A COLOR OF AND A COLOR OF A COLOR	EA	Number: EA CRAD 31-32 Revision: 0 Effective Date: August 8, 2019
Review of Implementation of Safety Basis Corrective Actions at the Pantex Plant Criteria and Review Approach Document		
Authorization and Approval	Kevin G. Kilp Deputy Director Office of Environment, Safety and Health Assessments, EA-30 Date: August 8, 2019	Lead Daniel M. Schwendenman Nuclear Engineer Office of Nuclear Safety and Environmental Assessments EA-31 Date: August 8, 2019

#### 1.0 PURPOSE

The mission of the U.S. Department of Energy (DOE) Office of Environment, Safety and Health Assessments (EA-30) is to assess the effectiveness of safety and emergency management systems and practices used by line and contractor organizations. In fulfilling this mission, EA-30 provides clear, concise, rigorous, and independent evaluation reports of performance in protecting workers, the public, and the environment from the hazards associated with DOE activities.

In addition to the general independent oversight requirements and responsibilities specified in Departmental order DOE O 227.1A, *Independent Oversight Program*, this criteria and review approach document (CRAD) will assist EA-30 in assessing how well corrective actions addressing safety basis quality issues at the Pantex Plant are being implemented. These corrective actions include those identified in a corrective action plan<sup>1</sup> (CAP) developed by Consolidated Nuclear Security, LLC (CNS), the Pantex Plant Management and Operating Contractor, and approved by the National Nuclear Security Administration (NNSA) Production Office (NPO). CAP implementation also includes additional actions to address Defense Nuclear Facilities Safety Board Recommendation 2019-1<sup>2</sup>. The corrective actions address long-standing Pantex Plant safety basis issues and are intended to improve the quality of the safety basis submittals to NNSA.

<sup>&</sup>lt;sup>1</sup> Consolidated Nuclear Security, LLC, Corrective Action Plan for DSA Quality Issues, September 2018.

<sup>&</sup>lt;sup>2</sup> Defense Nuclear Facilities Safety Board, Uncontrolled Hazard Scenarios and 10 CFR 830 Implementation at the Pantex Plant, February 20, 2019.

The CRADs developed by EA are available to DOE line and contractor assessment personnel to aid them in developing effective DOE oversight, contractor self-assessment, and corrective action processes. The current revisions of EA's CRADs are available at <u>http://www.energy.gov/ea/criteria-and-review-approach-documents.</u>

## 2.0 APPLICABILITY

The following CRAD is approved for use by the Office of Nuclear Safety and Environmental Assessments, EA-31, for use in assessing Pantex Plant nuclear facilities and nuclear explosive operations.

## 3.0 FEEDBACK

Comments and suggestions for improvements to this CRAD can be directed to the Director, Office of Environment, Safety and Health Assessments.

### 4.0 CRITERIA AND REVIEW APPROACH

This CRAD focuses on assessing the adequacy of the Pantex Plant Safety Basis CAP implementation to fully comply with the requirements of 10 CFR 830, "Nuclear Safety Management." The assessment involves verifying closure of corrective actions scheduled for completion by September 2019. Objectives and criteria are derived primarily from requirements found in Departmental orders DOE O 226.1B, *Implementation of DOE Oversight Policy*, and DOE O 414.1D, *Quality Assurance*, as well as NQA-1-2008, *Nuclear Quality Assurance Requirements for Nuclear Facility Applications*, the consensus standard followed by the CNS Quality Assurance Program Description.<sup>3</sup>

The assessment of corrective action implementation will evaluate the effectiveness of contractor processes for closing actions identified in the CAP as well as the CNS issues management process. Concurrently, the assessment will evaluate Federal oversight and acceptance of CAP actions. The following criteria and lines of inquiry are independent sections to be used in any combination, based on the need of the specific assessment.

### **OBJECTIVES**

# **QI.1**: Contractors conducting activities, including providing items or services that affect, or may affect, the nuclear safety of DOE nuclear facilities conduct work in accordance with applicable quality assurance criteria. (10 CFR § 830.121(a); DOE O 414.1D Attachment 1)

#### Criteria:

- 1. A process has been established to identify, control, and correct items, services, and process that do not meet established requirements; identify the causes of problems in order to incorporate recurrence prevention in corrective action planning; and review characteristics of items and processes to identify areas needing improvement. (10 CFR § 830.122(c)(2)-(4); DOE O 414.1D Attachment 2, § 3)
- 2. Conditions adverse to quality are promptly identified and corrected as soon as practicable. In the case of significant conditions adverse to quality, the cause is identified, and corrective actions are taken to preclude recurrence. The identification, cause, and corrective action(s) are documented and reported to appropriate levels of management. (NQA-1-2008 Requirement 16, CNS QAPD § 16.0)

<sup>&</sup>lt;sup>3</sup> Consolidated Nuclear Security, LLC, *Quality Assurance Program Description*, November 7, 2017.

- Are conditions adverse to quality appropriately identified, described and categorized?
- Has the condition adverse to quality been evaluated as to its significance and extent?
- Has the condition adverse to quality been analyzed and its causes determined?
- Are the CAP corrective actions clear, concise, and executable?
- Do the CAP corrective actions adequately address the entire extent of the issue?
- Have appropriate actions been taken, as required, to mitigate, stabilize and/or prevent further progression of unsafe conditions or conditions adverse to quality?
- Do the CAP corrective actions address pertinent issues identified by the Defense Nuclear Facilities Safety Board Recommendation 2019-1?
- Do the CAP corrective actions have a measure of performance to demonstrate the desired outcome?
- Are the CAP corrective actions capable of being verified and validated as complete, and are the mechanisms for verifying closure and validating the effectiveness of corrective actions identified?
- Are the CAP corrective actions cited likely to prevent recurrence of identified problems?
- Has the contractor verified implementation of completed CAP corrective actions?
- Have personnel been trained or retrained as appropriate?
- Has an evaluation been completed determining the effectiveness of the implemented CAP corrective actions?
- Has the condition(s) adverse to quality been formally documented?
- Have the planned corrective actions been reported to the management?
- Has responsibility for correcting the conditions been assigned?
- Are the organizations and managers responsible for carrying out each corrective action identified?
- Have prompt corrective (remedial/compensatory) actions been taken and documented?
- Have corrective actions been taken by CNS to prevent recurrence?
- Is a timely completion date identified for each corrective action?

# QI.2: The contractor has established a system that provides assurance that work is being performed safely, securely, and in compliance with all requirements; risks are being identified and managed; and the systems of control are effective and efficient. (DOE O 226.1B, Attachment 1, § 2.a)

- 1. The contractor issues management system categorizes the significance of findings based on risk and priority, enabling management to ensure problems are evaluated and corrected on a timely basis. (DOE O 226.1B, Attachment 1, § 2.b(3)(b))
- 2. A thorough analysis of the underlying causal factors is completed and documented. (DOE O 226.1B, Attachment 1, § 2.b(3)(b)(1))
- 3. Timely corrective actions that address the cause(s) of findings are identified and implemented. (DOE O 226.1B, Attachment 1, § 2.b(3)(b)(2))
  - Has an issues management system been formally established and was it followed in developing the CAP and implementation plans?
  - Is the process for tracking the progress of corrective actions identified?
  - Has closure of corrective actions scheduled for completion been documented?

- Has the contractor tracked and trended the conditions adverse to quality as appropriate?
- Have lessons learned been communicated as appropriate?
- Have the results of the corrective action implementation and closure been reported to the Field Office?
- Does the corrective action plan describe the investigation conducted to reach a complete understanding of the issue, including any review of the extent of the adverse condition?
- Does the corrective action plan identify apparent or root causes and analyze the underlying causal factors of the issue?
- If a formal causal analysis is not performed, does the corrective action plan provide an adequate basis to eliminate the need to perform one?

QI.3: The DOE Field Element has established and implemented an effective oversight program consistent with DOE P 226.1B and the requirements of DOE O 226.1B. The DOE Field Element maintains sufficient technical capability and knowledge of site and contractor activities to make informed decisions about hazards, risks, and resource allocation; provide work direction to contractors; and evaluate contractor performance. (DOE O 226.1B, § 4.a, § 5.e(1))

- 1. The DOE Field Element's issues management process categorizes findings based on risk and priority, ensures relevant findings are effectively communicated to the contractor, and ensures problems are evaluated and corrected on a timely basis. (DOE O 226.1B, § 4.b(4))
- 2. The DOE Field Element uses the results of line and independent oversight and contractor assurance systems to make informed decisions about corrective actions and the acceptability of risks and to improve the effectiveness and efficiency of programs and site operations. (DOE O 226.1B § 5.e(6))
  - Has the DOE Field Element reviewed the status (completion or in-progress) of CAP actions?
  - Does the DOE Field Element have current plans/schedules to review completed or in-progress CAP actions?
  - For issues categorized as high significance findings, does the DOE Field Element's issues management process ensure that:
    - A thorough analysis of the underlying causal factors has been completed?
    - Corrective actions that will address the cause(s) of the findings and prevent recurrence are identified and implemented?
    - After completion of a corrective action or a set of corrective actions, an effectiveness review is conducted using trained and qualified personnel who can verify the corrective action/corrective action plan has been effectively implemented to prevent recurrences?
    - Does the Field Office hold personnel accountable for implementing the issues management program?
  - Does the DOE Field Element oversight process incorporate the suggested mechanisms for DOE G 226.1-2A, §3.3.2 (information collection and analysis program, oversight planning, conduct of assessments, corrective action management)?
  - Has the DOE Field Element established performance expectations for completion of CAP actions and communicated the same to the contractor through formal contract mechanisms?
  - Has the DOE Field Element used the results of line and independent oversight and contractor assurance systems to make informed decisions about the CAP corrective actions and the acceptability of risks?

## **REVIEW APPROACH**

Record Review:

- Safety basis documents, hazard analysis reports, nuclear explosive operating procedures (NEOPs) and supporting documents (e.g., tooling drawings, calculations)
- Contractor procedures (e.g., authorization basis development, maintenance, change process; ISM process/procedures
- Corrective action closure/evaluation reports
- Self-assessments, independent assessments, causal analyses, corrective action plans, lesson-learned documents, Price-Anderson Amendment Act notifications and corrective action plans, close-out reviews, if appropriate.
- Trend analysis and performance indicator reports.
- Assignment of significance level (priority) to deficiencies by facility management
- Sample of corrective actions covering deficiencies identified in assessments, daily activities and other reviews
- Sample of corrective actions taken in response to previous Independent Oversight appraisal activities
- Training and qualification records for personnel performing assessments of engineering, configuration management, maintenance, and operations
- Facility startup procedures for any recent facility startups
- Documented safety analyses
- Technical safety requirements

#### Interviews:

- Select Field Element managers
- Contractor management (e.g., engineering, ESH)
- DOE Field Element nuclear safety specialists, facility representatives
- Issues management/Contractor Assurance System personnel
- Contractor personnel assigned responsibilities for the Safety Basis
- Hazard Analysis Task Team (HATT) members
- Tooling engineers
- Weapon process engineers
- Weapon program managers
- Operations personnel
- Facility managers
- NES personnel
- Training personnel

#### Observations:

- HATT meetings
- Meetings involving changes to the authorization basis
- Issues management related meetings
- CAP action closure evaluations
- Ongoing oversight assessments
- Joint meetings between the field office and contractor involving authorization basis changes
- Daily production/operation status meetings