



**Idaho State
University**

**Region IV Receipt
August 19, 2021**

August 18, 2021

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Reply to a Notice of Violation; EA-20-134

Reference: Idaho State University, Notice of Violation and Proposed Imposition of \$45,000 in Civil Penalties, NRC Inspection Report 030-32322/2020-001; 030-38726/2020-001; 070-01374/2020-001.

With respect to the provisions of 10 CFR 2.201, Idaho State University is submitting in the attached, a written statement to the U.S. Nuclear Regulatory Commission in response to **EA-20-134**.

Sincerely,

A handwritten signature in black ink, appearing to read 'Donna Lybecker'.

Donna Lybecker
Acting Vice President for Research
Idaho State University

cc: U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk,
Washington, DC 20555-0001

Scott Morris, Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV,
1600 East Lamar Blvd., Arlington, Texas 76011-4511

R4Enforcement@nrc.gov

President Kevin Satterlee, ISU
Mr. John Longley, ISU
Dr. Mary Lou Dunzik Gougar, ISU
Mr. Jon Stoner, ISU

ISU Response to Notice of Violation and Proposed Imposition of Civil Penalties EA-20-134

Introduction

Idaho State University is responding to the Notice of Violation and Proposed Imposition of Civil Penalties associated with EA-20-134. ISU chose not to participate in an alternative dispute resolution process as offered in the July 22, 2021 letter and is instead putting its efforts into a comprehensive corrective action program to ensure corrections both specifically and programmatically.

While ISU does believe some areas of concern should have been characterized differently in the Notice of Violations, ISU does not contest any of the violations and will submit payment of the civil penalty as specified in NUREG/BR-0254. In addition, ISU will submit a statement to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission indicating when and by what method the payment was made.

ISU management led by President Kevin Satterlee is fully committed to corrective actions necessary to enhance safety and ensure regulatory compliance for NRC licensed operations at ISU. In this regard, President Satterlee created a task force to oversee the response and ensure meaningful program improvement. The task force, consisting of individuals from a broad spectrum of program and compliance functions across the university and including senior management, meets regularly to continue implementing a comprehensive corrective action plan. The task force then submits a monthly report to the President for review and discussion. The President leads detailed discussions about each monthly report and ensures progress is being made in a timely manner in accordance with established corrective action timelines.

In addition to the corrective actions detailed for each violation in the following sections, there are also ongoing corrective steps that will be taken. Specifically, ISU is evaluating learning management systems to document procedure review and understanding for radiation workers in radiological research operations. ISU anticipates implementation of a learning management system by June 30, 2023.

Each violation and the associated corrective action is detailed in the following sections.

Violation A.

Confirmatory Order EA-18-153, dated May 2, 2019, Section V, Condition A requires, in part, that within 90 days of the issuance date of the Confirmatory Order, one or more third-party person(s) selected by Idaho State University will complete a 100 percent source inventory and submit the results in writing to the NRC.

Contrary to the above, from July 31, 2019, to March 9, 2020, the third-party person selected by Idaho State University failed to complete a 100 percent source inventory. Specifically, the inventory performed by the third-party person and submitted to the NRC on July 25, 2019, failed to account for licensed material in the licensee's possession under NRC licenses SNM-1373 and R-110.

Reason for the Violation:

ISU management, the Radiation Safety Committee, and Radiation Safety Officer incorrectly assumed the requested inventory was specific to the Broad Scope because the required inventory was a result of an inspection relative to that license. In addition, ISU personnel failed to carefully read the confirmatory order prior to commencing the inventory.

Corrective steps that have been taken and the results achieved:

- ISU performed a full measurement-based inventory of materials on the R-110 license to resolve the excess material in reactor inventory at the date of inspection March 9 - 13, 2020. Action completed May 27, 2020.
- ISU retained an independent contractor to complete an independent inventory of all material on the R-110 and SNM-1373 licenses. Action completed June 10, 2020.
- ISU added the Reactor Administrator to the radiation safety management meetings to ensure that issues affecting the R-110 and SNM-1373 licenses were properly addressed. Action Completed Fall 2020.
- ISU invited the Reactor Safety Committee chairperson to attend radiation safety management meetings when available. Action completed Spring 2021.

Corrective steps that will be taken:

- ISU will develop a measurement-based physical inventory procedure and implement the procedure annually in March starting in March 2022.

Date full compliance will be achieved:

Full compliance with Condition A of the confirmatory order was achieved on June 10, 2020. The new physical inventory procedure will be implemented by March 2022.

Violation B. Failure to have SCA procedures

License Condition 9 of License SNM-1373, Amendment Nos. 1-6, state, in part, that licensed special nuclear material (SNM) is authorized for use in accordance with the statements, representations, and conditions specified in the licensee's application supplement dated February 14, 2011.

License application supplement dated February 14, 2011, Section 9, "Material Control and Accountability," Subsection (b), "Administrative controls," states, in part, that the reactor safety committee shall review and approve all plans and procedures for the use of the licensed materials in the subcritical assembly.

Contrary to the above, from May 19, 2015, to January 6, 2021, the reactor safety committee failed to review and approve plans and procedures for the usage of the licensed materials in the subcritical assembly. Specifically, the licensee failed to have its reactor safety committee review and approve written procedures for the usage of the licensed materials in the subcritical assembly that included written procedures for: loading the neutron source into the subcritical assembly; handling the subcritical assembly fuel plates; use of radiation measuring and monitoring instruments; and restrictions and prohibitions regarding superior moderator or reflector materials to prevent inadvertent criticality.

Reason for the Violation:

ISU personnel based operation of the SCA on procedures related to experimental activities because these were the only operations originally envisioned for the SCA. Personnel did not perform a periodic review of these procedures and related expansion of activities because there was no procedural mechanism to require periodic reviews.

Corrective steps that have been taken and the results achieved:

- ISU developed a procedure for operation of the SCA and it was approved by the Reactor Safety Committee. Action completed on October 29, 2020.
- ISU suspended operations of the SCA until procedure updates are completed and approved by the Reactor Safety Committee. Action completed on April 12, 2021.

Corrective steps that will be taken:

- Reactor Safety Committee and Reactor Management will review all reactor and SCA operations to ensure they have procedures specific to appropriate activities. Expected completion date August 30, 2021.
- Radiation Safety Department will update procedure RS-06, Radioactive Material Evaluations, to address inspection of the SCA. Staff members will be required to read and understand the procedure; applicable technicians will be trained per RS-21, Radiation Safety Technician Qualifications. Expected completion date September 30, 2021.

- SCA training process for reactor personnel will be updated to include a three-step process. Review procedure, staff demonstrates procedure, and staff observes trainee implementation of procedure. Expected completion date September 30, 2021
- ISU will develop a procedure for review and update of procedures on a scheduled basis for Radiation Safety Department and Authorized Users. New procedures will be sent to all authorized material users for review and implementation. Expected Completion Date: September 30, 2021.
- ISU will update the SCA procedure with the Reactor Safety Committee to address use of the Am-241-Be source, to require recording of dose rate surveys, to specify user survey requirements from the license application, to clarify logging of plate removal and return, and to specifically link to emergency procedures. Expected completion date: August 30, 2021
- Management oversight of SCA operation will be conducted by the Reactor Administrator or Reactor Safety Committee members for initial operations using the updated procedure. Expected completion date: May 31, 2022.

Date full compliance will be achieved: May 31, 2022.

Violation C.

10 CFR 74.19(c) requires, in part, that each licensee who is authorized to possess SNM, at any one time and site location, in a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium, or any combination thereof, shall conduct a physical inventory of all SNM in its possession under license at intervals not to exceed 12 months.

10 CFR 74.4 defines physical inventory, in part, as the determination on a measured basis of the quantity of SNM on hand at a given time.

Contrary to the above, on March 9, 2020, the licensee failed to conduct a physical inventory of all SNM in its possession, where the licensee was authorized to possess SNM in a quantity greater than 350 grams of contained uranium-235, uranium-233, or plutonium. Specifically, the licensee failed to perform a physical inventory that consisted of a determination on a measured basis for the quantity of uranium-235 on hand at a given time within the 12 months preceding March 9, 2020.

Reason for the Violation:

ISU did not recognize that measurement, rather than item identification, was required for applicable items.

Corrective steps that have been taken and the results achieved:

- ISU performed a full measurement-based inventory of materials on the R-110 license to resolve the excess material in reactor inventory at the date of inspection March 9 - 13, 2020. This inventory verified the mass present to within the rounding unit of the NMMSS system. Action completed May 27, 2020.
- The ISU Radiation Safety Officer and CAES Safety Officer enrolled in NMMSS training for October 4-15, 2021 and the ISU Assistant Radiation Safety Officer enrolled in NMMSS training for December 6-17, 2021. Enrollment completed on August 4, 2021.

Corrective steps that will be taken:

- ISU will develop a physical inventory procedure with the following elements based on ANSI N15.8, Material Control Systems – Special Nuclear Material Control and Accounting Systems for Nuclear Power Plants. Procedure will be reviewed by Reactor and Radiation Safety Committees. Expected completion date for the written procedure October 31, 2021. The procedure will address inventory of the four categories of material possessed by ISU based on guidance in ANSI N15.8.
 - Sealed items (clad fuel plates, sealed sources, fission counters, etc.)
 - Verify all are present by serial number, where applicable, and examine for damage. (Referred to as item count or piece count in ANSI N15.8) Perform 100 % leak test. If leaking or damaged evaluate following guidance of ANSI N15.8.

- Non-sealed materials
 - Material on License R-110 and License 11-27380-01 – Materials stored as permitted in plastic bags or plastic vials. ISU will weigh items in their current configuration (plastic bags and plastic vials) to establish a baseline.
 - During the inventory ISU will repeat measurements and compute weight difference from the baseline. If the difference changes the rounded reporting value for the transaction by the reporting threshold for isotopic weight in NUREG/BR-0007, ISU will report the difference to the NRC and submit a 741 form to adjust the NMMSS inventory.
- Reactor
 - The reactor will be inventoried as a single item based on ANSI N15.8. ISU will weigh fuel plates and control rods if the core is accessed in the future.
- Containerized material with Tamper Indicating Devices (TID)
 - This material will be considered out of process and not subject to measurements based on ANSI N15.8. Condition and serial numbers of TIDs will be verified. However, if the container is opened, a full inventory of sealed and non-sealed items will be conducted as specified above.

Date full compliance will be achieved:

Full compliance will be achieved by March 31, 2022. The physical inventory procedure will be completed by October 31, 2021. Initial implementation of the procedure will be completed in March 2022 to occur within 60 days of the submission of the annual material status report (Forms 742 and 742C) at the end of March each year.

Violation D.

10 CFR 70.9 requires, in part, that information provided to the Commission by a licensee shall be complete and accurate in all material respects.

10 CFR 74.13(a) requires, in part, that each licensee possessing or who had possessed in the previous reporting period, at any one time and location, SNM in a quantity totaling one gram or more of contained uranium-235, uranium-233, or plutonium shall complete and submit Material Balance Reports concerning SNM that the licensee has received, produced, possessed, transferred, consumed, disposed, or lost. Each licensee shall prepare and submit the Material Balance Report as specified in the instructions in NUREG/BR-0007, "Instructions for the Preparation and Distribution of Material Status Reports."

10 CFR 74.15(a) requires, in part, that each licensee who adjusts the inventory in any manner, other than for transfers and receipts, shall submit a Nuclear Material Transaction Report to coincide with the submission of the Material Balance Report. This shall be done as specified in the instructions in NUREG/BR-0006, "Instructions for Completing Nuclear Material Transaction Reports."

Contrary to the above, on March 9, 2020, the licensee failed to provide information to the Commission that was complete and accurate in all material respects. Specifically, information provided to the Commission in Material Balance Reports submitted by the licensee to the NRC were not complete and accurate in all material respects, in that there was a difference between the quantity of SNM in site-maintained records and the quantity of SNM reported by the licensee in the Material Balance Reports. The licensee failed to either: (1) submit a Form 740M "Concise Note" explaining the difference, as specified in the instructions in NUREG/BR-0007, or (2) submit a Form 741 "Nuclear Material Transaction Report," as specified in the instructions in NUREG/BR-0006, to coincide with the submission of its Material Balance Reports to adjust for the difference in the quantity of SNM.

Reason for the Violation:

ISU used rounded values for three transactions (batches) (reactor receipt, SCA receipt, and university fuel receipt) and then added to determine the total mass. If unrounded values are summed and then rounded, the total mass is one gram less. The cause of the discrepancy was the difference in rounding techniques.

Corrective steps that have been taken and the results achieved:

As specified in Section 1.5 of NUREG/BR-0007, Revision 8, ISU submitted Form 740M to NMMSS to clarify the rounding difference for material type E2. Completion date May 21, 2020.

ISU submitted renewal application for SNM license 1373 on July 11, 2021. The application included exact masses of SNM so the license quantities will agree with the rounded value reported in NMMSS. Completion date: July 9, 2021

Corrective steps that will be taken:

- ISU will implement the physical inventory procedure annually in the month prior to submitting the annual NMMSS material status report. Expected completion date of first physical inventory is March 2022.
- In March 2022, ISU will provide additional detail in the annual material status report (Forms 742 and 742C). Specifically, a 742C form will be submitted for each enriched uranium material type E1, E2, E3, and E4. The 742C form for material type E2 will include batches for the three receipts of SNM at the reactor laboratory. Expected completion date March 31, 2022.

Date full compliance will be achieved:

Full compliance was achieved on May 2021 when ISU submitted Form 740 M to clarify the material type E2 inventory. The inventory summary for 2022 will include a 742C form for each material type to further clarify the inventory and will be based on the initial measurements based physical inventory.

Violation E.

10 CFR 33.13(c)(3)(ii) requires, in part, that the licensee establish administrative controls and provisions relating to procedures and management review that are necessary to assure safe operations, including the establishment of administrative procedures to assure the completion of safety evaluations of proposed uses of byproduct material which take into consideration such matters as the adequacy of equipment, training and experience of the user, and the operating or handling procedures.

Contrary to the above, from September 25, 2018, to March 9, 2020, the licensee failed to establish appropriate administrative procedures to assure completion of safety evaluations of proposed uses of byproduct material which took into consideration such matters as the adequacy of equipment, training and experience of the users, and the operating or handling procedures. Specifically, for the use of a category 2 americium-241/beryllium source, the licensee failed to establish written operating and emergency procedures that took into consideration the necessary: training and experience of the users; equipment and training for removing and returning the source storage container from the storage shaft; radiation monitoring and detection equipment for radiation surveys and personnel monitoring; handling procedures for removing the americium-241/beryllium source from the storage container; procedures for the establishment and control of high radiation areas; and emergency procedures.

Reason for the Violation:

The procedure for using the Am-Be source was not revised after reconfiguration in the 2017-2018-time frame. The cause was personnel turnover in the reactor supervisor position, Radiation Safety Officer, and other reactor personnel. In addition, there were incomplete procedural control processes.

Corrective steps that have been taken and the results achieved:

- ISU developed a revised procedure for use of the Am-Be source. It was approved by the Reactor Safety Committee on July 23, 2020 and the Radiation Safety Committee on August 6, 2020.
- ISU Reactor Department updated the training process for the Am-Be procedure to include a three-step process: review procedure, staff demonstrate procedure, and staff observe trainee implementing procedure. Completion date: May 30, 2021.
- ISU Radiation Safety Department updated training under Procedure RS-21, Radiation Safety Technician Qualifications, to include the Am-Be source procedure for personnel who perform leak tests and NSTS inventory. Completion date May 30, 2021.
- ISU Radiation Safety Department updated the general procedure for safe handling of sources, TSO 04-14. The revised procedure, RS-19, Sealed Source Safety, was approved the Radiation Safety Committee on 7/1/21 and was sent to all authorized material users for review and implementation on July 2, 2021. The procedure is effective on August 1, 2021. Completion date: August 1, 2021.
- ISU updated the Radiation Safety Manual to require authorized users to develop specific handling procedures for exposed radioactive sources that will create a Radiation Area

when in use. Revision 13.2 of the Radiation Safety Manual was approved by the Radiation Safety Committee on July 1, 2021, and authorized users were notified of the update on July 2, 2021. Completion Date July 2, 2021.

Corrective steps that will be taken:

- Authorized users will work with the Radiation Safety Department to develop procedures for sources that will create a Radiation Area. This will affect users at the reactor, the physics department, and IAC. Expected completion date September 30, 2021.
- ISU Radiation Safety Department developed a draft emergency response procedure, RS-25, for radiation emergencies and events. The procedure was sent to the Radiation Safety Committee for review on August 4, 2021. Radiation Safety Department staff members will be required to read and understand, and applicable technicians will be trained per RS-21, Radiation Safety Technician Qualifications. Expected completion date: August 30, 2021.
- ISU Reactor Department will update the Am-Be source procedure to specify emergency response instructions and clarify dose rate surveys. In the event of an emergency, these instructions will invoke contact with the Radiation Safety Department who will implement the emergency response procedure. Expected completion date: September 30, 2021.
- ISU Radiation Safety Department will add a section to user permits to specifically list applicable procedures. On July 28, 2021, the Radiation Safety Officer notified authorized users that they were required to provide applicable radiation safety procedures by September 30, 2021. The Radiation Safety Committee will review all procedures in the 4th quarter of 2021. The Radiation Safety Department will update all material user permits to include references to the procedures. Revised permits will be evaluated by the RSC at the 4th quarter meeting. Expected completion date: December 31, 2021.

Date full compliance will be achieved: December 31, 2021.

Katanic, Janine

From: Roldan-Otero, Lizette
Sent: Friday, August 20, 2021 11:53 AM
To: Katanic, Janine
Subject: FW: Reply to a Notice of Violation; EA-20-134
Attachments: NOVCP_EA-20-134.pdf; NOVCP_EA-20-134_cover-letter.pdf

FYI – ISU response

Lizette Roldán-Otero, Ph.D., Chief

P Y 0 C B Q B :-
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From: R4Enforcement <R4Enforcement.Resource@nrc.gov>
Sent: Friday, August 20, 2021 11:51 AM
To: Roldan-Otero, Lizette <Lizette.Roldan-Otero@nrc.gov>; Howell, Linda <Linda.Howell@nrc.gov>; Muessle, Mary <Mary.Muessle@nrc.gov>
Cc: Dodson, Douglas <Douglas.Dodson@nrc.gov>; Kramer, John <John.Kramer@nrc.gov>
Subject: FW: Reply to a Notice of Violation; EA-20-134

FYI...ISU response.

From: Donna Lybecker <donnalybecker@isu.edu>
Sent: Thursday, August 19, 2021 1:34 PM
To: R4Enforcement <R4Enforcement.Resource@nrc.gov>
Cc: Kevin Satterlee <kevinsatterlee@isu.edu>; John Longley <longjohn@isu.edu>; Mary Lou Dunzik-Gougar <mldg@isu.edu>; Jon Stoner <stonjon@isu.edu>
Subject: [External_Sender] Reply to a Notice of Violation; EA-20-134

With respect to the provisions of 10 CFR 2.201, Idaho State University is submitting in the attached, a written statement to the U.S. Nuclear Regulatory Commission in response to **EA-20-134**.

Please find attached both the cover letter and response.

Sincerely-
Donna Lybecker

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Donna L. Lybecker

Acting Vice President for Research

Professor | Political Science

Administration Building | Room 106

921 S. 8th Ave, STOP 8130 | Pocatello, Idaho 83209-8130

(208) 282-3331/ (208) 282-2592 | donnalybecker@isu.edu

Note: ISU is changing email addresses. My new address is donnalybecker@isu.edu (though my old address will continue to work).

