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

May 18, 2023

Dr. Thomas Mason
Laboratory Director
Triad National Security, LLC
P.O. Box 1663, MS-A100
Los Alamos, New Mexico 87545

NEA-2023-01

Dear Dr. Mason:

This letter refers to the U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with a series of nuclear safety events between February and July 2021 in the Plutonium Facility (PF-4) at the Los Alamos National Laboratory (LANL). The DOE Office of Enterprise Assessments' Office of Enforcement provided the results of the investigation to Triad National Security, LLC (Triad) in an investigation report dated August 3, 2022. An enforcement conference with members of your staff was convened on October 27, 2022, to discuss the report's findings and Triad's response. A summary of the enforcement conference and list of attendees is enclosed.

The nuclear safety events investigated included: (1) a February 11, 2021, event during which fissionable materials were placed in an area, contrary to the criticality safety posting, exceeding nuclear criticality safety mass-control requirements; (2) a glove breach on March 3, 2021, that released radioactive contamination, resulting in skin contamination of three workers; (3) a March 31, 2021, flooding event in a vault containing fissionable materials; and (4) a July 19, 2021, flooding event that occurred when a water tank for the wet vacuum system in LANL PF-4 overflowed into the negative pressure chilled cooling water (NPCCW) tank and then into the glovebox ventilation system that services multiple rooms and gloveboxes containing fissionable materials. The National Nuclear Security Administration (NNSA) considers this series of nuclear safety events to be serious and to have high safety significance. These events revealed deficiencies in the areas of (1) work processes, (2) management processes, (3) quality improvement, and (4) criticality safety requirements.

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

issues the enclosed Preliminary Notice of Violation (PNOV), which cites five Severity Level II violations.

The NNSA Los Alamos Field Office withheld approximately $1,408,640 of the available contract award fee for Goal 5: Mission Enablement for fiscal year 2021, in part for deficiencies related to the events. In consideration of this action and in accordance with established DOE enforcement practices, NNSA elects to exercise enforcement discretion and 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 the 30 calendar days, then in accordance with 10 C.F.R. § 820.33, *Default order*, subsection (a), NNSA may pursue a Default Order. Alternatively, you may terminate this enforcement action by providing a reply that waives any right to contest this PNOV. If you elect this option, the PNOV will be deemed a Final Order upon the filing of your reply.

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,

Jill Hruby

Enclosures: Preliminary Notice of Violation (NEA-2023-01)
Enforcement Conference Summary and List of Attendees

cc: Theodore Wyka, NA-LA
Venessa Chavez, Triad National Security, LLC

Enclosure 1

Preliminary Notice of Violation

Triad National Security, LLC
Los Alamos National Laboratory

NEA-2023-01

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with a series of nuclear safety events between February and July 2021 at the Plutonium Facility (PF-4) at Los Alamos National Laboratory (LANL) revealed multiple violations of DOE nuclear safety requirements by Triad National Security, LLC (Triad). These events are summarized as follows: on February 11, 2021, fissionable materials placed in an area, contrary to the criticality safety posting, exceeded nuclear criticality safety mass-control requirements; on March 3, 2021, a glove breach released radioactive contamination, resulting in skin contamination of three workers; on March 31, 2021, an overfilled water bath resulted in flooding a vault containing fissionable materials; lastly, on July 19, 2021, a water tank for the wet vacuum system in LANL PF-4 overflowed into the negative pressure chilled cooling water (NPCCW) tank, which then flowed into the glovebox ventilation system that services multiple rooms and gloveboxes containing fissionable materials.

DOE provided Triad with an investigation report dated August 3, 2022, and convened an enforcement conference with Triad's representatives on October 27, 2022, to discuss the report's findings and Triad'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* (Part 820), the National Nuclear Security Administration (NNSA) hereby issues this Preliminary Notice of Violation (PNOV) to Triad. The violations included deficiencies in: (1) work processes; (2) management processes; (3) quality improvement (two violations related to causal analysis and corrective actions); and (4) criticality safety requirements. NNSA has grouped and categorized the violations as five Severity Level II violations.

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."

In consideration of the mitigating factors, NNSA calculated a civil penalty (prior to the adjustment for contract fee reduction) of $571,187. However, partially in response to the

violations associated with these events, the NNSA Los Alamos Field Office withheld approximately $1,408,640 of the available contract award fee for Goal 5: Mission Enablement for fiscal year 2021. As a result, NNSA elects to exercise discretion and 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 also constitute violations 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) [c]onduct 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."

Triad implements Criterion 5 and other quality assurance criteria through their QAP, SD330, *Los Alamos National Laboratory Quality Assurance Program*, revision 11, administrative change 1, dated December 11, 2020. Specifically, Triad implements Criterion 5 in QAP section 3.1.1.e, *Quality Criterion 5 Performance/Work Processes*, by stating that implementing documents "are the core elements for Triad workers to perform 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."

Triad also addresses requirements for implementing work processes in P315, *Conduct of Operations Manual*, revision 7, dated April 1, 2020. In attachment 1, *Operations Organization and Administration*, section 1.4, *Principles of Conservative Operation*, Triad requires that "activities must be conducted…following approved procedures and in accordance with institutional safety and administrative programs."

Contrary to the above requirements, Triad failed to perform work consistent with the approved instructions, procedures, or other appropriate means. Specific examples include:

1. On February 11, 2021, Triad did not verify that the fissionable material placed in a drop box complied with the criticality safety posting as required by TA55-DOP-016, *TA-55 Material Handling and Movement*, revision 23, section 5, *Performance*, dated June 11, 2020. As a result, the material in the drop box violated the criticality safety posting mass limits.

2. On March 3, 2021, Triad deviated from the procedural requirements of TA55-RD-555, *Radiation Protection Requirements*, revision 10, dated February 25, 2021, section 6.11.2, *Contamination Control Requirements for Glovebox Work*, and did not perform a self-monitoring evolution after each withdrawal from the gloves. Consequently, Triad did not immediately recognize that a glove had breached and that a worker had contamination on their hands. As a result, the worker spread contamination to surfaces, personal protective equipment, personal clothing, and the skin of some workers in the room.

3. On March 31, 2021, Triad did not execute step 1[a] of attachment A, *TA55 Administrative Round Sheet (Use Each Time)* to inform the Operations Center that the vault water bath required filling. Furthermore, during filling of the water bath, Triad deviated from the approved procedural steps of TA55-RS-004, *Administrative Rounds*, revision 24, dated July 8, 2020, by blocking open a spring-loaded valve, therefore bypassing its safety feature. This ultimately caused water to overflow onto the vault floor because the worker was not present to close the valve.

4. On July 19, 2021, Triad did not implement all the procedural steps in section 5.1, *Fill the Tanks*, of TA55-DOP-089, revision 3, *Performing Maintenance and Operations for the Wet Vacuum and NPCCW Systems*, dated June 23, 2020. Specifically, the work was inappropriately delegated to workers who did not meet the qualification requirements of TA55-DOP-089, section 2.1.G. Because these workers were not qualified for the task, they did not manipulate valves in the proper sequence after filling the tank, nor did they complete the required notification to the Operations Center upon completion of the activity so that the Operations Center could respond appropriately to alarms. These errors resulted in one of the valves being misaligned, allowing water to inadvertently enter the ventilation system.

Collectively, these noncompliances constitute a Severity Level II violation.
Base Civil Penalty – $123,500
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $77,187
Proposed Civil Penalty (as adjusted) – $0

B. Management Processes

Title 10 C.F.R. § 830.122(a), *Criterion 1—Management/Program*, requires contractors to "(2) [e]stablish management processes, including planning, scheduling, and providing resources for the work."

Triad implements this requirement in QAP section 3.1.1.a, *Quality Criterion 1 Management/Program*, by stating that "[m]anagement processes, include planning, scheduling, providing resources for the work, and interfaces are controlled through the Triad management systems."

Triad also addresses these management processes in P315, attachment 1, section 1.2, which requires that "sufficient staff, equipment, and funding will be allocated to the operations organization to permit them to effectively perform work to these standards."

Contrary to the above requirements, Triad failed to properly schedule or provide sufficient resources to accomplish work in PF-4 safely and efficiently. Specific examples include:

1. On March 3, 2021, Triad did not provide sufficient resources for a lapping operation that ultimately resulted in a glove breach and contamination of three workers. In this instance, one individual was assigned four roles, including glovebox operator, escort, working person-in-charge, and trainer. Additionally, while the individual was lapping, the glovebox pressure was fluctuating, adding an equipment challenge for the individual to resolve. With all these responsibilities and distractions, self-monitoring was not performed when the individual exited the glovebox. The glove breached at some point during the operation, contaminating the individual. The contamination subsequently spread through contact to two other nearby workers before being detected.

2. On March 31, 2021, Triad did not provide sufficient resources for completing facility rounds and surveillances to account for actual equipment and facility conditions. On this day, an equipment operator was required to complete multiple time-sensitive rounds, which were complicated by the degraded facility condition (including a leaking vault water bath pump seal, necessitating daily filling of the water bath). In addition, the operator assisted another operator in completing a surveillance that required two people. In planning that surveillance, Triad did not account for the additional workload on equipment operators resulting from access restrictions to the room (due to the presence of certain materials). Because Triad did not provide sufficient resources to accomplish the work safely in accordance with procedures, the equipment operators were overtasked and developed workarounds to complete the work. One of the workarounds was to block open a spring-loaded valve to refill the vault water bath, causing the bath to overfill and flood the vault room.

3. On July 19, 2021, Triad did not provide sufficient resources for completing facility rounds, refilling a wet vacuum seal water tank (which ultimately overflowed to the NPCCW system, resulting in the flooding of a glovebox), and other operational activities to account for equipment status and facility conditions. On this day, an equipment operator was required to complete multiple time-sensitive rounds while also completing tasks to support ongoing activities in the facility. One of these tasks involved refilling a wet vacuum seal water tank located in a radiologically contaminated room. This activity required wearing a full set of anti-contamination clothing and a respirator, which take a significant amount of time to don and doff. Maintenance work was also occurring on the

same day on a pump located in the same room. The operator could not complete rounds in that room during maintenance because the room could not accommodate maintenance personnel as well as the operator. Because Triad did not provide sufficient resources to accomplish the work safely and in accordance with procedures, the operator was overtasked and asked an unqualified maintenance worker to refill the wet vacuum seal water tank. The maintenance worker was not qualified to perform this task and thus did not complete all steps (e.g., closing the ball valve), leading to flooding of the glovebox ventilation system, a glovebox, and several rooms.

Collectively, these noncompliances constitute a Severity Level II violation.
Base Civil Penalty – $123,500
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $123,500
Proposed Civil Penalty (as adjusted) – $0

C. Quality Improvement

Title 10 C.F.R. § 830.122(c), *Criterion 3—Management/Quality Improvement*, requires that a contractor "(1) [e]stablish and implement processes to detect and prevent quality problems[;](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 part of correcting the problem.

Title 10 C.F.R. § 830.201, *Performance of work*, requires that a contractor "perform work in accordance with the DOE-approved safety basis for a Hazard Category 1, 2, or 3 DOE nuclear facility."

Triad implements Criterion 3 in QAP section 3.1.1.c, *Quality Criterion 3 Management/Quality Improvement*, which requires that "[i]tems, services, and processes that do not meet established requirements are identified, controlled, and corrected." It further requires that "[c]orrective action planning includes identification of the causes of problems and prevention of recurrence." Triad's QAP refers to implementing procedures P315, *Conduct of Operations Manual*, revision 7, dated April 1, 2020; SD320, *Contractor Assurance System*, revision 7, dated April 2, 2020; and P322-4, *Issues Management*, revision 16, dated February 1, 2021. These were the current versions at the time of the events.

P315, attachment 2, *Shift Routines and Operating Practices*, section 2.5.3, *Supervisor Round Sheet Requirements*, step 4 requires Triad to "ensure that all identified abnormal conditions or equipment and system deficiencies have been corrected or otherwise addressed." Section 2.5.4, *Operations Manager (OM) Round Sheet Requirements*, step 2 requires Triad to "periodically review completed round sheets to ensure:…that proper corrective actions have been taken for the given condition."

SD320, section 3.4, *Improvements – Act*, states that Triad will "effectively and sustainably correct weaknesses identified in performance." It states that elements of

Triad's event management includes "[e]vent investigation, including conducting initial fact findings, determining extent of condition, and performing causal analysis." It also states that elements include "[d]eveloping effective and sustainable improvement actions" and "[v]alidating the effectiveness of improvement actions."

P322-4, section 3.2.3, *Causal Analysis*, states that the causal analysis process "identifies root or apparent causes and contributing factors and helps to ensure effective and sustainable corrective actions."

TA55-DSA-2020 revision 0.1, *TA-55 Documented Safety Analysis (DSA)*, dated June 30, 2020, section 3.3.2.3.2, *Defense-in-Depth*, states that "[t]he established hierarchy of hazard controls requires that engineering controls with an emphasis on safety-related SSCs [structures, systems, or components] be preferable to ACs [administrative controls] or SACs [specific administrative controls] due to the inherent uncertainty of human performance." Additionally, it states that "[t]he hierarchy of controls emphasizes the importance of a control being both a passive engineered control and located close to the hazard." The DSA also identifies in section ES.3, *Facility Hazard Categorization*, that controls are selected "using the control preference hierarchy described in DOE-STD-3009-94."

DOE-STD-3009-94, Change Notice 3, Appendix A, *Evaluation Guideline*, section A.4, *Functional Classification Process*, identifies that "[s]afety SSCs are preferred over administrative controls…[p]reventive controls are preferred over mitigative controls…[and f]acility safety SSCs are preferred over personal protective equipment."

1. Causal Analysis

   Contrary to the above requirements, Triad failed to identify and correct quality problems in a manner that effectively prevented recurrence and that were consistent with the hierarchy of controls. Although Triad acknowledges the "inherent uncertainty of human performance," causal analyses prepared by Triad routinely focus on human errors rather than on the conditions that make those errors more likely. Consequently, Triad's corrective actions focus on preventing employees from making mistakes rather than on making more effective and longer lasting changes to engineered controls. Specific examples include:

   a. Triad did not adequately identify the causes of the March 3, 2021, skin contamination event (ORI-CA-2021-0005, dated June 24, 2021) to allow effective and sustainable correction of weaknesses in performance. The causal analysis attributed the root causes to human error and ineffective management and did not prioritize deficiencies in engineered controls over deficiencies in administrative controls. For example, the causal analysis identified the direct cause of the event to be the release of contamination and the operator's lack of self-monitoring (an administrative mitigative control), not the actual glove breach (an engineered preventive control). As a result,

the causal analysis focused on personnel actions rather than on engineered control deficiencies, contrary to the hierarchy of controls, when determining the root causes of events. One of the root causes identified by Triad is that the operator did not establish a method for ensuring inspection of the gloves before exiting the glovebox gloves. However, the cause of and reason for the damage to the gloves (i.e., an abrasive surface that the glove was rubbing against) were not identified and controlled in the work planning process and were not fully evaluated. The deficiencies in the corrective actions Triad identified – reinforcing procedural adherence and training – are not likely to be effective in preventing recurrence.

b. Triad did not adequately identify the causes of the March 31, 2021, vault bath flooding event (ORI-CA-2021-0007, dated September 16, 2021) to allow effective and sustainable correction of weaknesses in performance. The causal analysis attributed the root causes to inadequate resources and ineffective management supervision but did not fully consider deficiencies in engineered controls, except to recognize that ongoing nuisance alarms obscured operations personnel from recognizing the vault water leak indicator alarm. The causal analysis did not consider ergonomic deficiencies in the manual operation of the valve used to refill the tank. According to worker interviews, manipulation of the valve required operators to maintain a contorted position while holding open a stiff spring actuator for approximately 15 minutes. The causal analysis did not explore the potential effect of this ergonomic shortcoming on operator actions and the decision to defeat the automatic closing functionality.

c. Triad did not adequately identify the causes of the July 19, 2021, glovebox flooding event (report number ORI-CA-2021-0014, dated September 28, 2021) to allow effective and sustainable correction of weaknesses in performance. The causal analysis attributed the root causes to inadequate implementation of conduct of operations and inadequate implementation of corrective actions from a similar event that occurred in 1990. The causal analysis report states that the event was exacerbated by the challenges of performing work in the particular pump room, and that these challenges were not previously known to Triad. However, Triad was notified of many of these challenges, as multiple facility service requests had been submitted during Triad's tenure to improve the equipment and conditions in the room, but Triad did not take action on those requests. The corrective actions for the 1990 event included installation of overfill and air eliminator lines on the equipment in this room. These corrective actions were not completed, and Triad did not identify the deficiency until the July 19, 2021, event revealed it. Triad had several opportunities to identify this deficiency during the as-built system verification walkdown for development of NCS-CSED-19-026, revision 0, *Criticality Safety Evaluation for the Wet Vacuum System in PF-4*, dated April 21, 2020, or the Nuclear Criticality Safety Division's review of

TA55-DOP-089, *Performing Maintenance and Operations for the Wet Vacuum and NPCCW Systems*, revision 3, dated June 23, 2020.

Collectively, these noncompliances constitute a Severity Level II violation.
Base Civil Penalty – $123,500
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $123,500
Proposed Civil Penalty (as adjusted) – $0

2. Corrective Actions

Contrary to the above requirements, Triad failed to correct deficiencies before they resulted in operational events, despite being aware of the problems. The following examples were contributing causes to the vault bath and the glovebox flooding events:

a. Triad did not adequately control or correct known equipment deficiencies associated with the vault water bath before they resulted in the overflow of the tank. As stated in the causal analysis for the March 31, 2021, vault water bath overfilling event, the vault water bath system had been operating in a deficient condition for approximately two months. The leaking vault water bath pump seals required daily refilling of the tank, for which workers needed to manipulate a stiff spring-operated valve for approximately 15 minutes while bending over. Because this was an awkward operation, and because of inadequate resources (as discussed in section I.C.1.b of this PNOV), the equipment operator used a workaround that caused the tank to overfill. The need for daily refilling increased the likelihood of this event.

b. Triad did not adequately control or correct known equipment deficiencies associated with the alarm systems before they resulted in the overflow of the tank. For approximately 1 week before the March 31, 2021, event, a nuisance alarm for the glovebox air dryer had been appearing continuously on the facility control system, obscuring the vault leak alarm. Triad was aware of the nuisance alarm but did not take prompt action to correct the problem. Consequently, Operations Center personnel missed the vault leak alarm, allowing water from the vault water bath to continue to overflow onto the floor in the vault for approximately 2 hours.

c. Triad did not adequately control or correct known equipment deficiencies associated with the NPCCW system sight glasses before they resulted in the overflow of the tank. The round sheet for July 19, 2021, indicated that the sight glasses in the NPCCW system were dirty and the levels were unreadable. The round sheet stated, and interviews confirmed, that Triad had been notified numerous times but had taken no action to correct the issue. Because the operators could not read the levels, they implemented a workaround – namely, the operators filled the tanks until they received a high-level alarm. This alarm was intended to mitigate water leakage into the

Zone 1 ventilation system, but because of the workaround, the operators did not react to the overflow alarm because they believed it was an expected part of filling the tank. Misinterpretation of the alarm allowed the tank to overflow into the glovebox ventilation system for hours without being investigated.

d. Triad did not adequately control or correct known radiological conditions associated with the room containing frequently used NPCCW system components before they resulted in the overflow of the tank. As stated in JCO-TA55-152-R0, *Evaluation of the Safety of the Situation/Justification for Continued Operations*, dated September 2, 2021, the radiological risk of entering the room containing the NPCCW system involved in the July 19, 2021, glovebox flooding event contributed to the lax visual inspection and walkdown of the system to confirm configuration management for the criticality safety assumptions described in NCS-CSED-19-026, revision 0, *Criticality Safety Evaluation for the Wet Vacuum System in PF-4*. The radiological risk also factored into the equipment operator's decision to take a shortcut and ask maintenance personnel, who had already donned respirators and full personal protective equipment, to refill the Wet Vacuum tank. The maintenance personnel were neither trained nor qualified to perform this task.

Collectively, these noncompliances constitute a Severity Level II violation.
Base Civil Penalty – $123,500
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $123,500
Proposed Civil Penalty (as adjusted) – $0

D. Criticality Safety Requirements

Title 10 C.F.R. § 830.204(b)(6) requires that DSAs for "nonreactor nuclear facility with fissionable material in a form and amount sufficient to pose a potential for criticality, define a criticality safety program that: (i) [e]nsures that operations with fissionable material remain subcritical under all normal and credible abnormal conditions."

Triad implements these requirements through SD130, *Nuclear Criticality Safety Program*, revision 7, dated February 6, 2020 (which was the current version at the time of the events); this program is a credited safety management program in the technical safety requirements. SD130, section 6.5.3 states that "[t]he criticality safety evaluation [document (CSED)] must determine and explicitly identify the controlled parameters and associated limits upon which the safety margin depends."

DSA chapter 6, *Prevention of Inadvertent Criticality*, section 6.1, *Introduction*, states that the criticality safety "program is implemented to prevent inadvertent nuclear criticality and to provide proper response to an inadvertent criticality. Limits and controls (engineered and administrative) are applied to fissile[1] material operations

[1] Fissile materials are a subset of fissionable materials.

(FMOs) to ensure subcritical configurations in all normal and credible abnormal conditions whenever fissionable materials are present."

Contrary to these requirements, Triad failed to implement controls to ensure subcritical configurations in all normal and credible abnormal conditions. Triad did not identify that the assumed controls were not implemented to prevent water from the Wet Vacuum and NPCCW systems from entering the Zone 1 ventilation system and into gloveboxes containing fissionable materials. ESH-6-99-006, *Glovebox Flooding Via Zone Ventilation and the Negative Pressure Circulating Chilled Water System in PF-4*, dated January 20, 1999, indicates that overfilling the NPCCW system into the Zone 1 ventilation system and into gloveboxes had happened in the past. However, it concludes that water accumulation in gloveboxes to a level warranting criticality safety concern is not credible, based on the assumption that the Zone 1 ventilation system is passively protected by an overflow system built into the seal water reservoirs of the NPCCW system. However, the NPCCW system in the room where the event began had neither an overfill line nor an air eliminator line. The discrepancy between the actual configuration and the CSED assumptions was not identified in April 2020 when the CSED was developed. As a result, Triad did not implement any criticality controls for this scenario. In addition, the procedure for operation and maintenance of the Wet Vacuum and NPCCW systems, TA55-DOP-089, *Performing Maintenance and Operations for the Wet Vacuum and NPCCW Systems*, revision 3, dated June 23, 2020, contains a caution statement. Section 5.1, *Fill the Tanks*, states: "[a] misaligned valve can cause overflow of the system, setting off a High Level Alarm and inadvertently introducing water to the ventilation system." Therefore, Triad was aware of the possibility that water could enter the ventilation system, and subsequently enter the gloveboxes containing fissionable material, but did not apply controls to ensure subcritical configurations in all normal and credible abnormal conditions.

This noncompliance constitutes a Severity Level II violation.
Base Civil Penalty – $123,500
Mitigated Civil Penalty (prior to adjustment for fee reduction) – $123,500
Proposed Civil Penalty (as adjusted) – $0

II. REPLY

Pursuant to 10 C.F.R. § 820.24(b), Triad is hereby 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 Triad's reply specifically states that Triad 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 Triad 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 submit your reply to the Director, Office of Enforcement by email to enforcementdocketclerk@hq.doe.gov.

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

Pursuant to 10 C.F.R. § 820.33, *Default order*, subsection (a), if Triad 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.

Jill Hruby
Under Secretary for Nuclear Security
Administrator, NNSA

Washington D.C.
This 18 day of May 2023