Independent Assessment of the Consolidated Nuclear Security, LLC Management of Safety Issues at the Y-12 National Security Complex

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Office of Enterprise Assessments
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Acronyms

CAQ	Condition Adverse to Quality
CNS	Consolidated Nuclear Security, LLC
CONOPS	Conduct of Operations
DOE	U.S. Department of Energy
EA	Office of Enterprise Assessments
FY	Fiscal Year
IMB	Issues Management Board
IMS	Issues Management System
NFPA	National Fire Protection Association
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NPO	NNSA Production Office
NQA	Nuclear Quality Assurance
OFI	Opportunity for Improvement
RWAP	Radioactive Waste Acceptance Program
SCAQ	Significant Condition Adverse to Quality
SL	Significance Level (issue identifier)
TOPIC	Tools for Opportunities - Performance Improvement through Communication
WAC	Waste Acceptance Criteria
WRM	Weapons Related Material
Y-12	Y-12 National Security Complex

INDEPENDENT ASSESSMENT OF THE CONSOLIDATED NUCLEAR SECURITY, LLC MANAGEMENT OF SAFETY ISSUES AT THE Y-12 NATIONAL SECURITY COMPLEX

Executive Summary

The U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) conducted an independent assessment of the management of safety issues at the Y-12 National Security Complex (Y-12) from July to September 2022. This assessment evaluated the Consolidated Nuclear Security, LLC (CNS) management of issues associated with radioactive waste management, nuclear engineering, and the conduct of operations open after January 1, 2020.

CNS demonstrated effective issues management processes, developing effective corrective actions to resolve the causes or suspected causes for nearly all of the issues reviewed by EA. Most of these actions were completed and adequately documented in a timely manner. EA identified the following strengths, including four best practices:

- Gaps identified in the implementation of requirements that led to an operational event are rapidly entered into the CNS issues management processes, allowing for timely resolution. The CNS approach is a significant enhancement to the process used at many DOE sites where management of issues associated with an event do not begin until after the event or critique report is issued, often about a month after the event. (Best Practice)
- CNS readily displays and monitors its distribution of issue significance levels to detect changes in its management of issues across Y-12 or within specific functional areas or divisions. (Best Practice)
- CNS provides an expected time commitment for a causal analysis based on issue significance level to efficiently use resources and help prevent prolonged causal analyses. (Best Practice)
- Even if a causal analysis is not required, CNS issue owners are expected to use their judgment to determine "what the causes are (not the problem, but the causes of the problem)" and to develop an action plan to "rectify the issue and significantly reduce the likelihood of recurrence." (Best Practice)
- CNS effectively deployed a new issues management system with a data analytics tool that provides considerable capabilities for readily identifying trends and assessing issues management performance.

However, EA also identified the following weaknesses, including one finding:

- CNS has not instituted adequate training and direction on issues management processes. Therefore, most CNS employees and management have received little or no training or direction which can significantly impede proactive identification of issues including precursors of more significant, self-revealing events. (Finding)
- CNS has not implemented corrective actions for some safety issues in a timely manner. At Y-12, 127 issues are 3 to 10.2 years old, including 83 issues in fire protection systems; some of these systems are credited in facilities' nuclear safety bases.
- Documentation for approximately 10% of the reviewed issues did not meet CNS requirements for closure.

In summary, CNS develops effective corrective actions for nearly all safety issues. However, until the weaknesses identified in this report are addressed or mitigated, CNS will be vulnerable to unidentified issues and aged issues impacting safety. EA will follow up on the longstanding fire protection issues during its assessment of the CNS fire protection program being planned for calendar year 2023.

Recommendation

EA recommends that CNS, in coordination with the National Nuclear Security Administration Production Office, evaluate the adequacy of existing conditions and develop a resource-loaded plan to resolve longstanding fire protection issues that could impact safety or present significant risk to high-value, mission-essential assets.

INDEPENDENT ASSESSMENT OF THE CONSOLIDATED NUCLEAR SECURITY, LLC MANAGEMENT OF SAFETY ISSUES AT THE Y-12 NATIONAL SECURITY COMPLEX

1.0 INTRODUCTION

The U.S. Department of Energy (DOE) Office of Environment, Safety and Health Assessments, within the independent Office of Enterprise Assessments (EA), assessed the Consolidated Nuclear Security, LLC (CNS) management of safety issues at the Y-12 National Security Complex (Y-12). This assessment was conducted from July to September 2022 and included significant remote data collection and analysis. The onsite portion of this assessment, which was conducted July 25-28 and August 22-25, 2022, consisted of interviews, observations of meetings, and tours of nuclear facilities.

In fiscal year (FY) 2019, EA identified issues management as a targeted review area. This assessment is the eighth review examining corrective action processes at DOE facilities. Results from these targeted reviews and from other EA assessments will be documented in a lessons-learned report that will contain EA's overall assessment of issues management across the DOE complex.

In accordance with the *Plan for the Independent Assessment of the Consolidated Nuclear Security, LLC Management of Safety Issues at the Y-12 National Security Complex* (July 2022), this assessment evaluated CNS's management of issues associated with radioactive waste management, nuclear engineering, and the conduct of operations (CONOPS) at Y-12 open after January 1, 2020.

The National Nuclear Security Administration (NNSA) Production Office (NPO) oversees CNS's management and operations at Y-12, including its management of safety issues.

2.0 METHODOLOGY

The DOE independent oversight program is described in and governed by DOE Order 227.1A, *Independent Oversight Program*, which is implemented through a comprehensive set of internal protocols, operating practices, assessment guides, and process guides. This report uses the terms "best practices, deficiencies, findings, opportunities for improvement (OFIs) and recommendations" as defined in the order.

EA used criterion 5 of objective 1 and the criteria of objective 3 of EA Criteria and Review Approach Document 30-01, revision 1, *Contractor Assurance System* (February 15, 2018), to assess the flowdown and implementation of issues management requirements from DOE directives and invoked consensus standards.

EA examined key documents, such as procedures, quality assurance program descriptions, internal and external assessments, and 345 issues including associated extent-of-condition reviews, causal analyses, corrective action plans, and effectiveness reviews. The reviewed issues included: (1) those CNS identified that could have a significant impact on safety, (2) a sample of issues CNS identified as having less significant impact on safety, and (3) less serious conditions, observations, and OFIs CNS personnel identified for consideration or trending. These reviews enabled EA to determine whether issues impacting safety and radioactive waste management are adequately identified and corrected, using a graded approach, to prevent recurrence.

EA interviewed CNS personnel responsible for individual issues and for implementation of the CNS issues management processes, as well as NPO managers and subject matter experts responsible for overseeing CNS's issues management, radioactive waste management, nuclear engineering, and CONOPS. In addition, EA assessment team members attended teleconferences that CNS used to identify and trend issues impacting performance at Y-12.

The members of the EA assessment team, Quality Review Board, and management responsible for this assessment are listed in appendix A. EA comments on individual issues are in appendix B.

EA conducted a previous assessment of radioactive waste management at Y-12 in January 2020. This assessment examined the effectiveness of corrective actions for three deficiencies identified in the previous assessment, as documented in the EA *Assessment of Radioactive Waste Management at the Y-12 National Security Complex* (April 2020).

EA coordinated its independent review of radioactive waste issues with a team concurrently auditing CNS's radioactive waste management to support the Radioactive Waste Acceptance Program (RWAP) for the Nevada National Security Site (NNSS).

3.0 RESULTS

In this section, results are grouped into the following functions for issues management: the flowdown of issues management requirements; issue identification and categorization; issue resolution, including evaluations of the effectiveness of actions; and the timeliness of actions and closure of issues. Additionally, this section documents the results of EA's review of the corrective actions for the three deficiencies identified in the April 2020 EA report.

3.1 Flowdown of Issues Management Requirements

This portion of the assessment examined whether CNS has adequately invoked requirements in applicable consensus standards and DOE directives per the CNS contract with NNSA and the NNSA-approved CNS E-SD-0002, *Quality Assurance Program Description*.

For the management of nuclear safety issues, E-SD-0002 commits to the requirements in DOE directives and the American Society of Mechanical Engineers consensus standard Nuclear Quality Assurance (NQA)-1-2008, *Quality Assurance Requirements for Nuclear Facility Applications*, with the NQA-1a-2009 and NQA-1b-2011 addenda. These commitments are adequately flowed down into E-PROC-0006, *CNS Issues Management Process*, with the following exceptions:

- The responsibility in section 4.b in attachment 1 of DOE Order 232.2A, *Occurrence Reporting and Processing of Operations Information*, that facility managers "Determine causes and generic implications … for reportable occurrences" is not adequately flowed down for all reportable occurrences. UCN-26340, *Issues Management Significance Level Determination Worksheet*, allows some reportable occurrences to be categorized at any significance level (SL) (i.e., SL A through E). However, E-PROC-0006 only requires causal analyses and extent-of-condition reviews for SL A and B issues. In addition, compliance-based requirements identified in appendix B of E-PROC-0006 do not require generic implications to be determined and only require causal analyses for high reporting level occurrences. (See **Deficiency D-CNS-1**.) Not flowing down this DOE Order 232.2A responsibility into E-PROC-0006 and UCN-26340 increases the likelihood that the causes and generic implications will not be determined or corrected for reportable occurrences as required by DOE Order 232.2A.

- E-PROC-0006 contains the following error and inconsistencies with E-SD-0002:

    - E-PROC-0006, appendix A, incorrectly states that issues from Federal readiness assessments and operational readiness reviews result "from the DOE O 227.1 Independent Oversight Program." DOE requirements for managing issues identified during Federal readiness assessments and operational readiness reviews are in DOE Order 425.1D, *Verification of Readiness to Start Up or Restart Nuclear Facilities*.
    - E-SD-0002 states "The identification, causes, and corrective actions for all issues are documented and reported to appropriate levels of management." However, the E-PROC-0006, appendix B, CNS risk-based requirements do not require causal analyses for SL C, D, and E issues. DOE directives and NQA-1 allow a graded approach as used in E-PROC-0006.
    - E-SD-0002 requires conditions adverse to quality (CAQs) and significant conditions adverse to quality (SCAQs) to be entered into an authorized issues management system. However, E-PROC-0006 limits CAQs entered to "issues, which if uncorrected, can have a serious effect on safety or operability, and not otherwise identified" allowing SCAQs to not be entered if entered in another system. Additionally, CAQs, based on the definition of SCAQ, do not have a serious effect and would therefore not meet the screening criteria for management via E-PROC-0006.

The error and inconsistencies described above could result in CNS commitments specified in E-SD-0002 not being met. However, EA did not identify any degradation in the management of safety issues due to these weaknesses. (See **OFI-CNS-1.**)

Flowdown of Issues Management Requirements Conclusions

CNS adequately flows down requirements for managing nuclear safety issues via E-SD-0002 and E-PROC-0006, except that E-PROC-0006 does not include the responsibility for facility managers to determine the causes and generic implications for all reportable occurrences. Also, although EA identified an error in E-PROC-0006 and a few inconsistencies between E-SD-0002 and E-PROC-0006, there was no corresponding degradation in CNS issues management.

3.2 Issue Identification and Categorization

This portion of the assessment examined whether issues and trends are identified and properly categorized to meet the requirements for issues management per E-SD-0002.

3.2.1 Issue Identification

CNS initiates and manages approximately 2,100 issues per year, demonstrating an overall willingness to identify and enter issues into authorized issues management systems – i.e., the CNS Issues Management System (IMS) until July 22, 2022, and the Tools for Opportunities - Performance Improvement through Communication (TOPIC) system as early as February 1, 2021. Additionally, the CNS process for responding to events, E-PROC-0007, *Event Recovery and Notification Process*, is well integrated with E-PROC-0006. Information on an event (including the specific gaps in the implementation of requirements that led to the event) entered into TOPIC per E-PROC-0007 is simultaneously available for CNS personnel to use to identify and categorize the associated issues for resolution per E-PROC-0006. This integration between E-PROC-0006 and E-PROC-0007 is cited as a **Best Practice** because it allows quick identification of issues that resulted in events so they can be mitigated and resolved per E-PROC-0006. This performance improvement merits consideration by other DOE contractors that enter issues in an

issues management system after an event or critique report is issued, which is often about a month after the event.

E-SD-0002, section 1.2, states that "each CNS employee is responsible for …identifying unsatisfactory procedures; processes or products; and actively supporting continuous quality improvement. This includes the responsibility to … report issues to management, and to resume work only upon approved resolution of the issue." The April 2020 EA report identified that "not all procedural non-compliances related to waste handling were entered into the IMS." In response to this EA-identified deficiency, CNS developed Y77-41-003, *Waste Management Tracking and Trending of De Minimis Issues*, and Y71-66-EC-225, *Waste Certification Trending*, for managing "de minimis" waste issues and revised the criteria for issues that warranted management per E-PROC-0006 to exclude de minimis issues.

Although CNS adequately defined "de minimis" radioactive waste issues and their management in Y77-41-003 and Y71-66-EC-225, similar instructions are not provided for managing issues below the threshold/criteria of E-PROC-0006 in the other areas reviewed during this EA assessment (i.e., nuclear engineering and CONOPS), contrary to section 5 of E-SD-0002. Specifically, section 5 of E-SD-0002 requires "Activities affecting quality and services [to be] prescribed and performed in accordance with documented instructions … that flow down the requirements of the Quality Program." Instead, appendix A of E-PROC-0006 allows "Relevant Personnel" (i.e., "any CNS employee, subcontractor, vendor service personnel, or visitor engaged in activities in support of CNS facilities, programs, installations, and organizations operating under the CNS Quality Assurance Program"), CNS management, or an issues management board (IMB) to determine what issues or "items of interest" warrant management per E-PROC-0006 without the required instructions on how to manage less significant issues. Additionally, as discussed below, most CNS personnel receive little or no training or direction on how to fulfill the responsibilities set out in E-SD-0002 and E-PROC-0006. This is contrary to section 2.4 of E-SD-0002 which states "Line management is responsible for ensuring personnel are trained and qualified to be capable and competent to safely perform their assigned duties. Training programs are designed so that the employee understands … Quality Program requirements." (See **Finding F-CNS-1**.)

- Working-level engineers receive no training on E-PROC-0006 or the interface between E-PROC-0006 and other systems that manage and trend "de minimis" issues at Y-12. Engineers, especially cognizant system engineers, commonly identify and work on many issues across the DOE complex.
- Managers and supervisors receive some limited online training but are not required to read E-PROC-0006 or its revisions, even though E-PROC-0006 gives them significant roles as issue owners and action owners.
- Although field observations documented by CNS disciplined operations specialists were adequately tracked in a separate database, no training or CNS procedure specifically requires issues or trends in these observations to be entered into TOPIC and managed per E-PROC-0006.
- Y14-016, *Production Evaluation Process Reviews*, does not require issues or trends identified during these reviews to be identified in TOPIC for resolution per E-PROC-0006. The new manager for these reviews has entered issues from the last two reviews into TOPIC. However, other reports issued since 2019, before the new manager was assigned, may contain issues not entered into an authorized issues management system due to inadequate training provided to the previous manager and inadequate direction in Y14-016. (See CONOPS issue I-1791 in appendix B.)
- CNS personnel incorrectly enter and/or categorize observations from reviews performed per Y15-027, *Systematic Review of Y12 Operations*, in TOPIC as OFIs, for which E-PROC-0006 does not require correction. Some observations EA reviewed identified errors in procedures that, per E-PROC-0006, are required to be corrected. This mismanagement of Y15-027 observations likely

results from inadequate training of CNS personnel and inadequate direction in Y15-027. (See **Deficiency D-CNS-2** and CONOPS issues I-1811, I-1862, and I-1853 in appendix B.)

Inadequate training or direction to personnel on CNS's issues management processes can impede the identification of issues that may be precursors to more significant self-revealing issues. The Tableau software, as used by CNS as a data analytics tool, revealed that the rate of self-revealing issues at Y-12 has steadily decreased from 35% in January 2022 to 23% in September 2022. However, the rate remains above the CNS goal of 20%. Improving CNS personnel's ability to identify issues can help CNS further reduce the current rate to below the CNS goal (and subsequently support lowering that goal) by proactively identifying and resolving precursors and avoiding the more consequential impacts of self-revealing issues and events on safety and performance.

The evaluation of performance information for discernable trends is an important mechanism for identifying safety issues. CNS uses Tableau software to provide considerable capabilities for readily analyzing data in TOPIC to identify trends and overall issues management performance. For example, the CNS Issues Management Manager, functional area owners, and CNS management adequately identify and present trends during the monthly Site Performance Review using the Tableau software. During the assessment, CNS demonstrated its analysis of a potential trend in measurement and test equipment (M&TE) that is/was overdue for recalibration and had not been returned for recalibration. The CNS Issues Management Manager stated during an interview that a key driver for this analysis was to proactively ensure that out-of-calibration M&TE is not being used.

CNS Contractor Assurance personnel also perform monthly surveillances of a sample of tasks completed that month, focusing on the quality of the causal analyses performed, action plans developed and completed, extent-of-condition reviews completed, and effectiveness reviews completed. The purpose of this surveillance is to evaluate the implementation of E-PROC-0006 to populate the CNS Contractor Assurance Index each month for senior CNS leadership.

3.2.2 Issue Categorization

CNS issue owners determined issue significance levels before the deployment of TOPIC on February 1, 2021. Subsequently, per E-PROC-0006, a CNS IMB at Y-12 assigns significance levels to issues in TOPIC using the criteria in UCN-26340 and validates that the assigned issue owner "possesses the role, responsibility, authority, and accountability required to address the issues analysis and [action plan] implementation including mitigation for recurrence by addressing the suspected causes." The significance levels range from A though E, and "N/A" for duplicate issues. SL A comprises highly significant issues and SL E includes OFIs and IMB-designated items of interest for trending.

The issues that EA reviewed demonstrate that CNS adequately determines issue significance levels. CNS readily displays its ongoing distribution of issue significance levels via the Tableau software, which enables CNS to periodically monitor its distribution of issue significance levels. For the 1,216 issues entered into TOPIC since September 2021, CNS categorized none as SL A issues, 2% (26) as SL B issues, 52% (633) as SL C issues, 26% (314) as SL D issues, and 20% (243) as SL E issues. This periodic monitoring of issue significance levels is cited as a **Best Practice** for consideration by other DOE contractors because it helps CNS detect changes in its issues management implementation across Y-12 or within specific functional areas or divisions. For example, having more SL A and B issues than SL C, D, and E issues could indicate less proactive reporting and resolution of lower-level issues.

EA observed the Y-12 IMB rigorously reviewing issues during its weekly meeting using the detailed criteria in UCN-26340 to categorize/determine issue significance levels. As needed, the Y-12 IMB obtained additional information from an issue owner to determine its significance level, but this

information was not included in the record (i.e., in the TOPIC database) and typically delayed the determination of the significance level of some issues by one to seven days. Correspondingly, the CNS Issues Management division included additional guidance in Revision 9 of E-PROC-0006 (issued on July 27, 2022) to improve the descriptions of the issues entered into TOPIC. However, issues subsequently presented to the Y-12 IMB continued to have inadequate descriptions, likely due, in part, to CNS managers and supervisors not being required to read updates to E-PROC-0006, as mentioned above in section 3.2.1. The guidance added to E-PROC-0006 also does not specifically state that issue descriptions should discuss the impacts or potential impacts to controls, systems, structures, or components providing safety, especially those credited in the safety basis for a nuclear facility. (See **OFI-CNS-2**.)

In addition to determining the significance level of an issue, IMBs also identify in TOPIC the criterion in UCN-26340 used to determine the significance level for the issue. For example, issues meeting the criteria for CAQs and SCAQs would be categorized in TOPIC with SLs C.5 and B.7, respectively. E-PROC-0006 requires all CAQs to be corrected "as soon as practicable" as required by NQA-1. However, 7% (23 of 345) of the issues that EA reviewed were CAQs but not identified as such in TOPIC, contrary to NQA-1, requirement 16, which states that "Conditions adverse to quality shall be identified." (See **Deficiency D-CNS-3**.) Unidentified CAQs may not be corrected as required by NQA-1. For example:

- During interviews, EA determined that the Y-12 IMB has incorrectly identified issues as CAQs only if quality had been impacted. NQA-1 states that a CAQ is "an all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances. A significant condition adverse to quality is one that, if uncorrected, could have a serious effect on safety or operability." Therefore, an issue impacting nuclear safety (e.g., a failure or deficiency in implementing a procedure as directed by a safety management program) is a CAQ even if product quality is not impacted. (See Radioactive Waste Management issue 32208285; CONOPS issues 32275734, 32184112, E-4404, 32194247, E-5471, E-4244; and Nuclear Engineering issues I-1536, I-1600, I-1602, I-1606, I-1635, E-5198/I-1, I-25, C-16/I-3, and C-42/I-1 in appendix B.)
- Significance level determination worksheets were not included as attachments for some issues in IMS or were not transferred into TOPIC from IMS to indicate which issues were CAQs or SCAQs. (See Nuclear Engineering issues 31662303, 31658064, and 31564057 and CONOPS issue I-1644 in appendix B.)
- Issues identified as CAQs (SL C.5) in the significance level determination worksheet attached to the IMS record were inappropriately recategorized to SL C.12 when they transitioned from IMS to TOPIC, losing their label as CAQs. (See Nuclear Engineering issue I-1635 and CONOPS issues I-1687, E-4606, and I-1643 in appendix B.)
- UCN-26340 identifies SCAQs and CAQs as SLs B.7 and C.5, respectively. However, SCAQs and CAQs categorized at higher significance levels (i.e., as SL A, B.1-B.6, and C.1-C.4) are not labeled as SCAQs or CAQs. (See CONOPS issue I-1644 in appendix B and **OFI-CNS-3**.)

Issue Identification and Categorization Conclusions

CNS demonstrates a willingness to identify and enter issues into the IMS and TOPIC, has a rigorous and mostly effective significance level determination (categorization) process, and monitors issues effectively for trends and changes in issues management performance. CNS enters information on events, including gaps in the implementation of requirements that led to them, directly into TOPIC, facilitating more timely entry of the self-revealed issues into TOPIC for resolution. Each CNS employee is responsible for reporting issues, but most CNS personnel receive little or no training or direction on how to use CNS's issues management processes. Accordingly, EA found some errors that CNS personnel did not identify or

manage as issues to ensure their correction. Additionally, some CAQs were not identified as such by the Y-12 IMB or in TOPIC as required by NQA-1.

3.3 Issue Resolution

This portion of the assessment evaluated whether the issues management system includes structured processes, using a graded approach based on risk, for identifying the causes, the extent of the condition and/or causes and corrective actions for issues, and for reviewing the effectiveness of actions taken to ensure that issues are resolved.

Except as identified in **Deficiency D-CNS-1** in section 3.1 of this report, E-PROC-0006 adequately sets minimum requirements for analyzing and resolving an issue based on its risk-based significance level determination and applicable compliance-based requirements. E-PROC-0006 specifies more rigor for evaluating issues of greater significance and complexity and for validating the effectiveness of corrective actions. For example, causal analyses performed by a qualified causal analysis specialist, extent-of-condition reviews, and effectiveness reviews are required for SL A issues and can be waived by an IMB for SL B issues. E-PROC-0006 requires specific causal analysis methods to be used to determine the root cause(s) for SL A issues, while causal analyses are not required for SL C, D, and E issues. E-PROC-0006, appendix E, allows a CNS qualified causal analysis specialist to determine whether causal analysis tools or more comprehensive analysis methods used for SL A issues are warranted for SL B issues based on their complexity. For all issues, "Cause codes are required to be identified for trending purposes…. Absent the benefit of a causal analysis, cause codes should reflect the [issue owner's] judgement as to what the causes are (not the problem, but the causes of the problem)." For SL C, D, and E issues, CNS allows issue owners to use less comprehensive causal analysis tools (e.g., barrier analysis and a why staircase) without a qualified causal analysis specialist.

E-PROC-0006, appendix E, provides expected time commitments for issues based on their significance level: a one-to-two-hour analysis for SL C, D, and E issues; a one-to-eight-hour analysis for simple SL B issues; a one-to-two-day analysis for moderately complex SL B issues; and a one-to-two-week or more analysis for SL A issues and complex SL B issues. These expected time commitments help ensure the efficient use of resources and help prevent prolonged causal analyses that at other sites have unnecessarily delayed development of corrective actions for months or over a year. This practice is cited as a **Best Practice** for consideration by other DOE contractors to improve the timeliness of their corrective action development.

Even if a causal analysis is not required, CNS issue owners are expected to use their judgment to determine "what the causes are (not the problem, but the causes of the problem)" and to develop an action plan to "rectify the issue and significantly reduce the likelihood of recurrence." E-PROC-0006 provides detailed requirements for developing an effective action plan that "corrects the issue and significantly reduces the likelihood of recurrence" by considering issues' "broader consequences to CNS." Per E-PROC-0006, action plans are developed considering the actions needed to return to normal operations, any interim compensatory measures and how to remove them when appropriate, actions to correct the immediate issues, preventive actions to correct and prevent the causal factors, actions to address the full extent of the condition, other needed improvement actions, and the criteria for demonstrating adequate/ defensible evidence that the action is complete. Accordingly, CNS issue owners developed effective action plans for nearly all of the issues EA reviewed, with only a few minor comments on action plans as documented in appendix B (see Radioactive Waste Management issues E-5462 and I-133; Nuclear Engineering issues 31844226 and C-82/I-4; and CONOPS issues E-5006, E-5348, I-1694, and E-4518 in appendix B). As displayed via the Tableau software, CNS Contractor Assurance personnel monthly surveillances (of all causal analyses and 10% of the action plans developed for issues at Y-12 during September 2021 – August 2022) identified deficiencies and provided constructive feedback on the issues

they reviewed. Clearly conveying and holding issue owners accountable to these expectations is cited as a **Best Practice** for consideration by other contractors to improve their resolution of issues.

E-PROC-0006 requires effectiveness reviews for SL A and B issues to "evaluate the effectiveness of the actions in resolving the underlying causes of the issue and preventing recurrence of the same or similar issues." As displayed via the Tableau software, CNS Contractor Assurance personnel surveillances of all the effectiveness reviews for issues at Y-12 during September 2021 – August 2022 did not detect any deficiencies. However, contrary to E-PROC-0006, steps 14.4 and 14.7, the three effectiveness reviews reviewed by EA only verified completion of corrective actions without verifying their effectiveness, for example, by observing work performed after completion of the corrective actions (see **Deficiency D-CNS-4** and Radioactive Waste Management issues 31994530, 32156985, and CONOPS issue E-5006 in appendix B). Inadequate effectiveness reviews can allow the causes of SL A and B issues to persist, the issues to recur, and ineffective corrective actions to remain, placing an unnecessary, nonproductive burden on operations.

E-PROC-0006 also requires effectiveness reviews "after actions are completed" but does not discuss the potential use of interim effectiveness reviews for issues with actions that will take a long time to complete or are significantly delayed. During an interview, the CNS Issues Management Manager stated that interim effectiveness reviews are occasionally used and acknowledged that they are not discussed in E-PROC-0006. (See **OFI-CNS-4**.)

Issue Resolution Conclusions

CNS adequately implements its graded, structured approach for issue resolution and took adequate action to resolve nearly all issues reviewed by EA. E-PROC-0006 provides expected time commitments for causal analyses for issues based on their significance level to ensure the efficient use of resources. E-PROC-0006 has issue owners consider an issue's "broader consequences to CNS" and develop an effective action plan that "corrects the issue and significantly reduces the likelihood of recurrence." However, CNS issue owners inappropriately accepted the three effectiveness reviews reviewed by EA that verified the completion of corrective actions without verifying their effectiveness.

3.4 Timeliness and Closure

This portion of the assessment evaluated whether planned corrective actions are completed in a timely manner and that closure is adequately documented.

Timeliness of Issue Closure

NPO identified concerns with the timeliness of CNS closure of issues in its Triannual Issues Management Meeting reports for 2018 and 2022 and in a documented NPO management concern related to disciplined operations in 2021. In response to these timeliness concerns, CNS: (1) deployed TOPIC with the capability via the Tableau software to monitor the age of issues, on-time closure, and corrective action due date extensions; (2) revised E-PROC-0006 to require CNS senior director approval of changes to action due dates that will delay closure of SL A and B issues; and (3) established a process in E-PROC-0006 to vet placing lower priority issues "On Hold" rather than repeatedly extending their due dates. The CNS effectiveness review for the NPO concerns issues management, as documented in IMS 31966030 states that "The new TOPIC application and demonstrated improved system performance for 16 months is deemed effective in addressing the NPO concerns on timeliness and quality of issue closure." However, although CNS took positive actions to improve its issues management, weaknesses in the management of due date extensions and in the timely resolution of some issues persist as discussed below.

As displayed via the Tableau software, the median age of open actions at Y-12 has varied between 182 and 237 days since January 2022, which is within the CNS expectation or goal of 100 to 400 days. Although the ratio of overdue actions over the actions closed in the last 30 days decreased from 13% to 10.5% from July to August 2022, the ratio of extended actions over the actions open at the beginning of the month increased from 5% to 15%, with actions being extended by an average of 115 days. This increase in due date extensions coincides with the transition of the older open issues in IMS to TOPIC on July 22, 2022, indicating that although CNS now can monitor due date extensions, CNS has not prevented ongoing extension of actions for longstanding, "aged" issues or achieved timelier resolution. (See **OFI-CNS-5**.)

EA's review of metrics on CNS's aged issues available via the Tableau software identified the following, indicating that CNS practices and prioritization processes do not resolve some issues at Y-12, including some CAQs, in a timely manner:

- There are 127 issues that have remained open more than three years after they were identified. Thirty (24%) of those are more than seven years old.
- Eighty-three (65%) of the 127 open issues are for fire protection issues, such as nonconformances with National Fire Protection Association (NFPA) consensus standards and inadequate anchors for sprinkler systems; these include issues with systems credited in nuclear safety bases (i.e., CAQs). Twenty-seven (90%) of the 30 issues open for 7 to 10.2 years are for fire protection issues. Overall, more than 200 fire protection issues are open at Y-12. Annual fire protection assessments for the affected facilities acknowledge the open issues and state that the compensatory measures are adequate to offset the issues. However, no analysis is provided to support that conclusion for individual nonconformances or for considering the aggregate effects of the nonconformances within each facility and across Y-12. (See **Recommendation R-CNS-1** and section 9.0.)
- EA also identified that 6% (21 of 345) of the issues that it reviewed were not resolved in a timely manner (e.g., due dates were extended 14 times and resolution was delayed for years). CNS designated a third of these issues with untimely resolutions as CAQs. Per NQA-1, requirement 16, CAQs are to be "corrected as soon as practicable." (See **Deficiency D-CNS-5** and Nuclear Engineering issues 30576980, 31844226, 31889240, 32126833, 32133896, AS-1295/I-1, AS-4122/I-1, I-932, I-1178, I-1600, I-1602, and I-1606; CONOPS issues I-1811, I-1862, I-1853, I-1694, 32275701, 32275734, E-4503; and Radioactive Waste Management issues 32118354 and 32125720 in appendix B.)

The following may be contributing to CNS's untimely resolution of some issues at Y-12:

- The NFPA nonconformances identified by the CNS Fire Protection Engineering division assessments have been managed as issues in IMS, and now TOPIC, instead of as nonconformances per E-PROC-0050, *Control of Nonconforming Items*. E-PROC-0050 allows nonconformances to be accepted as-is, if justified, by the authority having jurisdiction, whereas issues managed per E-PROC-0006 are required to be corrected.
- E-PROC-0006 allows issue owners to set and extend corrective actions for SL C, D, and E issues, including actions for CAQs (categorized as SL C.5), at their discretion. (See **OFI-CNS-5**.)

In Revision 7, CNS revised E-PROC-0006 to include a process for placing issues in an "On Hold" status. Specifically, the CNS Issues Management Manager, the applicable requirement owner, and the senior director review noncompliances before placing them On Hold. Issues that are not noncompliances are approved after a review by the CNS Issues Management Manager. However, the process defined in E-PROC-0006 is contrary to NQA-1 because placing issues in an "On Hold status in TOPIC suspends any

tasks associated with the issue" and the CNS Issues Management Manager provides "CNS management with a periodic review of On Hold issues to determine if these can be returned to active status in TOPIC or closed," allowing corrective actions to be stopped indefinitely or, in effect, canceled without correcting the issue. Per NQA-1, requirement 16, CAQs are required to be "corrected as soon as practicable." (See **Deficiency D-CNS-6**, **OFI-CNS-6**, and **OFI-CNS-7**.)

As of September 1, 2022, only I-1507 in TOPIC (originally 32172483 in IMS) was On Hold. I-1507 documents missing and degraded fire-retardant paint (intumescent paint) required to protect wood structures in building 9720-05. This issue was identified during a 2010 Fire Protection Engineering assessment. Funding to repaint these structures is currently projected for FY 2026.

Documentation of Issue Closure

Appendix G of E-PROC-0006 provides the expectations and requirements for documenting the resolution of issues. Per section 16 of E-PROC-0006, issue management specialists "evaluate that actions taken are effective and meet the requirements of this procedure." These evaluations are part of the monthly surveillances conducted by CNS Contractor Assurance personnel. As displayed by the Tableau software, these surveillances have not identified deficient closure documentation for issues at Y-12 during September 2021 – August 2022. However, 10% (36 of 345) of the issues EA reviewed had inadequate closure documentation. (See **Deficiency D-CNS-7**.) For example:

- For 10% (34 of 345) of the issues EA reviewed, evidence of corrective action completion was inadequate to demonstrate that action completion had been verified as required by NQA-1. Inadequate verification of corrective action completion allows incomplete or inappropriate actions to be closed without implementing the intended issue resolutions. (See Radioactive Waste Management issues 32130015, 32139714, 32183143, 32183147, 32208285, 32118408, 32265391, AS-4193/I-5, AS-4194/I-2, C-96/I-7 and I-8, E-4947/I-2, E-5301/I-1, and E-5305/I-1 and CONOPS issues E-4244, E-4254, E-4310, E-4500, E-4518, E-4532, E-4535, E-4536, E-4538, E-4554, E-4742, 32183173, 32275733, I-1650, and 32203401 and Nuclear Engineering issues 32208152, I-170, I-611, C-92/I-2, and I-1293 in appendix B).
- For 2% (6 of 345) of the issues EA reviewed, documentation for corrective actions did not meet E-PROC-3114, *Records Management*, requirements as invoked in appendix G of E-PROC-0006 to ensure that the formal record for issues appropriately documents the issue and actions taken. (See Radioactive Waste Management issue 32154811 and CONOPS issues E-4244, E-4310, E-4535, E-4538, and 32275701 in appendix B).
- As discussed in appendix B, CONOPS issues E-4244, E-4310, E-4535, and E-4538 had actions with inadequate evidence of action completion and with documentation that did not meet E-PROC-3114 requirements for records.

The following may be contributing to the inadequate documentation of actions taken to close some issues at Y-12:

- As noted in section 3.2.1, action owners providing the closure documentation and the issue owners reviewing it for acceptability receive little or no training on E-PROC-0006.
- Appendix G of E-PROC-0006 is not referenced in section 13 of E-PROC-0006 which provides direction to action owners documenting completion of actions.
- Step 17.1 of E-PROC-0006 allows "issue-related records that are not stored in the [authorized issues management system] due to unusual size or classification" and records that are not electronic to be

stored in an access controlled and adequate storage container without requiring issue owners to specify in TOPIC the alternate storage location or system of these records. (See **OFI-CNS-8**.)

- All issues are required to meet the same requirements for closure documentation. For example, the closure documentation for an SL D issue "with low, very low, or no risk or consequence" is required to meet the requirements of CNS E-PROC-3114, *Records Management*. (See **OFI-CNS-9**.)

Timeliness and Closure Conclusions

In response to the NPO-identified timeliness concerns, CNS developed capabilities and metrics to monitor the overall timeliness of issue resolutions and most issues reviewed by EA were resolved and adequately documented in a timely manner. However, observations by EA indicate that weaknesses remain. For example, the metric on the number of due date extensions drastically increased from 5% to 15% when longstanding, "aged" issues were transitioned from IMS to TOPIC. Additionally, 127 issues have remained open 3 to 10.2 years, including nonconformances with NFPA consensus standards associated with systems credited in the safety bases for nuclear facilities (i.e., CAQs). Ten percent of the issues EA reviewed had inadequate closure documentation despite monthly reviews performed by issues management specialists on a sample of closed issues.

3.5 Follow-up on 2020 EA Deficiencies

This portion of the assessment examined the completion and effectiveness of corrective actions for the three deficiencies regarding CNS's management of radioactive waste as documented in the April 2020 EA report

Deficiency D-CNS-1 of the April 2020 EA report identified that contrary to the Y15-312, *Issues Management Process*, "Applies To" section, not all procedural noncompliances related to waste handling were entered into IMS. CNS addressed this deficiency in IMS 32183143. Instead of choosing to include future minor issues within IMS, an extensive effort was undertaken to create a separate process to track and trend "de minimis" waste issues. For example:

- CNS developed Y77-41-003 and Y71-66-EC-225 to manage the identification, correction, and trending of minor noncompliances and other issues since CNS considers this approach to make more "business sense" than to track, correct, and trend their resolution via E-PROC-0006. Identified adverse trends are resolved per Y71-66-EC-225 or escalated, as appropriate, for management via E-PROC-0006 in TOPIC.
- CNS revised Y15-312 to categorically exclude waste management de minimis noncompliances and developed entry criteria for E-PROC-0006 based on an extent-of-condition review. Subsequently, the issues management processes used at Y-12 and Pantex (e.g., Y15-312) were incorporated into E-PROC-0006.

Deficiency D-CNS-2 of the April 2020 EA report identified that contrary to the requirements of DOE Order 422.1, *Conduct of Operations*, attachment 2, paragraph 2.p.(3), items a and i, Procedure Y77-903, *Y-12 Waste Management*, did not follow basic conduct-of-operations standards for procedure structure. For example, some steps contained more than one action, some notes contained actions to perform, and some steps did not clearly list the action that is expected. Per IMS 32183146, Y77-903 was completely re-written and converted to a manual with topic area chapters, thereby adequately addressing this deficiency.

Deficiency D-CNS-3 of the April 2020 report identified that contrary to Y15-312, CNS did not address the CNS-identified contributing cause associated with ineffective management and oversight of weapons

related material (WRM) disposition. EA also identified that CNS assessments of WRM activities upstream of packaging do not address compliance with NNSS waste acceptance criteria (WAC) when WRM is declared waste.

This deficiency was entered into IMS as 32183147, which was closed by referencing action 16 in Revision 2 of RP-YAREA-F-1616 000 02, *Corrective Action Plan (CAP) for Radioactive Waste Acceptance Program (RWAP) Findings I-2790 and I-2817*. Action 16 specified the development of an improved overarching WRM disposition program to ensure that WRM destined for landfill disposition meets the WAC for the receiving site. However, the extensive closure evidence documented for this action did not include the specific objective evidence related to the original EA deficiency concerning ineffective oversight. The inadequate closure of this action was independently reviewed and identified by the concurrent RWAP audit and resulted in a finding in its report.

During onsite interviews, sufficient alternative closure evidence was provided (e.g., E-PROC-3004, *Enterprise Assessment Process*, Y71-008PD, *NNSS Waste Certification Program Plan*, and a one-page document entitled *CNS Y12 Waste Certification Program FY 2023 Assessment Schedule*) that supported closure of Deficiency D-CNS-3 of the April 2020 report.

CNS implemented adequate corrective actions for these three deficiencies. EA document reviews and field observations confirmed these programmatic improvements. No further EA action is warranted.

Follow-up on 2020 EA Deficiencies Conclusions

CNS, with oversight from NPO, implemented adequate corrective actions for the three deficiencies cited in the April 2020 EA report. No further EA action for these deficiencies is warranted.

4.0 BEST PRACTICES

Best practices are safety-related practices, techniques, processes, or program attributes observed during an assessment that may merit consideration by other DOE and contractor organizations for implementation. The following best practices were identified as part of this assessment:

- Information used to report and manage the recovery from an event (including the specific gaps in the implementation of requirements that led to the event) is simultaneously available for CNS personnel to use to identify and categorize the associated issues for resolution per CNS's issues management process.
- CNS readily displays and monitors its distribution of issue significance levels to detect changes in its issues management implementation across Y-12 or within specific functional areas or divisions.
- CNS provides an expected time commitment for a causal analysis of an issue based on its significance level (i.e., a one-to-two-hour analysis for SL C, D, and E issues, a one-to-eight-hour analysis for simple SL B issues, a one-to-two-day analysis for moderately complex SL B issues, and one-to-two-week or more analysis for SL A issues and complex SL B issues). These expected time commitments ensure the efficient use of resources and help prevent prolonged causal analyses.
- Even if a causal analysis is not required, CNS issue owners are expected to use, and are held accountable for using, their judgment to determine "what the causes are (not the problem, but the causes of the problem)" and to develop an action plan to "rectify the issue and significantly reduce the likelihood of recurrence."

5.0 FINDINGS

Findings are deficiencies that warrant a high level of attention from management. If left uncorrected, findings could adversely affect the DOE mission, the environment, the safety or health of workers and the public, or national security. DOE line management and/or contractor organizations must develop and implement corrective action plans for findings. Cognizant DOE managers must use site- and program-specific issues management processes and systems developed in accordance with DOE Order 226.1, *Implementation of Department of Energy Oversight Policy*, to manage the corrective actions and track them to completion.

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Finding F-CNS-1: CNS organizational directors have not instituted adequate training and direction to most CNS employees and their supervisors or managers to fulfill the responsibilities set out in E-SD-0002 and E-PROC-0006 for identifying and managing issues in TOPIC and less significant items of interest and de minimis issues via other CNS management systems. (E-SD-0002, sections 2.4 and 5.0)

6.0 DEFICIENCIES

Deficiencies are inadequacies in the implementation of an applicable requirement or standard. Deficiencies that did not meet the criteria for findings are listed below, with the expectation from DOE Order 227.1A for site managers to apply their local issues management processes for resolution.

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Deficiency D-CNS-1: CNS procedures E-PROC-0006 and UCN-26340 do not adequately flow down the facility managers' responsibility set out in DOE Order 232.2A attachment 1, section 4.b for determining causes and generic implications for all reportable occurrences. (DOE Order 232.2A, attachment 1, section 4.b)

Deficiency D-CNS-2: CNS incorrectly characterized/categorized some issues identified during systematic reviews performed per Y15-027 as OFIs or SL E issues. Per E-PROC-0006, SL A – D issues are required to be corrected, but no corrective action is required for OFIs or issues categorize as SL E issues. (E-PROC-0006, step 8.2)

Deficiency D-CNS-3 CNS did not identify 7% of the issues reviewed by EA as CAQs in TOPIC as required. (NQA-1, requirement 16)

Deficiency D-CNS-4: CNS effectiveness review action owners and issue owners (or their delegates) approved effectiveness reviews that did not determine whether corrective actions were effective. (E-PROC-0006, steps 14.4 and 14.7)

Deficiency D-CNS-5: CNS has not corrected some CAQs "as soon as practicable" as required. (NQA-1, requirement 16)

Deficiency D-CNS-6: The CNS "On Hold" process in appendix D of E-PROC-0006 allows corrective actions for CAQs to be stopped indefinitely or, in effect, canceled without correcting the issue. Per NQA-1, CAQs are required to be "corrected as soon as practicable." (NQA-1, requirement 16)

Deficiency D-CNS-7: CNS closed 10% of the issues reviewed by EA without meeting CNS's documentation requirements for closure. (E-PROC-0006, steps 15.1 and 15.6 and appendix G; E-PROC-3114, chapter 1, section 5.2; and NQA-1, requirement 16)

7.0 RECOMMENDATION

EA identified one recommendation for consideration by senior line management. Recommendations do not require formal resolution through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions derived from the aggregate results of an assessment that may assist senior line management in improving the effectiveness of programs or site management.

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Recommendation R-CNS-1:

CNS senior managers, in conjunction with NPO, should:

- Evaluate the adequacy of existing conditions, including compensatory measures taken for the approximately 200 open fire protection issues at Y-12.
- Accept "as is" the longstanding, "aged" issues that do not impact safety or present significant risk to NNSA/DOE assets.
- Develop a resource-loaded plan to resolve longstanding fire protection issues that could impact personnel or nuclear safety or present significant risk to high-value, mission-essential assets.

8.0 OPPORTUNITIES FOR IMPROVEMENT

EA identified eight OFIs to assist cognizant managers in improving programs and operations. While OFIs may identify potential solutions to findings and deficiencies identified in assessment reports, they may also address other conditions observed during the assessment process. These OFIs are offered only as recommendations for line management consideration; they do not require formal resolution by management through a corrective action process and are not intended to be prescriptive or mandatory. Rather, they are suggestions that may assist site management in implementing best practices or provide potential solutions to issues identified during the assessment.

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OFI-CNS-1: Consider correcting the reference for operational readiness reviews in E-PROC-0006 and resolving the EA-identified inconsistencies between E-SD-0002 and E-PROC-0006 when revising E-SD-0002 and E-PROC-0006 for other reasons.

OFI-CNS-2: Consider revising E-PROC-0006 to provide more guidance on the content needed in issue descriptions in TOPIC to support significance level determination.

OFI-CNS-3: Consider indicating in TOPIC (e.g., via checkboxes) which issues are SCAQs and CAQs, instead of citing only the criteria that determined the significance level (i.e., SL B.7 or C.5).

OFI-CNS-4: Consider revising E-PROC-0006 to require owners of SL A and B issues to consider performing one or more interim effectiveness reviews when a subset of the corrective actions will take much more time to implement or are significantly delayed.

OFI-CNS-5: Consider revising E-PROC-0006 to require the issue owner's manager to approve corrective action due dates (including extensions) greater than a CNS-established goal (e.g., 60 days beyond the origination date).

OFI-CNS-6: Consider revising E-PROC-0006 by replacing the "On Hold" process with a "Long Corrective Actions" process that removes from the CNS metrics only the issues/actions that take a long time to implement, while keeping tasks and report notifications of these issues/actions active.

OFI-CNS-7: Consider revising E-PROC-0006 to have issue owners annually present the status and barriers precluding resolution of "On Hold" issues (or "Long Corrective Actions") to CNS executives for validation and/or action as warranted.

OFI-CNS-8 Consider revising E-PROC-0006 sections 13 and 17 to reference appendix G and to instruct issue owners to identify in TOPIC the alternate locations or systems used to store records (e.g., classified documents and nonelectronic records).

OFI-CNS-9: Consider revising E-PROC-0006 to allow SL C, D, and E issues to be closed with a description of actions taken that demonstrates corrective action completion was verified.

9.0 ITEMS FOR FOLLOW-UP

EA, in coordination with NPO, is planning an assessment of the CNS fire protection program in calendar year 2023. EA will follow up on the resolution of the longstanding, "aged," fire protection issues, including the nonconformances with NFPA consensus standards.

Appendix A
Supplemental Information

Dates of Assessment

Remote Assessment: July – September 2022
Onsite Assessment: July 25-28 and August 22-25, 2022

Office of Enterprise Assessments (EA) Management

John E. Dupuy, Director, Office of Enterprise Assessments
William F. West, Deputy Director, Office of Enterprise Assessments
Kevin G. Kilp, Director, Office of Environment, Safety and Health Assessments
David A. Young, Deputy Director, Office of Environment, Safety and Health Assessments
Kevin M. Witt, Director, Office of Nuclear Safety and Environmental Assessments
Kimberly G. Nelson, Director, Office of Worker Safety and Health Assessments
Jack E. Winston, Director, Office of Emergency Management Assessments
Joseph J. Waring, Director, Office of Nuclear Engineering and Safety Basis Assessments

Quality Review Board

William F. West, Advisor
Kevin G. Kilp, Chair
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EA Site Lead for the Y-12 National Security Complex

Thomas E. Sowinski

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Appendix B
Comments on Individual Issues

An assessment team from the U.S. Department of Energy (DOE) Office of Enterprise Assessments (EA) conducted a detailed review of 345 issues at the Y-12 National Security Complex (Y-12) entered into the Consolidated Nuclear Security, LLC (CNS) Issues Management System (IMS) and Tools for Opportunities - Performance Improvement through Communication (TOPIC). Specifically, the EA assessment team reviewed 92 radioactive waste management issues, 151 nuclear engineering issues, and 102 conduct of operations (CONOPS) issues. EA's comments on individual issues are documented in this appendix. The significance levels (SLs) from the most serious issues down to items of interest/opportunities for improvement (OFIs) are SL A through E, respectively. The significance level determined by CNS for each issue is in parentheses and precedes the comments. For issues entered into TOPIC, the number of the criterion used by the IMB to determine the significance level is appended to the SL (e.g., conditions adverse to quality (CAQs) are SL C.5, and significant conditions adverse to quality are SL B.7).

E-PROC-0006, *CNS Issues Management Process*, provides CNS's overall expectations and processes for managing issues. EA's comments on the identification of issues, their categorization, and the timeliness of their resolution are based on the invoked requirements in applicable consensus standards and DOE directives per the CNS contract with the National Nuclear Security Administration (NNSA) and the NNSA-approved CNS E-SD-0002, *Quality Assurance Program Description*.

Radioactive Waste Management Issues	
IMS and/or TOPIC Number	Comment
31994530	(B) A periodic sanitary sewer grab sample was not collected as required by regulatory permit. Contrary to appendix H of E-PROC-0006, the effectiveness review memorandum did not adequately look beyond the completion of corrective actions and evaluate performance for a period after the actions were implemented.
32095139	(B) During a review of offsite shipments, it was discovered that an incomplete design drawing was used for input into waste characterization. This resulted in shipments of components not allowed in the waste profile for that disposal facility. This is a very complex issue, resulting in many additional issues being generated with extensive actions, management and independent oversight, including numerous visits and audits by personnel in the Radioactive Waste Acceptance Program (RWAP) for the Nevada National Security Site (NNSS). This issue will remain open until all weapons material (WM) and weapons related material (WRM) is approved for NNSS disposal. EA reviewed all relevant data available to date and has no additional concerns beyond those already identified in related IMS issues and those identified by the oversight reviews.
32118354	(C) The storage configuration of unfired squib valves was not compliant with DOE-STD-1212-2012, *Explosives Safety*. This issue was open for approximately 22 months, which is not timely.

32118408	(C) Disposition of WRM is inconsistently addressed and implemented across the various Y-12 production facilities. Action 1 is intended to address the inconsistencies with WRM disposition and ensure that they are addressed in the new process. The closure statement offers a general discussion but does not provide any documented evidence, such as a copy of, or excerpts from, procedure Y77-903, *Y-12 Waste Management*, which defines the new WM/WRM/waste process.
32125720	(C) A management assessment identified that explosives and explosives containers in the explosives storage cabinet were not positioned safely and securely. There was also no verifiable inventory control process for that storage cabinet. This issue was open for approximately 21 months, which is not timely.
32130015	(D) The Nevada National Security Site Waste Certification Program Plan was reviewed to confirm compliance with applicable requirements. Several OFIs were identified and are tracked to completion in this issue. For action 2, an email requesting procedure owners to include the waste certifying official (WCO) as a potentially affected organization is not evidence that the WCO has been included in the technical procedure processes as requested.
32139714	(C) There were missing bolts on a waste box in storage. For action 1, an email requesting management to share information learned from this issue is not adequate evidence that the information was shared with the intended audience.
32154811	(C) A waste management tanker truck damaged a catwalk when it pulled out of a diked area before disconnecting the fill tube. For the action 4 closure evidence, the activity hazards assessment participants did not individually print and sign names on the attendance list. There is a common signature for all listed participants, while the form states "signature indicates I have been briefed." This common signature does not meet the intent of the individual signatures requested on the attendance list.
32156985	(B) This entry resulted from an RWAP assist visit to aid CNS in preparing for the RWAP audit required prior to lifting the suspension from shipping waste to NNSS for disposal. The resulting issues requiring corrective actions were entered under this entry along with closure evidence documentation. There were 17 actions assigned from this 2020 RWAP assist visit, making this a complex entry to manage. The effectiveness review was one brief paragraph and, contrary to appendix H of E-PROC-0006, did not look beyond the completion of corrective actions and evaluate performance for a period after the actions were implemented.
32183143	(D) This issue was initiated for deficiency D-CNS-1 from the 2020 EA radioactive waste management assessment. This deficiency, in part, identified that not all procedural noncompliances related to waste management were entered into IMS. Actions 5 and 6 had Y-12 Engineering provide instructions as to when an identified trend in walkdown results would be entered into IMS. These instructions resulted in a revision to procedure Y17-019, *Walkdowns to Assess Configuration Management, Material Condition and Aging Issues Associated with Vital Safety Systems*, adding a note to "consider" tracking issues and trends in an issue tracking system. This instruction is superficial and not well defined.

32183147	(C) This issue addressed deficiency D-CNS-3 from the 2020 EA radioactive waste management assessment, which was related to ineffective management and oversight of the WRM disposition activity. The issue closure statement redirects to action 16 in Revision 2 of document RP-YAREA-F-1616 000 02, *Corrective Action Plan (CAP) for Radioactive Waste Acceptance Program (RWAP) Findings I-2790 and I-2817*. Action 16 specified the development of an improved overarching WRM disposition program to ensure that WRM destined for landfill disposition meets the waste acceptance criteria for the receiving site. However, the extensive closure evidence documented for action 16 did not include the specific objective evidence related to the original EA deficiency concerning effective oversight. The inadequate closure of this action was independently reviewed and identified by the RWAP audit team and resulted in a finding in their report. During onsite interviews, sufficient alternative closure evidence was provided (E-PROC-3004, *Enterprise Assessment Process*; Y71-008PD, *NNSS Waste Certification Program Plan*; and a one-page document entitled *CNS Y12 Waste Certification Program FY 2023 Assessment Schedule*). These appropriate closure evidence documents were subsequently added to TOPIC I-1453, Action 25 (which was recently migrated from IMS 32095139) during this assessment.
32208285	(D) During a field walkdown, the criticality safety group identified an issue concerning two pumps that had been removed from service several years ago. The pumps were positioned too close together based on nuclear criticality spacing requirements. A violation of a nuclear criticality safety requirements is a CAQ and, therefore, at least needs to be SL C.5. Action 7 was assigned to create a chain of custody checklist (UCN-26838). An email used to close this action stated that the checklist had been created but a copy was not provided. It was also stated that the checklist was not being used by maintenance personnel. In addition to inadequate action closure evidence, there is uncertainty whether the action was fully implemented to resolve the issue.
32265391	(C) A container supplier was not on the quality approved supplier list. Action 1, to place hold tags on all affected containers, was closed even though a discrepancy was identified concerning the number of containers involved. There is no evidence that this discrepancy was resolved prior to closure.
AS-4193/I-5	(C.7) Waste container labeling was less than adequate. Action 1 was assigned to develop and deliver a briefing on container labeling requirements. The closure evidence included the briefing attendance sheets but did not include the content to demonstrate that the briefing was appropriate to address the issue.
AS-4194/I-2	(C.6) A waste profile document did not designate that sealed radiological sources were present. For action 2, to revise a waste stream profile, an email stating that the action was complete was used rather attaching “evidence for completed actions” (e.g., a copy of the revised profile) as required by E-PROC-0006.

C-96/I-7	(C.6) This issue reported a state of Tennessee permit violation concerning a long-term roof leak. Closure evidence involved an entry into the "water intrusion system" indicating "more extensive repairs are now necessary." Even though the Tennessee Department of Environment and Conservation only required the initiation of the repair, the issue is not resolved until the roof leak is repaired. The problem statement for C-96/I-1 included a reference to the E-5305/I-1 for tracking the roof repairs. However, E-5305/I-1 was closed June 21, 2022, and an interview revealed that the repair is not scheduled until fiscal year 2024, so this issue still exists and C-96/I-7 or E-5305/I-1 was incorrectly closed.
C-96/I-8	(C.6) This issue reported a state of Tennessee permit violation that concerned missing daily inspection log entries. An inspection was added to a daily rounds sheet. An email stating that the action was complete was used to close this issue rather than attaching "evidence for completed actions" (e.g., a copy of the revised rounds sheet RS-EU-9206-003) as required by E-PROC-0006.
E-4947/I-2	(C.11) Laboratory results indicated that a PCB contamination limit was exceeded in storage bottles. Action 1 developed an action plan, with closure evidence that "issues resolved, and work resumed." There is no closure evidence that the action plan was implemented to fully resolve the identified issue.
E-5301/I-1	(C.6) An unannounced state regulatory compliance inspection identified that daily Resource Conservation Recovery Act (RCRA) inspections were not completed. Action 1 was assigned to evaluate adding a RCRA daily inspection to the daily rounds or operating procedure. An email reflects the decision to add this inspection to an operator rounds sheet, and requests adding a new action to modify this rounds sheet. However, there is no additional action identified or closure evidence provided demonstrating that the rounds sheet was modified.
E-5305/I-1	(D.2) Evidence of roof leaks and emergency lighting issues were identified during an unannounced state regulatory compliance inspection. There was a corrective action to improve communication, with no indication or closure evidence of how that was accomplished. There was an issue with daily inspection log entries missing with an action to add the inspection to a daily rounds sheet. However, no evidence showing completion of this action was attached (e.g., the closure evidence did not include the revised rounds sheet) as required by E-PROC-0006. Additionally, this issue was closed on June 21, 2022, before the roof leaks discussed above in C-96/I-1 were repaired.
E-5462	(C.11) There was an unexpected chemical reaction in a waste drum. As part of the initial response, a laboratory technician, dressed out in protective clothing, moved the drum to an exhaust hood face and loosened the drum bung lid to investigate. This happened before the technician called for support from the environmental officer, chemical hygiene officer, the safety and industrial hygiene organization, the Y-12 fire department, and the spill response leader. This initial laboratory technician investigation, prior to requesting additional assistance, was not an appropriate response to this condition. No corrective actions were identified to address this inappropriate response.

I-133	(C.7) Chlorine tablets were packaged into metal drums, creating a container incompatibility issue. This issue is an example of not using the issues management process and procedures as intended. The issue was initially identified on or before February 11, 2021 (it is not clear when or how it was identified). An email dated March 18, 2021, directs this issue to be entered into IMS, with three of the four actions already complete. The discovery date in IMS is March 18, 2021, but should have been February 11, 2021, or earlier. Action 1 was shown completed on June 27, 2022. Actions 2 through 4 were shown completed in IMS on March 30, 2021, even though they were completed at some earlier date. Action 2 was an informal extent-of-condition (EOC) review, rather than performing an EOC per appendix C of E-PROC-0006.

Nuclear Engineering Issues	
IMS and/or TOPIC Number	Comment
30576980	(C) This issue identified several engineering standards that are out of date and has been open since June 2011. An EOC review increased the scope of this issue. This issue is not being resolved in a timely manner as 14 due date extensions have been made to date.
31844226	(C.10) The issue description notes a lack of training for personnel performing sprinkler piping inspections. However, the sole corrective action is to add an experience requirement for qualification of fire protection engineers, with no provision for the needed training. This issue was initiated in August 2017 and remains open with nine extensions. The proposed action is not adequate to correct the problem identified and the issue is not being resolved in a timely manner.
31889240	(C) This issue stated that there is no clear documentation of which editions of the National Fire Protection Association (NFPA) code are currently in use and which are being implemented. It resulted in a revision to E-SD-2004, *Fire Protection Program*, to provide the needed information. This is a timeliness issue, in that the document revision took over four years to complete.
32126833	(C.5) This issue identified multiple occurrences where sprinkler piping was not supported in accordance with NFPA requirements. Numerous modifications were identified as necessary to bring it into compliance. None of these modifications have been completed since the issue was discovered in October 2019. This system is credited in the safety basis. This is a CAQ, which NQA-1 requires be corrected "as soon as practicable." This is both a timeliness issue and an NQA-1 violation.
32133896	(D) This issue stated that procedure Y15-706, *Technology Infusion Process*, has been on hold since September 27, 2015, pending administrative review. It was created in December 2019 and is still open after 14 extensions. Although the issue documented is minor, it is another example of failure to take timely action to correct a problem.
32208152	(C.5) This issue identified parts that were de-certified after they were pulled for use. Action 1 was closed with an email stating that a briefing occurred and identified attendees by position title. No attendance sheets and no briefing material were attached. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.

I-25	(C.7) This issue documented an incorrect temperature tolerance band calculated for an argon furnace. The issue is a CAQ, which should have been categorized as C.5.
I-170	(C.5) This issue documented a component that failed dimensional inspection. Rework also failed. The only action was to complete a visual inspection; however, only a personal statement of action completion was provided. When an action is assigned, E-PROC-0006 requires evidence of completion.
C-16/I-3	(C.6) This issue documented a rollup fire door whose automatic operation was impeded, resulting in a defeated fire barrier. This issue should have been considered a CAQ; however, the C.6 categorization shows that it was not.
C-42/I-1	(C.11) This issue documented a potentially vulnerable condition with criticality accident alarm system annunciation that was not promptly addressed. The issue is a CAQ, which should have been categorized as C.5.
AS-1295/I-1	(C.11) This issue stated that a five-year structural surveillance required by PF-PJ-972082-A002 has not been adequately performed. It was identified in June 2021, but the current action due date to complete missed areas in the surveillance is December 2023. This is identified as a timeliness issue since it inappropriately allows 2 ½ years to complete a surveillance that is required every five years.
I-611	(C.5) This issue documented equipment that is due for calibration. However, action 2 is about fixing a ceiling leak and is unrelated to the issue description. In addition, the closure evidence for action 1 is not retrievable.
AS-4122/I-1	(C.5) This issue documented improper use of pen and ink changes to a technical procedure. Although it is categorized as a CAQ and the only action is to revise a procedure, it remains open after 10 months. This is considered a timeliness issue.
E-5198/I-1	(C.12) This issue identified elevated uranium holdup in a reduction salvage hopper, a potential criticality issue. The issue is a CAQ, which should have been categorized as C.5.
C-82/I-4	(C.5) In this issue, the NNSA Production Office (NPO) provided feedback that the corrective actions that CNS has implemented to respond to Large Geometry Exclusion Area program violations do not address the broader scope of all organizations. Action 1 evaluated possible corrective measures. The attached closure statement says that recommendations 2 and 4 are still being evaluated. However, three months later, no additional actions have been created to document those evaluations or to implement any corrective measures. Therefore, this issue lacks adequate evidence that the identified problem has actually been addressed. The current status for this issue in TOPIC is "Awaiting Issue Closure." This issue has been categorized as a CAQ.
C-92/I-2	(D) This issue stated that CNS did not take actions necessary to provide baselined special materials to production in early FY 2022. Action 2 was closed without closure evidence required by E-PROC-0006.
I-932	(C.5) This issue stated that "the following work" needs to be prioritized to address concerns from vital safety system walkdowns. It identified numerous configuration management issues requiring drawing updates. Although it is categorized as a CAQ, the due dates stretch from mid-2023 to early 2024. This is a timeliness issue.

I-1178	(C.5) This issue described a solid sample contamination occurrence. This issue was originated in April 2022 and had no corrective action plan at the time of this assessment. This is a timeliness issue.
I-1293	(C.5) This issue identified equipment that is overdue for calibration. It is closed; however, no evidence is in the record to support closure.
I-1536/ 30670132	(C.12) This issue documented that sprinkler piping wall anchors pulled completely or partially out of the wall in several locations in a plenum in building 9212. It transitioned from IMS to TOPIC with a categorization of C.12 but is a CAQ and required to be identified as SL C.5. This issue is currently 10.6 years old with action planned for 2025 based on the "facility exit strategy plan," which is not timely. Per Fire Protection Engineering, these anchors are on a credited system that will likely need to remain functional beyond 2025 (e.g., until the material-at-risk in building 9212 and associated safety basis controls are lowered and for life safety purposes).
I-1635/ 32184196	(C.12) This issue identified training problems. All actions are closed except the effectiveness review. This issue was originally assigned a significance level of C.5 (CAQ) but changed to C.12 when the issue transitioned from IMS to TOPIC.
I-1602/ 31814476	(C.12) This issue identified multiple locations in building 9212 where sprinkler piping hanger spacing exceeds the 15 feet maximum identified in NFPA 13. It has been open for over five years with a due date extended to 2024. This noncompliance is a CAQ and a timeliness issue. The appropriate significance level is C.5, not C.12.
I-1600/ 31814473	(C.12) This issue identified where an additional hanger is needed on a sprinkler pipe. This issue has been open for over five years with a due date extended to 2024. This noncompliance is a CAQ and a timeliness issue. The appropriate significance level is C.5, not C.12.
I-1606/ 31814550	(C.12) This issue noted where sprinkler piping hanger spacing exceeds the 12 feet maximum identified in NFPA 13. It has been open for over five years with a due date extended to 2024. This noncompliance is a CAQ and a timeliness issue. The appropriate significance level is C.5, not C.12.
31662303, 31658064, and 31564057	(C) These issues are included as examples of issues in IMS that do not have a documented significance evaluation worksheet.

CONOPS Issues	
IMS and/or TOPIC Number	Comment
I-1811	(E) This issue was a Systematic Review of the *Special Nuclear Materials Operations Part Marking* procedure. All 12 of the observations from the review were characterized as OFIs with one action, due a year later, to address all 12. However, some of the observations were issues (e.g., identifying errors in the procedure that require correction vice enhancement) that are required to be categorized as SL C.7.

I-1862	(D.2) This issue was a Systematic Review of the Container Refurbishment Area in building 9204-2E. All observations from this review were characterized as OFIs with one action, due a year later, to address them all. However, some of the observations were issues (e.g., identifying errors in the procedure that require correction vice enhancement) that are required to be categorized as SL C.7.
I-1853	(E) This issue was a Systematic Review of the 9215 Machine Coolant System Inventory Area. All observations from this review were characterized as OFIs with one action, due six months later, to address them all. However, some of the observations were issues (e.g., identifying errors in the procedure that require correction vice enhancement) that are required to be categorized as SL C.7.
I-1694 32273339	(C.7) This issue documented a finding in AS-743, *Management Assessment of Infrastructure/Utilities Training Program*. The assessment identified that no record of completed job analysis or training program descriptions (TPDs) existed for Y-12 Infrastructure/Utilities Management Organization positions. All the actions for addressing the job analysis and TPDs were extended out to 22 months from discovery. The extension states that the job analysis cannot be approved until the TPD is completed. The job analysis is the basis for the TPD. The reasoning is inconsistent with the systematic approach to the training process.
I-1695 32273396	(C.7) This issue documented a finding in AS-743, *Management Assessment of Infrastructure/Utilities Training Program*. The finding stated that several training courses did not have adequate training lesson plans. It also identified that on-the-job training guides lacked answers to knowledge questions. Given the potential impact on the quality of operator training and qualification, this issue should have been categorized as a CAQ, C.5.
I-1687 32267845	(C.12) This issue identified that a 480-volt breaker was isolated without the proper personal protective equipment, personnel training, or approvals. Given the potential safety impact of an unauthorized operation of electrical equipment by an unqualified individual, this issue should have been categorized as a CAQ, C.5. Additionally, the corrective action for a briefing did not include a copy of the briefing, and the attendance sheets lacked expectations for who should be briefed, as well as the signatures of those in attendance.
I-1650 32202966	(B.14) This issue documented that NPO identified clutter in gloveboxes in the laboratories in building 92. The actions to procure and install inert storage containers were closed without objective evidence demonstrating completion. The action to clear the gloveboxes was closed with an email, without a walkdown form or other objective evidence to document the results of the action. In addition, no details were provided with the closure such as time, date, verification of the individual glovebox condition, or where the materials were placed. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.

I-1791	(E) This issue documented a Production Evaluation Process Review (PEPR) in building 9204-02, Special Material Operations. The review identified various procedure issues that were corrected as part of the review. A procedure change for incorrect reference to switch labels for the operating brine pump and hydraulic pump included no actions to review other operating procedures, maintenance procedures, drawings or the master equipment list which may have had similar nomenclature issues for the same components. This issue should have been classified at least a C.7 given the inability to execute the procedure as written. This is the first of two PEPRs entered into TOPIC. The use of TOPIC to document and track actions from PEPRs was recently initiated by the new manager. However, PEPRs dating back to 2019 were not reviewed for issues that are required to be entered into an authorized issues management system and managed (corrected) per E-PROC-0006.
32275701	(C.7) This issue documented a finding in AS-834 independent assessment report that two fissile material containers were stored in a hallway with no "empty" labels, and one did not have the locking ring fastened. The action to complete a briefing was not timely, having been held five months after the event. In addition, the briefing was not dated or signed as required for corrective action closure evidence in accordance with appendix G of E-PROC-0006.
32275733	(C.7) This issue documented a finding in AS 834-07 independent assessment report that there is no documentation (procedure or rounds sheets) used to document dike inspections for water levels or other deficiencies. The closures of corrective actions 1, 2, and 3 to address this finding lack specific objective evidence to support closure and are not in accordance with appendix G of E-PROC-0006.
32275734	(C.11) AS 834-08 independent assessment report identified that procedure Y70-37-103, *Containers and Material Handling*, lacks clarity regarding nuclear criticality safety (NCS) requirements for dimension and design feature verification prior to loading. This is a CAQ because the lack of clarity can result in not meeting NCS requirements. CAQs are required to be SL C.5. The document revision was untimely, taking 16 months for completion.
I-1643 32191970	(C.12) This issue documented a troubleshooting work package and tagout written to perform work on an incorrect component. The mechanic proceeded with troubleshooting without having the work package corrected. In addition, maintenance was performed beyond that authorized by the work package. The issue should have been identified as a CAQ, C.5.
E-4536 32203353	(C.5) This issue documented an NPO-identified emerging item of interest (EII-60-FY20-00). In building 9204-2E, an item was worked and processed out of sequence with its approved routing. A quality step was unintentionally skipped, and the next assembly step was performed. As a result, the item in question is being held for further evaluation and a path forward is being determined. Action 1 was closed with an email stating that a briefing had been conducted without stating the content or audience for the briefing to demonstrate (verify) adequate completion of the action as required by NQA-1.

E-4557 32205653	(C.5) This issue documented that special materials being staged for product assembly were discovered to not be packaged as required. Action 4 was closed with an email stating that inspectors ensured that materials in the outgoing glovebox were sealed. The closure documentation does not specify the date the action was performed or who performed it, and there is no signature on the document. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.
E-4554 32205485	(C.5) This issue documented an issue with the use of a class 17 detergent for ultrasonic cleaners that had an expired shelf life. The closure evidence for action 4 lacked information on who was required to attend the briefing. There are names added to the attendance sheets and no lines drawn at the end of the sheets to preclude unauthorized additions. The attached process change is not clear on what was changed. The briefing materials for marking labels were not associated with any procedure requirement. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.
E-4535 32203166	(C.5) This issue documented that the numerical control tape that was created for a new machine is currently not approved and was used on 27 production parts. All 27 parts have been placed on hold. Corrective actions closure evidence for actions 5 and 6 lacked required details. The procedure summary used for the briefing is not signed and dated, nor does the reference to the procedure include the dates and revision of the procedure. The action 6 attendance sheet is not properly filled out. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.
E-4532 32197658	(C.5) This issue documented that an expired part was used to make a subassembly. The closure to action 3 refers to a future action with no indication of completion. The closure for action 4 refers to the revision of three follow sheets without any titles, unique identifiers, or revision numbers. This closure is not in accordance with appendix G of E-PROC-0006 for closure documentation.
E-4518 32195154	(C.1) This issue documented that the packing material for a component shipment was installed incorrectly. As a result, all packing and shipping operations from Y-12 of the subject component have been suspended. Action 3, to revise four procedures, was closed. However, one of the four procedures (Y51-01-B2-G-121, *(U) DT-23 Container Refurbishment*) was only submitted for approval, which does not provide evidence of action completion. The closure to action 4, to establish an interface, was closed to a new position within CNS. However, no organization chart or procedure change to identify the position with roles and responsibilities was provided demonstrating completion of this action.
E-4503 32194106	(C.5) This issue documented a nonconforming condition resulting from a defect on a part that was certified and used in an assembly that was not logged in the shop floor control system. The closure, to action 3 for a briefing, listed attendance sheets but did not provide a listing of the intended audience. The closure, to the procedure revision in action 4, was extended three times, resulting in the procedure being issued eight months after the event occurred. No compensatory action was put in place during that period.

E-4310 32154649 E-4254 32139369	(C.5) This issue documented that personnel who were preparing six items for shipment off site noted that one of the items within the larger heat-sealed bag was not in an individual bag as required. Further investigation in that location noted 17 additional similar issues. Corrective actions include expanding the EOC review and revising the specification document. The EOC form provided was not complete given that it did not document any results and was not signed. E-4254, which also documented this condition, included an EOC review that provided no detailed result.
E-4244 32133991	(C.7) This issue documented that during a quality audit of the final assembly documentation, a dimensional certification report with an out-of-tolerance condition was identified after it had been missed by both dimensional inspectors and quality auditors. Given the multiple barrier failure associated with product acceptance, this issue is at least a CAQ (i.e., SL C.5). The closure to action 2 contained a briefing sheet that was not signed or dated and contained no information to indicate procedure requirements, causes, or specific compensatory actions discussed during the briefing. Attendance sheets do not identify intended audience. This closure is not in accordance with E-PROC-0006 for closure documentation.
32184112	(D) This issue documented a quality assurance defect report that identified an out-of-tolerance condition on an accepted dimension. Specifically, a dimension was found to be acceptable; however, the attached inspection printout indicated that out-of-tolerance conditions existed on two of the inspection points for this dimension. CAQs are required to be categorized as SL C.5.
32183173	(C.7) This issue documented that an NPO Facility Representative identified that tamper indicating devices were not installed in accordance with a drum loading procedure. An email that was included as closure documentation provided a list of issues management board members who were invited, without indicating who attended. Documented corrective actions only addressed briefing the crew involved. A statement in the package for the Material Balance Area Custodian to observe/evaluate future similar operations was not addressed (e.g., was not added as an action).
E-4606 32211650	(C.12) This issue documented that during a routine parts inventory, it was discovered that a special assembly was built with parts that were thought to be missing. The parts appeared on an "items not inventoried" report. A thorough inspection revealed that the parts documented as being installed in the special assembly were in a drum, and the "missing" parts were used in the assembly. Given the loss of accountability of parts associated with a special assembly build, this issue should have been categorized as a CAQ, C.5.
E-4404 32185882	(D) This issue documented that Y-12 was informed by Los Alamos National Laboratory (LANL) that an item shipped from Y-12 was not the serial number that was expected. The unit received was the correct unit, but it was marked with an incorrect serial number. The serial number was also incorrect in the Y-12 generated follow sheet. Additionally, LANL noted that the drawing referenced in the shipping paperwork was incorrect. This event involved multiple organizations. Given the importance of proper identification of shipping documents and multiple organization involvement, this issue should have been categorized as a CAQ, C.5.

E-4500 32193950	(C.5) This issue documented that a machining coolant provided as a replacement for a class 17 approved coolant was never put through the class 17 screening process and is not on the class 17 approved materials list. The closure for the action requiring a briefing did not include a copy of the briefing. In addition, the intended population for the briefing was not included, only an attendance sheet of those who were briefed.
E-4538 32203401	(C.5) This issue documented that a clean and bag operation was not properly performed. Specifically, two components were not bagged because the parts were rejected for a visual defect. However, the parts were advanced through the route without actions taken. The closure evidence provided for the action for a briefing was contained in an email that was an HTML document connected to Outlook, which is not an authorized records management system for issues management responses. In addition, the response did not identify the intended audience for the briefing.
E-4742 32275076	(D.4) This issue documented that during dismantlement operations, the incorrect tooling for a lathe cut was used. The closure of action 1 is missing the briefing conducted, the target audience, and the attendance sheet to provide the evidence required by E-PROC-0006.
E-5006 E-4807 E-(4403)/ 32185883 30946865	(B.8) These issues document that ES-3100 containers did not have their lid bolts properly torqued. Previous events included E-4807, E-4403 (32185883), and 30949865. This issue was categorized a B.8 due to recurrence. As a result of observations of operators using a torque wrench incorrectly, training actions were part of the response. However, other than a training and demonstration session for operators, no additional actions were included to review the chemical operator task list, task analysis, or to revise qualification cards. The torque wrench demonstration by operators was not evaluated. Training material did not include lessons learned from multiple events. The actions lacked sufficient rigor given this was a recurrent event. The effectiveness review consisted of the verification of closure reviews and a statement that the event did not recur. No field observations of the torquing process were included.
E-5348	(B.1) This issue documented that a limiting condition for operation (LCO) action statement was allowed to go beyond its allowable action time because of a misunderstanding of the allowance that was provided in the technical safety requirement (TSR). Historically, several LCO completion times have been missed due to this misunderstanding. The action for a causal analysis did not include a complete signed report. Corrective actions focused on the adequacy of the TSR and not operator performance. No actions addressed operator training.
32194247	(D.6) This issue documented that during a verification of water tank level indication, the tank lid was opened without an industrial hygienist performing a required sample for harmful gases. The operators responded by immediately closing the tank lid. Given the potential impact on personnel safety, this issue is a CAQ and required to identified as SL C.5.

I-1644 32191971	(B.14) This issue documented that three linemen were using an insulated boom truck to unload six power poles from a trailer. As the boom operator was moving the first pole off the trailer, the boom inadvertently contacted a phase of a live overhead 13.8 kV line. None of the linemen were aware the boom had contacted the overhead line. The operator continued to move the pole toward the landing area, pushing the contacted phase into an adjacent phase, causing a phase-to-phase fault, severing both lines. The four live line segments fell to the ground until protective relays detected the fault and tripped power off. No linemen were injured. Given the significance of this event and potential for severe or life-threatening injury, this issue is a significant condition adverse to quality and therefore SL B.7 and A.2 would have been appropriate per UNC-26340, *Issues Management Significance Level Determination Worksheet*. At the time of this event, CNS issue owners determined an issue's significance level, instead of the Y-12 issues management board. The checklist used to set the significance level was not attached and the significance level was automatically reset to B.14 during the transition from IMS to TOPIC. CNS appropriately managed this issue as a complex B-level issue, using the same issues management methods (e.g., a root cause analysis) that would be used for an A-level issue.
E-5471	(C.7) This issue documented that an arc melter was used without a proper work package the first time it had radiological material. The work package was not on the plan of the day, and an incorrect radioactive work permit was used. During the operation, abnormal arcing occurred, and the operator hit the emergency stop button. Foundry operations were suspended. Unauthorized operation of major pieces of equipment without a proper work package and without the appropriate radiological precautions that results in shutdown of facility operations due to equipment malfunction is a CAQ and should have been characterized a C.5.