UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

March 7, 2022

EA-22-001

Ms. Carolyn Brandt, Director
Research Integrity & Compliance
University of Wyoming
1000 East University Avenue
Laramie, WY 82071

SUBJECT: NRC INSPECTION REPORT 030-01176/2021-001

Dear Ms. Brandt:

This letter refers to the announced routine inspection that was performed on November 17, 2021, at your facilities in Laramie, Wyoming. The inspection continued with in-office review through February 9, 2022. The inspection was conducted to examine activities conducted under your license as they relate to public health and safety and to confirm compliance with the U.S. Nuclear Regulatory Commission's (NRC) rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of an examination of selected procedures and representative records, observation of licensed activities and facilities, independent radiation measurements, and interviews with personnel. The enclosed report presents the results of this inspection. The inspector discussed the preliminary inspection findings with Dr. Kenneth Warren Sims, Chairman, Radiation Safety Committee; Mr. Jim Herrold, CHP, Radiation Safety Officer; and you on November 17, 2021, at the conclusion of the onsite portion of the inspection. A final exit briefing was conducted vis videoconference with Diana Hulme, Interim Vice President, Research and Economic Development; Kenneth Warren Sims, PhD, Chairman, Radiation Safety Committee; Jim Herrold, CHP, Radiation Safety Officer; and you on March 1, 2022.

Based on the results of this inspection, three apparent violations were identified and are being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The apparent violations involve: (1) the failure to establish adequate administrative controls to assure safe operations involving licensed materials; (2) the possession and use of byproduct material in excess of the NRC-authorized possession limits; and (3) improper labeling of a container with byproduct material. The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with you during the videoconference exit meeting on March 1, 2022.

Before the NRC makes its enforcement decision, we are providing you an opportunity to: (1) respond in writing to the apparent violations addressed in the inspection report within 30 days of the date of this letter; (2) request a predecisional enforcement conference (PEC); or

(3) request alternative dispute resolution (ADR). If a PEC is held, it will be open for public observation and the NRC may issue a press release to announce the time and date of the conference. Please contact Dr. Lizette Roldán-Otero, Chief, Materials Inspection Branch, at 817-200-1455 or Lizette.Roldan-Otero@nrc.gov within 10 days of the date of this letter to notify the NRC of your intended response to either provide a written response, participate in a PEC, or pursue ADR. A PEC should be held within 30 days and an ADR session within 45 days of the date of this letter.

If you choose to provide a written response, it should be clearly marked as a "Response to Apparent Violations in NRC Inspection Report 030-01176/2021-001; EA-22-001" and should include for each apparent violation: (1) the reason for the apparent violation or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence if the correspondence adequately addresses the required response. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction. Your written response, should you choose to provide one, should be sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with identical copies mailed to Ms. Mary Muessle, Director, Division of Radiological Safety & Security, Region IV, 1600 East Lamar Boulevard, Arlington, TX 76011, and emailed to R4Enforcement@nrc.gov within 30 days of the date of this letter. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a PEC.

If you choose to request a PEC, the conference will afford you the opportunity to provide your perspective on these matters and any other information that you believe the NRC should take into consideration before making an enforcement decision. The decision to hold a PEC does not mean that the NRC has determined that a violation has occurred or that enforcement action will be taken. This conference would be conducted to obtain information to assist the NRC in making an enforcement decision. The topics discussed during the conference may include information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. The guidance in NRC Information Notice 96-28, "Suggested Guidance Relating to Development and Implementation of Corrective Action," may be helpful in preparing your response (Agencywide Documents Access and Management System (ADAMS) Accession No. ML061240509).

In lieu of a PEC or written response, you may request ADR with the NRC in an attempt to resolve this issue. Alternative dispute resolution is a general term encompassing various techniques for resolving conflicts using a neutral third party. The technique that the NRC employs is mediation. Mediation is a voluntary, informal process in which a trained neutral mediator works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's ADR program can be obtained at http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html. The Institute on Conflict Resolution at Cornell University has agreed to facilitate the NRC's program as a neutral third

party. Please contact the Institute on Conflict Resolution at 877-733-9415 within 10 days of the date of this letter if you are interested in pursuing resolution of this issue through ADR.

Please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results on our deliberations in this matter.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, and its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or in the NRC's ADAMS, accessible from the NRC website at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

If you have any questions concerning this matter, please contact Dr. Lizette Roldán-Otero of my staff at 817-200-1455.

Sincerely,

Signed by Muessle, Mary
on 03/07/22

Mary C. Muessle, Director
Division of Radiological Safety & Security

Docket No. 030-01176
License No. 49-09955-10

Enclosure:
NRC Inspection Report 030-01176/2021-001

cc w/Enclosure:
Dan Fonseca, Radiological Program Manager
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Cheyenne, WY 82002

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SUBJECT: NRC INSPECTION REPORT 030-01176/2021-001 - DATED MARCH 7, 2022

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ADAMS ACCESSION NUMBER – **ML22062A769**

X SUNSI Review by: **JFK**		ADAMS **X** Yes □ No	**X** Publicly Available □ Non-Publicly Available	**X** Non-Sensitive □ Sensitive	Keyword:
OFFICE	RIV:MIB	BC MIB	ACES:TL	RIV: RC	D: DRSS
NAME	JFKatanic	LRoldanOtero	JGroom	DCylkowski	MCMuessle
SIGNATURE	/RA/ E	/RA/ E	/RA/ E	/RA/ E	MCM
DATE	02/9/2022	02/09/2022	02/10/2022	02/14/2022	03/07/2022

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U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	030-01176
License No.:	49-09955-10
Inspection Report No.:	030-01176/2021-001
EA No.:	EA-22-001
Licensee:	University of Wyoming
Locations Inspected:	University of Wyoming Main Campus 1000 East University Avenue Laramie, Wyoming University of Wyoming Regulated Materials Management Center 751 North 19th Street Laramie, Wyoming
Inspection Dates:	November 17, 2021; continued in-office review through February 9, 2022
Exit Meeting Date:	March 1, 2022
Inspector:	Janine F. Katanic, PhD, CHP Senior Health Physicist Materials Inspection Branch Division of Radiological Safety & Security, Region IV
Approved by:	Lizette Roldán-Otero, PhD Chief, Materials Inspection Branch Division of Radiological Safety & Security, Region IV
Attachment:	Supplemental Inspection Information

Enclosure

EXECUTIVE SUMMARY

University of Wyoming (UW)
NRC Inspection Report 030-01176/2021-001

On November 17, 2021, the NRC performed an announced, routine inspection of UW. The University of Wyoming is an Academic Type A Broad Scope licensee authorized under NRC Materials License No. 49-09955-10 to possess and use byproduct, source, and special nuclear material for research and development, teaching and training, and calibration and checking of instrumentation. Inspection activities were performed at the licensee's main campus and its Regulated Materials Management Center in Laramie, Wyoming. The inspector continued in-office review through February 9, 2022. The inspection examined activities conducted under the UW license to confirm compliance with the NRC's rules and regulations and with the conditions of the license. The inspection consisted of a selected examination of procedures and representative records, observations of licensed activities, independent radiation measurements, and interviews with personnel.

The inspection identified numerous deficiencies with respect to the review and approval process used by the licensee to grant and issue permits to individual authorized users (AUs). Deficiencies were also identified regarding information contained on permits that had been issued to AUs for the possession and use of licensed materials. Additionally, the licensee failed to develop, implement, or maintain written operating and emergency procedures for the use of its J.L. Shepherd & Associates Model 28-6 instrument calibrator containing cesium-137, which was routinely used by the licensee to perform calibration of its radiation survey instruments.

The inspection also identified that the licensee possessed an approximately 18.4 millicurie americium-241 unsealed source consisting of a metal wire. The source had been in the licensee's possession since 1971 and was in storage at the time of the inspection. The source was stored in a container with a label that did not provide sufficient information regarding the radioactive material contained therein. A review of the current UW license amendment as well as prior license amendments concluded that the licensee was not authorized to possess the specific americium-241 form and quantity of radioactive material.

As a result, three apparent violations were identified regarding: (1) the licensee's failure to establish adequate administrative controls to assure safe operations involving licensed materials; (2) the possession and use of byproduct material in excess of the NRC-authorized possession limits; and (3) improper labeling of a container with byproduct material.

Following the onsite inspection, the licensee developed a number of action items to be performed to correct the identified deficiencies. Corrective actions planned to be taken by the licensee included: reviewing its current permits, auditing the permitting process, revising existing permits as necessary, improving the review and approval process for permits, enhancing documentation related to permits, and developing a formal written procedure to describe the permitting process. The licensee also planned to develop a written procedure for the use of the J.L. Shepherd & Associates Model 28-6 instrument calibrator. The licensee submitted an amendment request to the NRC on December 13, 2021, to authorize possession of the approximately 18.4 millicurie americium-241 unsealed metal wire source.

REPORT DETAILS

1 Program Overview (Inspection Procedure (IP) 87126)

1.1 Program Scope

The University of Wyoming (UW or licensee) is an Academic Type A Broad Scope licensee authorized under NRC Materials License 49-09955-10 to possess and use byproduct, source, and special nuclear material for research and development, teaching and training, and calibration and checking of instrumentation. The licensed materials are authorized to be used at the licensee's facilities in Laramie, Wyoming.

1.2 Observations and Findings

On November 17, 2021, the NRC performed an announced, routine inspection of UW. Inspection activities were performed at the licensee's main campus and its Regulated Materials Management Center (RMMC). The inspector continued in-office review through February 9, 2022. The scope of the inspection was to examine the activities conducted under the UW license and to confirm compliance with the NRC's rules and regulations and with the conditions of the UW license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of licensed activities, independent radiation measurements, and interviews with personnel.

2 Academic Type A Broad Scope Activities (IP 87126)

2.1 Inspection Scope

On November 17, 2021, the NRC performed an announced, routine inspection of UW. The inspector reviewed the licensee's administrative controls and provisions to assure that licensed materials will be safely used and possessed under the NRC license. The inspector also observed the licensee's RMMC and selected laboratories where radioactive materials were used or stored. To evaluate the licensee's implementation of its radiation safety program, the inspector reviewed records, procedures, and documents maintained by the licensee, observed licensed activities, performed independent radiation measurements, and interviewed personnel.

2.2 University of Wyoming Permitting Processes

2.2.1 Inspection Observations

For broad scope licenses, Title 10 of the *Code of Federal Regulations* (10 CFR) 33.13(c)(3) requires, in part, that the licensee establish administrative controls and provisions relating to organization and management, procedures, record keeping, material control, and accounting and management review that are necessary to assure safe operations, including the establishment of administrative procedures to assure: (i) control of procurement and use of byproduct material; (ii) completion of safety evaluations of proposed uses of byproduct material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and (iii) review, approval, and recording by

the radiation safety committee (RSC) of safety evaluations of proposed uses prepared in accordance with 10 CFR 33.13(c)(3)(ii) prior to use of the byproduct material.

Type A licenses of broad scope are typically the largest NRC licensed materials programs and encompass a broad range of uses of an equally broad range of licensed materials. In order to satisfy the requirements in 10 CFR 33.13(c)(3), these types of licensees establish a RSC, appoint a qualified Radiation Safety Officer (RSO), and establish criteria to review and approve all uses of licensed material and users under the license.

The licensee's Radioactive Materials Safety Plan, dated December 2019, Section IV, Operating Procedures, described the licensee's process for program applications and approvals, referred to as the permitting process. Through the permitting process, principal users submit applications to the RSC for review and approval. The applications should describe such matters as the type and quantity of licensed material to be used, the facilities and equipment to be used, and the training and qualifications of the proposed users. The role of the RSC, under the leadership provided by the Chairman of the RSC, and with technical input from the RSO, reviews the permit applications and takes action as appropriate to approve or deny the requested authorizations. The RSO then routinely audits the permitted activities and reports his findings to the RSC.

At the time of the inspection, the licensee had 22 permits, 15 of which were actively engaged in licensed materials use, with the remainder classified by the licensee as inactive. Under the permits, authorized users (AUs) used various radioactive materials, including: unsealed microcurie and millicurie amounts of carbon-14, tritium, iodine-125, phosphorus-32, sulfur-35, uranium-233, uranium-234, uranium-235, and radium-226, and sealed sources including an instrument calibrator containing cesium-137 and portable nuclear gauging devices containing americium-241 (Am-241).

2.2.2 Inspection Findings

The inspector's review of the licensee's administrative controls and provisions revealed that the licensee's processes were inadequate to assure safe operations involving licensed materials. The inspector identified numerous deficiencies with respect to the review and approval process used by the RSC and RSO to grant permits to individual AUs. Deficiencies were also identified regarding information contained on permits that had been issued to AUs for the possession and use of licensed materials.

Apparent violation of 10 CFR 33.13(c)(3)

Title 10 CFR 33.13(c)(3) requires, in part, that the licensee establish administrative controls and provisions relating to organization and management, procedures, record keeping, material control, and accounting and management review that are necessary to assure safe operations, including the establishment of administrative procedures to assure: (i) control of procurement and use of byproduct material; (ii) completion of safety evaluations of proposed uses of byproduct material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and (iii) review, approval, and recording by the RSC of safety evaluations of proposed uses prepared in accordance with 10 CFR 33.13(c)(3)(ii) prior to use of the byproduct material.

Contrary to the above, on November 17, 2021, the licensee failed to establish appropriate administrative controls and provisions relating to organization and management, procedures, record keeping, material control and accounting, and management review that are necessary to assure safe operations. The licensee's administrative procedures failed to assure: (i) control of procurement and use of byproduct material; (ii) completion of safety evaluations of proposed uses of byproduct material which take into consideration such matters as the adequacy of facilities and equipment, training and experience of the user, and the operating or handling procedures; and (iii) review, approval, and recording by the RSC of safety evaluations of proposed uses prepared in accordance with 10 CFR 33.13(c)(3)(ii) prior to use of the byproduct material, as evidenced by the following six examples:

(1) When one AU left UW, their radioactive material was left in place on the UW main campus and their permit was transferred to another individual. The permit transfer was made by the RSO without a safety evaluation, review of the training and experience of the new individual, or review and approval of the permitting action by the RSC. The RSO issued a new permit for the individual without specifying the form of licensed material authorized, the permit expiration date, or the location of use/storage of the licensed material.

(2) Multiple permits that were approved by the RSC failed to specify the authorized use(s) of the approved licensed materials. For example, one permit stated that the AU was "authorized to receive possess, and use Am-241 sealed sources" but failed to specify that the Am-241 authorization was limited to the possession and use of a specific manufacturer and model of portable nuclear gauging device. The permit also failed to specify that the licensed material could be used at temporary job sites in NRC jurisdiction.

(3) One permit which expired in July 2014 was for an AU with a portable nuclear gauging device containing an Am-241 sealed source. The AU left UW in 2018 and the licensed material was moved to storage in the RMMC under the control of the RSO. Although the licensee's permit list indicated that the permit status was inactive, the AU was still listed in the licensee's sealed source inventory as an active user for the specific portable nuclear gauging device. Although the portable nuclear gauging device had been transferred to the RSO, the transfer was not reviewed or approved by the RSC and the RSO's permit was not amended to include authorization for the transferred material.

(4) One permit authorized the possession and use of lead-205, uranium-233, uranium-234, and uranium-235. In 2009, an AU requested that radium-226 be added to the permit. The RSC failed to update the permit to authorize the possession and use of radium-226. Although not authorized on the permit, the AU, who is the Chairman of the RSC, possessed, used, and stored radium-226. The RSO also failed to record the AU's possession of radium-226 in the licensee's inventory, which is necessary to establish compliance with the maximum possession limits of the NRC license.

(5) The RSO's permit failed to specify the authorized use(s) of licensed materials, which included storage and instrument calibration. The permit contained three listings for Am-241, but only one listing provided a maximum

activity in millicuries. The other two entries provided numerical values but no unit of activity to establish the maximum activity authorized. One of the authorized use locations on the permit was Wyoming Hall 202, but the AU had moved out of that location in February 2020 and no longer possessed or used licensed materials at that location. The RSO's permit authorized the possession of quantities of licensed materials in excess of that authorized in the NRC license. For example, the RSO's permit authorized the possession of 1.4 curies of cesium-137, whereas the NRC license only authorized the possession of 1.0 curie; the permit authorized the possession of 1.0 millicuries of plutonium-239, whereas the NRC license only authorized the possession of 10 microcuries; and the permit authorized the possession of 10 millicuries of thorium-230, whereas the NRC license only authorized the possession of 10 microcuries.

(6) The licensee did not develop, implement, or maintain written operating and emergency procedures for the use of its J.L. Shepherd & Associates Model 28-6 instrument calibrator, which was routinely used by the RSO to perform calibration of radiation survey instruments possessed and used by the licensee.

The licensee's failure to establish administrative controls and provisions relating to organization and management, procedures, record keeping, material control, and accounting and management review that are necessary to assure safe operations was identified as an apparent violation of 10 CFR 33.13(c)(3). (030-01176/2021-001-01)

2.3 University of Wyoming Licensed Materials Inventory

2.3.1 Inspection Observations

The licensee utilized a proprietary software program, called EH&S Assistant, to manage many aspects of its radiation safety program. The software program has a module for radioactive materials called HP Assistant, which was used by the licensee to manage items including: lists of permits sorted by AU, lists of permit authorizations, lists of sealed sources possessed under individual permits, leak test frequencies, and total inventory by isotope.

If a licensee enters its NRC licensed authorized maximum possession limits for the various types of licensed materials authorized into the software, and then enters its actual possessed inventory, the software can inform the licensee of the percent of the licensed limit that is possessed. For example, if an isotope was at 100 percent of its NRC-authorized possession limit, the licensee would be alerted that it could not acquire additional material of that type. The licensee could then seek to amend its NRC license if additional material of that type was required. At the time of the inspection, the licensee's "RAM Total Inventory by Isotope," produced from the software, did not show any isotope as exceeding the licensee's NRC-authorized possession limits. Furthermore, the record indicated that the licensee possessed only sealed sources of Am-241, and not any unsealed Am-241. It referenced back to NRC license conditions 6.D., 6.E., 6.F., and 6.G., which was for the authorization of sealed Am-241 sources in portable nuclear gauges.

The licensee's "Listing of Permits," produced by the software, provided a list of all of the known permits and the specific isotopes and quantities authorized to be possessed by the individual AUs. The RSO's permit listing indicated that he was authorized under his permit to possess Am-241 sealed sources. The reference for the sealed sources was NRC license conditions 6.D., 6.F., and 6.G., which was for sealed Am-241 sources in portable nuclear gauges.

The licensee's "Sealed Source Listing," produced by the software, provided a list of the AUs and the sealed sources possessed by the individual AUs. The RSO's listing contained a number of items, including an Am-241 sealed source with an original activity of 20.0 millicuries at an unspecified date in 1971, with a decayed activity of 18.4 millicuries at the time of the inspection. The source was listed as serial number "*4", with the manufacturer listed as "Homemade" and the model listed as "Home made." The source had a 6-month leak test frequency and was last leak tested by the RSO on July 26, 2021.

The inspector inquired about this source, which was described by the RSO to be a "home-made" source of Am-241 that had been removed from a smoke detector. A typical smoke detector may contain microcurie quantities of Am-241 encased in a layer of foil. During the inspection, the inspector performed a review of a sample of items from the licensee's radioactive materials inventory in storage at the RMMC. The inspector observed a container with a torn label that said, "Caution Radioactive Materials" and listed the isotope as Am-241. The inspector performed independent radiation measurements of the container using a Thermo RadEye G, serial number 370, calibration due February 13, 2022. Radiation surveys of the surface of the closed container indicated approximately 130 microrem/hour. The inspector was informed that the container contained the "home-made" Am-241 source.

The RSO opened the container to reveal a round metal wire, which did not resemble or have any affiliation with the type of Am-241 sources found inside of smoke detectors. The inspector performed radiation measurements approximately 4 inches from the metal wire, which indicated 25.0 – 27.0 millirem/hour. These significant radiation levels were inconsistent with the level of radiation from a smoke detector source. The RSO stated that he had never surveyed the source although he did handle the source regularly when performing leak tests. Photographs of the Am-241 source and its container are provided in Figure 1. The RSO could not provide any additional information about the origins of the source or its application/use, other than that it had been possessed by the licensee since 1971 and that it had been in storage for many years.

The inspector noted that the label on the container did not contain sufficient information, such as an estimate of the quantity of radioactivity, the date for which the activity is estimated, or radiation levels to permit individuals handling or using the container, or working in the vicinity of the container, to take precautions to avoid or minimize exposures. Following the inspection, the licensee borrowed an isotope identifier and confirmed that the source was indeed Am-241.

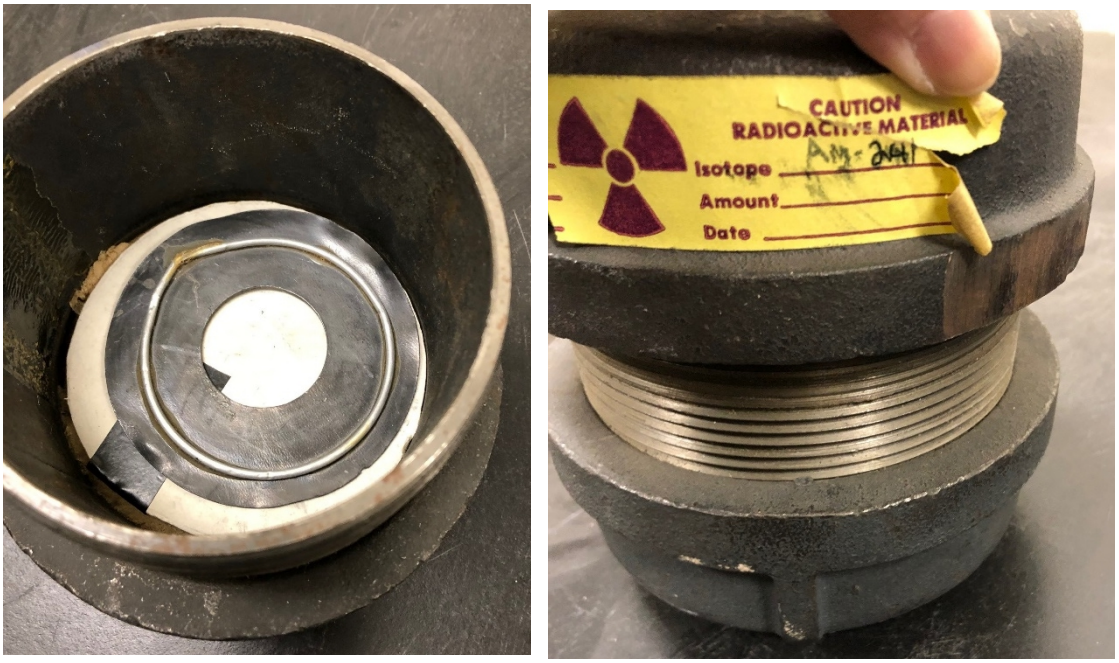

Figure 1. Am-241 metal wire source and its container.

The inspector reviewed the UW license and determined that the source was not authorized to be possessed by the licensee. The inspector reviewed the UW license authorizations from Amendment No. 39, issued on September 22, 2003, through Amendment No. 48, issued on January 14, 2020. Amendment No. 48 represents the most recent license renewal in its entirety and was the amendment that was in place at the time of the inspection. The solid metal wire observed by the inspector is considered unsealed material because it does not meet the definition of *sealed source* in 10 CFR 30.4, which means any byproduct material that is encased in a capsule designed to prevent leakage or escape of the byproduct material. Although UW had been authorized for various forms of Am-241, atomic number 95, throughout the years, there was no authorization on Amendment Nos. 39 through 48, that authorized the possession of an approximately 18.4 millicurie Am-241 solid metal unsealed source that was in storage.

2.3.2 Inspection Findings

Apparent violation of 10 CFR 30.3(a)

Title 10 CFR 30.3(a) requires, in part, that no person shall own or possess byproduct material except as authorized in a specific license issued in accordance with the regulations in 10 CFR Chapter I.

License Conditions 6.B. to 9.B. of NRC license 49-09955-10, Amendment 48, dated January 14, 2020, authorized the possession and use of byproduct material with atomic numbers 84 through 96, in any chemical and/or physical form, 10 microcuries per radionuclide and 1 millicurie total, for research and development as defined in 10 CFR 30.4 and 10 CFR 70.4, including teaching and training of students; calibration and checking of the licensee's instruments.

License Conditions 6.D. through G. to 9.D. through G. of NRC license No. 49-09955-10, Amendment 48, dated January 14, 2020, authorized the possession and use of americium 241/beryllium, sealed sources, to be used in specified portable nuclear gauging devices.

Contrary to the above, on November 17, 2021, the licensee owned and possessed byproduct material that was not authorized in a specific license issued in accordance with the regulations in 10 CFR Chapter I. Specifically, the licensee possessed an approximately 18.4 millicurie Am-241 metal source, which was not authorized to be possessed under 6.B. to 9.B., or 6.D. through G. to 9.D. through G., of NRC license No. 49-09955-10, Amendment 48, dated January 14, 2020.

The licensee's ownership and possession of byproduct material not authorized in a specific license was identified as an apparent violation of 10 CFR 30.3(a). (030-01176/2021-001-02)

Apparent violation of 10 CFR 20.1904(a)

Title 10 CFR 20.1904(a) requires, in part, that the licensee shall ensure that each container of licensed material bears a durable, clearly visible label that must provide sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials, and mass enrichment) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures.

Contrary to the above, on November 17, 2021, the licensee failed to ensure that each container of licensed material bore a durable, clearly visible label that provided sufficient information (such as the radionuclide(s) present, an estimate of the quantity of radioactivity, the date for which the activity is estimated, radiation levels, kinds of materials, and mass enrichment) to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures. Specifically, a container containing an approximately 18.4 millicurie Am-241 metal source did not have durable, clearly visible label that provided sufficient information (such as an estimate of the quantity of radioactivity, the date for which the activity is estimated, and radiation levels) to permit individuals handling or using the container, or working in the vicinity of the container, to take precautions to avoid or minimize exposures.

The licensee's failure to ensure that each container of licensed material bears a durable, clearly visible label that must provide sufficient information to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures, was identified as an apparent violation of 10 CFR 20.1904(a). (030-01176/2021-001-03)

2.4 Causal Evaluation

The inspector did not perform a formal causal factors analysis as it was beyond the scope of the inspection. The inspector observed that the RSC met routinely to discuss permit-related matters, such as the review of prospective new AUs and new proposed uses involving licensed materials. However, the RSC lacked adequate formal processes

or procedures for performing these actions or other necessary actions associated with permits. Additionally, the RSO handled many permit-related matters informally, without bringing them to the RSC's attention. As a result, many actions involving permits were not subject to the type or level of formal review that is required of an NRC broad scope licensee.

Often, when permit changes were informally approved, or when the NRC license was amended, the licensee did not take commensurate action to document or reflect these changes in the licensee's radiation safety program documents. Although the RSO performed routine audits of active permits and performed routine inventories of radioactive materials, these activities were inadequate to identify errors in permits or the possession of byproduct material that was not authorized.

Furthermore, the licensee used a proprietary software program for various radiation safety tasks, such as maintaining its inventory and keeping track of possession limits. However, the licensee did not enter the certain NRC license possession limits and certain radioactive source information into the software correctly. The software, which could assist in maintaining compliance, was not being used effectively because the licensee had entered incomplete and incorrect data. For example, because the licensee entered its Am-241 license possession limits incorrectly and did not properly characterize the 18.4 millicurie Am-241 metal wire source in the software, the software did not "flag" that the licensee possessed material in excess of its NRC license limits.

2.5 Corrective Actions

At the conclusion of the onsite inspection on November 17, 2021, the inspector discussed the preliminary inspection findings with licensee personnel. Following the onsite inspection, on December 1, 2021, the licensee provided the inspector with an action matrix that contained the action items to be performed to correct the identified deficiencies (ADAMS Accession No. ML22045A950).

Regarding the deficiencies related to the licensee's permitting program, the licensee noted that it would take several actions, including forming a subcommittee of RSC members to perform a review of the current permits, audit the permitting process, revise existing permits as necessary, improve the RSC review and approval process for permits, enhance the documentation related to permits, and develop a formal written procedure to describe the permitting process. The licensee also planned to develop a written operating and emergency procedure for the use of the J.L. Shepherd & Associates Model 28-6 instrument calibrator.

Regarding the 18.4 millicurie Am-241 metal wire source, the licensee attempted to gather additional historical information regarding the source. After the licensee confirmed that the source was indeed Am-241, on December 13, 2021, the licensee submitted an amendment request to the NRC to authorize possession of the source type and activity (ADAMS Accession No. ML21350A170). The licensee planned to properly label the source container and to consider options to properly dispose of the source in the future.

The licensee also planned on making improvements to its annual radiation safety program review.

2.6 Conclusions

Three apparent violations were identified regarding: (1) the failure to establish adequate administrative controls to assure safe operations involving licensed materials; (2) the possession and use of byproduct material in excess of the NRC-authorized possession limits; and (3) improper labeling of a container with byproduct material.

3 Exit Meeting Summary

On March 1, 2022, a final exit meeting was conducted via videoconference with Diana Hulme, Interim Vice President, Research and Economic Development; Carolyn Brandt, Director, Research Integrity & Compliance; Kenneth Warren Sims, PhD, Chairman, RSC; and Jim Herrold, CHP, RSO, to discuss the inspection findings. The NRC representative discussed the content of the inspection report, described the NRC's enforcement process, and described the options for the licensee to: (1) respond in writing to the apparent violations described in the inspection report; (2) request a predecisional enforcement conference, or (3) request alternative dispute resolution. The licensee did not identify any proprietary information.

Supplemental Inspection Information

PARTIAL LIST OF PERSONS CONTACTED

Diana Hulme, Interim Vice President, Research and Economic Development
Carolyn Brandt, Director, Research Integrity & Compliance
Kenneth Warren Sims, PhD, Chairman, RSC
Jim Herrold, CHP, RSO
Aaron Recht, Manager, RMMC

INSPECTION PROCEDURES USED

87126 Industrial/Academic/Research Programs

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

030-01176/2021-001-01	AV	Failure to establish administrative controls and provisions relating to organization and management, procedures, record keeping, material control, and accounting and management review that are necessary to assure safe operations. (10 CFR 33.13(c)(3))
030-01176/2021-001-02	AV	Failure to own and possess byproduct material except as authorized in a specific license. (10 CFR 30.3(a))
030-01176/2021-001-03	AV	Failure to ensure that each container of licensed material bears a durable, clearly visible label that must provide sufficient information to permit individuals handling or using the containers, or working in the vicinity of the containers, to take precautions to avoid or minimize exposures. (10 CFR 20.1904(a))

Closed

None

Discussed

None

LIST OF ACRONYMS AND ABBREVIATIONS USED

10 CFR	Title 10 of the *Code of Federal Regulations*
ADAMS	Agencywide Documents Access and Management System
ADR	Alternative Dispute Resolution
AU	Authorized User
AV	Apparent Violation
IP	Inspection Procedure

NRC	Nuclear Regulatory Commission
PEC	Predecisional Enforcement Conference
RMMC	Regulated Materials Management Center
RSC	Radiation Safety Committee
RSO	Radiation Safety Officer
UW	University of Wyoming