



## Department of Energy

Washington, DC 20585

November 21, 2014

Mr. John J. Grossenbacher  
President and Laboratory Director  
Battelle Energy Alliance, LLC  
2525 North Fremont Avenue  
Idaho Falls, Idaho 83415-3695

NCO-2014-02

Dear Mr. Grossenbacher:

The Office of Enterprise Assessments' Office of Enforcement has completed its investigation into the facts and circumstances associated with three core misload events at the Idaho National Laboratory Advanced Test Reactor (ATR), which occurred during the month of February 2013. These occurrences were documented in two Noncompliance Tracking System reports, NTS-ID--BEA-ATR-2013-0001, *ATR Core Loading Discrepancy*, and NTS-ID--BEA-ATR-2013-0002, *ATR Technical Safety Requirement (TSR) Surveillance Requirement (SR) Not Successfully Performed within Required Frequency*.

These events eventually led to the violation of a TSR SR, but did not result in any adverse effects on workers, the public, or ATR systems or components. Nevertheless, the U.S. Department of Energy (DOE) considers this event to be of elevated nuclear safety significance. The Battelle Energy Alliance (BEA) investigation into this event identified deficiencies in the execution of conduct-of-operations principles, continuing training, human performance behavior, procedure content, and resource management to support plant startup.

DOE has evaluated BEA's investigation and causal analysis of the event and finds them to be thorough and self-critical. In addition, the identified corrective actions are appropriately linked to BEA's analysis. DOE recognizes that BEA senior management understands the safety significance of these events and has demonstrated a strong commitment to the effective implementation of a disciplined nuclear operations philosophy at ATR. DOE views it as important, however, that BEA continues to make improvements in conduct of operations and procedural compliance at ATR and ensure that measures to verify proper core loading are fully implemented.

In accordance with 10 C.F.R. § 820.23, the Office of Enforcement has chosen to exercise enforcement discretion by resolving these potential noncompliances through a Consent Order. In deciding to enter into this Consent Order,



considerable weight was placed on BEA's efforts to improve operational performance and ensure proper core loading at ATR.

DOE reserves the right to reinstate enforcement proceedings against BEA if DOE later becomes aware of any false or materially inaccurate facts or information provided by BEA. Further, if there is a recurrence of nuclear safety deficiencies similar to those identified above, or a failure to complete all corrective actions prescribed in the Consent Order (or other related actions that BEA subsequently determines to be necessary) to prevent recurrence of the identified issues, the Office of Enforcement may decide to pursue additional enforcement activity. The Office of Enforcement, the Office of Nuclear Energy, and the Idaho Operations Office will continue to closely monitor BEA's implementation of DOE's nuclear safety requirements at ATR and at other INL nuclear facilities.

Enclosed are two signed copies of the Consent Order. Please sign both, keep one for your records, and return the other copy to this office within 1 week from the date of receipt. By signing this Consent Order, BEA agrees to remit a monetary remedy of \$60,000, payable to the Treasurer of the United States, in accordance with the directions in the enclosed Consent Order and to perform the actions specified in section IV of the Consent Order.

Should you have any questions, please contact me at (301) 903-7707, or your staff may contact Mr. Jon Thompson, Office of Nuclear Safety Enforcement, at (301) 903-1134.

Sincerely,



Steven C. Simonson  
Director  
Office of Enforcement  
Office of Enterprise Assessments

Enclosure: Consent Order (NCO-2014-02)

cc: Richard Provencher, ID  
Kermit Bunde, DOE-ID  
Sherry Kontes, BEA

In the matter of                    ) Report Nos. NTS-ID--BEA-ATR-2013-0001  
   )                    NTS-ID--BEA-ATR-2013-0002  
   )  
   )  
 Battelle Energy                    )  
 Alliance, LLC                        )  
   )  
   )  
   )  
   )  
   ) Consent Order NCO-2014-02

**CONSENT ORDER INCORPORATING AGREEMENT BETWEEN  
 U.S. DEPARTMENT OF ENERGY AND BATTELLE ENERGY ALLIANCE, LLC**

**I**

Battelle Energy Alliance, LLC (BEA), is responsible for the operation and maintenance of the Advanced Test Reactor (ATR), which is located at the ATR complex at the Idaho National Laboratory (INL). The ATR is a Department of Energy (DOE)-owned hazard category 1 nuclear facility whose principal function is to provide high neutron flux for testing reactor fuels and other materials. BEA conducts ATR operations and maintenance activities at the Idaho National Laboratory under Contract No. DE-AC07-05ID14517 (Contract) for the DOE Idaho Operations Office (DOE-ID).

**II**

During the month of February 2013, three core misload events occurred at the ATR at INL. On February 7, 2013, while performing experiment verifications, an ATR Experiment Engineer found that two different experiment test stop lengths were specified in two different engineering documents for the same experiment. The Experiment Engineer was able to stop work, make appropriate notifications, and install the correct test stop before the ATR was started.

On February 11, 2013, during preparation for ATR startup, a manager determined that an experimental position was empty and, therefore, not loaded appropriately. Prior to this determination, deficiencies in the process of planning for, and in executing, core loading led to an experiment core position being improperly left empty. When ATR operators subsequently requested verification of the proper loading for this position, an ATR shift supervisor consulted some of the proper core loading documentation, but conveyed inaccurate information to the operators. In response to subsequent requests for verification of the proper loading for this core position, the ATR shift supervisor provided the same answer without any additional research.

Preparation for startup continued until intervention by the ATR manager referenced above, which was not a step described in BEA procedural controls.

On February 20, 2013, after initiating startup of the ATR, an unplanned manual shutdown was performed due to failure to meet startup requirements (i.e., missed critical shim position prediction). On February 25, 2013, during post-shutdown verification of the ATR experiment core loading, it was discovered that the wrong equipment had been installed in one of the ATR experiment core positions. As a result, a technical safety requirement (TSR) was violated.

BEA's Cause Analysis of these events identified two root causes and three contributing causes. The two root causes were: (1) human performance behavior weaknesses in the ATR Experiment Engineering group, and (2) deficiencies in ATR Experiment Engineering procedures. The three contributing causes were: (1) confusion surrounding the ATR outage planning process, (2) misunderstandings in the operator response due to weaknesses in continued training, and (3) human performance weaknesses in the operations response to an empty ATR position.

BEA voluntarily reported potential noncompliances with DOE nuclear safety requirements associated with the event into DOE's Noncompliance Tracking System (NTS) in reports NTS-ID--BEA-ATR-2013-0001, *ATR Core Loading Discrepancy* and NTS-ID--BEA-ATR-2013-0002, *ATR Technical Safety Requirement (TSR) Surveillance Requirement (SR) Not Successfully Performed within Required Frequency*.

In November 2013, pursuant to 10 C.F.R. § 820.21(a), and based on the NTS reports and discussions with DOE-ID and the DOE Office of Nuclear Energy, the DOE Office of Enforcement initiated an investigation into the events of February 2013. The Office of Enforcement's investigation identified several potential noncompliances with DOE nuclear safety requirements. Specific deficiencies were evident in the areas of work processes and resource management. In addition, one of these events involved the violation of a TSR.

In a July 22, 2014, letter to the Office of Enforcement, BEA requested a Consent Order based on the following: (1) BEA has demonstrated the safety attributes that the enforcement program is meant to incentivize, (2) BEA self-discovered and identified the core loading issues resulting in the ORPS reports, (3) BEA performed a causal analysis and obtained an independent review of the analysis, (4) BEA identified and took initial comprehensive corrective actions to address changes needed in the irradiation experiments process, and (5) BEA employee and manager safety awareness and questioning attitudes led to the identification and correction of errors related to the first two core misload events.

### III

Pursuant to 10 C.F.R. § 820.23, at any time during enforcement proceedings, DOE may resolve any or all 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 DOE Nuclear Activities*.

To resolve the potential noncompliances with 10 C.F.R. Part 830, *Nuclear Safety Management*, requirements and in consideration of BEA's request for settlement and the adequacy of BEA's investigation, causal analyses, and associated corrective actions taken before and since the submission of the NTS reports referenced above, DOE has elected to enter into settlement. DOE and BEA 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 BEA, the following terms represent agreement by the authorized representatives of DOE and BEA to resolve by settlement the potential noncompliances at the ATR, in lieu of an enforcement action that DOE may issue pursuant to 10 C.F.R. § 820.24.

1. BEA shall include the following enhancements in their corrective action plans and provide the specified deliverables:
  - a. Within 120 days of the effective date of this Consent Order, BEA will arrange for an effectiveness review of completed corrective actions to address the core misload causal factors, and provide the results to the Office of Enforcement and DOE-ID.
  - b. Within 180 days of the effective date of this Consent Order, BEA will arrange for an independent party (outside of BEA) with experience in reactor outage management to conduct a review of ATR outage management practices, with a focus on the management of interfaces between engineering and operational elements within the ATR organization, and provide the results to the Office of Enforcement and DOE-ID.
2. BEA shall pay the amount of \$60,000, reflecting an agreed-upon monetary remedy in lieu of the issuance of an enforcement action with imposition of a civil penalty pursuant to 10 C.F.R. § 820.24. The amount of the monetary remedy considers the impact of the ATR core misload events on BEA's award fee determination for fiscal year 2013 and reflects DOE's exercise of enforcement discretion in reducing the amount of the monetary remedy that would otherwise be imposed under this Consent Order.
3. BEA 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 BEA signs this Consent Order.
5. BEA shall remit the monetary remedy of \$60,000 by 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. Payment 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 reports, subject to: (a) BEA's payment of the monetary remedy in accordance with item 5, above, (b) BEA's completion of all actions set forth in item 1 in the manner prescribed therein, and (c) the provisions of item 12, below.
7. In accordance with the Major Fraud Act, as amended, 41 U.S.C. § 4310, and the implementing provisions of the Federal Acquisition Regulation, 48 C.F.R. § 31.205-47, neither the monetary remedy nor any costs incurred by, for, or on behalf of BEA that are directly attributable to supporting DOE's investigation, including coordination and cooperation with DOE concerning the matters covered by this Consent Order, shall be considered allowable costs under the Contract. However, costs incurred by, for, or on behalf of BEA relating to the development and implementation of corrective actions, including costs associated with the independent effectiveness review required under item 1 above, may be considered allowable costs under the Contract.
8. This Consent Order does not preclude DOE from re-opening 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 BEA; (b) there is a recurrence of nuclear safety deficiencies similar to those identified above; or (c) BEA fails to complete all actions specified in item 1 above in the manner prescribed therein.
9. Any modification to this Consent Order requires the written consent of both DOE and BEA.
10. BEA 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 the 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 Battelle Energy Alliance, LLC:

  
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Date 11/21/14

Steven C. Simonson  
Director  
Office of Enforcement  
Office of Enterprise Assessments  
U.S. Department of Energy

  
\_\_\_\_\_  
Date 11/25/2014

John J. Grossenbacher  
President and Laboratory Director  
Idaho National Laboratory  
Battelle Energy Alliance, LLC