file July 31, 2018

Executive secretary signature on file July 31, 2018

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIPATING	COMMENT	DATE
Bruce Hamilton	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Jessie H. Roberson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Daniel J. Santos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Joyce L. Connery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Final Disposition Summary						

Executive Secretary signature _____ [Click here to enter a date.](#)

August XX, 2018

The Honorable James Richard Perry
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Perry:

The Defense Nuclear Facilities Safety Board staff conducted a review of the nuclear safety management at the Pantex Plant to assess implementation of Title 10, Code of Federal Regulations, Part 830. The staff team found that (1) portions of Pantex safety bases are deficient; (2) multiple components of the safety basis process are deficient; and (3) the National Nuclear Security Administration Production Office and the contractor, Consolidated Nuclear Security, LLC, have been unable to resolve known safety basis deficiencies.

The Board is currently evaluating the impact to public health and safety of the deficiencies noted and other items identified during the staff review, and has not yet reached any conclusions. The Board notes that DOE and its contractor have initiated actions to address some of the deficiencies. Pursuant to 42 U.S.C. §2286b(d), the Board requests a written response and a briefing from DOE within 45 days to inform the Board regarding the actions taken and progress to date. The Board is providing you the enclosed report for context in responding to this reporting requirement. The Board will consider the additional information provided by DOE in support of any further Board action on this matter as it continues its deliberations.

Yours truly,

Bruce Hamilton
Acting Chairman

Enclosure

c: The Honorable Lisa E. Gordon-Hagerty
Mr. Joe Olencz



Defense Nuclear Facilities Safety Board

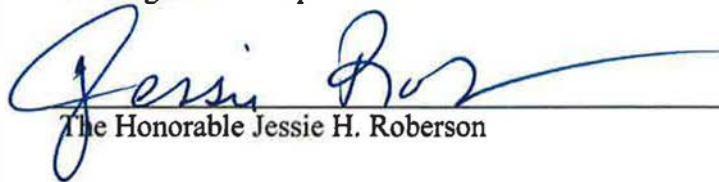
Making Tomorrow Safe Today

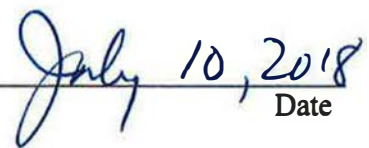
Defense Nuclear Facilities Safety Board

Preliminary Safety Inquiry Report

Implementation of 10 CFR Part 830 at the Pantex Plant

Investigation Chairperson:


The Honorable Jessie H. Roberson

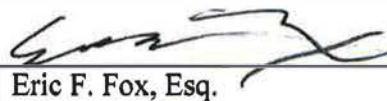

Date

Inquiry Team:


Farid Bamdad, Ph.D.

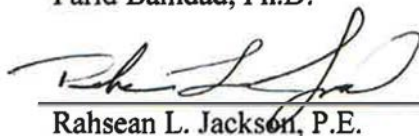
7/10/18

Date


Eric F. Fox, Esq.

7-10-2018

Date


Rahsean L. Jackson, P.E.

7/10/18

Date


Adam P. Poloski, Ph.D.

7/10/18

Date


Scott R. Seprish, P.E.

7/10/18

Date

**Executive
Summary**

**Why DNFSB did
this Inquiry**

On 13-Apr-18, the Board approved RFBA 2018-200-013. This RFBA specifies to conduct a preliminary safety inquiry in accordance with 10 CFR Part 1708. The scope of the preliminary safety inquiry is on the “implementation of 10 CFR Part 830 (Nuclear Safety Management) at the Pantex plant.”

**What the Inquiry
Team proposes to
the Board**

The Board should consider providing correspondence to DOE to include multiple enclosures detailing the spate of recent Pantex potential safety items with a reporting requirement for DOE to brief the Board in 45 days about any plan to correct these deficiencies. The Board may follow this with a closed meeting and hearing designed to better understand NNSA’s obstacles, or issue a Recommendation if the progress is unsatisfactory.

June 2018

Implementation of 10 CFR Part 830 at the Pantex Plant

What the Inquiry Team Found:

The inquiry team found that (1) portions of the Pantex safety basis are deficient; (2) multiple components of the safety basis process are deficient; and (3) the NNSA Production Office (NPO) and Consolidated Nuclear Security, LLC (CNS) have been unable to resolve known safety basis deficiencies. Evidence that supports these conclusions is summarized below. Given the limited time available for this review and the number of PISAs found, the number of PISAs issued suggests there are systemic safety issues with the Pantex safety basis.

- The safety basis is deficient in meeting 10 CFR § 830.204(b). There are high consequence hazards (1) that are not adequately controlled; (2) that may have controls, but the controls are not clearly linked to the hazards; and (3) with controls that are not sufficiently robust or lack sufficient pedigree to prevent or mitigate the event.
- Multiple components of the safety basis process are deficient. (1) Contrary to the annual update requirements of 10 CFR § 830.202(c), CNS has struggled to annually update the safety basis. (2) In contrast to 10 CFR § 830.203(g), CNS USQ procedures allow three days to correct discrepant as found conditions or implementation/execution errors without stopping operations, notifying DOE, or issuing a PISA. (3) NPO and CNS have a practice of revising existing justification for continued operations (JCO), thereby keeping JCOs open for several years, or until the operations were completed, without having updated the safety basis. (4) CNS’s process for completing implementation verification reviews (IVR) does not re-assess procedural controls every three years.
- NPO and CNS have been unable to resolve known safety basis deficiencies. (1) NPO and CNS have been unable to resolve several legacy conditions of approval (COAs) since 2005. (2) CNS has a Documented Safety Analysis Improvement Plan (DSAIP) that lacks sufficient information and resource loading required for the process to be successful, and is already behind schedule. (3) Despite the fact that issues related to falling technician were identified in 2010, the newest version of the DSAIP lists improvement as to be implemented into the safety basis on a date “TBD.”

Table of Contents

Table of Contents i

Acronym List ii

Inquiry Background 1

Inquiry Hypothesis..... 1

Inquiry Focus Areas 2

Inquiry Team Actions 2

Inquiry Conclusions 3

A. Appendix—Focus Area #1, Controls to prevent/mitigate unscreened weapon hazard scenarios..... A-1

B. Appendix—Focus Area #2, Implementation of Unreviewed Safety Question process..... B-1

C. Appendix—Focus Area #3, Maintenance of the DSAs..... C-1

D. Appendix—Inquiry Process and Methods D-1

E. Appendix—Documents Reviewed.....E-1

Acronym List

AB	Authorization Basis
ASME	American Society of Mechanical Engineers
CNS	Consolidated Nuclear Security, LLC
COA	Condition of Approval
DA	Design Agency
DBA	Design Basis Accident
DOE	Department of Energy
DSA	Documented Safety Analysis
DSAIP	DSA Improvement Plan
EOC	Extent of Condition
ESD	Electrostatic Discharge
ESS	Evaluation of the Safety of the Situation
HAR	Hazard Analysis Report
HCE	Hazard Control Evaluation
HEVR	High Explosive Violent Reaction
IND	Inadvertent Nuclear Detonation
IVR	Implementation Verification Review
JCO	Justification for Continued Operation
NEOP	Nuclear Explosive Operating Procedure
NNSA	National Nuclear Security Administration
NPH	Natural Phenomenon Hazard
NPO	NNSA Production Office
NQA	Nuclear Quality Assurance
OTD	Office of the Technical Director
PISA	Potentially Inadequate Safety Analysis
PPC	Production Plant Contractor
PT	Production Technician
RFBA	Request for Board Action
SAC	Specific Administrative Control
SAR	Safety Analysis Report
SC	Safety Class
SER	Safety Evaluation Report
SMP	Safety Management Program
SRP	Standard Review Plan
SS	Safety Significant
SSC	System, Structure, or Component
TSR	Technical Safety Requirement
USQ	Unreviewed Safety Question
USQD	USQ Determination
Y-12	Y-12 National Security Complex

Key Definitions

Condition of Approval	Used to document any changes, conditions, or hazard controls directed by DOE. Editorial issues such as incorrect punctuation and misspelling that do not change the meaning or the technical content of a statement should not be handled through conditions of approval. Conditions of approval should not be used to approve DSAs and TSRs with fundamental flaws. [DOE-STD-1104-2016]
DSA Improvement Plan	Plan to improve the Pantex DSA to achieve consistency and simplification as well as to address legacy issues. [DSAIP Revision 1]
Extent of Condition	Generally defined as a generic implication of a failure, malfunction, deficiency, defective item, weakness or problem; i.e., the actual or potential applicability for an event or condition to exist in other activities, project, programs, facilities, or organizations. [EFCOG White Paper: Extent of Condition Evaluations]
Hazard Analysis Report	One of two pieces of a DSA defined in the safe harbor methodology. A Hazard Analysis Report is prepared in accordance with DOE-STD-3016-99, Hazards Analysis Reports for Nuclear Explosive Operations, February 1999, or successor document. [10 CFR Part 830]
High Explosive Violent Reaction	A category of weapon response used in hazard analysis that includes reactions from a fast deflagration of the high explosive up and including a detonation of a high explosive. [DOE-NA-STD-3016-2016]
High Order Consequence	Hazard scenarios with HEVR or IND consequences that could significantly exceed the evaluation guideline.
Implementation Verification Review	Independently confirm (or reconfirm) the proper implementation of new or revised safety basis controls. The re-verification of safety basis controls is an important tool for contractors to ensure that they remain in compliance with the safety basis. Safety basis controls that are susceptible to the effects of the degradation of human knowledge (e.g., procedural controls) typically should be re-verified at least every 3 years, and the controls dependent upon hardware functionality typically should be re-verified at least every 5 years. [DOE G 423.1-1B]
Inadvertent Nuclear Detonation	A category of weapon response used in hazard analysis that includes the unintended energy release (via a nuclear process) from a nuclear explosive during a period of time (on the order of one microsecond), in an amount greater than the energy released by detonating four or more pounds of Trinitrotoluene (TNT). [DOE-NA-STD-3016-2016]

Justification for Continued Operation	A JCO is a mechanism by which a contractor may request that DOE review and approve a temporary change to the facility safety basis that would allow the facility to continue operating in view of a specific and unexpected situation, considering the safety significance of the situation and any compensatory measures being applied during this period. A JCO should be temporary and not continue past an annual DSA update unless issued within three months prior to the update. [DOE G 424.1-1B]
Potentially Inadequate Safety Analysis	May result from situations that indicate that the safety basis might not be bounding or may be otherwise inadequate; for example, discrepant as-found conditions, operational events, or the discovery of new information. [DOE G 424.1-1B]
Safety Evaluation Report	The report prepared by DOE to document (1) the sufficiency of the DSA for a hazard category 1, 2, or 3 DOE nuclear facility; (2) the extent to which a contractor has satisfied the requirements of Subpart B of this part; and (3) the basis for approval by DOE of the safety basis for the facility, including any conditions for approval. [10 CFR Part 830]
Safety Analysis Report	One of two pieces of a DSA defined in the safe harbor methodology. A Safety Analysis Report for the nuclear facility that considers generic nuclear explosive operations and is prepared in accordance with DOE-STD-3009, Change No. 1, 2000, or successor document. [10 CFR Part 830]
Unreviewed Safety Question	A situation where (1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the DSA could be increased; (2) the possibility of an accident or malfunction of a different type than any evaluated previously in the DSA could be created; (3) a margin of safety could be reduced; or (4) the DSA may not be bounding or may be otherwise inadequate. [10 CFR Part 830]
USQ Determination	When proposed changes to physical characteristics or technical procedures (e.g., operating, test, surveillance, maintenance, and emergency procedures) are evaluated relative to the approved safety basis. [DOE G 424.1-1B]

**Inquiry
Background**

On 13-Apr-18, the Board approved Doc#2018-200-013, RFBA to conduct an investigation. This RFBA consisted of three major pieces:

- Approval to conduct a safety investigation in accordance with 42 U.S.C. §2286a(b)(2) of the implementation of 10 CFR Part 830 (Nuclear Safety Management) at the Pantex plant. The type of safety investigation is a preliminary safety inquiry in accordance with 10 CFR Part 1708;
- Approval of the attached outline of a framework for executing this inquiry; and,
- Approval of commencing this inquiry within 15 business days of approval of this action.

The RFBA contained an attached outline that specified that the scope of the inquiry is on the “implementation of 10 CFR Part 830 (Nuclear Safety Management) at the Pantex plant.” In accordance with the RFBA, the inquiry team initially consisted of five total staff. On 23-Apr-18, the Board increased the team size to six staff through approval of Notational Vote Doc#2018-300-043.

The team consists of an Inquiry Chairperson, Board Member Jessie Roberson, who was designated by the Acting Chairman. The inquiry chairperson is responsible to the Board for the conduct of the inquiry. The team members are Farid Bamdad, Eric Fox, Rahsean Jackson, Adam Poloski, and Scott Seprish. The team consists of four members of the Office of the Technical Director, including one senior executive, and one member of the Office of the General Counsel. The staff members were assigned to work on the investigation full-time.

The RFBA specified that two site visits could be used to support the inquiry. The Board specified that several deliverables be developed through the inquiry including:

- Progress briefings to the Board following each site visit.
- Documentation of inquiry process and methods (as an Appendix to the final report)
- Final report to the Board within 45 days of commencing the inquiry.

**Inquiry
Hypothesis**

The following statement was posed by the Board’s staff in support of a Board Member visit in February 2018:

Multiple inputs to the safety basis have inadequacies. In each case, Pantex has justified the acceptability by developing and executing an improvement initiative to bring the particular

area to an acceptable level. However, taking all of the inadequacies into account together, the Pantex safety basis is deficient. It is unclear that CNS and NPO have considered the totality of all of the issues holistically. Additionally, there is little to no tangible progress to show for some of the initiatives.

The inquiry team used this statement as a hypothesis for the inquiry. The following section describes three major focus areas that the inquiry team designed to test this hypothesis. This report describes the information obtained by the inquiry team and the inquiry team's assessment of the information for each of the focus areas.

Inquiry Focus Areas

As described below, the preliminary inquiry focused on three areas of implementation of 10 CFR Part 830 at Pantex.

- *Focus Area #1—Controls to prevent/mitigate unscreened weapon hazard scenarios.* Pantex has a reliance on administrative controls instead of engineered controls to prevent/mitigate unscreened weapon hazard scenarios. The inquiry team reviewed the adequacy of the administrative controls.
- *Focus Area #2—Implementation of the USQ process.* This is the “control implementation” concern briefed to the Board during the April 2018 resident inspector site status presentation for Pantex. Specifically, the primary issue is the protracted nature of the process at Pantex, with lengthy periods of operational restrictions or continued operations under compensatory measures while PISAs and positive USQs are investigated and eventually resolved.
- *Focus Area #3—Maintenance of the DSA.* As shown by correspondence between NPO and CNS in recent years, CNS has not always met the requirement to update each component of its DSA (or certify that no update is needed) annually. Calendar year 2018 is being treated as a catch-up year, in which CNS is focusing on correcting past updates that were never submitted to or approved by NPO, along with implementing new quality assurance measures for DSA work.

Inquiry Team Actions

After the approval of Doc#2018-200-013 on 13-Apr-18, the inquiry team began the planning phase. During this time, the inquiry team identified the hypothesis and focus areas for inquiry. The inquiry team also developed 23 charge questions to pursue that align with the focus areas. The inquiry team also developed a strategy of using vertical and horizontal slices to assess the inquiry hypothesis. Details about the process and methods the inquiry team used are provided in Appendix D.

The inquiry team developed a charter to document this approach. The planning phase concluded on 26-Apr-18 with a verbal briefing to the Board.

Next, the inquiry team moved on to the inquiry phase. This began by identifying the documents that the inquiry team needed to review to answer the 23 charge questions. The initial document request was transmitted to the Pantex liaisons on 30-Apr-18. The document request was fulfilled on 15-May-18. A list of the documents reviewed by the inquiry team is provided in Appendix E.

For each focus area, the inquiry team identified several potential gaps and vulnerabilities based on its review of the documents. The inquiry team developed agenda questions for each focus area. A formal agenda was transmitted to the Pantex site liaisons on 21-May-18. Onsite discussions occurred twice with the first on 29-May-18 to 31-May-18 and the second on 12-Jun-18 to 13-Jun-18. The onsite discussions also included walkdowns of bays and cells with observations of nuclear explosive operations. Based on these interactions, there were additional document requests and follow-up questions provided to the Pantex liaisons. Following each onsite discussion, the inquiry team briefed the Board on the inquiry's progress.

The inquiry team took all of the information collected and formulated answers to the charge questions for each focus area. These questions and answers are provided in Appendixes A-C. Potential safety items are described in the beginning of each Appendix. Overall conclusions from the inquiry effort are provided in the following section.

**Inquiry
Conclusions**

The inquiry team found evidence to support the major themes of the inquiry hypothesis. Specifically, the inquiry team concludes that (1) portions of the safety basis are deficient; (2) multiple components of the safety basis process are deficient; and (3) NPO and CNS have been unable to resolve known safety basis deficiencies. Evidence that supports these conclusions is summarized below. Given the limited time available for this review and the number of PISAs found, the number of PISAs issued suggests there are systemic safety issues with the Pantex safety basis.

- The safety basis is deficient in meeting 10 CFR § 830.204(b). There are high consequence hazards (1) that are not adequately controlled; (2) that may have controls, but the controls are not clearly linked to the hazards; and (3) with controls that are not sufficiently robust or lack sufficient pedigree to prevent or mitigate the event. Additional detail is provided in Appendix A.
 - Multiple components of the safety basis process are deficient. (1)
-

Contrary to the annual update requirements of 10 CFR § 830.202(c), CNS has struggled to annually update the safety basis. (2) In contrast to 10 CFR 830.203(g), CNS USQ procedures allow three days to correct a discrepant as found conditions or implementation/execution errors without stopping operations, notifying DOE, or issuing a PISA. (3) NPO and CNS have a practice of revising existing justification for continued operations (JCO), thereby keeping JCOs open for several years, or until the operations were completed, without having updated the safety basis. (4) CNS's process for completing IVRs does not re-assess procedural controls every three years. Additional detail is provided in Appendixes B and C.

- NPO and CNS have been unable to resolve known safety basis deficiencies. (1) NPO and CNS have been unable to resolve several legacy COAs since 2005. (2) CNS has a DSAIP that lacks information and resource loading required for the process to be successful, and is already behind the schedule provided to the inquiry team. (3) Despite the fact that issues related to falling technician were identified in 2010, the newest version of the DSAIP lists improvement as to be implemented into the safety basis on a date "TBD." Additional detail is provided in Appendix C.
-

A. Appendix—Focus Area #1, Controls to prevent/mitigate unscreened weapon hazard scenarios.

Approach and Summary

The inquiry team's Focus Area #1 examined the W76 and W78 HARs and sought to answer five charge questions from the team's charter (i.e., 1.1 – 1.5 listed below). The inquiry team analyzed the hazard analysis tables in the HARs for events that result in IND or HEVR. For each event that was not screened by the DA, the inquiry team evaluated the adequacy of the safety control set to prevent or mitigate the event.

During this review, the inquiry team identified five potential safety items that resulted in Pantex personnel declaring three PISAs. The inquiry team believes two other PISAs should have been issued. The inquiry team answered three of the five charge questions assigned to this objective in the negative. The overall conclusion is listed below and followed by the potential safety items and charge questions and answers that support this conclusion.

Conclusion

The safety basis is deficient in meeting 10 CFR § 830.204(b). There are high consequence hazards (1) that are not adequately controlled; (2) that may have controls, but the controls are not clearly linked to the hazards; and (3) with controls that are not sufficiently robust or lack sufficient pedigree to prevent or mitigate the event. Given the limited time available to review the HARs and the number of PISAs found, the number of PISAs issued suggests there are systematic safety issues with the Pantex safety basis.

Potential Safety Items

1. *SAC for Operators Applying Brakes on Testers*—The W76 HAR identifies multiple events with credible IND and HEVR consequences that are prevented by an initial condition. These events require a safety class control. The initial condition is a SMP (i.e., Electrical Equipment Program for Testers) that ensures the design of electrical testers precludes mechanical and electrical insults to the weapon. For example, the Sitewide SAR, Page 18-16, states that testers are “[d]esigned to withstand the forces of a 95th percentile person falling into the tester without the tester tipping or moving the target.” However, this analysis appears to rely on the operator engaging a wheel locking device. Therefore, the SMP's design requirements alone will not prevent or mitigate the event. The operator action of engaging the wheel locking device is not protected by a SAC and does not appear to be a critical step in procedures. Additionally, the tester is not credited as a safety class design feature in the hazard analysis tables. The inquiry team concludes the safety control set for these events do not meet DOE requirements. Pantex personnel issued a PISA following the onsite discussions.

2. *Non-Credited Administrative Controls/Training Used in Place of Safety Class Controls for ESD Hazards*—The W76 HAR identifies multiple events with credible IND and HEVR consequences that are prevented by a “Category 2 Equipment Evaluation.” These events require safety class controls. The hazard analysis tables contain a note that refers the reader to equipment evaluations for the Overhoff monitor and hose and wrist strap checkers (i.e., EEE-06-0030 and EEE-06-0037, respectively):

- EEE-06-0030 provides “General Requirements” that prescribe keeping the Overhoff outside 6.5 feet of a nuclear explosive during “Radiation Safety Usage.” During “Manufacturing Usage” the Overhoff may make contact with a nuclear explosive via the hose, which is a credited insulator. Pantex personnel explained that during manufacturing usage the PT holds the Overhoff in one hand while guiding the hose to the nuclear explosive with the other hand (within ¼ inch of the nuclear explosive). The NEOP does not include safety requirements, critical steps, warnings, cautions, or general notes that alert the PTs to potential hazards associated with the Overhoff. Pantex personnel believe hazards involving the Overhoff and hose are not credible due to its intended use and PT training.
- EEE-06-0037 prescribes a 6.5-foot standoff distance for the wrist strap checker from all explosives and nuclear explosives and references P7-2003, (U) *Weapon Assembly/Disassembly Operations Requirements*, as the implementing procedure. P7-2003 is a general use level procedure that implements the standoff distance requirement for the wrist strap checker via a boxed note. Inquiry team also reviewed NEOPs that are critical use level procedures. The inquiry team found that the NEOPs include a safety requirement to not carry the wrist strap checker to the unit. The PTs are required to be familiar with the NEOP safety requirements, but they are not required to read them prior to performing NEOP steps. The NEOPs also do not specify a specific standoff distance (i.e., 6.5 feet). However, the wrist strap checker is secured to the wall in a bracket. Pantex personnel stated that PTs and calibration technicians are trained to not bring the wrist strap checker within 6.5 feet of a nuclear explosive. Pantex personnel also referenced TABLE-0068, *Safety Checklist*, which contains additional requirements for maintaining a 6.5 feet standoff distance to a nuclear explosive.

The inquiry team found that Pantex personnel ultimately rely on non-credited administrative controls and PT training to implement safety class controls for HAR events involving the Overhoff and wrist strap checkers. There are no credited safety class controls for these events. The inquiry team believes this situation does not meet DOE requirements. The inquiry team also believes a PISA should have been declared immediately following the onsite discussions.

3. *Missing Safety Class Controls for PT Tripping Hazards*—The W78 HAR contemplates multiple events involving a PT tripping and impacting the unit in various configurations. This event results in the need for safety class controls since IND and HEVR are not screened by the DA. The hazard analysis table does not identify controls specific to these events. Instead, the hazard analysis tables refer the reader to a section (3.4.2.4) of the HAR dedicated to evaluating impact hazards¹. Section 3.4.2.4 lists applicable controls for this hazard. After reviewing the list of controls, the most applicable control appears to be a safety significant SAC (i.e., W78 Process – Tripping Hazards). This SAC requires PTs to check for tripping hazards once per shift. The Inquiry team traced this requirement to NEOPs. The NEOPs do contain critical steps in their setups that require signature for ensuring tripping hazards have been removed. However, since this SAC is the only control that can directly prevent the event (i.e., PT trip), it is inadequate as a safety class preventative control. As a result, the inquiry team concludes the events involving a PT trip are uncontrolled. Pantex personnel agreed that they do not have adequate controls in place for tripping events identified in the HAR. However, they stated that this is a known deficiency and a JCO would be implemented in the near term that contains additional controls. Pantex procedures would require them to enter the PISA process and implement operational restrictions prior to issuing a JCO. Pantex personnel are not following their own procedures. The inquiry team concludes this situation does not meet DOE requirements and a PISA should have been declared immediately following the onsite discussions.
4. *Analysis Supporting Adequacy of Safety Class Carts not Bounding*—The W78 HAR contemplates hazards involving toppling of a preparation cart while carrying various items. The weight of the cart and items on top of it are assumed to impact a weapon configuration. This event results in the need for safety class controls since IND and HEVR are not screened by the DA. The event's preventative control is the design of the preparation cart.

¹ The W78 HAR and parts of the W76 HAR do not clearly link events in the hazard analysis tables to the applicable controls. Instead, they refer the reader to a section of the HAR that addresses that generic type of hazard (e.g., drop hazards).

The preparation cart is credited to "...withstand the forces imparted by a 95th percentile PT as well as the forces due to a PC-3 seismic event without toppling into the unit." However, the weight of the items on the cart in the HAR event exceeds the weight assumed in the supporting engineering analysis. Therefore, the calculation does not adequately demonstrate the preparation cart is capable of fulfilling its safety requirements. Pantex personnel issued a PISA following the onsite discussions.

5. *Missing Safety Class Controls for Impact and ESD Events*—The W76 HAR identifies rolling impact and ESD events involving a weapon configuration that represents a general bin of 16 separate configurations. The rolling impact is caused from PTs pushing "freestanding equipment" into the 16 different weapon configurations. Freestanding equipment is defined as equipment or tooling not attached to the facility and not hand carried. The rolling impact events require safety class controls since IND and HEVR are not screened by the DA. The ESD events are postulated from PTs being in contact with freestanding equipment or the wrist strap checker. The ESD events require safety significant controls for tritium or mechanical releases and worker safety since they are also not screened by the DA. The preventative control for the rolling impact and ESD events is a SAC (i.e., W76 Operations – Control of Equipment and Tooling). Amongst other requirements, this SAC prohibits freestanding equipment not required by the W76 process to be placed within 6 feet of any W76 configuration installed in the assembly stand, insertion cart, or assembly carts. Designating this SAC for these events as a preventative control results in several errors:

- Not all freestanding equipment that could cause a rolling impact or ESD event (e.g., a tool box) to the weapon configurations is included in the SAC. Therefore, this freestanding equipment excluded from the SAC represents an uncontrolled hazard.
- The ESD event involving a wrist strap checker credits the SAC as a preventative control. The SAC does not include the wrist strap checker in the list of included equipment. Therefore, the wrist strap checker may need to be added to the SAC. As previously explained, the NEOPs do include a safety requirement for PTs to not bring the wrist strap checker near the weapon. However, this requirement does not flow down from this SAC.
- The SAC states that the 6-foot exclusion zone applies to W76

configurations installed in the assembly stand, insertion cart, or assembly carts. Although the majority of the 16 weapon configurations are processed in an assembly cart, the components that make up these configurations are processed on a bench or table. The SAC does not apply to operations on a bench or table.

- Some tools included in the list of freestanding equipment do not have wheels. Therefore, it does not make sense to include these pieces of equipment in events for rolling impacts.

Pantex personnel issued a PISA following receipt of the inquiry team's onsite agenda. This PISA documents the errors explained above. New or revised credited controls will be required.

6. *Drop Hazards*— The W78 HAR contemplates several drop events involving a shielded apron or various pieces of equipment, tooling, or materials impacting weapon configurations from a height of two or four feet. These events result in the need for safety class controls since high order consequences are not screened by the DA. A SAC (i.e., W78 Process – Hand Lifts) is one of the credited controls to prevent this event. This SAC flows down to safety requirements at the beginning of NEOPs. The SAC states:

With the training to the technicians on not lifting hand tools, tooling, and materials over the unit unless required for the process and to only lift the object as high as required for the operation, both the frequency of a drop that would impact the unit is reduced, and the possible impact energy is reduced if a drop were to occur...Based on the height of the unit being worked on, there would be no reason to lift the hand tooling 2 feet over the unit and it would be an unnatural act to do so.

Although not explicitly stated in the SAC, the NEOPs also cite a specific safety requirement for the shielded aprons to be relocated to staging cubicles or corridor out of direct line of sight of the cell when not in use. However, contrary to MNL-293084, *Pantex Writer's Manual for Technical Procedures*, the NEOPs do not provide critical steps or warnings when handling the specific equipment or materials, that when dropped, could initiate a high order consequence. The inquiry team discussed the shielded apron and six different individual pieces of equipment considered in the HAR with Pantex personnel. Pantex personnel stated that the PTs are sufficiently trained to not lift items more than 2 feet over the weapon.

However, given the high consequences, the SAC would be strengthened by adding additional specificity (e.g., lifting height limits over the weapon). In addition, consistent with MNL-293084, the NEOPs should include critical steps or warnings when handling specific equipment or materials that could initiate a high order consequence when dropped. The inquiry team believes investigating the PT training program and observing additional operations may be justified to understand whether these events are sufficiently controlled.

[1.1] Did the PPC apply controls that are implemented and maintained as part of the facility, equipment or specific operation?

No. The vast majority of hazards identified in the HAR do have controls that are implemented and maintained as part of the facility, equipment or specific operation. However, the inquiry team found multiple credible scenarios that are uncontrolled. The inquiry team also identified an example where the designated control was inadequate to prevent or mitigate the event.

[1.2] Are the selected controls designated as Safety Class or Safety Significant according to DOE-STD-3009, and are the effectiveness of these controls evaluated in the accident analysis?

No. The vast majority of hazards identified in the HAR do have controls designated as safety class or safety significant consistent with DOE requirements. However, the inquiry team identified multiple credible hazards scenarios that are uncontrolled.

[1.3] Did the PPC request weapon response from the DA(s) for all scenarios where the hazards are not screened, an anticipated weapon response is not assumed, or a weapon response has not already been provided?

Yes. Pantex has weapon responses for all credible hazards listed in the HARs. For HAR events that do not have an evaluated weapon response from the DA, the HAR assigns a probability of one.

[1.4] When the hazard scenarios, (1) are not screened for IND or HEVR consequences, or (2) for which weapon responses are assumed, are the hazard scenarios designated as DBAs and retained for consideration in the accident analysis section per DOE-STD-3009?

Yes. All hazard scenarios that are not screened by the DA are carried forward to the accident analysis.

[1.5] Are only NPH initiating event probability information used to dismiss the need to apply controls for plausible accident scenarios resulting in IND or HEVR?

No. The majority of the hazards identified in the HAR that are not screened by the DA have assigned controls. However, the inquiry team identified situations where Pantex personnel dismissed an event based on a probability argument. For example, Pantex personnel consider an ESD event involving the Overhoff and hose to be incredible. The unit is carried to the weapon but Pantex personnel stated that the Overhoff is controlled by the PT and will not contact the weapon. As a result, Pantex personnel consider the event incredible. Therefore, Pantex personnel essentially utilize a probability argument to dismiss this event.

B. Appendix—Focus Area #2, Implementation of USQ process.

Approach and Summary

The inquiry team’s Focus Area #2 examined the USQ processes used at Pantex and sought to answer the 11 charge questions from the team’s charter (i.e., 2.1 – 2.11). During this review, the inquiry team identified two potential safety items. The inquiry team also answered 3 of the 11 charge questions assigned to this objective in the negative. Overall conclusions are presented below and are followed by the potential safety items and answers to the charge questions.

Conclusions

(1) In contrast to 10 CFR 830.203(g), CNS USQ procedures allow three days to correct a discrepant as found conditions or implementation/execution errors without stopping operations, notifying DOE, or issuing a PISA. (2) CNS and NPO have a practice of revising existing JCOs instead of issuing new ones. Examples include PX-JCO-17-02 for W80 and PX-JCO-14-05 for B61.

Potential Safety Items

1. *Process for Discrepant-as-found Conditions*—The site USQ procedure, approved by NPO, does not comply with the requirements of 10 CFR 830 or the associated DOE Guide 424.1-1B, *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*. In situations when a “discrepant as-found condition” is observed for a TSR-related control, Pantex procedure allows returning the system to the original condition as described in the DSA within 3 days without having to declare a PISA, notifying DOE, performing an extent of condition review, or implementing any compensatory measures. Extent of condition reviews have the benefit of potentially finding related deficiencies in similar SSCs.

 2. *Long term JCOs*— DOE Guide 424.1-1B describes temporal scope of a JCO. A JCO should have a predefined, limited life, and not continue past a required annual DSA update. At Pantex, some JCOs last for several years, or until the operations were completed, without updating the relevant Safety Basis document; relying on compensatory measures for an extended duration when more rigorous controls (i.e., engineered design feature) could be the appropriate long-term solution (e.g., PX-JCO-17-02 for W80 and PX-JCO-14-05 for B61). The combination of several open JCOs on an out-of-date safety basis can lead to further configuration management issues.
-

<i>[2.1] Does the USQ procedure state that the contractor will update USQD documents and reports and submit to DOE annually a summary description of all USQDs performed?</i>	Yes. Section 12 of the USQ procedure (i.e., CD-3014, <i>Pantex Plant Unreviewed Safety Question Procedure</i>), states: “The contractor shall also submit an annual summary description to DOE/NPO of all USQDs performed since the prior submission of the DSA.”
<i>[2.2] Is the USQ procedure and its integration into the facility change control process described by a governing policy?</i>	Yes. There are several high-level CNS documents that implement the USQ requirements of 10 CFR Part 830, including the Contract, Contract Manual 25.45.43, and the Integrated Safety Management protocols.
<i>[2.3] Does the USQ procedure include a detailed USQ process description?</i>	Yes. The CD-3014 procedure describes in detail the site processes for USQ, PISA, ESS, and JCO. There are additional contractor forms and work instructions that assist the users in following procedure CD-3014.
<i>[2.4] Does the USQ procedure mandate that no operational restrictions can be relaxed prior to review by DOE?</i>	Yes. Section 5.1 of CD-3014 requires the contractor to “take action, as appropriate, to place or maintain the facility in a safe condition” in situations identified to be a PISA and submit “the evaluation of the safety of the situation to NPO prior to removing any operational restrictions initiated.”
<i>[2.5] Does the USQ procedure require that all Potentially Inadequate Safety Analysis issues are subject to USQ screening?</i>	No. The Pantex USQ procedure contains an exclusionary period clause that is not allowed by 10 CFR Part 830 or the DOE Guide 424.1-1B, <i>Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements</i> . For its implementation in situations when a “discrepant as-found condition” is observed for a TSR-related control, the procedure allows returning the system to the original condition as described in the DSA within 3 days without having to declare a PISA, notifying DOE, performing an EOC review, or implementing any compensatory measures. The recent draft revision to CD-3014 extends this period to 30 days, however, this draft revision has not been approved by NPO.

<i>[2.6] Is DOE sufficiently involved in the USQD process to ensure that the adequacy of protection and safety classifications of equipment is justified by safety basis documents?</i>	Yes. Based on review of numerous USQ/JCO documentations, the inquiry team observed that NPO prepares safety evaluation reports for the safety basis change packages submitted for DOE approval for the issued USQs and JCOs.
<i>[2.7] Does the USQ procedure indicate that formal training and qualification program will be established for all site personnel involved in the USQ process?</i>	Yes. Section 11 of CD-3014, Personnel Qualification and Training, describes detailed requirements for education, experience, and training of the contractor's USQ screeners, evaluators, and independent reviewers.
<i>[2.8] Are the necessary educational background, knowledge of facility and DOE requirements, and familiarity with the facility safety basis clearly defined for site personnel involved in the USQ process?</i>	Unclear. NPO representatives stated that procedure 3.1.1.3 describes the required training and qualification of the NPO reviewers involved in safety basis related documents, however, when the inquiry team requested a copy it was not provided as of the date of this report.
<i>[2.9] Does the USQ procedure indicate that the list of people certified for USQD processes will be kept current?</i>	Yes. Based on site conversations, there is a list of individuals with the required qualification that is kept current.

[2.10] Is DOE kept current with respect to all phases of USQ resolution, including notification of discoveries, review of USQDs, and review of corrective actions?

No. In situations when a “discrepant as-found condition” is observed for a TSR-related control, the procedure allows returning the system to the original condition as described in the DSA within 3 days without having to declare a PISA. This action by the contractor removes DOE/NPO from being notified that a PISA exists; and circumvents the process established by the DOE Guide 424.1-1B to perform an extent of condition review, or the need for implementing any compensatory measures during the 3-day period. The latest draft revision to CD-3014 extends this period to 30 days, during which DOE/NPO is not formally informed. While the procedure allows operational restrictions to be put in place, CNS and NPO personnel indicated that in practice they stop work and notify DOE. However, this practice is not required in the procedures.

[2.11] Is there any indication in the contractor’s USQ procedures that JCOs will be closed in a timely matter within a year of approval? Is there evidence that JCOs have been closed within a year of their approval?

No. Many JCOs have been open for several years, or until the operations were completed without having updated the relevant safety basis documents. Example JCOs include:

- PX-JCO-17-02, *Justification for Continued Operations for W80 Legacy Dismantlement Process*, and
- PX-JCO-14-05, *Justification for Continued Operations for B61 ESD*.

C. Appendix—Focus Area #3, Maintenance of the DSAs.

Approach and Summary

The inquiry team’s Focus Area #3 investigated maintenance of the DSAs and sought to answer the seven charge questions from the team’s charter (i.e., 3.1 – 3.7). During this review, the inquiry team identified three potential safety items. The inquiry team also answered four of the 7 charge questions assigned to this objective negatively. The overall conclusion is listed below and followed by the potential safety items, and answers to the charge questions that support this conclusion.

Conclusion

In maintaining the DSA, the contractor has struggled to complete the yearly updates required by 10 CFR Part 830. While the contractor has a schedule to complete the updates and a plan to address other deficiencies in the DSA, the plan is not well developed and is already behind schedule for a number of items. In addition, several legacy COAs have remained unresolved since 2005, and the current DSAIP does not provide a pathway for resolution. Finally, Pantex’s self-assessment approach has gaps in reverification of some TSR controls. More detail is provided in the below charge questions and answers.

Potential Safety Items

1. *Annual Updates*—Contrary to the annual update requirements of 10 CFR § 830.202(c), CNS has struggled to annually update the safety basis HAR and SARs.
 2. *Implementation Verification Reviews*—CNS’s process for completing IVRs re-assess procedural controls every five years. DOE Guide 423.1-1B, *Implementation Guide for Use in Developing Technical Safety Requirements*, specifies that IVRs should be conducted every 3 years for controls susceptible to the degradation of human knowledge (e.g., procedural controls).
 3. *Resolution of Known Issues*—NNSA and the contractor have been unable to resolve known safety basis deficiencies.
 - NNSA and the contractor have been unable to resolve several legacy COAs from 2005.
 - The current revision of the DSAIP lacks information and resource loading required for the process to be successful, and is already behind schedule.
 - Despite the fact that issues related to falling technician were identified in 2010, the current version of the DSAIP lists improvement as to be implemented into the safety basis on a date “TBD”.
-

[3.1] Does the contractor have an established performance record of producing high quality safety basis documents (e.g., limited DOE rejections of DSAs/TSRs, no significant outstanding DOE/DNFSB Assessment findings or issues, and limited SER Conditions of Approval)?

No. Until recently, the contractor had an established performance record of producing high quality safety basis documents with limited rejections from NPO. However, in 2017, there was a marked drop-off in the number of safety basis submittals approved by NPO via five “no action” letters. In addition, while previous years had close to no comments, there were roughly a hundred NPO comments supplied in 2017. During conversations with CNS officials, they indicated that there was significant turnover in CNS safety analysts. CNS has struggled to fill positions with experienced personnel. CNS plans to augment the vacant positions with support from Y-12 safety analysts.

In addition, the contractor still has five outstanding COAs issued in 2005 from previous SERs. CNS officials indicated that resolution of these COAs will occur through implementation of the DSAIP. This is discussed in more detail in question 3.2.

Lastly, NPO’s SERs have not been meeting the following expectation from DOE-Standard-1104-2016, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*: “Conditions of approval from prior SERs should be reviewed during reviews of updates to the safety basis documents. Such conditions of approval should be closed or an explanation provided in the SER as to why they remain open.”

[3.2] Does the contractor have a process for tracking conditions of approval to closure (including any required compensatory measures), verifying satisfactory closure of the condition of approval, notifying DOE when a Condition of Approval has been satisfied, and managing any conditions of approval until they are closed?

Yes. NPO officials stated that they have a database called ePegasus for tracking COAs to conclusion. The inquiry team performed a cursory review of this database and found that it is being used as described by the procedures. NPO also indicated that every COA now has a closure deadline and they meet routinely with CNS personnel to discuss the status of any outstanding COAs. On the contractor side, CNS has a spreadsheet that they use to track COAs independently of NPO.

Over several iterations of the DSAIP, the contractor has committed to working down a category of “legacy” COAs that existed prior to the standing up NPO. Originally there were 40 COAs in this category and five currently remain open. The current iteration of the DSAIP includes a task to develop a metrics for tracking progress in resolving the remaining five COAs. This is targeted to be completed in FY18. Closure activities for the five COAs are currently not identified in the schedule.

[3.3] Does the contractor have established processes and procedures for verifying safety basis implementation following initial approval or updates to DSAs and TSRs?

Yes. The inquiry team reviewed the contractor's procedures, eSTARs entries, and IVR shared folder. Based on this review, the inquiry team believes that the contractor has an adequate procedure for verifying safety basis implementation and is following the procedure.

[3.4] Is there a documented record (such as for the last 5 years) that the contractor has routinely met the annual DSA update requirements and that these documents have been reviewed and approved by DOE?

No. Starting in 2015, the Sitewide SAR was submitted by the contractor and was not approved by NPO. In 2016, the contractor was unable to meet the annual DSA update requirements for four SARs and HARs, including the Sitewide, Transportation, W76, and W78. As the contractor's submissions were rejected a backlog developed and eventually the contractor stopped submitting them altogether. This process culminated in three rejected submissions and five approvals total in 2017. Overall, this resulted in 11 of 16 SARs and HARs not being approved for annual updates in 2017. In particular, the Sitewide SAR has not been successfully updated since 2014.

In lieu of completing the 2017 annual updates, the contractor submitted, and NPO approved, a schedule to "rework" three previously submitted annual updates and catch up on the remainder with calendar year 2018 annual updates. If the contractor successfully executes on its plan to submit and obtain approval of a full slate of 2018 annual updates, it will be back on course to meeting the DSA maintenance requirements.

In addition, CNS officials indicated that one reason for the initial rejections was overly complicated annual updates that encompassed many changes to the safety basis. In the future, CNS wants to handle these changes via separate change packages and only include minor changes in the annual updates. They asserted that this would allow them to have adequate time to respond to NPO comments while being able to meet the annual update requirements in Part 830.

[3.5] Are there requirements in the contractor's USQ process for establishing JCOs?

Yes. CD-3014, *Pantex Plant Unreviewed Safety Question Procedure*, includes a process for establishing a JCO. That procedure includes required content for the JCO and specifies that a JCO is a "temporary (i.e., less than one year)" authorization to operate outside of the NPO approved safety basis. The inquiry team's review of the USQ/HCE application indicates that the process for establishing JCOs is being followed and documented.

[3.6] *Has the DSA Improvement Plan been implemented? If not implemented, has it been revised or abandoned?*

No. The contractor is currently implementing the DSAIP as revised. The contractor asserts that there has been steady progress on a number of items contained in the most recent update to the DSAIP. Of the three items scheduled for completion in 2017, the contractor has completed two. Of the 17 items scheduled for completion in 2018, the contractor has completed about three.

In addition, the DSAIP itself lacks detail. The plan is only a list of titles of activities with a year targeted for completion. There is not any detail of the scope and objectives for each task, nor the resources required for completion. While the contractor asserted that they understand the items listed and the tasks involved, the inquiry team cannot independently verify that the task list is achievable and on-track to meet the schedule for 2018.

[3.7] *Is there evidence that safety basis assessments are performed, corrective actions identified and closed, and extent of condition and effectiveness reviews conducted as necessary?*

No. The contractor has processes and procedures for performing management assessments and IVRs. There is evidence that management assessments are performed on a five-year schedule, i.e., 20% a year. While a few management assessments have been missed, the inquiry team review indicates that the contractor is generally holding to that schedule.

However, the contractor only performs IVRs when there is a new TSR control or a substantial change to an existing TSR control. DOE Guide 423.1-1B, *Implementation Guide for Use in Developing Technical Safety Requirements*, specifies that IVRs should be conducted every 3 years for controls susceptible to the degradation to human knowledge (e.g., procedural controls). DOE Guide 423.1-1B also specifies that controls dependent on hardware functionality should be re-verified at least every five years. The contractor is not meeting the three-year guidance for specific administrative controls.

Furthermore, regarding management assessments, the *Documented Safety Analysis Improvement Plan Review and Recommendations* noted that a 2016 assessment of TSR violations found that the control owner assessments associated with TSR violations did not identify any improvements or weaknesses in implementation. In addition, some assessments consisted only of a paper review with no interviews of operators or field observations of the controls. The inquiry team's review of the management assessments shows a continued trend of no findings from 2016 to present.

Finally, the contractor's policies and procedures do not include an appropriate methodology for determining sample sizes for an assessment. Previously, the contractor relied on MIL-SPEC-1916, *Department of Defense Test Method Standard - DOD Preferred Methods for Acceptance of Product*. That standard is not appropriate

for nuclear facilities per ASME-NQA-1, *Quality Assurance Requirements for Nuclear Facility Applications*. The contractor agrees with this assessment, and is developing an alternative methodology. The time frame for completion of an alternative methodology is not determined.

D. Appendix—Inquiry Process and Methods

Process

In 2015, the Chief of Nuclear Safety issued a set of Standard Review Plans for Office of Environmental Management facilities. The SRPs were designed to strengthen line management oversight and federal monitoring of defense nuclear facilities. The SRP describes how the DOE nuclear safety management regulation (10 CFR Part 830) establishes requirements related to management systems and processes that are needed to ensure quality and safety are integrated into nuclear facility life cycle, which include facility design, construction, commissioning, operations, transitions, decommissioning, and environmental restoration. Safety basis requirements are addressed in Subpart B of the regulation. Safety basis is defined as the “the documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated safely in a manner that adequately protects workers, the public and the environment.”

The SRP further states that the outputs of the safety basis process form a type of “license” by which DOE authorizes the contractor to conduct nuclear operations and includes the DSA, TSR, SER and contractor USQ process. Figure A-1 shows how these elements of DOE’s safety basis interact.

The SRP for Nuclear Safety Basis Program Reviews, consists of five volumes. It provides information to help strengthen the technical rigor of line management oversight and federal monitoring of DOE nuclear facilities. It provides a primer on the safety basis development and documentation process used by the DOE. It also provides a set of questions for the review of safety basis programs and documents of nuclear facilities at various stages of the facility life cycle. Based on the inquiry focus areas, the following three volumes were applicable:

- Volume 1 – Overview and Management Oversight
- Volume 3 – Nuclear Safety Basis Program Review During Facility Operations and Transitions
- Volume 5 – Nuclear Safety Basis Program Review of TSRs, USQs and SERs

Because NNSA has additional standards for nuclear explosive operations, the inquiry team also derived a set of questions tied to requirements in DOE-NA-Standard-3016-2016, *Hazard Analysis Reports for Nuclear Explosive Operations*.

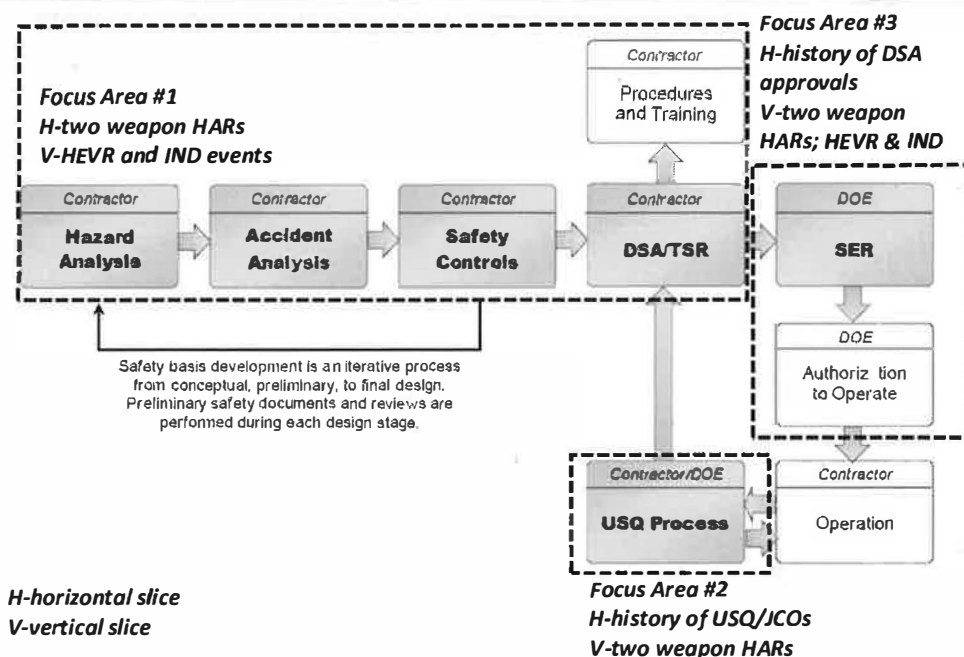


Figure D-1. Inquiry Focus areas Mapped onto the Elements of the Safety Basis.

Methods

From this set of charge questions, the inquiry team down-selected to a short-list of charge questions for further evaluation, this down selection process considered the known information at the inception of the safety inquiry. This includes information from the following sources:

- Site Reports from Resident Inspectors
- Staff Reports from OTD Reviews
- Information from Board Member Visits

We further used this information to select approaches for “horizontal” and “vertical” slices for each inquiry focus area. Horizontal slices are designed to achieve a broad perspective across the safety basis elements. Whereas, vertical slices are designed to achieve a detailed perspective at specific requirements and situations. Figure D-1 shows a mapping of the selected charge questions onto the elements of the safety basis. The figure also shows the horizontal and vertical slices for each focus area.

Development of Lines of Inquiry

Tables D-1 to D-3 show a summary of the inquiry focus area and the horizontal and vertical slices. These tables also show the specific down selected charge questions for each of the safety basis elements. Lastly, these tables show potential source documents to answer the charge question. Note that some of these charge questions were tailored for the Pantex Inquiry from the initial SRP source documents. These documents were used to develop a preliminary document request list. This document list will be the starting point to develop a formal

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	information request to DOE on documents not currently available for the team to review.
<i>Conduct of Site Interactions</i>	The inquiry team's interactions with the Pantex site took the form of formal document requests via the site liaison, questions and discussions at the site focused on each charge question, tours of bays and cells to observe operations, and viewings of information systems for tracking and assessments.
<i>Records</i>	A complete copy of all documents relied upon to complete this report is held by the Office of General Counsel.

Table D-1. Initial charge questions associated with Focus Area #1, Controls to prevent/mitigate unscreened weapon hazard scenarios.		
<i>Horizontal Slice: Focus on the contents of two HARs.</i>		
<i>Vertical Slice: The events of concern are those with significant hazards to the public: IND, and HEVR.</i>		
#	Hazard Evaluation and Analysis Charge Questions	Documents Reviewed
[1.1]	Did the PPC apply controls that are implemented and maintained as part of the facility, equipment or specific operation?	W76 & W78 HARs
[1.2]	Are the selected controls designated as Safety Class or Safety Significant according to DOE-STD-3009, and are the effectiveness of these controls evaluated in the accident analysis?	
[1.3]	Did the PPC request weapon response from the DA(s) for all scenarios where the hazards are not screened, an anticipated weapon response is not assumed, or a weapon response has not already been provided?	
#	Accident Selection and Analysis Charge Questions	Documents Reviewed
[1.4]	When the hazard scenarios , (1) are not screened for IND or HEVR consequences, or (2) for which weapon responses are assumed, are the hazard scenarios designated as Design Basis Accidents (DBAs) and retained for consideration in the accident analysis section per DOE-STD-3009?	W76 & W78 HARs
[1.5]	Are only NPH initiating event probability information used to dismiss the need to apply controls for plausible accident scenarios resulting in IND or HEVR?	

Table D-2. Initial Lines of Inquiry associated with Focus Area #2, Implementation of Unreviewed Safety Question process.

Horizontal Slice: Survey of USQ/JCO history over the past 5-years.

Vertical Slice: Assessment of Specific USQ/JCO documentation associated with W76 & W78 programs.

#	USQ Charge Questions	Documents Reviewed
[2.1]	Does the USQ procedure state that the contractor will update USQD documents and reports and submit to DOE annually a summary description of all USQDs performed?	USQ Procedures
[2.2]	Is the USQ procedure and its integration into the facility change control process described by a governing policy?	
[2.3]	Does the USQ procedure include a detailed USQ process description?	
[2.4]	Does the USQ procedure mandate that no operational restrictions can be relaxed prior to review by DOE?	
[2.5]	Does the USQ procedure require that all Potentially Inadequate Safety Analysis issues are subject to USQ screening?	
[2.6]	Is DOE sufficiently involved in the USQD process to ensure that the adequacy of protection and safety classifications of equipment is justified by safety basis documents?	
[2.7]	Does the USQ procedure indicate that formal training and qualification program will be established for all site personnel involved in the USQ process?	
[2.8]	Are the necessary educational background, knowledge of facility and DOE requirements, and familiarity with the facility safety basis clearly defined for site personnel involved in the USQ process?	
[2.9]	Does the USQ procedure indicate that the list of people certified for USQD processes will be kept current?	
[2.10]	Is DOE kept current with respect to all phases of USQ resolution, including notification of discoveries, review of USQDs, and review of corrective actions?	
#	Safety Basis Implementation and Maintenance	Documents Reviewed
[2.11]	Is there any indication in the contractor's USQ procedures that JCOs will be closed in a timely matter within a year of approval? Is there evidence that JCOs have been closed within a year of their approval?	JCO closure history for past 5-years

Table D-3. Initial Lines of Inquiry associated with Focus Area #3, Maintenance of the DSA.		
<i>Horizontal Slice: Survey of NNSA DSA approval documentation (e.g., SERs and COAs) over last 5-year period.</i>		
<i>Vertical Slice: Assessment of: (1) Annual DSA update scope, (2) IVRs, and (3) Contractor Self-Assessments, that have USQ/JCO topics associated with W76 & W78 programs.</i>		
#	Safety Basis Development	Documents Reviewed
[3.1]	Does the contractor have an established performance record of producing high quality safety basis documents (e.g., limited DOE rejections of DSAs/TSRs, no significant outstanding DOE/DNFSB Assessment findings or issues, and limited SER Conditions of Approval)?	NPO approval documents SERs COAs
[3.2]	Does the contractor have a process for tracking conditions of approval to closure (including any required compensatory measures), verifying satisfactory closure of the condition of approval, notifying DOE when a Condition of Approval has been satisfied, and managing any conditions of approval until they are closed?	COA procedures from contractor
#	Safety Basis Implementation and Maintenance	Documents Reviewed
[3.3]	Does the contractor have established processes and procedures for verifying safety basis implementation following initial approval or updates to DSAs and TSRs?	IVR procedures, IVR shared drive, ESTARS database
[3.4]	Is there a documented record (such as for the last 5 years) that the contractor has routinely met the annual DSA update requirements and that these documents have been reviewed and approved by DOE?	5-year history of annual updates
[3.5]	Are there requirements in the contractor’s USQ process for establishing JCOs?	USQ procedure, USQ/HCE Application
[3.6]	Has the DSA Improvement Plan been implemented as proposed, revised or abandoned?	DSAIP Revisions over last 5-years
#	Self-Assessment	Documents Reviewed
[3.7]	Is there evidence that safety basis assessments are performed, corrective actions identified and closed, and extent of condition and effectiveness reviews conducted as necessary?	AB self-assessment procedures, findings, reports

E. Appendix—Documents Reviewed

Focus Area #1 Documents

Topic	Filename of Document Reviewed (without .pdf, or .docx, or other extension)
Procedures	MNL-293084, Pantex Writer's Manual for Technical Procedures PX-3169, Facility Structures, Systems, and Components Work Authorization Permit WI 02.06.03.03.02, Authorize Work In - On Facility And Facility Systems and Components for Operations, Maintenance, and Subcontractor Activities N76-501738-MD4 000-2-0836x3-anl N78-422069-DIS2 N78-422305-DIS2
Hoist Hook Continuity	TP-MN-05416 _ Hoist Hook Continuity Test_ DF.5N.ISI.1 Hoist Hook Continuity Latest WO
Fire Penetration Seals	2012-PTX-LL-0304 _ Assumptions Used as a Technical Basis Must Be Validated _ 3-14-2012 2014-PTX-LL-0702 _ Understand How to Manage Unknown Conditions and Risk _ 7-17-14 AB-15-28_15-1523761_ Submittal of AB-15-28 389633 396442 ESS-13-3261-1 PIESummary RID4004
Falling Technician	Letter from CNS to NPO, May 10, 2018 CB 588.65 fallin_man_awareness_small_ fallin_man_awareness_small_ ST 375.76 ST 588.64 Briefing ST 588
Wrist Strap Checker	WO 0029833162, Wrist strap checker Wrist Strap Checker Calibration SDS EEE-06-0037 P7-2003
Records for Qualified SAE Staff	AB-15-28-R1_18-1797870_ Submittal of AB-15-28-R1 ABA III - USQE - USQR - USQS - ENG-13-TSR-63

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Table 68	AB-16-16_17-1702513_Submittal of AB-16-16 295,479 7_Table-0068
HAR	1_SRD_W76 HAR_Rev_71 FB.SRD_W78_Rev_62 1 SRD_W78 HAR_Rev_63
Overhoff	P7-0804
PISA Regarding Weapon Response Discrepancies	HASBD PIE USQD
Tool Shelf	2630 4864
PIE Summaries	RID 21506 - Reference item 9 from agenda RID 21540 - Reference item 7 from agenda RID 21586 - Reference item 16 and 17 from agenda

Focus Area #2 Documents

Topic	Filename of Document Reviewed (without .pdf, .docx, or other extension)
USQ Processes	1-PX-2630-UNC-1, Unreviewed Safety Question Determination Form (UNC PART I) CD-3014, Pantex Plant Unreviewed Safety Questions Procedure DESKAID-0751, Process for Declaring and Notifying a PISA or PUSQ Exists PX-2630-UCN-3, Unreviewed Safety Question Determination Form (UNC PART III) PX-2630-UNC-2, Unreviewed Safety Question Determination (UNC PART II) PX-4633_Problem Identification and Evaluation Processing Form PX-4864E-UCNI, Review of Hazards Analysis and Safety Basis Documents PX-5993, Potentially Inadequate Safety Analysis or Positive Unreviewed Safety Question Notification Form PX-6199_Evaluation and Disposition of Immature New Information SB-MIS-940579_Rev_7_SB-MIS-940579, Documented Safety Analysis Change Control Supporting the USQ Process WI 02.03.11.1.08, Processing Problem Identification and Evaluation Relative to Safety Basis CDNS Information Letter from NPO to CNS, Approval of CD-3014, Issue 19, dated May 30, 2018
USQ Determinations	Notification of Delay in Resolution of PUSQ, May 10, 2018 ESS-17-3434 USQD-17-3434-A AB-16-01_17-1664513_Submittal of AB-16-01

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JCOs	AB-18-08 & AB-18-08-R1_COR-NPO-10 NSE-2.2.2018-778820 PX-JCO-18-05_Rev_1_W78 Cut and Cap PX-JCO-14-03_Rev_3 PX-JCO-14-04_Rev_5 PX-JCO-14-05_Rev_5 PX-JCO-15-01_Rev_2 PX-JCO-15-03_Rev_4 PX-JCO-15-05_Rev_2 PX-JCO-15-06_Rev_1 PX-JCO-15-07_Rev_2 PX-JCO-17-01_Rev_1_Building12-86FireDamperFinalCC1 PX-JCO-17-02_Rev_1 (with SB-TSD-942099) PX-JCO-17-03_Rev_1 PX-JCO-17-05_Rev_1 PX-JCO-17-06_Rev_2 PX-JCO-17-08_Rev_1 PX-JCO-17-09_Rev_2 PX-JCO-17-12_Rev_2 PX-JCO-17-18_Rev_2 PX-JCO-17-18_Rev_1 PX-JCO-17-19_Rev_1 PX-JCO-18-02_Rev_2 PX-JCO-18-03_Rev_1 PX-JCO-18-06_Rev_1 PX-4307_AB-17-48 PX-4307_AB-15-32 PX-JCO-14-05_AB-15-32
PIE Summaries	PIESummary_RID21506 PIE Summary_10063 PIE Summary_10069 PIE Summary_10398 RID 10620 PIE Summary_10843 PIE Summary_10927 PIE Summary_11166 PIE Summary_11637 PIE Summary_11706 PIE Summary_11999 PIE Summary_12117 PIE Summary_13383 PIE Summary_13467 PIE Summary_13838 PIE Summary_13951 PIE Summary_14232 PIE Summary_14246 PIE Summary_14740

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	PIE Summary_17912 PIE Summary_18019 PIE Summary_18135 PIE Summary_18428 PIE Summary_18572 PIE Summary_18574 PIE Summary_18691 PIE Summary_18750 PIE Summary_18814 PIE Summary_18815 PIE Summary_18816 PIE Summary_18909 PIE Summary_18996 PIE Summary_19004 PIE Summary_19077 PIE Summary_19277 PIE Summary_19299 PIE Summary_19361 PIE Summary_19488 PIE Summary_19582 PIE Summary_19591 PIE Summary_19892 PIE Summary_19982 PIE Summary_19993 PIE Summary_19994 PIE Summary_19995 PIE Summary_20062 PIE Summary_20091 PIE Summary_20103 PIE Summary_20182 PIE Summary_20195 PIE Summary_20257 PIE Summary_20479 PIE Summary_20518 PIE Summary_20670 PIE Summary_20855 PIE Summary_20982 PIE Summary_20986 PIE Summary_21162 PIE Summary_21166 PIE Summary_21216 PIE Summary_21340
Change Packages	PX-4307_AB-14-49 _TSRs_AB-14-49 _W76_AB-14-49 PX-4307_AB-16-01

	<p>_Site_AB-16-01(U) _Site_AB-16-01 PX-4307_AB-16-07 SB-TSD-941418_Rev_116 AB-16-07_HP _BC_AB-16-07 _Mass_AB-16-07 _Site_AB-16-07(U) _Site_AB-16-07 _Staging AB-16-07 _Staging_AB-16-07 _Transportation_AB-16-07 _TSR_AB-16-07 PX-4307_AB-16-07-R1 SB-TSD-941418_Rev_116 AB-16-07-R1 _Bays&Cells_AB-16-07-R1 _Mass_AB-16-07-R1 _Site_AB-16-07-R1 _Transportation_AB-16-07-R1 _TSR_AB-16-07-R1 _Vac_AB-16-07-R1 _W80_AB-16-07-R1 PX-4307_AB-17-10-R1 SB-TSD-941418_AB-17-10-R1 SER Comment resolution table _TSRs_AB-17-10-R1 _W76_AB-17-10-R1 _Site_AB-16-16(U) _Site_AB-17-40 SB-TSD-941418_AB-17-43 _Mass_AB-17-43 _Site_AB-17-43 _TSR_AB-17-43 _W76_AB-17-43 _Transportation_AB-17-60 _LINAC_AB-17-62 _Mass_AB-17-62 _Site_AB-17-62 _Vac_AB-17-62 _W88_AB-17-62 _LINAC_AB-18-06 _Site_AB-18-06 _W88_AB-18-06</p>
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SERs	AB-13-30_COR-NPO-10_NSE-9_18_2013-535856 AB-13-42 SER AB-13-43 and AB-13-43-R1 SER AB-13-52 SER AB-13-52-A1 - JCO 13-08 AB-13-55_COR-NPO-10_NSE-9_18_2013-535880 AB-13-63 JCO for W76 per Issue G Weapon Response (3) AB-13-64 and AB-13-64-R1 AB-13-79-A1 AB-13-79 AB-14-02 and AB-14-02-R1 SER AB-14-16 JCO for B61 AB-14-27 SER AB-14-30 SER AB-14-41 SER AB-14-48 SER AB-14-51 SER AB-14-52 SER AB-15-19 SER AB-15-21 - JCO for Weighing Operations in Mass Prop Facilities AB-15-27_SER AB-15-30_SER AB-15-31 and AB-15-31-R1_COR-NPO-10_NSE-4.29.2015-624375 AB-15-32_SER AB-15-34 & AB-15-34-R1 AB-15-36_SER AB-15-40_SER AB-15-41_JCO-15-03_SER AB-15-42-R1 JCO 15-04-R1 (W-76)_SER AB-15-43-R1 and AB-15-43_COR-NPO-10_NSE-7.29.2015-635709 AB-15-44_SER AB-16-06 Rev to JCO-15-03 W76 Bay Operations AB-16-07 & AB-16-07-R1_SER AB-16-10_SER AB-16-14_SER AB-16-15_SER AB-16-20 & AB-16-20 R1 AB-16-25_SER AB-16-31_SER AB-17-07 and AB-17-07-R1_SER AB-17-08-R1_SER AB-17-10-R1_SER AB-17-12_JCO-17-02_SER AB-17-13_PX-JCO-14-04_SER AB-17-20, JCO-17-03 AB-17-30 - JCO 17-07 W78 Stuck Component
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	AB-17-35_SER _Site_AB-17-40 AB-17-40_COR-NPO-10 NSE-4.17.2017-730646 AB-17-43_SER AB-17-44_SER AB-17-49_JCO 17-10 AB-17-52_COR-NPO-10 NSE-8.18.2017-750611 AB-17-54_COR-NPO-10 NSE-8.18.2017-750606 AB-17-60_SER_ 3 Day Transportation AB-17-62_SER AB-17-66_SER AB-17-67_SER AB-18-03_JCO for 12-117 Loading Dock_SER AB-18-06_Hose Whip Updates AB-18-11_SER SB-TSD-941418_AB-17-43 _Mass_AB-17-43 _Site_AB-17-43 _TSR_AB-17-43 _W76_AB-17-43 _LINAC_AB-17-62 _Mass_AB-17-62 _Site_(U)_AB-17-62 _Site_AB-17-62 _TSRs_AB-17-62 _Vac_AB-17-62 _W88_AB-17-62 _Transportation_AB-17-60 SB-TSD-941418_AB-18-06 _LINAC_AB-18-06 _Site_AB-18-06 _TSRs_AB-18-06 _W88_AB-18-06
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Focus Area #3 Documents

Topic	Filename of Document Reviewed (without .pdf, .docx, or other extension)
NPO Process	NPO 3 1 3 4 R4 - Safety Basis Program 050818
Annual Updates	Schedule and Scope of Annual Updates", Letter from CNS to NPO, December 7, 2017 NPO Approval of "Schedule and Scope of Annual Updates", February 1, 2018 Letter from CNS to NPO, March 7, 2018 Approval AB-17-01, Linac SAR 2016 Annual Update- (Timeliness of Annual Updates), March 2, 2017

	<p>CNS Response to NPO on Approval, AB-17-01, LINAC SAR 2016, March 22, 2017 NPO Assessment of Site SAR Chapter 18, Approved Equipment Program (AEP) Return of AB-15-28-R1, May 7, 2018 AB-13-42 SER AB-13-49 W84 HAR 2013 Annual Update AB-16-15_SER AB-17-08-R1_SER AB-17-48_COR-NPO-10 NSE-11.17.2017-767299 _Bays & Cells_AB-17-48 _LINAC_AB-17-48 _Mass_AB-17-48 _Site_AB-17-48 (UCNI portion) _Site_AB-17-48 _TSRs_AB-17-48 _Vac_AB-17-48 PX-4307 _Site_AB-18-17 _Transportation_AB-18-17 _TSRs_AB-18-17</p>
NPO Approval and Rejections	<p>AB-12-56_COR-NPO-10_NSE-6_19_2013-517450 AB-13-06_COR-NPO-10_NSE-3_3_2014-563677 AB-13-13_COR-NPO-10_NSE-3_3_2014-563580 AB-13-18_COR-NPO-10_NSE-10_2_2013-539259 AB-13-25_COR-NPO-10_NSE-6_17_2013-516791 AB-13-27_COR-NPO-10_NSE-6_20_2013-517544 AB-13-28_COR-NPO-10_NSE-7_24_2013-525066 AB-13-39_COR-NPO-10_NSE-6_11_2013-515871 AB-13-45_COR-NPO-10_NSE-7_3_2013-520723 AB-13-50_COR-NPO-10_NSE-9_12_2013-534712 AB-13-53_COR-NPO-10_NSE-12_11_2013-552025 AB-13-68_COR-NPO-10_NSE-4_10_2014-570779 AB-13-74 and AB-13-74-R1_COR-NPO-10_NSE-1_14_2014-556005 AB-13-78_COR-NPO-10_NSE-1_14_2014-556000 AB-13-85_COR-NPO-10_NSE-3_6_2014-564372 AB-14-11_COR-NPO-10_NSE-5_1_2014-574072 AB-14-12_COR-NPO-10_NSE-7_28_2014-586668 AB-14-13_COR-NPO-10_NSE-1_20_2015-609945 AB-14-15_COR-NPO-10_NSE-11_13_2014-602663 AB-14-26_COR-NPO-10_NSE-11_13_2014-602662 AB-14-29_COR-NPO-10_NSE-12_15_2015-606153 AB-14-31_COR-NPO-10_NSE-10_30_2014-600930 AB-14-34_COR-NPO-10_NSE-7_16_2014-585066 AB-14-35_COR-NPO-10_NSE-11_20_2014-603619 AB-14-38_COR-NPO-10_NSE-1_15_2015-609576</p>

AB-14-40_COR-NPO-10_NSE-7_14_2014-584641
AB-14-42_COR-NPO-10_NSE-9_29_2014-595371
AB-14-44_COR-NPO-10_NSE-10_30_2014-600906
AB-14-53_COR-NPO-10_NSE-2_12_2015-613446
AB-15-03_COR-NPO-10_NSE-1_15_2015-609589
AB-15-04 and AB-15-04-R1_COR-NPO-10_NSE-5.12.2015-625903
AB-15-13_COR-NPO-10_NSE-7.30.2015-635952
AB-15-14_COR-NPO-10_NSE-7.1.2015-632342
AB-15-18 and AB-15-18-R1_COR-NPO-10_NSE-11.16.2015-652025
AB-15-22_COR-NPO-10_NSE-12.15.2015-655545
AB-15-24_COR-NPO-10_NSE-9_12_2016-695553
AB-15-25_COR-NPO-10_NSE-8.31.2015-640866
AB-15-33_COR-NPO-10_NSE-11.9.2015-651446
AB-15-34 and AB-15-34-R1_COR-NPO-10_NSE-6_13_2016-681592
AB-15-35_COR-NPO-10_NSE-11.6.2015-651194
AB-15-37 correction_COR-NPO-10_NSE-1.27.2016-660838
AB-15-37_COR-NPO-10_NSE-11.16.2015-652022
AB-15-38 and AB-15-38-R1_COR-NPO-10_NSE-11.4.2015-650778
AB-15-39_COR-NPO-60_ESH-1.21.2016-659818
AB-16-01_COR-NPO-10_NSE-2_16_2017-720969
AB-16-02_COR-NPO-10_NSE-2.17.2016-664141
AB-16-03_COR-NPO-10_NSE-2.8.2016-662580
AB-16-04_COR-NPO-10_NSE-2.17.2016-664137
AB-16-11_COR-NPO-10_NSE-8_3_2016-689407
AB-16-16_return with no action_COR-NPO-10_NSE-8.8.2017-748657
AB-16-21_COR-NPO-10_NSE-2_15_2017-720874
AB-16-23_COR-NPO-10_NSE-6_20_2016-682361
AB-16-23_SER Addendum_COR-NPO-10_NSE-7_7_2016-685634
AB-16-26_COR-NPO-10_NSE-11_1_2016-704452
AB-16-27_COR-NPO-10_NSE-4.3.2017-728755
AB-16-28_COR-NPO-10_NSE-2_16_2017-720966
AB-17-01_COR-NPO-10_NSE-3_2_2017-723331
AB-17-02_COR-NPO-10_NSE-2_16_2017-720972
AB-17-03_COR-NPO-10_NSE-2_15_2017-720860
AB-17-04-R1_COR-NPO-10_NSE-4.19.2018-789242
AB-17-05_COR-NPO-10_NSE-2_16_2017-720961
AB-17-06_returned with no action_COR-NPO-10_NSE-7.6.2017-743511
AB-17-14 (return for rework)_COR-NPO-10_NSE-4.20.2017-731173
AB-17-15_COR-NPO-10_NSE-6.6.2017-738290
AB-17-16_COR-NPO-10_NSE-6.8.2017-738770
AB-17-18_COR-NPO-10_NSE-6.8.2017-738886
AB-17-24_COR-NPO-10_NSE-7.20.2017-745879
AB-17-37_Return with no action_COR-NPO-10_NSE-9.25.2017-756650
AB-17-50_COR-NPO-10_NSE-10.10.2017-760829

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	AB-17-51_return_COR-NPO-10 NSE-11.15.2017-766903
NPO SERs and COAs	AB-08-29-A32_COR-NPO-10 NSE-3.22.2018-785628 AB-11-24-R2_COR-NPO-10_NSE-9_17_2013-535476 AB-12-46_COR-NPO-10_NSE-7_9_2013-521520 AB-12-56_COR-NPO-10_NSE-6_19_2013-517450 AB-12-62-R1_COR-NPO-10_NSE-6_18_2013-517036 AB-12-86_COR-NPO-10_NSE-12_11_2013-552031 AB-13-06_COR-NPO-10_NSE-3_3_2014-563677 AB-13-13_COR-NPO-10_NSE-3_3_2014-563580 AB-13-14_AB-13-14-R1 and AB-13-14-R2_COR-NPO-10 NSE-6 18 2013-517125 AB-13-18_COR-NPO-10_NSE-10_2_2013-539259 AB-13-20_COR-NPO-10_NSE-9_23_2013-536673 AB-13-24 and AB-13-24-R1_COR-NPO-10 NSE-6 20 2014-581461 AB-13-24 and AB-13-24-R1_TRC Comments_COR-NPO-10_NSE- 8_27_2014-590920 AB-13-25_COR-NPO-10_NSE-6_17_2013-516791 AB-13-26-R2_COR-NPO-10_NSE-11_20_2013-548726 AB-13-27_COR-NPO-10_NSE-6_20_2013-517544 AB-13-28_COR-NPO-10_NSE-7_24_2013-525066 AB-13-29_COA Approval_COR-NPO-10 NSE-5 13 2013-510976-1 AB-13-29_COR-NPO-10 NSE-4 5 2013-504250 AB-13-31_COR-NPO-10_NSE-7_3_2013-520730 AB-13-35_COR-NPO-10_NSE-8_7_2013-527915 AB-13-38 COA Approval_COR-NPO-10 NSE-5 3 2013-509380 AB-13-38_COR-NPO-70 PP-4 10 2013-504923 AB-13-39_COR-NPO-10 NSE-6 11 2013-515871 AB-13-43-A1_COR-NPO-10_NSE-9_15_2014-593196 AB-13-44_COR-NPO-10_NSE-6_17_2013-516887 AB-13-45_COR-NPO-10_NSE-7_3_2013-520723 AB-13-48_COR-NPO-10_NSE-8_2_2013-527104 AB-13-50_COR-NPO-10_NSE-9_12_2013-534712 AB-13-51_COR-NPO-10_NSE-3_20_2014-566888 AB-13-53_COR-NPO-10_NSE-12_11_0213-552025 AB-13-57_COR-NPO-10_NSE-12_19_2013-553729 AB-13-58_COR-NPO-10_NSE-4_28_2014-573190 AB-13-59 and AB-13-59-R1_(removal of TRC)_COR-NPO-10_NSE- 2_5_2014-559886 AB-13-59 and AB-13-59-R1_COR-NPO-10_NSE-1_31_2014-559217 AB-13-60_COR-NPO-10_NSE-6_20_2013-517680 AB-13-61_COR-NPO-10_NSE-10_25_2013-544116

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AB-13-66_COR-NPO-10_NSE-10_31_2013-544970
AB-13-67_COR-NPO-10_NSE-10_31_2013-544965
AB-13-68_COR-NPO-10_NSE-4_10_2014-570779
AB-13-70_COR-NPO-10_NSE-6_26_2014-582401
AB-13-74 and AB-13-74-R1_COR-NPO-10_NSE-1_14_2014-556005
AB-13-75 and AB-13-75-R1_COR-NPO-10_NSE-3.26.2015-619339
AB-13-77-R1_COR-NPO-10_NSE-8_23_2013-530493
AB-13-78_COR-NPO-10_NSE-1_14_2014-556000
AB-13-82_COR-NPO-10_NSE-2_7_2014-560389
AB-13-83_COR-NPO-10_NSE-2_21_2014-562250
AB-13-85_COR-NPO-10_NSE-3_6_2014-564372
AB-13-86_COR-NPO-10_NSE-10_25_2013-544124
AB-14-03_COR-NPO-10_NSE-5_14_2014-575821
AB-14-05_COR-NPO-10_NSE-10_25_2013-544120
AB-14-07 and AB-14-07-R1_COR-NPO-10_NSE-10_12_2016-701588
AB-14-10 and AB-14-10-R1_COR-NPO-10_NSE-10_24_2014-600201
AB-14-11_COR-NPO-10_NSE-5_1_2014-574072
AB-14-12_COR-NPO-10_NSE-7_28_2014-586668
AB-14-13_COR-NPO-10_NSE-1_20_2015-609945
AB-14-14_COR-NPO-10_NSE-12_4_2014-605153
AB-14-15_COR-NPO-10_NSE-11_13_2014-602663
AB-14-17_COR-NPO-10_NSE-9_15_2014-593193
AB-14-21_COR-NPO-10_NSE-8_28_2014-591153
AB-14-26_COR-NPO-10_NSE-11_13_2014-602662
AB-14-29_COR-NPO-10_NSE-12_15_2015-606153
AB-14-31_COR-NPO-10_NSE-10_30_2014-600930
AB-14-32_COR-NPO-10_NSE-6_16_2014-580643
AB-14-33_COR-NPO-10_NSE-2_5_2014-559907
AB-14-34_COR-NPO-10_NSE-7_16_2014-585066
AB-14-35_COR-NPO-10_NSE-11_20_2014-603619
AB-14-36-R1_COR-NPO-10_NSE-3_18_2014-566549
AB-14-37_COR-NPO-10_NSE-10_29_2014-600710
AB-14-38_COR-NPO-10_NSE-1_15_2015-609576
AB-14-40_COR-NPO-10_NSE-7_14_2014-584641
AB-14-42_COR-NPO-10_NSE-9_29_2014-595371
AB-14-44_COR-NPO-10_NSE-10_30_2014-600906
AB-14-47_COR-NPO-10_NSE-9_9_2014-592509
AB-14-49_COR-NPO-10_NSE-12_18_2014-606782
AB-14-50_COR-NPO-10_NSE-10_2_2014-596282
AB-14-53_COR-NPO-10_NSE-2_12_2015-613446
AB-15-02_COR-NPO-10_NSE-3.31.2015-620272
AB-15-03_COR-NPO-10_NSE-1_15_2015-609589
AB-15-04 and AB-15-04-R1_COR-NPO-10_NSE-5.12.2015-625903
AB-15-05 and AB-15-05-R1_COR-NPO-10_NSE-7.1.2015-632427
AB-15-07_COR-NPO-10_NSE-8.24.2015-639848

AB-15-08_COR-NPO-10_NSE-10.14.2015-647429
AB-15-09_COR-NPO-10_NSE-3.19.2015-618419
AB-15-10_COR-NPO-10_NSE-7.1.2015-632339
AB-15-11_COR-NPO-10_NSE-9.1.2015-641008
AB-15-13_COR-NPO-10_NSE-7.30.2015-635952
AB-15-14_COR-NPO-10_NSE-7.1.2015-632342
AB-15-15 and AB-15-15-R1_COR-NPO-10_NSE-4.30.2015-624504
AB-15-16_COR-NPO-10_NSE-7.10.2015-633392
AB-15-17_COR-NPO-10_NSE-9.1.2015-641071
AB-15-18 and AB-15-18-R1_COR-NPO-10_NSE-11.16.2015-652025
AB-15-22_COR-NPO-10_NSE-12.15.2015-655545
AB-15-23_COR-NPO-10_NSE-1 26 2015-610629
AB-15-24_COR-NPO-10_NSE-9 12 2016-695553
AB-15-25_COR-NPO-10_NSE-8.31.2015-640866
AB-15-26_COR-NPO-10_NSE-2 11 2015-613386
AB-15-33_COR-NPO-10_NSE-11.9.2015-651446
AB-15-35_COR-NPO-10_NSE-11.6.2015-651194
AB-15-37 correction_COR-NPO-10_NSE-1.27.2016-660838
AB-15-37_COR-NPO-10_NSE-11.16.2015-652022
AB-15-38 and AB-15-38-R1_COR-NPO-10_NSE-11.4.2015-650778
AB-15-39_COR-NPO-60_ESH-1.21.2016-659818
AB-15-45_COR-NPO-10_NSE-11.9.2015-641443
AB-15-48_COR-NPO-10_NSE-9.28.2015-644874
AB-15-49_COR-NPO-10_NSE-9.29.2015-645178
AB-15-50, AB-15-50-R1, R2, R3, & R4_COR-NPO-10_NSE-7 27
2017-746946
AB-15-51_COR-NPO-10_NSE-10.14.2015-647434
AB-15-52_COR-NPO-10_NSE-1.8.2016-658185
AB-16-01_COR-NPO-10_NSE-2 16 2017-720969
AB-16-02_COR-NPO-10_NSE-2.17.2016-664141
AB-16-03_COR-NPO-10_NSE-2.8.2016-662580
AB-16-04_COR-NPO-10_NSE-2.17.2016-664137
AB-16-05_COR-NPO-10_NSE-3.14.2016-668237
AB-16-07 and AB-16-07-R1_COR-NPO-10_NSE-7.13.2017-744618
AB-16-08_COR-NPO-10_NSE-5 5 2016-675926
AB-16-09_SER
AB-16-11_COR-NPO-10_NSE-8 3 2016-689407
AB-16-19_COR-NPO-10_NSE-7 5 2016-685024
AB-16-21_COR-NPO-10_NSE-2 15 2017-720874
AB-16-22_COR-NPO-10_NSE-6 6 2016-680321
AB-16-23_COR-NPO-10_NSE-6 20 2016-682361
AB-16-23_SER Addendum_COR-NPO-10_NSE-7 7 2016-685634
AB-16-24_COR-NPO-10_NSE-5.20.2016-678163
AB-16-26_COR-NPO-10_NSE-11 1 2016-704452
AB-16-27_COR-NPO-10_NSE-4.3.2017-728755
AB-16-28_COR-NPO-10_NSE-2 16 2017-720966

	<p>AB-16-32_COR-NPO-10 NSE-9 20 2016-696734 AB-17-01_COR-NPO-10 NSE-3 2 2017-723331 AB-17-02_COR-NPO-10 NSE-2 16 2017-720972 AB-17-03_COR-NPO-10 NSE-2 15 2017-720860 AB-17-04-R1_COR-NPO-10 NSE-4.19.2018-789242 AB-17-05_COR-NPO-10 NSE-2 16 2017-720961 AB-17-07-A1_COR-NPO-10 NSE-4.6.2018-787563 AB-17-09_COR-NPO-10 NSE-11 7 2016-705194 AB-17-15_COR-NPO-10 NSE-6.6.2017-738290 AB-17-16_COR-NPO-10 NSE-6.8.2017-738770 AB-17-18_COR-NPO-10 NSE-6.8.2017-738886 AB-17-19, AB-17-19-R1, and AB-17-19-R2_COR-NPO-10 NSE-4.25.2018-790131 - 1 AB-17-20 directed change_COR-NPO-10 NSE-2 2 2017-718424 AB-17-21_COR-NPO-10 NSE-2 16 2017-720985 AB-17-23_COR-NPO-10 NSE-2 21 2017-721621 AB-17-24_COR-NPO-10 NSE-7.20.2017-745879 AB-17-27_COR-NPO-10 NSE-3 21 2017-726274 AB-17-28_COR-NPO-10 NSE-10.18.2017-762090 AB-17-33_COR-NPO-10 NSE-11.9.2017-765811 AB-17-35_Directed Changes_COR-NPO-10 NSE-5.5.2017-733841 AB-17-38_COR-NPO-10 NSE-1.10.2018-775050 AB-17-40_COR-NPO-10 NSE-4.17.2017-730646 AB-17-42_COR-NPO-10 NSE-5.31.2017-737407 AB-17-48_COR-NPO-10 NSE-11.17.2017-767299 AB-17-50_COR-NPO-10 NSE-10.10.2017-760829 AB-17-56_COR-NPO-10 NSE-8.9.2017-748772 AB-17-68_COR-NPO-10 NSE-8.25.2017-751882 AB-17-72 and AB-17-72-R1_COR-NPO-10 NSE-10.18.2017-762086 AB-17-73_COR-NPO-10 NSE-11.3.2017-764984 AB-18-02_COR-NPO-10 NSE-11.17.2017-767291 AB-18-08 & AB-18-08-R1_COR-NPO-10 NSE-2.2.2018-778820 AB-18-09_COR-NPO-10 NSE-3.6.2018-783438 AB-18-13_COR-NPO-10 NSE-2.8.2018-779442 APPROVAL OF CHANGE PROPOSAL AB-16-01, Feb 15, 2017</p>
Contractor COA Procedures	<p>WI 02.01.06.02.01, Develop and Control Documented Safety Analyses MNL-254543_Pantex Plant Safety Analysis Engineering Manual</p>
IVR Processes	<p>MNL-352175, CNS Pantex Manual for Planning and Conducting Readiness Reviews WI 02.04.06.03.08, Technical Safety Requirements Implementation Verification Review Process IVR CRAD SAC-1 edit Return of Safety Basis Change Proposal AB-16-16, Aug 8, 2017 IVR CRAD DSA-1</p>

~~PREDECISIONAL = NOT FOR PUBLIC RELEASE~~

DSAIP History	DSA Improvement Plan Rev 1, 7-26-13 (1254500-941) DSA Improvement Plan Rev 2, 3-27-14 (14-1338982-941) DSA Improvement Plan Rev 3, 2-16-15 (DSAIP_SB-MIS0941949) DSA Improvement Plan Rev 4, 4-28-16 DSA Improvement Plan Rev 5, 9-22-17 (17-1767308-4105) DSAIP Revision 5" Letter from CNS to NPO, September 22, 2017 DSAIP Plan Review and Recommendations", March 20, 2017 DSAIP Plan Review and Recommendations", Letter from NPO to CNS, May 4, 2017
Self-Assessments	E-PROC-3004, Enterprise Assessments Process WI 02.03.12.01.01, Authorization Basis Control Owner Roles, Responsibilities and Requirements for Administrative and Structures, Systems, or Component Controls TMP-TSR-DF-PLAN-0001, Control Owner Assessment Plan For Design Features TMP-TSR-DF-REPORT-0001, Control Owner Assessment Report For Design Features TMP-TSR-SAC-001, Assessment Plan For Technical Safety Requirement Controls - Specific Administrative Controls TMP-TSR-SAC-002, Assessment Report For Technical Safety Requirement Controls - Specific Administrative Controls TMP-TSR-TTD-PLAN-0001, Technical Safety Requirements Control Owner Assessment Plan For Tooling And Tester Design Features TMP-TSR-TTD-REPORT-0001, Technical Safety Requirements Control Owner Assessment Report For Tooling And Tester Design Features MSA Crosswalk for W76 and W78 SACs
Safety Basis Control Assessments	ENG-14-TSR-35_(DF for Facility Structure) ENG-15-TSR-24_(BDI) ENG-15-TSR-45_(DF for Tooling)
Independent Assessments	TSR Surveillance (ISI) Independent Assessment Report A-13-16 - Authorization Basis Processes A-14-09 Report - Authorization Basis (AB) Controls Flowdown Processes IA-16-003 - Technical Safety Requirement (TSR) Assessment Program IA-17-028 - Problem Identification and Evaluation and Potentially Inadequate Safety Analysis Processes IA-18-002 - Facility Centered Assessment of the Quality Assurance Program Implementation IA-18-005 - Facility Centered Assessment of the QAP Implementation within Buildings 12-58 and 12-64 RA-13-01 - IVR Process Review
W76 SAC Assessments	ENG-14-TSR-06 ENG-14-TSR-30 ENG-15-TSR-39 ENG-PE-16-TSR-51

~~PREDECISIONAL = NOT FOR PUBLIC RELEASE~~

	ENG-PE-16-TSR-52 ENG-PE-16-TSR-53 ENG-PE-16-TSR-54 ENG-PE-16-TSR-55 ENG-PE-16-TSR-56 ENG-PE-16-TSR-57 ENG-PE-16-TSR-63 ENG-13-TSR-49 ENG-13-TSR-64 ENG-14-TSR-12 ENG-14-TSR-13 ENG-PE-16-SURV-09 ENG-PE-16-SURV-10 ENG-PE-17-SURV-08 ENG-PE-17-SURV-39 ENG-TTD-17-TSR-06
W78 SAC Assessments	CASPROGRAM-2016-0111 ENG-13-TSR-10 ENG-14-TSR-01 ENG-14-TSR-02 ENG-14-TSR-03 ENG-14-TSR-04 ENG-14-TSR-05 ENG-14-TSR-07 ENG-14-TSR-08 ENG-14-TSR-10 ENG-14-TSR-14 ENG-14-TSR-15 ENG-14-TSR-16 ENG-14-TSR-17 ENG-14-TSR-18 ENG-14-TSR-19 ENG-14-TSR-20 ENG-PE-16-TSR-24 ENG-PE-16-TSR-25 ENG-PE-16-TSR-28 ENG-13-TSR-47 ENG-14-TSR-11 ENG-14-TSR-21 ENG-15-TSR-45
EOC Process	E-PROC-3007, Process for EOC Reviews 17-1692305-4105_ Withdrawal of AB-15-28

AFFIRMATION OF BOARD VOTING RECORD

SUBJECT: RFBA by Board Member Santos to Approve Sending the Attached Letter re 10 CFR Part 830 to the Secretary of Energy

Doc Control#2018-100-056


The Board, with Board Member(s) Jessie H. Roberson, Daniel J. Santos *approving*, Board Member(s) Bruce Hamilton, Joyce L. Connery *disapproving*, Board Member(s) none *abstaining*, and Board Member(s) none *not participating*, has voted to disapprove the above document on August 3, 2018.

The votes were recorded as:

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIPATING*	COMMENT	DATE
Bruce Hamilton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	08/01/18
Jessie H. Roberson	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	08/03/18
Daniel J. Santos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	07/31/18
Joyce L. Connery	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	07/31/18

*Reason for Not Participating:

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Board Members.



Executive Secretary to the Board

Attachments:

1. Voting Summary
2. Board Member Vote Sheets

cc: Board Members

OGC
OGM Records Officer
OTD

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET

FROM: Bruce Hamilton

SUBJECT: RFBA by Board Member Santos to Approve Sending the Attached Letter re
10 CFR Part 830 to the Secretary of Energy

Doc Control#2018-100-056

Approved _____ Disapproved X Abstain _____

Recusal – Not Participating _____

COMMENTS: Below X Attached _____ None _____

The Board staff's Preliminary Safety Inquiry Report of Implementation of 10 CFR Part 830 at the Pantex Plant noted that NNSA and the Pantex contractor initiated responsive actions to some safety questions raised by the inquiry team even before the preliminary inquiry concluded. This RFBA contends that the status of those actions is important to the Board's deliberation on whether and what further action the Board might take.

The Preliminary Safety Inquiry Report alone, however, provides the Board with sufficient information to determine whether or not to recommend action to the Secretary. Should the Board recommend action, and the Secretary subsequently determine that corrective action has already been initiated or completed, the Secretary can simply say so in his response.

Delaying a decision to recommend action in order to determine, through a written report and a DOE briefing to the Board, if mitigating action is underway or completed adds unnecessary delay time to the communication exchange. Further, 42 U.S.C. § 2286b(d) should not be used as a mechanism to convey either an explicit or an implied mandate for the Secretary to carry out an activity. This proposed communication runs the risk of incorrectly sending that message.

I therefore disapprove.


Bruce Hamilton

1 AUGUST 2018
Date

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET

FROM: Jessie Roberson

SUBJECT: RFBA by Board Member Santos to Approve Sending the Attached Letter re
10 CFR Part 830 to the Secretary of Energy


Doc Control#2018-100-056

Approved X Disapproved Abstain

Recusal – Not Participating

COMMENTS: Below X Attached None

The Report attached to the Board's letter includes the documented conclusions, methods, and approach utilized to review 10CFR Part 830 implementation at the Pantex Plant. The Report is responsive to the Board's direction in substance and content. I believe it is important to engage NNSA so that the Board may be provided any updated information on actions they have taken and progress made since the staff's field work was completed as an input to evaluating any further Board action.



Jessie Roberson
August 3, 2018

DEFENSE NUCLEAR FACILITIES SAFETY BOARD
NOTATIONAL VOTE RESPONSE SHEET


FROM: Daniel J. Santos

SUBJECT: RFBA by Board Member Santos to Approve Sending the Attached Letter re
10 CFR Part 830 to the Secretary of Energy

Doc Control#2018-100-056

Approved **Disapproved** **Abstain**
Recusal – Not Participating

COMMENTS: **Below** **Attached** **None**



Daniel J. Santos
7/31/18

Date

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

NOTATIONAL VOTE RESPONSE SHEET

FROM: Joyce Connery

SUBJECT: RFBA by Board Member Santos to Approve Sending the Attached Letter re
10 CFR Part 830 to the Secretary of Energy


Doc Control#2018-100-056

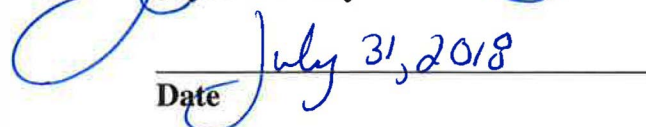
Approved _____ Disapproved X Abstain _____

Recusal – Not Participating _____

COMMENTS: Below X Attached _____ None _____

I disapprove of the action for several reasons. (1.) It is out of our procedure to send documents to the Secretary that have not had the benefit of Board review. Even other RFBA's that resulted in correspondence were socialized with other Board Members for input, this was not. (2.) The document that is attached is not characterized as a Board document nor a staff document (it is in fact, a hybrid as it is the product of an inquiry led by a Board Member, performed by the staff) but the letter refers to a "staff team" and not an inquiry with an Investigatory Chair—had I had the opportunity to edit the document, I would have proposed clarifications to the language. (3.) The document itself is input that the Inquiry team used to produce a product for the Board's consideration and was introduced to the Board as such. I don't consider it a final Board product, even though I agree with the conclusions. I believe it is a bad precedent to send over documents that have not gone through a process by which the Presidentially-appointed, Senate-confirmed Board Members can review and propose changes based on each of their experiences and expert opinions. While hastily reading this document with the staff before it was in its final form, I found several places that needed to be edited or clarified to which the staff responded and made changes, but I am not confident that my quick review found all such passages. Such an important document deserves more thoughtful deliberation prior to transmittal to the Secretary of Energy. We do not honor our safety oversight mission or our commitment to transparency by hastily transmitting unfinished documents to the Secretary. The goal of this letter – imposition of the reporting requirement - could have been accomplished in a more thoughtful and direct way than to prematurely transmit the enclosure.



Joyce Connery


Date