

Department of Energy

Washington, DC 20585

December 3, 2025

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

WEA-2025-01 (Final Notice of Violation)

Dear Mr. Conrad:

Pursuant to Section 234C of the Atomic Energy Act, as amended, 42 United States Code (U.S.C.) § 2282c, and Department of Energy (DOE) regulations in 10 Code of Federal Regulations (C.F.R.) Part 851, *Worker Safety and Health Program*, DOE is issuing this Final Notice of Violation (FNOV) to Mid-America Conversion Services, LLC (MCS) for violations of DOE's worker safety and health requirements. The FNOV is based upon the DOE Office of Enforcement's May 24, 2024, investigation summary and a thorough review of all evidence presented to DOE by MCS, including MCS's original investigation, corrective actions, and reply to the Preliminary Notice of Violation (PNOV) issued on July 30, 2025.

DOE received MCS's reply to the PNOV on August 26, 2025. In its reply, MCS accepted the PNOV but contested the following points and requested that DOE consider amending them:

- (1) The entrant's condition when the attendant ordered them to exit the tank (i.e., transmittal letter page one paragraph three and Enclosure 1 paragraph two). MCS contends that the entrant was observed to be "unsteady" but was never unresponsive and did not lose consciousness.
- (2) The effects of overexposure to toluene via inhalation (i.e., transmittal letter page one paragraph two and Enclosure 1 paragraph two). MCS notes that the Safety Data Sheet (SDS) states "Effects [o]f Overexposure Inhalation: [m]ay cause central nervous system depression characterized by the following progressive steps: headache, dizziness, staggering, gait, confusion, unconsciousness or coma." MCS requested that statements regarding overexposure to toluene be consistent with the SDS.
- (3) The overall event characterization (i.e., transmittal letter, page one paragraph two). MCS requested that the characterization of the event be changed from "a near miss to a fatality" to "a near miss to a serious injury."

DOE has evaluated MCS's reply and agrees to revise the paragraphs regarding the entrant's condition, changing the description from "unresponsive" to "unsteady," as well as the statement discussing the effects of toluene overexposure to align with the SDS. Lastly, regarding the characterization of the event in the transmittal letter from "a near miss to a fatality" to "a near miss to a serious injury," DOE notes that while the SDS for toluene does not explicitly list "fatality" as an effect of overexposure, the listed progressive outcomes to overexposure, including "unconsciousness or coma" represent conditions that, if severe or prolonged, are capable of leading to fatality, especially in an uncontrolled confined space environment. Therefore, the inherent potential for severe harm, inclusive of fatality, warrants the characterization as a "near miss to a fatality."

Pursuant to 10 C.F.R. § 851.44, MCS may petition DOE's Office of Hearings and Appeals for review of the enclosed FNOV. MCS's petition must adhere to the procedural requirements established in Subpart G of 10 C.F.R. Part 1003, *Office of Hearings and Appeals Procedural Regulations*. If MCS does not petition the Office of Hearings and Appeals within 30 calendar days of receipt of this FNOV, MCS relinquishes any right to appeal any matter raised therein, and the FNOV will become a final order as provided by 10 C.F.R. § 851.43(c).

Sincerely,

Robin M. Keeler Acting Director

Office of Enforcement

Office of Enterprise Assessments

ri M Keeler

Enclosure: Final Notice of Violation (WEA-2025-01)

cc: Reinhard Knerr, PPPO

Carisa Kremin, Mid-America Conversion Services, LLC

Final Notice of Violation

Mid-America Conversion Services, LLC Paducah DUF6 Conversion Facility

WEA-2025-01

A U.S. Department of Energy (DOE) investigation into the facts and circumstances associated with the March 9, 2023, worker toluene overexposure event at the depleted uranium hexafluoride (DUF6) conversion facility near Paducah, Kentucky, revealed multiple violations of DOE worker safety and health requirements by Mid-America Conversion Services, LLC (MCS). The overexposed worker was employed by Omni Services, Inc. (OMNI), a subcontractor to MCS, which manages and operates the DUF6 conversion facility at DOE's former Paducah Gaseous Diffusion Plant.

The event occurred when an OMNI worker (the entrant) mistakenly spilled an open container of adhesive (containing approximately 85 percent toluene) inside a permit-required confined space (tank 552) without the required ventilation and respiratory protection. Toluene is characterized as a flammable liquid and vapor. The Safety Data Sheet (SDS) indicates the adhesive's vapor is harmful, may affect the brain or nervous system, and may be fatal if inhaled in confined spaces. The entrant was subsequently rescued from the tank after the lower explosive limit (LEL) monitor alarmed, and another OMNI worker (the attendant) observed that the entrant appeared unsteady (i.e., staggering, appearing dizzy and confused) and had difficulty exiting. Emergency services personnel were notified approximately 15 minutes later, and upon arrival, they assessed and then transported the entrant to the onsite medical facility for further evaluation. Although the entrant was released and returned to work, a urine analysis later that day confirmed an occupational exposure to toluene.

DOE provided MCS with an investigation summary dated May 24, 2024, and convened an enforcement conference on July 10, 2024, with MCS representatives to discuss the summary's findings and MCS's response. DOE issued Preliminary Notice of Violation (PNOV) WEA-2025-01 on July 30, 2025. In an August 26, 2025, reply, MCS requested that DOE update the PNOV to reflect several factual corrections on statements describing the entrant's condition when the attendant ordered them to exit the tank and discussing the effects of overexposure to toluene via inhalation. DOE reviewed MCS's request and has modified the paragraphs accordingly.

Pursuant to Section 234C of the Atomic Energy Act of 1954, as amended, and DOE regulations set forth at 10 Code of Federal Regulations (C.F.R.) Part 851, *Worker Safety and Health Program*, DOE hereby issues this Final Notice of Violation (FNOV) to MCS. The violations relate to deficiencies in: (1) management responsibilities, (2) hazard identification and assessment, (3) hazard prevention and abatement, and (4) permit-required confined space hazards. DOE has grouped and categorized the violations as two Severity Level I violations.

Severity Levels are explained in Part 851, appendix B, General Statement of Enforcement Policy. Subparagraph VI(b)(1) states that "[a] Severity Level I violation is a serious violation. A serious violation shall be deemed to exist in a place of employment if there is a potential that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment."

The DOE Portsmouth-Paducah Project Office (PPPO) withheld \$402,570 of earned fee from MCS in fiscal year 2023 for safety and health performance deficiencies, which included the toluene overexposure event. Therefore, in accordance with 42 U.S.C. § 2282c(d)(1) and 10 C.F.R. § 851.5, *Enforcement*, paragraph (c), DOE proposes no civil penalty for the violations cited in this FNOV.

As required by 10 C.F.R. § 851.43(b) and consistent with Part 851, appendix B, the violations are listed below.

I. VIOLATIONS

A. Management Responsibilities

Title 10 C.F.R. § 851.10, General requirements, subsection (a) states that "[w]ith respect to a covered workplace for which a contractor is responsible, the contractor must: . . . (2) [e]nsure that work is performed in accordance with: . . . (ii) [t]he worker safety and health program for that workplace. Subsection (b) states that "[t]he written worker safety and health program must describe how the contractor complies with the: (1) [r]equirements set forth in subpart C of this part that are applicable to the hazards associated with the contractor's scope of work...."

Title 10 C.F.R. § 851.20, Management responsibilities and worker rights and responsibilities, subsection (a), states that "[c]ontractors are responsible for the safety and health of their workforce and must ensure that contractor management at a covered workplace:...(3) [a]ssign worker safety and health program responsibilities, evaluate personnel performance, and hold personnel accountable for worker safety and health performance."

DUF6-PLN-074, MCS Worker Safety and Health Program, Revision 6, November 2, 2022, section 5, Safety and Health Methodology, states that "[t]he WSHP [Worker Safety and Health Program] and...implementing documents...ensure that...requirements are...in project documents, [and that] hazards are identified and appropriately mitigated...." Section 5.6.1.1, Place of Employment Free of Recognized Hazards, states that "[t]he 10 C[.]F[.]R[.] 851, Worker Safety and Health Program, requires MCS and its subcontractors to provide a place of employment that is free from recognized hazards." Section 5.6.1.2, Policies, Goals, and Objectives, states that "MCS strives to...provide a safe and healthful workplace...through...ES&H [Environment, Safety and Health] Policy (DUF6-POL-060)." Section 8.1, Organization Structure, Table 1, Roles and Responsibilities for Implementation

of WSHP, states that senior managers are responsible for "[e]nsuring that activities conform to ES&H related policies...regulations and...requirements." Section 9.1, *Document Known Chemical Hazards*, states that "[c]onstruction...may...add known chemical hazards of...solvents, paints, etc. Occupational exposures...will be...below the lowest permissible...limit per 10 C[.]F[.]R[.] 851." Section 11, *Safety and Health Standards*, states that "MCS will follow the applicable OSHA [Occupational Health and Safety Administration] Standards...as required by 10 C[.]F[.]R[.] 851....MCS will identify and control all recognized hazards....Refer to...Attachment B for the applicability of standards referenced in 10 C[.]F[.]R[.] 851." Attachment B, *DUF6 Conversion Project Crosswalk of 10 C[.]F[.]R[.] 851 Requirements to MCS Implementing Documents*, appendix A, *Worker Safety and Health Functional Areas*, appendix A-1, *Construction Safety*, states that the mandatory requirements for implementing the applicable functional areas required by § 851.24 in "[a]pp A.1(a)[,] (b)[,] (c) [and] (d)" are "[a]pplicable" and list the relevant "MCS [i]mplementing [d]ocuments."

DUF6-POL-060, MCS Environment, Safety, and Health Policy, Revision 3, February 23, 2022, section 1, Introduction, states that "[t]his policy was developed to ensure the safety and health of every worker...." Further, section 1.2, In Support of this Policy, We Pledge, states that MCS will "comply with all Federal, State, and local environmental laws and regulations...."

DUF6-U-GFP-0108, Control of Work, Revision 13, September 28, 2022, section 1, Purpose, states that "[t]his procedure defines the process for planning and executing work at DUF6 Conversion Project facilities." Section 5.9.1, Planned Work Packages, requires the Supervisor/Subcontract Technical Representative to "(13) [e]nsure hazard controls have been implemented AND [emphasis in original] monitor work in progress to ensure it is performed safely and in accordance with the WO [work order], the hazard analysis, and applicable permits."

DUF6 Activity Hazard Analysis, *Tank 55n reline, waste collection/disposal*, HCIC-C-21-0133 R3, February 18, 2023, task/step: *Solvents/ Adhesive/ Flammable Rubber Waste*, item: *Work Area Control*, states that "NAMs [negative air machines] will be used to remove solvent vapors whenever personnel are applying the adhesive/paint until it has cured."

Contrary to the above requirements, MCS failed to comply with applicable requirements of Part 851 and the WSHP in relation to management responsibilities, as follows:

MCS failed to fully implement and monitor work in progress to ensure it was performed safely and in accordance with the work package and confined space entry permit (CSEP). MCS was responsible for the operation of the engineering control [i.e., negative air machine (NAM)]. MCS confirmed it was operational the morning of the event, but the circuit breaker supplying power to the NAM had tripped before OMNI entered the tank. Prior to the day of the event, the electrical circuit supplying power to the HFS tank area had experienced overcurrent, causing the circuit breaker to trip. However, MCS failed to ensure that the circuit would remain stable and free from overcurrent issues during subsequent use of electrical equipment. On the day of the event, the circuit breaker tripped again and MCS failed to verify that the NAM was operational immediately before the OMNI worker entered

tank 552. Consequently, the entrant was not provided a safe internal atmosphere prior to entry or while using adhesive in the tank.

This noncompliance constitutes a Severity Level I violation.

B. Hazard Identification and Assessment, Hazard Prevention and Abatement, and Permit-Required Confined Space Hazards

Title 10 C.F.R. § 851.21, *Hazard identification and assessment*, subsection (a), states that "[c]ontractors must establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to: (1) [a]ssess worker exposure to chemical, physical, biological, or safety workplace hazards through appropriate workplace monitoring."

Title 10 C.F.R. § 851.22, *Hazard prevention and abatement*, subsection (a), states that "[c]ontractors must establish and implement a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner." Paragraph (a)(2) states that "[f]or existing hazards in the workplace, contractors must:... (i) [p]rioritize and implement abatement actions according to the risk to workers;" [and] "(iii) [p]rotect workers from dangerous safety and health conditions." Subsection (b) states that "[c]ontractors must select hazard controls based on the following hierarchy: (1) [e]limination or substitution of the hazards where feasible and appropriate; (2) [e]ngineering controls where feasible and appropriate; (3) [w]ork practices and administrative controls that limit worker exposures; and (4) [p]ersonal protective equipment."

Title 10 C.F.R. § 851.23, Safety and health standards, paragraph (a)(3), requires contractors to comply with 29 C.F.R. Part 1910, Occupational Safety and Health Standards, excluding 29 C.F.R. § 1910.1096, Ionizing Radiation, and 29 C.F.R. § 1910.1000, Air Contaminants, Tables Z-1 and Z-2, as they relate to beryllium and beryllium compounds; and 29 C.F.R. § 1910.1024, Beryllium. Paragraph (a)(7) requires contractors to comply with 29 C.F.R. Part 1926, Safety and Health Regulations for Construction except for 29 C.F.R. § 1926.1124, Beryllium. Subsection (b) states that "[n]othing in this part relieves contractors from the responsibility to comply with any additional safety and health requirements that are necessary to protect the safety and health of workers."

Title 29 C.F.R. Part 1926, Subpart C, General Safety and Health Provisions, § 1926.28, Personal Protective Equipment, subsection (a), states that "[t]he employer is responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees."

Title 29 C.F.R. Part 1926, Subpart E, *Personal Protective and Life Saving Equipment*, § 1926.103, *Respiratory protection*, states, "Note: [t]he requirements applicable to construction work under this section are identical to those set forth at 29 C[.]F[.]R[.] 1910.134 of this chapter." Title 29 C.F.R. § 1910.134, *Respiratory protection*, subsection (d), *Selection of*

respirators, states that "[t]his paragraph requires the employer to evaluate respiratory hazard(s) in the workplace, identify relevant workplace and user factors, and base respirator selection on these factors. The paragraph also specifies appropriately protective respirators for use in IDLH [immediately dangerous to life and health] atmospheres, and limits the selection and use of air-purifying respirators." Title 29 C.F.R. § 1910.134, subsection (d)(1) General requirements, states at subparagraph (i) that "[t]he employer shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability."

Title 29 C.F.R. Part 1926, Subpart E, *Personal Protective and Life Saving Equipment*, section 1926.95, *Criteria for Personal Protective Equipment*, subsection (a), states that "[p]rotective equipment, including...respiratory devices...shall be provided, used, and maintained...wherever it is necessary by reason of...chemical hazards...encountered in a manner capable of causing injury or impairment in the function of any part of the body through...inhalation...."

Title 29 C.F.R. Part 1926, Subpart AA, Confined Spaces in Construction, § 1926.1204, Permit-required confined space program, subsection (d), states to "...ensure that each employee uses [specified]...equipment properly: [and] (1) [t]esting and monitoring equipment needed to comply with paragraph (e) of this section...." Paragraph (e)(2) requires employers to "[c]ontinuously monitor atmospheric hazards unless the employer can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations." Paragraph (e)(3) states that "[w]hen testing for atmospheric hazards, [employers are required to] test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors."

DUF6-PLN-074, MCS Worker Safety and Health Program, Revision 6, November 2, 2022, section 9, Hazard Identification and Assessment, states that "[f]or routine and non-routine O&M [operations and maintenance] activities, as well as construction type work, hazard identification and assessment will be performed in accordance with DUF6-U-SHP-0211, Hazard Analysis...." Section 12.1, Construction Safety, states that "[t]he project performs construction-like activities.... MCS controls construction-like activities....through the established work control/planning and hazards analysis processes." Section 12.6, Industrial Hygiene, states that "MCS has implemented a comprehensive industrial hygiene program that includes...exposure monitoring.... The primary documents...that implement the industrial hygiene program include...DUF6-U-SHP-0601, Hazard Communications; DUF6-U-SHP-0512, Confined Space Program; and DUF6-U-SHP-0210, Personal Protective Equipment."

DUF6 Hazard Controls Identification Checklist (HCIC), *Tank 55n reline, waste collection/disposal*, HCIC-C-21-0133 R3, February 18, 2023, *Hazard Controls*, item #20, states to "[r]eview the chemical's Safety Data Sheet [SDS] and comply with all chemical handling/PPE [personal protective equipment] sections."

DUF6 Activity Hazard Analysis, *Tank 55n reline*, waste collection/disposal, HCIC-C-21-0133 R3, February 18, 2023, task/step: *Painting, priming, cleaning, applying rubber liner*, item: *Work Area Control*, states that "[i]f the LEL concentration does not 'clear' to < 10% LEL in ~ 1 minute, then the painter will exit the tank."

DUF6-U-SHP-0210, *Personal Protective Equipment*, August 7, 2019, section 5.3, *Selecting PPE*, states that the "ES&H Manager or designee...(5) [p]erform PPE evaluation and selection as follows: (a) [e]nsure the type of PPE selected for use reflects the potential exposure at the time and location the task will be performed....(f) Consider the following in the PPE Level selection process: [r]espiratory...protection required."

DUF6-U-SHP-0211, *Hazard Analysis*, Revision 3, May 11, 2022, section 5.2.2, *Formal Walk-down*, states that the "Work Planner/Procedure Owner...(3) [p]rovide the HA [Hazard Analysis] Team with the following information:...[a]pplicable planning documents to assist in determining potential hazards and/or identifying appropriate controls:...[c]hemical data (e.g., safety data sheets)...."

DUF6-U-SHP-0504, Respiratory Protection Program, Revision 2, January 29, 2020, section 5.2, Equipment Selection, states that the "RPPA [Respiratory Protection Program Administrator] (1) [s]elect respiratory protective equipment based on the following: [w]orkplace respiratory hazards...." Section 5.1, General Requirements, states, "All Personnel: (9) [c]omply with required respiratory equipment identified in the following, as applicable: [w]ork package, [w]ork control document...[d]ocumented hazard control or other identifying document."

DUF6-U-SHP-0512, Confined Space Program, Revision 4, May 18, 2022, section 5.4, Initiate CSEP, states that "HSTs [Health and Safety Technicians]...(9) [e]nsure the CSEP documents the following:...(d) [m]ethod used to remove or control hazards (e.g.[,] purging, inerting, ventilating)....(h) [a]uthorized entrant identify non-standard PPE, such as airline respirators, fully encapsulating clothing, special cooling/ventilation systems....(k) [v]alidate the controls on the identified HCIC and/or other technical work document(s) used to identify the required controls including nonstandard PPE, as necessary."

DUF6-U-SHP-0601, *Hazard Communication*, Revision 1, July 27, 2022, section 5.1, *General Requirements*, states that the "[s]upervisor...(19) [e]nsures that personnel are provided the appropriate PPE as identified on the hazard analysis, procedure or other applicable work control document(s)....[and] (32) [f]ollows the identified safety controls including wearing of PPE specified in the work control documents (i.e.[,] work package, procedure, or similar work control documents)."

DUF6 *Confined Space Entry Permit*, number HFS 23-3-9-90, starting March 9, 2023, at 7:00 a.m. and ending March 10, 2023, at 7:00 a.m., for C-1305 HFS [hydrofluoric acid storage] Tank Farm Area Tank #552, *Testing*, states that "[t]oluene testing will be via detector tubes and be indicated via the LEL reading on CGI [Combustible Gas Indicator] when necessary. This testing will be necessary when painting, applying adhesive coatings after rubber lining

has been removed, and interior sandblasted." *Special Instructions* state that "[a]ir monitoring is continuous (approximately every 15 minutes) while personnel are in the tank until the new liner/paint is cured....NAM used in proximity to either/or the manway and the bottom seven valve area and is required during all tank entries...."

Ventis® MX4 Product Manual, Part Number: 17152357-1, Edition 17, © 2020 Industrial Scientific Corporation, Products, Specifications, and Certifications, LEL, and LEL Correlation Factors for Combustible Gases, page 46, states that "[t]he table...provides the LEL for select combustible gases [toluene]. It also provides correlation factors [toluene = 2.55] that...determine the actual percentage LEL when the sample gas [toluene] differs from the gas [methane] that was used to calibrate the unit....[I]f the unit reads 10% LEL in a toluene atmosphere, and was calibrated to methane, the actual percentage LEL is determined as follows: (1) [1]ocate the table cell where the sample gas intersects with the calibration gas. (2) [m]ultiply the cell's value by the unit's LEL reading to calculate the actual concentration of % LEL."

Lord Corporation Material Safety Data Sheet, *Chemlok® 286*, September 14, 2007, section 3, *Hazards Identification*, states, "Effects [o]f Overexposure – Inhalation: [m]ay cause central nervous system depression characterized by the following progressive steps: headache, dizziness, staggering gait, confusion, unconsciousness or coma." Section 8, *Exposure Controls / Personal Protection*, states, "Respiratory Protection:...for...confined space...use an approved air-supplied respirator."

Contrary to the above requirements, MCS failed to adequately identify, assess, prevent, and abate confined space atmospheric hazards, including selecting an appropriate respirator. Specific examples include the following:

- 1. MCS failed to monitor for toxic gas/vapor (toluene) while the entrant used adhesive (containing mostly toluene) inside the tank. The CSEP required MCS to perform monitoring for OMNI; however, MCS failed to conduct any toxic gas/vapor monitoring prior to the entrant being rescued from the tank. Subsequently, MCS's failure to identify and assess confined space hazards through monitoring put the entrant at risk of overexposure to toluene, creating the potential for serious injury or death.
- 2. MCS failed to ensure that the LEL sensor on the four-gas detector indicated the actual LEL percentage during tank entry. Specifically, while the work package required MCS to provide OMNI with confined space atmospheric monitoring equipment (i.e., *Ventis® MX4*), MCS failed to ensure the equipment was properly correlated for toluene as per the manufacturer's instructions. This resulted in an underestimation of the flammable atmosphere within the tank (i.e., the monitor alarmed at 11 percent LEL rather than at 4 percent LEL). Consequently, the confined space atmospheric hazards were not prevented or abated and the entrant was subjected to a more hazardous atmosphere than indicated on the detector and should have exited the tank earlier.

3. MCS failed to ensure OMNI wore an approved air-supplied respirator [i.e., supplied-air respirator (SAR)] while using a toluene-based adhesive inside a confined space as required by MCS DUF6 tank 522 reline HCIC and specified in the *Chemlok® 286* SDS. Instead, MCS required OMNI to follow the MCS respiratory protection program, which included the use of a full-face air purifying respirator (FFAPR). On the day of the event, the entrant was wearing an FFAPR inside tank 552 during the uncontrolled release of toluene. Consequently, this put the entrant at higher risk of overexposure to toluene since the assigned protection factor (APF) for an FFAPR is less protective than the APF for an SAR.

Collectively, these noncompliances constitute a Severity Level I violation.

II. ADMINISTRATIVE APPEAL

Pursuant to 10 C.F.R. §§ 851.43(b) and 851.44(a), MCS may petition DOE's Office of Hearings and Appeals for review of this FNOV within 30 calendar days of receipt of this FNOV. MCS's petition must conform with the procedural requirements set forth in 10 C.F.R. Part 1003, *Office of Hearings and Appeals Procedural Regulations*, Subpart G, §§ 1003.70, et seq. If MCS does not petition the Office of Hearings and Appeals for review within 30 calendar days of receipt of this FNOV, MCS relinquishes any right to appeal any matter in this FNOV, and the FNOV will constitute a final order.

Robin M. Keeler Acting Director

Office of Enforcement

Office of Enterprise Assessments

Washington D.C. This 3rd day of December 2025