



**Department of Energy**  
**Under Secretary for Nuclear Security**  
**Administrator, National Nuclear Security Administration**  
**Washington, DC 20585**



August 5, 2021

The Honorable Joyce L. Connery  
Chair  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW, Suite 700  
Washington, DC 20004

Dear Chair Connery:

On June 9, you sent a letter to the Department of Energy (DOE) noting concerns identified during a review of Conduct of Operations and Training at the Pantex Plant (Pantex). Defense Nuclear Facilities Safety Board (Board) staff conducted this review in response to unspecified safety concerns brought forward by Pantex personnel. The review encompassed numerous plant operations procedures, training procedures, training evidence forms, and included interviews with nuclear weapons technicians and first line supervisors. Of note, the Board identified specific concerns that may impact organizational culture. DOE's National Nuclear Security Administration (NNSA), and Consolidated Nuclear Security (CNS), LLC, recognize the importance of and share responsibility for organizational culture, and have taken key actions to ensure the culture at Pantex remains sound. Specifically, after identifying a negative trend in disciplined operations, the NNSA Production Office (NPO) and CNS jointly created and chair a Disciplined Operations Council (DOC), whose purpose is to understand causes behind disciplined operations performance, sponsor and empower initiatives to continuously improve disciplined operations, and sustain those improvements long-term. Enclosed is the CNS report that addresses the seven identified concerns in your letter, and actions underway on the journey of continuous improvement for Pantex operations.

NNSA and CNS are committed to ensure that the ongoing momentum with the DOC, and the actions underway to address specific training and conduct of operations items, are sustained during contract transition. To strengthen and provide greater confidence in issues management, CNS has deployed a new issues management tool and process that is not contractor-specific and will remain in-use at Pantex during and post transition.

If you have any questions, please contact Ms. Teresa Robbins, NPO Manager, at (865) 576-0841.

Sincerely,

Jill Hruby

Enclosure

July 9, 2021

Mr. Carlos R. Alvarado  
Associate Deputy Manager for Operations  
NNSA Production Office  
Post Office Box 30030  
Amarillo, Texas 79120-0030

Dear Mr. Alvarado:

**Contract DE-NA0001942, Transmittal letter and formal Consolidated Nuclear Security, LLC response to the Defense Nuclear Facilities Safety Board staff report on the Pantex Conduct of Operations and Weapons Training review**

*Reference: Letter from Connery, DNFSB Chair, to Granholm, Secretary of Energy, dated June 9, 2021*

A Defense Nuclear Facilities Safety Board (DNFSB) programmatic review of Pantex Training and Conduct of Operations was conducted from September – December 2020. The review consisted of document/procedure reviews, formalized lines of inquiry, and personnel interviews. Consolidated Nuclear Security (CNS) leadership was not allowed to participate in portions of the review, but DNFSB staff closeout notes and key takeaways were discussed with CNS, the NNSA Production Office (NPO), and NNSA on February 25, 2021. The DNFSB staff noted no immediate safety concerns. The referenced letter noted the performance of the programmatic review and requested a report within 60 days. This document provides CNS' input to NNSA in support of this response.

The CNS team appreciated the review conducted, and observations made, by the DNFSB staff. The review and subsequent discussions provided feedback that reinforced on-going improvement initiatives, as well as offered fresh perspectives, which led to the addition of new or enhanced actions. The new actions associated with this response are summarized in Table A and will be managed within the site's issues management system to formally capture, assign and track all actions to completion. Action closure tracking will remain in place during and beyond contract transition and communicated with the oncoming contractor. Action plan status will be shared and communicated routinely with DNFSB staff.

To fully understand the concerns raised to the DNFSB and the ensuing results of the staff review, the CNS management team took an in-depth look into the environment preceding and during the period of the employee communicated concerns. This was considered along with other performance feedback and in the context of ongoing strategic improvement efforts in training, disciplined operations, and culture. In doing so, the leadership team recognized that the increase in concerns coincided with a period of significant employee turnover and site COVID response. Reduced onsite support personnel, rapidly changing working environment

restrictions, and general anxiety and concern for the “unknown” were all factors during this period, potentially contributing to the increase in concerns noted. In addition, COVID infections and resulting quarantines, combined with adverse personnel actions related to compliance issues generated rapid and significant change to the demographics of long-standing work groups and teams. In at least one case, cited as a concern, the rapid change in work team make up necessitated the use of alternative paths and associated compensatory measures for achieving certification of personnel. While the approach was compliant, it was a change which generated some questions and concerns. We are evaluating the training process to identify improvements needed when special circumstances arise related to the number of certified or qualified personnel and whether additional oversight is warranted.

The CNS leadership team has taken a holistic approach to improvements in targeted areas, such as Conduct of Operations and Weapons Training. In addition, based on the feedback received in February, we took a proactive approach and developed an initial plan of action to address the DNFSB observations. Existing Pantex Production Operation's improvement actions, were reviewed, modified, and broadened to address some of the themes and concerns discussed from the review; and CNS briefed the initial action plan to the DNFSB board staff on April 1, sharing completed improvement actions and existing conduct of operations enhancements planned to address many of the cited concerns, to include:

- Implement additional Extended Work Hours Training for Managers and Supervisors and a fatigue assessment tool - **Completed**
- Staff two additional Disciplined Operations Specialists (former Nuclear Safety Officers) to perform field observations and provide conduct of operations coaching - **Completed**
- Hire five production coordinators to allow the Production Section Managers to increase their field presence in production bays and cells - **Completed**
- Enhance the initial Integrated Production Planning and Execution System (IPRO) training and operational interface by including improved IPRO curriculum content in base technician training - **In Progress**

CNS has a long history of continuous improvement. This is imbedded into the Pantex and Y-12 Strategic Plan through the Mission Success Model framework that establishes the foundations of values and principles integrated into all parts of our business and operating plans. To gage progress in nuclear safety culture improvement, CNS commissioned the Oak Ridge Associated Universities (ORAU), a recognized 3<sup>rd</sup> party expert, to conduct an employee culture survey. The ORAU Culture Assessment Report (Summer 2020) – highlighted significant progress against nuclear safety culture attributes since the 2015 survey, validating our approach. It also highlighted several opportunities for improvement that align with much of the DNFSB feedback. CNS developed a Culture Improvement Plan with targeted actions to address noted opportunities for improvement. Examples of these actions include; developing and deploying a peer to peer coaching model, providing workshops and tools to improve supervisor communication skills, and enhancing/expanding tiered escalation across CNS to improve cross-organizational problem solving.

Another relevant area being pursued, consistent with our performance culture vision, is our approach to improve disciplined operations. Of particular note in this area, is the Joint Disciplined Operations Council established in the summer of 2020, chaired by the NPO Deputy Managers and CNS Chief Operating Officer. The council participants span from Pantex and Y-12 executives to first line supervisors from NPO and CNS. A primary objective of this council is to ensure management systems are in place for communicating, reinforcing, and improving

disciplined operations. In addition, focused and tailored efforts on culture, relationship, and performance are being implemented for Pantex Operations. These include:

- Engaging the workforce - Performed a survey of Production Technicians (PT), seeking input to better understand underlying causes for Conduct of Operations issues/trends. Results pointed to improvement needs in Training and Qualification, Procedures, Work Planning, and Verbal Communication (aligned with DNFSB feedback). Actions are being taken to address feedback, and small group sessions are being conducted with PTs to further seek ideas, feedback, and strengthen worker engagement. Some examples are:
  - Requiring Engineers to attend daily standup briefings to improve face-to-face communication with PTs on procedure changes and improvements
  - Performing biweekly Process Engineering/Weapons Operations management meetings to address process changes, concerns, and improvements
  - Holding monthly small group discussions with PTs and Quality Assurance Technicians (QATs) to ensure the lines of communications remain open for any operational issues or production and safety concerns
  
- Strengthening the Labor/Management team - Initiated a Labor and Management Partnership (LAMP) between the Metal Trades Council Machinists Union leadership and Production Operation's management to jointly develop programs and solutions for the mutual benefit of the groups. The LAMP charter focuses on enhancing overall safety culture, strengthening trust between the groups, improving conduct of operations, performance of joint facility walk-downs to identify and address issues, and the development of actions to improve technician training. Some examples are:
  - Metal Trades Council Leadership and Safety Officers committed to brief all weapons training classes on the importance of conduct of operations prior to the completion of the class and reporting to the production line
  - Adjusted Computer Based Training birth month schedule to allow technicians more time to complete the training. This allows for improved training retention and effectiveness
  - Delayed the start of readiness verification on an upcoming program to allow technicians more time to train and verify the process procedures

The CNS team has long considered the Pantex Weapons Training program a strong part of our core training and qualification program, that continuously produces highly trained and prepared technicians to deploy to Production. Over the years, this view of a strong training and qualification program has been highlighted as best in class by external oversight groups, review teams, and visitors.

The program follows a proven model for systematic execution of training and assessment of Knowledge, Skills, and Abilities (KSA) and knowledge transfer is executed with Navy nuclear training as the benchmark. The training is heavily based on using hi-fidelity trainer units to mimic actual nuclear systems assembly and disassembly evolutions to demonstrate component and subsystem integration and testing. The program uses a comprehensive qualification and certification process, which starts in a dedicated training environment and culminates in the observation of potential candidates performing actual operations in the field, under the guidance and oversight of previously certified and seasoned Production personnel, along with oral boards before certifications are granted. Although the base weapons training program is in place,

improvement initiatives are underway. Several of these initiatives have been either modified or new actions added as a result of the feedback from the review.

In addition, technology-based improvements are underway to improve our Weapons Training program. The CNS team has deployed a Knowledge Preservation Management (KPM) program whereby critical process information is digitally captured, edited and cataloged for future retrieval and playback. The resulting database is then used by individuals to search for information on specific processes or can be incorporated into training through the inclusion of video footage of the processes being trained. KPM footage of certain program and process evolutions are already being captured and the available video library is growing.

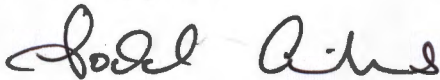
To augment hands-on training, the CNS team is also pursuing the addition of Augmented/Virtual Reality (AR) into the weapons training program. An AR platform (Virtalis) has been purchased and is in place in both Weapons Training and Engineering. The system was specifically chosen to allow virtual connectivity and collaboration with DOE Laboratories, such as Sandia National Laboratory, who have a similar system. The Pantex system has been programmed with unclassified B61-12 components as a test bed and familiarization for technicians and the development team. The team currently uses the system to replicate the stack-up (and disassembly) of B61-12 components in virtual space. As approvals are secured, the system will be moved onto a classified network environment where more weapons information and components can be loaded.

Finally, we have included an improved weapons training complex addition into the site, long-term infrastructure plan. This new facility, with modern infrastructure systems, provides; higher fidelity facilities, more individual bays, replicate cells, and simulators with AR/VR capability.

We have evaluated the concerns noted in the referenced letter and are confident that the actions described above and the additional actions we are taking in Table A will improve and enhance our site conduct of operations and training program.

If you have any questions or concerns, please contact me at 806.573.6225.

Sincerely yours,



Todd Ailes  
Vice President & Site Manager, Pantex

c: A. Campbell  
J. A. Carrillo  
A. J. Espinoza  
A. D. Everhart  
D. N. Kupferer  
M. M. Reichert  
T. D. Sherry  
M. E. Sims  
W. C. Tindal  
C. C. Yeary

**Table A – Response Actions to DNFSB Training and Conduct of Operations Review**

Action #/ID	Action Description
<b>Ensure technician training has adequate content and sufficient hands-on practice in training facilities</b>	
I-305/A-1	Enhance the initial Integrated Production Planning and Execution System (IPRO) training and operational interface by developing IPRO operator aid for technician quick reference - <b>Complete</b>
I-305/A-3	Enhance the initial IPRO training and operational interface by including performance of IPRO functions as part of quarterly proficiency cards - <b>Complete</b>
I-305/A-6	Enhance the initial IPRO training and operational interface by including improved IPRO curriculum content in base technician training
<b>Ensure all personnel, including those conducting oversight, receive appropriate conduct of operations training</b>	
I-305/A-4	Expand Weapons Conduct of Operations training by assigning associated curricula codes to Special Nuclear Materials technicians and Production Section Managers
I-305/A-5	Expand Disciplined Operations Specialist training by assigning curricula code for Weapons Conduct of Operations - <b>Complete</b>
<b>Ensure that any significant time gap between training and reporting for duty is addressed by refresher training</b>	
I-305/A-9	Perform a formal training needs analysis to determine need and rigor of additional refresher training following a time lapse between formal training and actual deployment - <b>Complete</b>
<b>Ensure consistency of mentorship of new employees</b>	
Staffing-1	Staff two additional Disciplined Operations Specialists (former Nuclear Safety Officer's) to perform field observations and provide conduct of operations coaching - <b>Complete</b>
LAMP-2	Metal Trades Council Leadership and Safety Officers committed to brief all weapons training classes on the importance of conduct of operations prior to the completion of the class and reporting to the production line - <b>Complete</b>
Disciplined Operation Council (DOC)-2	Perform biweekly Process Engineering/Weapons Operations management meetings to address process changes, concerns, and improvements - <b>Complete</b>
IMS # 31966030 / Action # 36 – Culture Improvement Plan (CIP)-1	Develop and deploy a peer to peer coaching model
<b>Reduce reliance on informal knowledge transfer and ensure that appropriate knowledge transfer concepts are implemented</b>	
I-305/A-2	Expand Disciplined Operations Specialist training by assigning curricula code for Readiness Review Team Member Orientation - <b>Complete</b>
Knowledge Preservation Management	Digital capture of critical process information for future retrieval and playback - <b>Complete</b>
CIP-2	Enhance and expand tiered escalation across CNS to improve cross-organizational problem solving - <b>Complete</b>

Action #/ID	Action Description
<b>Ensure production pressure does not impact training effectiveness, personnel certification, and technician performance</b>	
LAMP-3	Adjusted Computer Based Training birth month schedule to allow technicians more time to complete the training. This allows for improved training retention and effectiveness - <b>Complete</b>
LAMP-4	Delayed the start of readiness verification on an upcoming program to allow technicians more time to train and verify the process procedures - <b>Complete</b>
Training	Implement additional Extended Work Hours Training for Managers and Supervisors and a fatigue assessment tool - <b>Complete</b>
<b>Address factors that led to the series of poor conduct of operations events</b>	
DOC-3	Require Engineers to attend daily standup briefings to improve face-to-face communication with PTs on procedure changes and improvements - <b>Complete</b>
DOC-4	Hold monthly small group discussions with PTs and Quality Assurance Technicians (QATs) to ensure the lines of communications remain open for any operational issues or production and safety concerns - <b>Complete</b>
E-4977/I-1/A-1	Wrong Revision of tool used on JTA: Brief QATs on special tooling identification and marking <ul style="list-style-type: none"> <li>to include follow-up evaluation in Causal Analysis on potential ties to the Learning Management System to capture remaining personnel briefings regarding Standing Orders and/or Lessons Learned prior to assignment to the production line</li> </ul>
<b>Additional actions to augment improvement in training and conduct of operations</b>	
I-305/A-7	Evaluate MNL-293133, <i>Production Operations and Production Support Training Manual</i> to identify any improvements needed when special circumstances arise related to the number of certified or qualified personnel and whether additional oversight is warranted
I-305/A-8	Enhance staffing for Weapons Conduct of Operations training position
Staffing-2	Hire five production coordinators to allow the Production Section Managers to increase their field presence in production bays and cells - <b>Complete</b>
DOC-1	Perform a survey of Production Technicians (PT), seeking input to better understand underlying causes for Conduct of Operations issues/trends - <b>Complete</b>
LAMP-1	Initiate a Labor and Management Partnership (LAMP) between the Metal Trades Council Machinists Union leadership and Production Operation's management in Weapons Operations and Explosive Operations to jointly develop programs and solutions for the mutual benefit of the groups - <b>Complete</b>