



## Department of Energy

Washington, DC 20585

February 20, 2024

Mr. Dutch Conrad  
President and Project Manager  
Mid-America Conversion Services, LLC  
1020 Monarch St. Suite 300  
Lexington, Kentucky 40513

NEA-2024-01

Dear Mr. Conrad:

This letter refers to the Department of Energy's (DOE) investigation into the facts and circumstances associated with allegations of nuclear safety deficiencies at the Portsmouth Depleted Uranium Hexafluoride (DUF6) Conversion Facilities. The DOE Office of Enterprise Assessments' Office of Enforcement provided the results of the investigation to Mid-America Conversion Services, LLC (MCS) in an investigation summary, dated August 31, 2023. An enforcement conference was convened on November 2, 2023, with you and members of your staff to discuss the findings outlined in the summary and MCS's response. Enclosed, you will find a summary of the enforcement conference and the attendance roster.

DOE takes allegations of nuclear safety deficiencies involving its contractors seriously. That the investigation of these allegations revealed a significant lack of attention by MCS in managing and performing nuclear work safely, and that MCS did not adequately self-identify and address these issues, is of high safety significance. Specifically, deficiencies were revealed in the areas of management processes, training and qualification, and quality improvement.

Based on the evaluation of the evidence in this matter, including information presented at the enforcement conference, DOE concludes that MCS 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*.

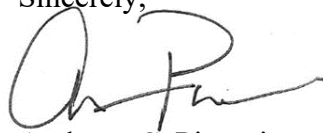
Accordingly, DOE hereby issues the enclosed Preliminary Notice of Violation (PNOV) which cites three Severity Level II violations with a total base civil penalty of \$382,500.

As MCS has not acknowledged these nuclear safety deficiencies, they have not conducted a causal analysis or taken appropriate corrective actions to prevent recurrence. As a result, no mitigation was provided.

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), DOE 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, DOE will determine whether any further activity is necessary to ensure compliance with DOE nuclear safety requirements. DOE will continue to monitor the completion of corrective actions until this matter is fully resolved.

Sincerely,

A handwritten signature in black ink, appearing to read 'Anthony C. Pierpoint', is written over the word 'Sincerely,'.

Anthony C. Pierpoint  
Director  
Office of Enforcement  
Office of Enterprise Assessments

Enclosures: Preliminary Notice of Violation (NEA-2024-01)  
Enforcement Conference Summary and List of Attendees  
Electronic Funds Transfer Instructions

cc: Carisa Kremin, Mid-America Conversion Services, LLC  
Joel B. Bradburne, PPPO

**Preliminary Notice of Violation**

Mid-America Conversion Services, LLC  
Portsmouth Depleted Uranium Hexafluoride Conversion Facility

NEA-2024-01

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with allegations of nuclear safety deficiencies at the Portsmouth Depleted Uranium Hexafluoride Conversion (DUF6) facility that occurred between 2019 and 2022 revealed multiple violations of DOE nuclear safety requirements by Mid-America Conversion Services, LLC (MCS). MCS manages and operates the Portsmouth DUF6 facility for the DOE Office of Environmental Management's Portsmouth Paducah Project Office (PPPO). The allegations concerned inadequate hazards analyses, inadequate causal analyses of events, inadequate processes for planning and scheduling work, and the performance of work by unqualified workers. These deficiencies did not pose a risk to the public or to workers outside the immediate vicinity of the Portsmouth DUF6.

DOE provided MCS with an investigation summary, dated August 31, 2023, and convened an enforcement conference with MCS's representatives on November 2, 2023, to discuss the investigation summary's findings and MCS's response. A summary of the enforcement conference, along with a 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 Code of Federal Regulations (C.F.R.) Part 820, *Procedural Rules for DOE Nuclear Activities* (Part 820), DOE hereby issues this Preliminary Notice of Violation (PNOV) to MCS. The violations included deficiencies in: (1) management processes, (2) training and qualification, and (3) quality improvement. DOE has grouped and categorized the violations as three 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 absence of mitigating factors, DOE proposes to impose a total civil penalty of \$382,500.

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. Management 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, subsection (a), *Criterion 1—Management/Program*, requires contractors to "(1) [e]stablish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. (2) [e]stablish management processes, including planning, scheduling, and providing resources for the work."

DUF6-PLN-003, *Project Quality Assurance Plan*, Rev. 3, December 23, 2020, section 2, *Quality Assurance Program*, states that DUF6 management is responsible for "establishing effective interfaces and communication processes with both the internal and external organizations... assessing the adequacy and effectiveness of training programs for their areas of responsibility." It also states that "DUF6 management regularly assesses the adequacy and effective implementation of the [quality assurance] program" and that management's "participation is essential to the success of the quality improvement process because they are in a position to both evaluate the organization as a total system and to effect needed change."

DUF6-U-CON-0001, *Conduct of Operations Manual*, Rev. 3, July 8, 2020, section 1.3.4.i, *Requirements*, states that "[m]anagement systems are designed to minimize the effects of human performance failures."

Title 10 C.F.R. § 830.122, subsection (h), *Criterion 8—Performance/Inspection and Acceptance Testing*, requires contractors to "(1) [i]nspect and test specified items, services, and processes using established acceptance and performance criteria."

DUF6-PLN-003, *Project Quality Assurance Plan*, Rev. 3, December 23, 2020, section 10, *Inspections*, states that "inspections required to verify conformance of an item or activity to specified requirements or continued acceptability of items in service shall be planned and executed."

DUF6-X-OPS-0507, *Cylinder Movement Operations*, Rev. 2, September 16, 2019, section 8.1, *Cylinder Handling Crane Operations*, states that "[e]quipment that is past due for inspection **shall not** be operated [emphasis in original]."

Contrary to these requirements, MCS management processes (e.g., work planning, procedures, conduct of operations, training, stop work) failed to prevent the operation of crane X-0-CHS-CN-002 beyond its required inspection due date or minimize the effects of human performance failures. Specific examples include:

1. MCS scheduled the required monthly and annual inspections of the crane to occur on the morning of September 22, 2021, which would have been before the completion of several work orders that were scheduled for that evening (i.e., work orders 2101927, 2101932, 2101933, 2101953, and 2102209). MCS then created a discrepancy by also approving the *DUF6 Conversion Project Daily (Shift) Orders*, dated September 20, 2021, which directed the night shift to “start performing” these work orders, that involved multiple lifts of 2,000 to 14,500 kg, without identifying the crane inspections as a prerequisite for operating the crane. This discrepancy and the following conditions resulted in a situation in which human performance failures were likely to occur. These conditions were:
  - a. DUF6-U-CON-0001, Section 15.3, *Requirements*, identifies that daily (shift) orders “specify...authorization to perform specific maintenance actions.”
  - b. The *Portsmouth Conversion Facility Manager Turnover Checklist* completed by the day shift on September 20, 2021, indicated that the crane was operational.
2. The discrepancy created by the issuance of the Daily (Shift) Order, dated September 20, 2021, did not result in a “time-out” prior to the operation of the crane as required by DUF6-U-CON-0001, Section 16, *Responsibilities*, subsection 16.2.3, *Personnel*, which requires that workers “stop the work or request a time-out” if a procedure, as written, “will produce unsafe or unsatisfactory results.”
3. MCS management failed to ensure the effectiveness of worker training identified in BWCS-U-OJT-OPS-0507, *Crane Operator OJT* [on the job training], Rev. 0, to prevent the operation of a crane beyond its required inspection due date.
4. MCS management failed to ensure the effectiveness of two checklists, DUF6 Form 3746, *Overhead Crane, Monorail and Hoist Checklist*, and DUF6 Form 3749, *Lifting Fixture Checklist*, to prevent the operation of a crane beyond its required inspection due date.
5. MCS management failed to establish effective interfaces and communication processes or provide adequate management oversight to ensure effective implementation of the QAP as evidenced by the examples above.

Collectively, these noncompliances constitute a Severity Level II violation.

Base Civil Penalty – \$127,500.

Proposed Civil Penalty – \$127,500.

## **B. Training and Qualification**

Title 10 C.F.R. § 830.122, subsection (b), *Criterion 2—Management/Personnel Training and Qualification*, requires contractors to “(1) [t]rain and qualify personnel to be capable of performing their assigned work.”

DUF6-PLN-003, Rev. 5, November 29, 2021, and Rev. 6, May 11, 2022, section 2, *Quality Assurance Program*, both state that “[o]perations and [m]aintenance personnel who perform

routine operational and maintenance inspection and testing activities are qualified in accordance with DOE Order 426.2 *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*, [April 21, 2010,] as implemented through DUF6-PLN-027, *Personnel Selection, Training, and Qualification Management Plan*.”

DUF6-PLN-027, Rev. 0, August 13, 2019, section 6.1, *General Requirements*, states that “[t]he training requirements leading to qualification for personnel who can impact the safety basis are documented in each training program’s TPD [training program description] and the associated qualification cards/profiles” and that “[q]ualification may be granted only after all requirements listed in the associated qualification card/profile have been satisfactorily completed.” The associated qualification card for a Portsmouth hydrofluoric acid system (HFS) operator is DUF6-X-TPD-OPS-001-F04, *PORTS HFS Operator Technician Qualification Card*, Rev. 4, October 21, 2020. The qualification requirements for supervisors are defined in DUF6-U-TPD-SM-001-F01, *Supervisor/Manager Qualification Card*, Rev. 7, August 23, 2021, which contains a job performance requirement for the hydrogen fluoride (HF) storage system and includes loadout operations. The qualification requirements for maintenance supervisors are defined in DUF6-X-TPD-MNT-001-F09, *PORTS Maintenance Supervisor Qualification Card*, Rev. 3, September 29, 2020.

DUF6-X-TSR-002, *Technical Safety Requirements [TSRs] for the DUF6 Conversion Facility, Piketon, Ohio*, Rev. 18, September 24, 2020, section 5.2.1.1.e, states that management is responsible for “[e]nsuring that personnel conducting Conversion Facility activities meet established training requirements for their positions.”

DUF6-X-TSR-002, section 5.3, *Minimum Staffing*, subsection 5.3.4, states that “[q]ualified operators shall be present at the Conversion Facility in accordance with Table 5.3.4-1 to perform the credited safety responses...when the associated processes are being performed.” For HF loadout, the credited safety response is defined by Specific Administrative Control (SAC) 5.5.3.4K, which states that “[w]hen HF transfers to a tanker or railcar are occurring, an operator in the line of sight of the transfer line shall upon an indication of a leak: (1) notify the control room operator to stop the transfer or (2) actuate the HF Storage Tank Area transfer shutdown button.” Table 5.3.4-1, *Minimum Staffing for Safety*, requires one qualified operator in the HF storage tank area during HF loadout and one qualified operator in the control room. The note states that the “operator performing the HF transfer observation in the field cannot be the same operator performing other field responses and is only required during HF loadout.”

DUF6-U-CON-0001, section 5.3, *Requirements* subsection 3.d states that “[t]raining activities and trainee operation of equipment is suspended immediately during emergencies or unanticipated abnormal conditions, or when deemed appropriate for safety or operational conditions.”

Contrary to these requirements, MCS failed to ensure that workers were trained and qualified to perform their assigned work. Specific examples include:

1. MCS did not ensure that enough workers were qualified to perform HF loadout activities in accordance with SAC 5.5.3.4K, which requires at least two qualified workers in the field during HF loadout: one qualified worker in the line of sight of the transfer line and one to take other field responses. Trainees cannot be used to perform these field responses because training is required to be suspended during an HF leak during loadout. MCS did not meet the minimum qualified staffing requirements on at least five separate occasions, as documented in HF loadout checklists DUF6-X-OPS-0402-F01-073122, HF-X-22-0006, HF-X-22-0007, HF-X-22-0011, and HF-X-22-0014. On each of these occasions, the records indicate that only one worker held qualification under DUF6-X-TPD-OPS-0001-F04 or in DUF6-U-TPD-SM-001-F01 when performing HF loadout in the field. In one instance, during the loadout documented in DUF6-X-OPS-0402-F01-073122, no workers held the qualifications required for completion of the SAC.
2. MCS did not ensure that a maintenance supervisor was qualified before the completion of TSR surveillance requirements (SRs) for the Condenser Room HF Vapor Detection System, which included monthly calibration of each HF detector (SR 4.3.2.1) and annual functional testing of local and control room alarms (SR 4.3.2.2 and SR 4.3.2.3). PPPO found that the maintenance supervisor was not qualified while conducting a readiness assessment on April 26, 2022, for the restart of plant operations. There was no evidence that the supervisor performed the work under the guidance of a qualified supervisor or facility manager.

Collectively, these noncompliances constitute a Severity Level II violation.

Base Civil Penalty – \$127,500.

Proposed Civil Penalty – \$127,500.

### C. Quality Improvement

Title 10 C.F.R. § 830.122(c), *Criterion 3—Management/Quality Improvement*, requires that a contractor's QAP "(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. (3) [i]dentify the causes of problems and work to prevent recurrence as part of correcting the problem."

DUF6-PLN-003, *Project Quality Assurance Plan*, Rev. 3, December 23, 2020, section 16, *Corrective Action*, states that "conditions adverse to quality shall be identified promptly and corrected as soon as possible."

DUF6-PLN-145, *Contractor Assurance System Description*, Rev. 4, May 26, 2021, section 6.2, *Issue Evaluation/Cause Identification, Adverse (SL-2) CAQ* [condition adverse to quality] (*Medium Significance Level*) states that "[i]t is essential that management understands the causes of the issue and considers the extent of condition that caused the issue."

DUF6-U-QAP-0005, *Issues Management*, Rev. 4, January 20, 2021, section 5.8.1, *Investigation and Causal Analysis*, requires the "completion of a causal analysis

commensurate with the significance level of the issue.” In the case of conditions adverse to quality “an ACE [apparent cause evaluation] in accordance with Attachment C, *Causal Analysis Guidance*” is required.

DUF6-U-CON-0001, *Conduct of Operations Manual*, Rev. 3, July 8, 2020, section 1.3.4.i, *Requirements*, states that “[m]anagement systems are designed to minimize the effects of human performance failures.”

Contrary to these requirements, MCS failed to adequately determine and prevent recurrence of the causal factors for the operation of crane X-0-CHS-CN-002 beyond its required inspection due date, as evidenced by the following:

1. MCS concluded that the operation of the crane beyond its required inspection due date “was solely the result of a human performance issue; MCS had the correct procedures in place to prevent this issue had they been properly followed.” However, this approach does not minimize the effects of human performance failures, as required by DUF6-U-CON-0001. By focusing on the human performance issue, MCS failed to identify or address the management systems that failed to prevent the incorrect operation of the crane, such as those detailed above in section I.A.
2. MCS did not identify or address the discrepancy created by the issuance of the Daily (Shift) Order that resulted in the operation of the crane beyond its required inspection due date as described in Condition Report 21-323: “Crane X-O-CHS-CN-002 was operated beyond the annual inspection date.” This discrepancy was identified in the MCS fact finding, FF-X-21002, *Crane Operated Beyond the Annual Inspection Date*, September 21, 2021, which states that: “[t]he Operations Manager and Lead Facility Manager looked ahead on the schedule and were trying to get the surveillances completed. Once the crane LOTO [lockout/tagout] permit was released, they moved them ahead on the night orders to get them completed. This was an oversight as the cranes were past their annual inspection. In hindsight, they shouldn't have made it to night orders.”
3. DUF6-U-ACE-21-006, *Apparent Cause Evaluation/Analysis (ACE) for Condition Report 21-323*, Rev. 0, September 21, 2023, did not address the human performance failure of moving the scheduled surveillances ahead of the required crane inspection. The ACE instead focused on the human performance failures of not catching the error with the rescheduling of the night order, which contributed to the operation of the crane beyond its required inspection due dates.
4. DUF6-U-ACE-21-006 did not identify or address the worker confusion regarding DUF6-X-OPS-0507, Rev. 2, and DUF6-U-SHP-0203-3, *Hoisting and Rigging, Overhead Inspection and Crane*, Rev. 0, May 24, 2017. DUF6-X-OPS-0507, section 8.1, states that “[e]quipment that is past due for inspection **shall not** be operated [emphasis in original].” However, DUF6-X-OPS-0507 also states in section 7.1, Precautions, that “[a]ll hoisting and rigging activities shall be performed in accordance with DUF6-U-SHP-0203 *Hoisting and Rigging*.” DUF6-U-SHP-0203-3, *Hoisting and Rigging – Overhead Crane Inspection and Operations*, Rev. 0, May 24, 2017, section 5.3, *Inspections*, contradicts



DUF6-X-OPS-057, stating that “[e]ach inspection should be performed at the specified frequency, with a maximum extension of **25 percent** of the interval between any **two** consecutive surveillances [emphasis in original].” During the investigation, workers indicated that they believed the 25 percent extension applied to the scheduled surveillances, because they thought those surveillances were required by the TSRs. MCS management identified that those surveillances are often referred to as TSR surveillance, but are not.

Collectively, these noncompliances constitute a Severity Level II violation.

Base Civil Penalty – \$127,500.

Proposed Civil Penalty – \$127,500.

## II. REPLY

Pursuant to 10 C.F.R. § 820.24(b), MCS 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.”

If MCS chooses not to contest the violations set forth in this PNOV and the proposed remedy, then the reply should state that MCS waives the right to contest any aspect of this PNOV and the proposed remedy. In such case, the total proposed civil penalty of \$382,500 must be remitted within 30 calendar days after receipt of this PNOV. Remittance of the payment must be submitted by electronic funds transfer (EFT) or automated clearing house (ACH) transfer to the Department of Energy through the U.S. Treasury. The Office of Enforcement must be copied at [enforcementdocketclerk@hq.doe.gov](mailto:enforcementdocketclerk@hq.doe.gov) when the electronic payment is submitted to the U.S. Treasury. Instructions for remitters sending payments in U.S. dollars via EFT or ACH transfer are enclosed. This PNOV will constitute a final order upon the filing of the reply.

If MCS disagrees with any aspect of this PNOV, including the proposed civil penalty, 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; (2) demonstrate any extenuating circumstances or other reason why the civil penalty should not be imposed or should be mitigated; and (3) 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.

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

Please submit your reply to the Director, Office of Enforcement by email Director to [enforcementdocketclerk@hq.doe.gov](mailto:enforcementdocketclerk@hq.doe.gov).

A copy of the reply should also be sent to the Manager of the PPPO.

### 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.

A handwritten signature in black ink, appearing to read 'Anthony C. Pierpoint', with a stylized, cursive script.

Anthony C. Pierpoint  
Director  
Office of Enforcement  
Office of Enterprise Assessments

Washington, D.C.

This 20th day of February 2024