



## Department of Energy

Washington, DC 20585

March 22, 2018

### VIA OVERNIGHT UPS MAIL CARRIER

Mr. Kenneth J. Rueter  
President and Project Manager  
URS | CH2M Oak Ridge, LLC  
90 Union Valley Road  
Oak Ridge, Tennessee 37830

NCO-2018-01

Dear Mr. Rueter:

The Office of Enterprise Assessments' Office of Enforcement has completed its investigation into the facts and circumstances associated with a February 16, 2017, unauthorized operation of valves at the Molten Salt Reactor Experiment (MSRE). URS | CH2M Oak Ridge, LLC (UCOR) reported noncompliances associated with this event in the Department of Energy's (DOE) Noncompliance Tracking System under report NTS-ORO--UCOR-X10ENVRES-2017-0001, dated February 27, 2017.

On February 16, 2017, UCOR operators at the MSRE manipulated Reactive Gas Removal System (RGRS) cross connect valves to confirm the location of the boundary valves without proper work authorization or procedure. UCOR's implementation of work control processes was inadequate to prevent the unauthorized valve manipulation. Although the occurrence did not result in any injury to personnel, damage to equipment, or release to the environment, DOE views this event as significant because of the importance of the safe operation of the RGRS as part of the overall safety of the MSRE, a hazard category 2 nuclear facility. The Office of Enforcement's investigation identified several potential noncompliances with DOE nuclear safety requirements. Deficiencies were evident in the areas of work processes, quality improvement, conduct of operations, and independent assessments.

In accordance with 10 C.F.R. § 820.23, *Consent Order*, the Office of Enforcement has elected to resolve any potential noncompliances with requirements enforceable under 10 C.F.R. Part 820, *Procedural Rules for DOE Nuclear Activities*, through execution of a Consent Order. In deciding to enter into this Consent Order, DOE placed considerable weight on UCOR's investigation of the event and corrective actions to improve conduct of operation and work processes.



DOE reserves the right to reopen this investigation if DOE later becomes aware that UCOR provided any false or materially inaccurate information. Further, if there is a recurrence of nuclear safety deficiencies similar to those identified in this Consent Order, or a failure to timely complete all action items prescribed in the Consent Order (or other related actions that UCOR subsequently determines to be necessary) to prevent recurrence of the identified issues, then the Office of Enforcement may pursue additional enforcement activity. The Office of Enforcement, Office of Environmental Management, and Oak Ridge Office of Environmental Management will continue to closely monitor UCOR's implementation of DOE nuclear safety requirements until the issues associated with this Consent Order are fully resolved.

Enclosed please find two signed copies of the Consent Order. Please sign both, keep one for your records, and return the other copy to the Office of Enforcement within 1 week from the date of receipt. Please follow all instructions specified in the enclosure. By signing this Consent Order, you agree to comply with all of the terms, including payment of the monetary remedy, specified in section IV of the Consent Order and in the manner prescribed therein.

If you have any questions concerning this Consent Order, please contact me or Mr. Jon Thompson, Director, Office of Nuclear Safety Enforcement, at 301-903-7707.

Sincerely,



Kevin L. Dressman  
Acting Director  
Office of Enforcement  
Office of Enterprise Assessments

Enclosure: Consent Order (NCO-2018-01)

cc: John Arthur Mullis, OREM  
Mark Holowczak, UCOR

In the matter of ) Report No. NTS-ORO--UCOR-X10ENVRES-2017-0001  
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URS | CH2M Oak Ridge, LLC )  
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) Consent Order NCO-2018-01

CONSENT ORDER INCORPORATING AGREEMENT BETWEEN THE U.S.  
DEPARTMENT OF ENERGY AND URS | CH2M OAK RIDGE, LLC

I

URS | CH2M Oak Ridge, LLC (UCOR) is responsible for the management and operation of the Department of Energy's (DOE) Molten Salt Reactor Experiment (MSRE) in Oak Ridge, TN. UCOR is the prime contractor under Contract No. DE-SC-0004645 entered into with the DOE Oak Ridge Office of Environmental Management (OREM).

II

On February 16, 2017, UCOR Reactive Gas Removal System (RGRS) operators manipulated cross connect valves to confirm the location of the boundary valves without proper work authorization or procedure. The exact location of these valves was uncertain as a result of inadequate configuration management of engineering drawings that did not reflect as-built conditions. UCOR's implementation of work control process was inadequate to prevent the unauthorized manipulation. Although the occurrence did not result in any injury to personnel, damage to equipment, or release to the environment, DOE views this event as significant because of the importance of the safe operation of the RGRS as part of the overall safety of the MSRE, a hazard category 2 nuclear facility.

On February 27, 2017, UCOR submitted the event into DOE's Noncompliance Tracking System (NTS) report number NTS-ORO--UCOR-X10ENVRES-2017-0001, *Unauthorized Operation of Valves HCV-546-A2 and HCV-577-A2 of the RGRS at the MSRE*. The event report revealed deficiencies in the work control processes.

UCOR's Cause Analysis (CAMS Report 1F-2017-0341, *MSRE Unauthorized Valve Manipulation on RGRS Causal Analysis Report*) identified one root cause and four contributing causes. The root cause was that MSRE's implementation of Conduct of Operations requirements was less than adequate. The four contributing causes were: (1) facility access control was less than adequate, (2) as-built drawing configuration management was less than adequate, (3) facility implementation of the administrative tagging procedure was less than adequate, and

(4) facility organization roles and responsibilities were less than adequate. As a part of the response to this event, UCOR senior management requested AECOM Technology Corporation (AECOM) to perform an external assessment to examine the extent to which important elements of Conduct of Operations and Integrated Safety Management are met for work conducted at Nuclear and High Hazard Operations (NHHO) facilities under the UCOR Contract. Significant issues identified by AECOM were noted with the following: (1) implementation of Safety Basis controls (e.g., qualification, configuration management, work control processes), (2) hazard controls, and (3) conduct of operations. The Office of Enforcement considers that the Cause Analysis and the Independent Assessment appropriately identified most of the causal factors for this event. However, the Office of Enforcement determined that other causal factors, including deficiencies in the areas of performance of independent assessments and identification and correction of quality problems, should also have been identified and evaluated.

On June 21, 2017, pursuant to 10 C.F.R. § 820.21(a), the Office of Enforcement initiated an investigation into the facts and circumstances associated with the unauthorized work performed at the MSRE. The Office of Enforcement's investigation identified several potential noncompliances with DOE nuclear safety requirements. Deficiencies were evident in the areas of work processes, quality improvement, conduct of operations, and independent assessments. On September 5, 2017, UCOR submitted a request for a Consent Order to the Office of Enforcement.

### III

Pursuant to 10 C.F.R. § 820.23, at any time during enforcement proceedings, DOE may resolve any or all outstanding issues with a Consent Order if the settlement is consistent with the objectives of the Atomic Energy Act of 1954, as amended, and DOE nuclear safety requirements enforceable under 10 C.F.R. Part 820, *Procedural Rules for the DOE Nuclear Activities*.

To resolve potential noncompliances of DOE nuclear safety requirements and in consideration of several mitigating factors, including UCOR's investigation, causal analyses, and associated corrective actions taken since the submission of the NTS report referenced above, which DOE found to be adequate and appropriate, DOE has elected to enter into settlement. DOE and UCOR have reached agreement to resolve this matter through execution of this Consent Order.

### IV

Accordingly, the terms of this Consent Order are as follows:

In consideration of the mutual agreements set forth in this section, the sufficiency and adequacy of which are acknowledged by DOE and UCOR (hereinafter the "Parties"), the following terms represent agreement by the authorized representatives of the Parties to resolve by settlement the potential noncompliances at the MSRE, in lieu of an enforcement action that DOE may issue pursuant to 10 C.F.R. § 820.24.

1. UCOR shall fully complete and implement all the following corrective actions, as applicable to NHHO's nuclear facilities:
  - a. Within six months of the Effective Date of the Consent Order, UCOR shall complete all corrective actions that were committed to in report NTS-ORO--UCOR-X10ENVRES-2017-0001 as of the date of this Consent Order.
  - b. UCOR shall modify the Quality Assurance Program to include a specific frequency for the conduct of independent assessments that are performed to meet the requirements of 10 C.F.R. Part 830, Subpart A. UCOR will submit these changes to OREM as part of the next annual submittal to meet the requirements of 10 C.F.R. § 830.121(b)(3).
  - c. Within six months of the Effective Date of the Consent Order, UCOR shall perform an independent assessment(s) in the areas of work processes, conduct of operations, configuration management, and quality improvement that are performed to meet the requirements of 10 C.F.R. Part 830, Subpart A, Criterion 10, *Independent Assessments*. UCOR will provide the results of the independent assessment(s) to the DOE Office of Enforcement, Office of Environmental Management (EM), and OREM, within 60 days of completion.
  - d. Within three months of the Effective Date of the Consent Order, UCOR shall complete an evaluation of the effectiveness of the NHHO program, with a focus on communications interfaces and the clarity of roles and responsibilities. The evaluation shall include a discussion of communication challenges between management and the craft/staff, especially with respect to raising nuclear safety concerns. UCOR will provide the results of this evaluation and the corrective action plan to the DOE Office of Enforcement, EM, and OREM.
  - e. Within 12 months of the Effective Date of the Consent Order, UCOR shall arrange for an independent effectiveness review (the team leader and the majority of members of the team shall be outside of UCOR or its Corporate Affiliations) of the corrective actions referenced in item 1.a. above. UCOR will provide its results to the DOE Office of Enforcement, EM, and OREM.

The delivery and acceptance of the independent assessment(s), evaluation, and independent effectiveness review results by the aforementioned parties satisfies the completion of the actions included in item 1.

2. UCOR shall pay the amount of \$120,000 reflecting an agreed upon monetary remedy in lieu of the issuance of an enforcement action with the proposed imposition of a civil penalty pursuant to 10 C.F.R. § 820.24.
3. UCOR agrees to return a signed copy of this Consent Order, within 1 week from the date of receipt, to the address provided in item 5 below.
4. The Effective Date of this Consent Order shall be the date upon which UCOR signs this Consent Order.

5. UCOR shall remit the monetary remedy of \$120,000 by electronic funds transfer (EFT), check, draft, or money order payable to the Treasurer of the United States (Account Number 891099) within 30 calendar days after the Effective Date of this Consent Order. To remit the monetary remedy by EFT, please have your accounting department contact the Office of Enforcement's Docket Clerk, at 301-903-7707 for EFT wiring instructions. If payment is made by check, draft or money order, it shall be sent by overnight carrier to:

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

6. This Consent Order shall constitute a full and final settlement of the potential noncompliances identified in the referenced NTS report, subject to the following:
  - (a) UCOR's payment of the monetary remedy in accordance with item 5 above; and
  - (b) UCOR's completion of all actions set forth in item 1 above to the satisfaction of DOE.
7. UCOR agrees that the monetary remedy or any costs, as defined in the Federal Acquisition Regulation, 48 C.F.R. § 31.205-47, incurred by, for, or on behalf of UCOR relating to coordination and cooperation with DOE concerning the investigation of matters covered by this Consent Order are not allowable under the Contract. However, costs incurred by, for, or on behalf of UCOR relating to the development and implementation of corrective actions, including costs associated with the effectiveness review required under item 1, above, may be considered allowable costs under the Contract at the discretion of the Contracting Officer in accordance with applicable law.
8. This Consent Order does not preclude DOE from reopening the investigation or issuing an enforcement action under 10 C.F.R. § 820.24 with respect to a potential noncompliance if:
  - (a) after the Effective Date (as defined in item 4 above), DOE becomes aware of any false or materially inaccurate facts or information provided by UCOR; (b) there is a recurrence of nuclear safety deficiencies similar to those identified above; or (c) UCOR fails to complete all actions identified in item 1, above, in a timely and effective manner to prevent recurrence of the identified issues.
9. Any modification to this Consent Order requires the written consent of both Parties.
10. UCOR waives any and all rights to appeal or otherwise seek judicial or administrative review of the terms of this Consent Order. DOE retains the right to judicially enforce the provisions of this Consent Order by all available legal means.
11. This Consent Order is issued pursuant to DOE's authority under Section 234A of the Atomic Energy Act of 1954, as amended (42 U.S.C. § 2282a), and the implementing provisions of 10 C.F.R. Part 820 governing enforcement of DOE nuclear safety requirements.

12. Pursuant to 10 C.F.R. § 820.23(d), this Consent Order shall become a Final Order 30 calendar days after the signed copy, referenced in item 3 above, is filed by the Office of Enforcement's Office of the Docketing Clerk unless the Secretary of Energy files a rejection of the Consent Order or a Modified Consent Order.


On behalf of my respective organization, I hereby agree to and accept the terms of the foregoing Consent Order.

FOR U.S Department of Energy

FOR URS | CH2M Oak Ridge, LLC

  
Date 3-22-18

Kevin L. Dressman  
Acting Director  
Office of Enforcement  
Office of Enterprise Assessments  
U.S. Department of Energy

  
Date 3-27-18

Kenneth J. Rueter  
President and Project Manager  
URS | CH2M Oak Ridge, LLC