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

April 06, 2020

VIA OVERNIGHT MAIL CARRIER

Mr. Morgan Smith
President & Chief Executive Officer
Consolidated Nuclear Security, LLC
301 Bear Creek Road
P.O. Box 2008
Oak Ridge, Tennessee 37831

NEA-2020-01

Dear Mr. Smith:

This letter refers to the U.S. Department of Energy (DOE) Office of Enterprise Assessments' Office of Enforcement investigation into the facts and circumstances associated with nuclear criticality control weaknesses at the Y-12 National Security Complex. The Office of Enforcement provided the results of the investigation to Consolidated Nuclear Security, LLC (CNS) in an investigation report dated May 29, 2019. An enforcement conference was convened on July 25, 2019, with you and members of your staff to discuss the report's findings and CNS's response. A summary of the enforcement conference and list of attendees is enclosed. This enforcement action only encompasses the events and associated nuclear safety violations that occurred prior to the enforcement conference. NNSA reserves the right to consider for additional enforcement action any events and continuing violations that occurred subsequent to the enforcement conference.

During 2017 and 2018, CNS identified accumulations of fissile material in Building 9212 process areas, including the knockout glovebox, the Holden gas furnace, and the casting line. The amounts of fissile material present exceeded the assumptions of the criticality safety evaluations established for those process areas. The investigation of these accumulations revealed deficiencies in: (1) implementation of the inadvertent accumulation prevention program (IAPP); (2) procedural compliance; (3) evaluation of process changes; (4) establishing roles and responsibilities, and (5) performance of root cause analyses.

The National Nuclear Security Administration (NNSA) considers these deficiencies to be of high safety significance. Although there were no actual consequences to the public, workers, or the environment, these deficiencies eroded the barriers preventing a nuclear criticality and could, if left uncorrected, adversely impact nuclear and worker safety at the Y-12 National Security Complex. The seriousness of these concerns is exacerbated by evidence that CNS did not effectively implement the IAPP, which was initially put into place by the previous Y-12 management and operating contractor to address deficiencies identified in a 2007 enforcement action related to criticality safety controls at Y-12.

Based on the evaluation of the evidence in this matter, including information presented at the enforcement conference, NNSA concludes that CNS violated requirements enforceable under 10 C.F.R. Part 820, *Procedural Rules for DOE Nuclear Activities*, and 10 C.F.R. Part 830, *Nuclear Safety Management*, Subpart A, *Quality Assurance Requirements*.

Accordingly, NNSA hereby issues the enclosed Preliminary Notice of Violation (PNOV), which cites 12 Severity Level II violations and 1 Severity Level III violation with a total base civil penalty, before mitigation, of $1,281,000.

CNS did not identify these deficiencies through rigorous and routine self-assessment activities, but instead discovered them during an operational evolution and subsequent extent-of-condition reviews. NNSA therefore considers these deficiencies to be self-disclosing and grants no mitigation for timely self-identification, consistent with DOE's nuclear safety enforcement policy.

After identifying the first accumulation, CNS took several months, with NNSA involvement, to fully recognize the safety significance of the condition, thereby delaying corrective action. Once recognized, however, CNS's response was thorough and robust, and therefore NNSA has granted partial mitigation of 25 percent for the proposed corrective actions associated with the IAPP implementation violations. These corrective actions, if effectively completed and maintained, should ensure that potential areas of fissile material accumulation are recognized and adequately controlled. NNSA has also determined that partial mitigation of 50 percent is warranted for CNS's proposed corrective actions associated with the violations related to procedural compliance, evaluation of process changes, and establishing roles and responsibilities. These corrective actions, if effectively completed and maintained, should ensure that process changes impacting fissile material accumulation considerations are adequately identified, evaluated, implemented, and verified, and thereby minimize the chance of recurrence for these violations. The remaining violation is associated with quality improvement; historically, DOE has not granted mitigation for corrective actions taken for such violations.

Many of the violations cited have been longstanding and remained unidentified by CNS for months or years; therefore, they are subject to the application of civil penalties for multiple days. However, NNSA is limiting proposed civil penalties to one day based on senior CNS management's willingness to recognize the problem areas once identified (both internally and by NNSA) and identify appropriate remedial action. NNSA's exercise of discretion also acknowledges CNS's commitment to noncompliance reporting and continual transparency with DOE on matters involving nuclear safety performance.

NNSA reduced the contract fee that was awarded to CNS in the fiscal year 2018 performance evaluation by approximately $800,000 in response to deficiencies in criticality safety. In consideration of the mitigating factors and the fee previously withheld, NNSA proposes no civil penalty for the violations cited in this PNOV.

Pursuant to 10 C.F.R. § 820.24, *Preliminary Notice of Violation*, you are obligated to file a written reply within 30 calendar days after the date of filing of the enclosed PNOV and to follow

the instructions specified in the PNOV when preparing your response. If you fail to submit a reply within 30 calendar days, then in accordance with 10 C.F.R. § 820.33, *Default order*, subsection (a), NNSA may pursue a Default Order.

After reviewing your reply to the PNOV, including any proposed additional corrective actions entered into DOE's Noncompliance Tracking System, NNSA will determine whether any further activity is necessary to ensure compliance with DOE nuclear safety requirements. NNSA will continue to monitor the completion of corrective actions until this matter is fully resolved.

Sincerely,

Lisa E. Gordon-Hagerty
Under Secretary for Nuclear Security
Administrator, NNSA

Enclosures: Preliminary Notice of Violation (NEA-2020-01)
Enforcement Conference Summary and List of Attendees

cc: Geoffrey Beausoleil, NPO
Kathy Brack, CNS

Enclosure 1

Preliminary Notice of Violation

Consolidated Nuclear Security, LLC
Y-12 National Security Complex

NEA-2020-01

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with nuclear criticality control weaknesses at Building 9212 revealed multiple violations of DOE nuclear safety requirements by Consolidated Nuclear Security, LLC (CNS). During 2017 and 2018, CNS identified accumulations of fissile material in Building 9212 process areas, including the knockout glovebox, the Holden gas furnace (HGF), and the casting line. The amounts of fissile material present exceeded the assumptions of the criticality safety evaluations (CSEs) established for those process areas.

DOE provided CNS with an investigation report dated May 29, 2019, and convened an enforcement conference on July 25, 2019, with CNS representatives to discuss the report's findings and CNS's response. A summary of the conference and list of attendees is enclosed.

Pursuant to Section 234A of the Atomic Energy Act of 1954, as amended, and DOE regulations set forth in 10 C.F.R. Part 820, *Procedural Rules for DOE Nuclear Activities*, the National Nuclear Security Administration (NNSA) hereby issues this Preliminary Notice of Violation (PNOV) to CNS. The violations include deficiencies in: (1) implementation of the inadvertent accumulation prevention program (IAPP); (2) procedural compliance; (3) evaluation of process changes; (4) establishing roles and responsibilities; and (5) performance of root cause analyses (RCAs). NNSA has categorized the violations as 12 Severity Level II violations and 1 Severity Level III violation. Several of these violations occurred on multiple occasions. This enforcement action only encompasses the events and associated nuclear safety violations that occurred prior to the enforcement conference. NNSA reserves the right to consider for additional enforcement action any events and continuing violations that occurred subsequent to the enforcement conference.

Severity Levels are explained in Part 820, Appendix A, *General Statement of Enforcement Policy*. Paragraph VI(b) states that:

"Severity Level II violations represent a significant lack of attention or carelessness toward responsibilities of DOE contractors for the protection of public or worker safety which could, if uncorrected, potentially lead to an adverse impact on public or worker safety at DOE facilities."

Paragraph VI(b) also states that "Severity Level III violations are less serious but are of more than minor concern: i.e., if left uncorrected, they could lead to a more serious concern."

NNSA's fiscal year 2018 performance evaluation reduced the contract fee awarded to CNS by approximately $800,000 in response to deficiencies in criticality safety. In consideration of

mitigating factors and the previously-withheld fee, NNSA proposes no civil penalty for the violations cited in this PNOV.

As required by 10 C.F.R. § 820.24(a) and consistent with Part 820, Appendix A, the violations are listed below. Citations specifically referencing the quality assurance criteria of 10 C.F.R. § 830.122 constitute a violation of § 830.121(a), which requires compliance with those quality assurance criteria.

I. VIOLATIONS

A. Work Processes

Title 10 C.F.R. § 830.121, *Quality Assurance Program (QAP)*, subsection (b), states that "[t]he contractor responsible for a DOE nuclear facility must:...(4) conduct work in accordance with the QAP."

Title 10 C.F.R. § 830.122(e), *Criterion 5—Performance/Work Processes*, requires contractors to "(1) [p]erform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

CNS established its QAP in E-SD-0002, *Quality Assurance Program Description*, Issue (i.e., revision) Number 002, dated June 28, 2016, and subsequently in Revision Number 003, dated November 7, 2017. These versions have only minor differences in the sections quoted below.

CNS implements the requirements of 10 C.F.R. § 830.122(e)(1) in part through QAP Section 5, *Instructions, Procedures, and Drawings*, which states that "work is performed to established technical standards and administrative controls using documented and approved procedures, instructions, drawings, and other documents." This section also states that "activities affecting quality and services are prescribed and performed in accordance with documented instructions, procedures, drawings, specifications, other documents, or models that flow down the requirements of the [QAP] and include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished."

1. Implementation of the Inadvertent Accumulation Prevention Program

Contrary to the work process requirements identified above, CNS failed to effectively implement the requirements of Y70-162, *Inadvertent Accumulation Prevention Program (IAPP)*, Revision 10/20/2015. Specific violations include the following:

a. After establishment of the IAPP, fissile material activities were periodically changed to address mission needs. Consistent with the processes detailed in Section F, Step 6, of Y70-150, *Nuclear Criticality Safety Program*, Revision 1/20/2017, the Safety Analysis Engineering, Nuclear Criticality Safety (NCS), and Operating organizations

are required to review changes in fissile material activities in accordance with the IAPP "to determine the need for monitoring and surveillance for the accumulation of fissionable materials." Section B, Step 12, of Y70-162 specifies that when a revised fissile material activity needs to be reviewed, a team will be formed to perform an assessment to "evaluate the appropriateness of the various means to avoid inadvertent accumulation (engineered design features, periodic monitoring, or periodic cleanout) [and] recommend the preferred approach." Section B, Step 16, of Y70-162 goes on to state that an IAPP report must be revised when "the IAPP assessment results in changes to the recommendations."

Contrary to these requirements, CNS failed to ensure that the Safety Analysis Engineering, NCS, and Operating organizations reviewed fissile material activities in accordance with the IAPP. This conclusion is supported by the lack of revisions to the IAPP reports for the casting (Y/MA-8237), HGF (Y/MA-8236), and reduction (Y/MA-8226) operations (which includes the knockout glovebox) from the time they were originally written until after fissile material accumulations were evident in 2017 and 2018. Interviews with personnel from these organizations revealed a limited awareness of the IAPP before the accumulation events of 2017 and 2018.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $78,750
Proposed Civil Penalty (as adjusted) – $0

b. Section F, *Conduct of Fissile Material Activities*, Step 7, of Y70-150 requires CNS to "implement the IAPP review recommendations." The IAPP recommendations for the casting lines are stated in Y/MA-8237, *Inadvertent Accumulation Prevention Program (IAPP) Assessment Report for East and West Casting (CSR-CE/W-016)*, Revision 0, dated November 2007. The IAPP report section titled *Accumulation in the Casting Furnaces* states that "as inventory frequency is reduced from bi-monthly to semiannually, the accumulations in the furnace bowls and enclosure floors could significantly increase if cleanout frequency is reduced a corresponding amount." The section concludes with the statement that the CSE "should incorporate a discussion/evaluation of potential uranium accumulation of the casting furnace interiors in the next revision of the CSE and determine if additional controls to prevent significant amounts of inadvertent material accumulation are necessary." Contrary to the requirement to implement IAPP review recommendations, CNS failed to include these recommendations in CSE-CE/W-016 000 26, *Criticality Safety Evaluation for Casting Operations (East and West Lines)*, noting instead that materials removed during furnace maintenance generally have only residual or contamination levels of uranium.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $78,750
Proposed Civil Penalty (as adjusted) – $0

c. Y70-162, Section E, *Program Reviews and Assessments*, requires CNS to "conduct a [programmatic] review of the IAPP once every three years." The revision log for Y70-162 states that before the current revision, the frequency for conducting assessments on the IAPP was "annual." Contrary to the requirement to perform periodic reviews, CNS failed to perform any reviews of the IAPP between the contract turnover in 2014 and the Office of Enforcement's investigation.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $78,750
Proposed Civil Penalty (as adjusted) – $0

d. Section F, *Conduct of Fissile Material Activities*, Step 6, of Y70-150 requires CNS to "review fissile material activities in accordance with Y70-162." CNS implements this requirement, in part, by using UCN-21692, *CSR/CSA/CSE/TD Validation Checklist*, Step 21, which asks, "Are requirements consistent with the [IAPP]?" Contrary to this requirement, CNS failed to adequately review fissile material activities because personnel using this checklist did not clearly understand how to determine whether requirements were consistent with the IAPP. As one indication, personnel marked Step 21 on the checklist as "N/A" when implementing changes to administrative and engineered controls required for NCS.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $78,750
Proposed Civil Penalty (as adjusted) – $0

e. NCS program document, Y70-150, Sections F.6 and F.7 requires CNS to "review fissile material activities in accordance with Y70-162…to determine the need for monitoring and surveillance for the accumulation of fissionable materials" and to "implement the IAPP review recommendations." Contrary to these requirements, CNS failed to monitor or surveil the "green salt" can in the knockout glovebox for accumulation of fissile material, resulting in an overflow.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $78,750
Proposed Civil Penalty (as adjusted) – $0

2. Procedural Compliance

Contrary to the work process requirements identified above and on multiple occasions, CNS failed to perform periodic cleanout of the HGF in accordance with approved documents intended to implement NCS requirements and verify that they are met. CNS controls discrete work activities in part by issuing "shop floor paperwork" that acts as a

tasking document or cover sheet for personnel doing the work. The shop floor paperwork for the HGF cleanout identified the surveillance action and the associated acceptance criteria. It also provided a space for recording the results of the surveillance and signature blocks for the performer and reviewers and included HGF-B-201, *Holden Gas Furnace System Checklist*, as an attachment. CNS failed to adequately perform the HGF cleanout surveillance in accordance with the shop floor paperwork or the associated HGF-B-201 checklist, as identified in the following violations:

a. The shop floor paperwork states that "notification shall be made to NCS if [material exceeding the limit] is generated prior to completion of the surveillance." Contrary to this requirement, CNS workers failed to notify NCS when the process generated material exceeding the limit on two occasions during 2017.

   This noncompliance constitutes a Severity Level II violation.
   Base Civil Penalty – $105,000
   Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
   Proposed Civil Penalty (as adjusted) – $0

b. Section 2, *Precautions and Limitations*, of procedure Y59-47-92-004, *Cleaning Holden Gas Furnace System*, Revision 0.3, dated November 29, 2016, requires that "loose material in each of the following areas:...SHALL NOT exceed [the material mass limit]." CNS implements this requirement, in part, through use of "HGF-B-201, *Holden Gas Furnace System Checklist*," to record the amount of material present to ensure that it does not exceed the material mass limit or, if it does, to allow identification of this condition. Contrary to this requirement, CNS workers failed to record the amount of material present in the "Furnace Debris NDA U235 Weight" block of the checklist on five occasions during 2017.

   This noncompliance constitutes a Severity Level II violation.
   Base Civil Penalty – $105,000
   Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
   Proposed Civil Penalty (as adjusted) – $0

c. Section F, Step 24, of Y-14-07-001, *Production Surveillance Program*, Revision 07-29-15, states that "if surveillance or inspection requirements have NOT been successfully completed (NOT ALL acceptance criteria met), THEN ... Circle 'UNSAT' for Surveillance Results on the Shop Floor Paperwork." Contrary to this requirement, CNS workers failed to circle "UNSAT" on the shop floor paperwork on two occasions during 2017 when the acceptance criteria for notifying the NCS organization were not met.

   This noncompliance constitutes a Severity Level II violation.
   Base Civil Penalty – $105,000
   Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
   Proposed Civil Penalty (as adjusted) – $0

d. CNS establishes roles and responsibilities for operations personnel in Y-14-001, *Conduct of Operations Manual*, Revision 10/04/2017, Appendix B, *Conduct of Operations Roles and Responsibilities*. Appendix B states that the Shift Manager "ensures that operations are conducted safely, securely, and in accordance with approved procedures." Appendix B also states that the Shift Technical Advisor "perform[s] safety monitoring activities to ensure that: ... applicable operational and safety procedures are followed" and that the supervisor "ensures that subordinate personnel read and understand applicable requirements, timely orders, procedures, and policies prior to performing activities." Contrary to these requirements, reviews by supervisory personnel failed to identify that there were blanks on the HGF system checklist or that the acceptance criteria had not been met, as indicated by their signatures on five different sets of shop floor paperwork during 2017 that certified the satisfactory completion of the acceptance criteria.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
Proposed Civil Penalty (as adjusted) – $0

B. Document Management

Title 10 C.F.R. § 830.122(d), *Criterion 4—Management/ Documents and Records*, requires contractors to "(1) [p]repare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design."

CNS implemented the requirements of 10 C.F.R. § 830.122(d)(1) in part through Section 6, *Document Control*, of its QAP, which states that "the document control system ensures documents are prepared, reviewed, approved, distributed, and used by personnel at the work locations." This section also states that "documents specifying quality flow down requirements or prescribing quality affecting activities are reviewed in accordance with applicable procedures for adequacy, correctness, and completeness before approval and issuance."

1. Evaluation of Process Changes

Contrary to the requirements identified above, CNS failed to ensure that CSEs (which specify requirements for operations involving fissile material) were adequately prepared, reviewed, and approved. Specifically, CSEs did not evaluate (and consequently did not specify requirements based on) the current physical configuration of the equipment and process as required by Y/DD-1233, *ANSI/ANS* [American National Standards Institute/ American Nuclear Society] *Series 8 Standards Matrix for NCS*, Section 8.19, *Administrative Practices for NCS*, which states that "changes that adversely affect nuclear criticality safety shall be addressed by evaluation." Contrary to this requirement, CNS failed to evaluate process changes that could adversely affect nuclear safety within the applicable CSEs prior to implementation, including the following violations:

a. CNS failed to evaluate changes to operations that allowed work to continue indefinitely within the knockout glovebox without replacing the slag accumulation can. The applicable evaluation, CSE-RED-070, *Criticality Safety Evaluation for Reduction Operations*, Rev. 11, was based on the previously implemented process that was summarized as: "typically, the accumulation can beneath the glovebox accommodates slag from two or three reduction reactors [and then when full], the can is removed."

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
Proposed Civil Penalty (as adjusted) – $0

b. CNS failed to evaluate changes to operations that resulted in significant quantities of uranium accumulating in the casting bowls. The applicable evaluation, CSE-CE/W-016 000 26, *Criticality Safety Evaluation for Casting Operations (East and West Lines)*, identified that NCS had found only contamination levels of uranium in the bowls under the casting furnaces, so no mass limits were imposed on the bowls.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
Proposed Civil Penalty (as adjusted) – $0

2. Establishing Roles and Responsibilities

Contrary to the requirements identified above, CNS failed to adequately prepare, review, or revise Y59-47-92-004, which implements the requirements of CSE-HGF-052, *Criticality Safety Evaluation for Holden Gas Furnace Process*. CNS identified mass limits for the HGF in Y59-47-92-004 but did not identify whether compliance with this requirement was the responsibility of the supervisor or the operator or identify a method for complying with this requirement.

This noncompliance constitutes a Severity Level III violation.
Base Civil Penalty – $21,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $52,500
Proposed Civil Penalty (as adjusted) – $0

C. Performance of Root Cause Analyses

Title 10 C.F.R. § 830.122(c), *Criterion 3—Management/Quality Improvement*, requires contractors to "(2) [i]dentify, control, and correct items, services, and processes that do not meet established requirements [and] (3) [i]dentify the causes of problems and work to prevent recurrence as a part of correcting the problem."

CNS implements the requirements of 10 C.F.R. § 830.122(c)(2) in part through Section 16, *Corrective Action*, of its QAP, which states that "the cause and the extent of significant conditions are determined and corrective actions are taken to correct the significant conditions and preclude or minimize recurrence when appropriate."

Contrary to the quality improvement requirements identified above, CNS failed to adequately identify the causes of problems during the RCAs performed for the accumulations in the sand separator (*Causal Analysis of Uranium Holdup Issue*, dated October 5, 2017), casting line (*Causal Analysis of Casting Line Unexpected Accumulation Discoveries*, dated May 2018), and the HGF (*Holden Gas Furnace Cleanout Exceeded NCS Limit in CSE-HGF-053 000 08*, dated June 2018) as evidenced by the following examples:

1. The sand separator RCA stated that the root cause for the accumulation can being over-full was that "the operating procedure for the reduction process did not have requirements for emptying the slag accumulation can, and operator training on this process did not impart the importance of changing out the can." However, CNS failed to identify the underlying cause for why the procedures had no requirements for emptying the slag can, why the process described in the NCS evaluation differed from actual practice (i.e., can emptied after every two to three knockouts), why the process was changed to allow the can to remain unemptied, or why training was not provided to convey the importance of emptying the can.

2. The sand separator RCA identified, as a missed opportunity, the fact that "the NCS operational review process did not identify that the slag accumulation can was not being changed out on a frequent basis." However, CNS failed to identify as a causal factor that CNS allowed a change in the process for replacing the accumulation can that was inconsistent with the process description in the NCS evaluation.

3. The casting line RCA included a line of inquiry (LOI) that asked, "Are operators trained on the boundaries and assumptions (i.e., accumulation not included as requirement) underlying the CSE as part of their initial qualification?" In response to this LOI, the analysis stated that "operators are not required to be trained on the assumptions and boundaries of the CSE as part of their initial training." The analysis also stated that "Y-12 culture is based on compliance to requirements and does not encourage or foster understanding of the reasons for requirements." CNS did not pursue either of these conclusions further in the RCA. Contrary to these conclusions, Y70-150, Revision 1/20/2017, Appendix C, *Roles and Responsibilities*, states that "the NCSE [NCS engineer], CSO [criticality safety officer], and Operator must work together to ensure operators understand the NCS requirements and reasons for the requirements whenever work is performed that has criticality safety implications." Appendix C further states that the role of the operator includes "understanding how implemented controls protect against the adverse consequences [and] consistently meeting the intent of requirements." By incorrectly concluding that training was not required, CNS failed to determine the underlying cause for why the NCSE, CSO, and operators were not working together to ensure that operators understand the NCS requirements and how these requirements protect against adverse consequences.

4. The casting line RCA included an LOI that asked, "Are Operators and Supervisors engaged in the development of the Contingency Analysis portion of the CSE?" In response to this LOI, the analysis stated that the Safety Analysis Engineering "processes for development of the CSE do not require that they be engaged." Contrary to this conclusion, Y70-150 states that the Operating organization "assume[s] overall responsibility for the conduct of fissile material activities." Similarly, Y70-68-001, *Criticality Safety Approval/Requirements Development, Review, and Approval*, Revision 4/25/2017, states in both Appendices B and C that the CSE cover page "shall include … signatures/dates of concurrences by the…operating organization." Furthermore, Y/DD-1233, Revision 4, dated November 2016, Section 8.19, *Administrative Practices for NCS*, states that "Normal and credible abnormal conditions shall be determined with input from operations or other knowledgeable individuals." Consistent with these requirements, the Operating organization concurred with each of the CSEs reviewed by the Office of Enforcement. By incorrectly concluding that operators and supervisors were not required to be engaged in the development of the CSE, CNS failed to determine the underlying cause for why the Operating organization concurred with the CSE if they were not engaged in its development and did not provide input on contingencies.

5. The HGF RCA analysis states that "the instructions to implement the [mass limit] were placed in the surveillance shop floor paperwork; however, they were not flowed down to the technical procedure, Y59-47-92-004, *Cleaning Holden Gas Furnace System*. As a result, employees did not receive training pertaining to the intent changes for the NCS surveillance." Contrary to this conclusion, Y59-47-92-004, Section 2, Precautions and Limitations, stated that "C. Loose material in each of the following areas: … SHALL NOT exceed [mass limit]." Consistent with Y70-150, the Operating organization is required to "respond to any condition that is known or suspected to be outside the NCS limits and requirements." By concluding that mass limits were not adequately flowed down to Y59-47-92-004, CNS failed to determine the underlying cause for why the required actions were not performed after the NCS limits that were included in Y59-47-92-004 (in the Precautions and Limitations section) were exceeded, even though instructions for responding to conditions outside of NCS limits are documented in Y70-150 in addition to those documented in the shop floor paperwork. Furthermore, CNS did not identify that there is no method for the Operating organization to measure the material in question, or that Y59-47-92-004 provides no guidance on how to ensure compliance with the mass limit.

6. The HGF RCA states that "there is not a requirement per Y90-027, *Conduct of Training*, to complete a Training Impact Assessment (TIA) when changes are made to the shop floor paperwork." However, Y90-027, Revision 05/07/2015, states that TIAs "determine and document the impact of a new document/procedure or revision" and does not discuss any exemptions specific to shop floor paperwork. Additionally, this RCA statement is contrary to QAP Section 2.4, *Indoctrination, Training, and Qualification*, which states that "line management is responsible for ensuring that personnel are trained and qualified to be capable and competent to safely perform their assigned duties." By incorrectly concluding that training on the acceptance criteria was not performed because these

criteria were in the shop floor paperwork instead of in Y59-47-92-004, CNS failed to determine the underlying cause for why training or pre-job briefings were not provided to workers so that they could perform their assigned duties (i.e., notify NCS if the mass limit was exceeded).

7. CNS failed to involve all the relevant personnel (e.g., operators and non-destructive assay personnel) necessary to determine what occurred, and thus may not have fully identified all of the relevant causal factors. Interviews revealed that either these additional personnel were unavailable, or the RCA team believed that these personnel would not have additional information worth considering in the determination of the causal factors.

Collectively, these noncompliances constitute a Severity Level II violation.
Base Civil Penalty – $105,000
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $105,000
Proposed Civil Penalty (as adjusted) – $0

II. REPLY

Pursuant to 10 C.F.R. § 820.24(b), CNS is obligated to submit a written reply within 30 calendar days after the date of filing of this PNOV. The reply should be clearly marked as a "Reply to the Preliminary Notice of Violation" and must be signed by the person filing it.

If CNS's reply states that CNS waives any right to contest this PNOV, then, pursuant to 10 C.F.R. § 820.24(d), this PNOV will constitute a Final Order upon the filing of the reply.

If CNS disagrees with any aspect of this PNOV, then as applicable and in accordance with 10 C.F.R. § 820.24(c), the reply must: (1) state any facts, explanations, and arguments that support a denial of an alleged violation; and (2) discuss the relevant authorities that support the position asserted, including rulings, regulations, interpretations, and previous decisions issued by DOE. In addition, 10 C.F.R. § 820.24(c) requires that the reply include copies of all relevant documents.

Please send the appropriate reply by overnight carrier to the following address:

Director, Office of Enforcement
Attention: Office of the Docketing Clerk, EA-10
U.S. Department of Energy
19901 Germantown Road
Germantown, MD 20874-1290

A copy of the reply should also be sent to my office and to the Manager of the NNSA Production Office.

Pursuant to 10 C.F.R. § 820.33, *Default order*, subsection (a), if CNS fails to submit a written reply within 30 calendar days after the date of filing of this PNOV, the NNSA Administrator may pursue a Default Order.

III. CORRECTIVE ACTIONS

Corrective actions that have been or will be taken to avoid further violations should be delineated, with target and completion dates, in DOE's Noncompliance Tracking System.

Lisa E. Gordon-Hagerty
Under Secretary for Nuclear Security
Administrator, NNSA

Washington D.C
This 6th day of April 2020