West Virginia University.
RADIATION SAFETY DEPARTMENT

August 12, 2021

Steven R. Courtemanche
Commercial, Industrial, R&D and Academic Branch
Division of Radiological Safety and Security
U.S. Nuclear Regulatory Commission
Region I
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713

SUBJECT: RESPONSE TO USNRC EMAIL REQUEST FOR ADDITIONAL INFORMATION CONCERNING WEST VIRGINIA UNIVERSITY'S APPLICATION FOR RENEWAL OF LICENSE, **CONTROL NO. 624989**

Dear Mr. Courtemanche,

Enclosed please find response to request for additional information dated July 21, 2021 regarding renewal of West Virginia University License No., 47-23035-01, Docket No., 03020199.

Additionally, we would like to revise our list of requested radionuclides that was included in our initial renewal application (see attachments for updated list of requested radionuclides). Please note the following:

- Removal of 10 mCi of Cobalt-57 and Germanium-68 in any form.
- Removal of 0.5 mCi of Americium-241 in any form.
- Addition of 10 µCi of Americium-241 to be possessed as sealed sources.
- Addition of 10 µCi of Cobalt-60 to be possessed as sealed sources.
- Increase in possession limit of Sodium-22 from 3.5 mCi to 8 mCi.

If any additional information is needed please contact me at 304-293-3413 or nrazmianfar@hsc.wvu.edu.

Sincerely,

Nasser Razmianfar
Director & Radiation Safety Officer

ROBERT C. BYRD HEALTH SCIENCES CENTER
WEST VIRGINIA UNIVERSITY
WVU HOSPITALS
JEFFERSON MEMORIAL HOSPITAL
PO Box 9006 | G-139 HSC North
Morgantown, WV 26506-9006
304.293.3413 F 304.293.4529

1. Item 3 of your application, "Address Where Licensed Material Will be Used or Possessed," lists only the West Virginia University Morgantown Campus as a location of use. Amendment 27 of your license lists the following locations of use: WVU Downtown Campus, WVU Evansdale Campus, WVU Health Sciences Campus, and WVU Farm.

a. Please confirm if licensed activities are being conducted at the locations of use listed in Amendment 27 of your license. Also, provide a more complete description of each location of use including the address, city and state or a more descriptive address.

- Licensed activities are being conducted at the locations of use listed in Amendment 27, and listed below:

  - WVU Downtown Campus
    53 Campus Drive
    Morgantown, WV 26506

  - WVU Evansdale Campus
    333 Evansdale Drive
    Morgantown, WV 26506

  - WVU Health Sciences Campus
    64 Medical Center Dr.
    Morgantown, WV 26506

  - WVU Farm
    1441 Stewartstown Rd
    Morgantown, WV 26505

b. If the locations of use are to be released for unrestricted use, documentation must be provided showing that the locations of use meet the release criteria established by the Commission. This action should be submitted as an amendment separate from this renewal action.

- These locations of use will not be released for unrestricted use.

c. If you are adding locations of use, then provide a complete description of each location of use including the address, city, state or a more descriptive location.

- We are not adding any locations of use.

2. Item 5, "Radioactive Material" of your application requests an increase in your possession limit for Subitem 6.A. of your license from 1,000 millicuries total to 500 millicuries per radionuclide and 4,000 millicuries total.

a. Please confirm and provide the reason for the requested increase.

- We confirm the requested increase of Subitem 6.A from 1,000 millicuries to 500 millicuries per radionuclide and 4,000 millicuries total. We are requesting delisting of the isotopes in 2.b (below) from the license and request they fall under authorization of

Subitem 6.A. Since those items total 2,420 millicuries, we are requesting an increase in the possession limit for Subitem 6.A to accommodate the usage of those isotopes.

b. The following isotopes, which were not requested in your application, will be delisted from the license and will come under the authorization of Subitem 6.A.:

i. 500 millicuries of Phosphorus-32,

ii. 300 millicuries of Phosphorus-33,

iii. 500 millicuries of Sulfur-35,

iv. 300 millicuries of Chromium-51,

v. 10 millicuries of Rubidium-86,

vi. 100 millicuries of Technetium-99m,

vii. 50 millicuries of Tin-125,

viii. 500 millicuries of Iodine-125,

ix. 100 millicuries of Iodine-131, and

x. 60 millicuries of Tellurium-129.

- We confirm that the above isotopes be delisted from the license and fall under authorization of Subitem 6.A.

c. Please confirm that you will administratively restrict possession of quantities of licensed material so that you would not require consideration of the need for an emergency plan for responding to a release. For combinations of licensed materials, consideration of the need for an emergency plan is required if the sum of the ratios of the quantity of each licensed material authorized to the quantity listed for that material in 10 CFR 30.72 Schedule C exceeds one.

- We will administratively restrict possession of quantities of licensed material such that consideration of the need for an emergency plan for responding to a release is not required.

3. Item 7, "Executive Management," Section 8.7.1 of NUREG-1556, Volume 11, Revision 1 requires a description of administrative controls and provisions relating to organization, management, and management review necessary to ensure safe operations. It does not appear this information was included in your renewal application. Please describe the controls and provisions related to organization, management, and management review used to ensure safe operations.

- Executive management is made aware of the results of periodic audits and annual program review primarily through participation and attendance of the quarterly Radiation Safety Committee (RSC) meeting during which quarterly and annual reports are reviewed and discussed by members. The individuals at the senior management level, who are responsible for the oversight of the facility's radiation safety program are

a permanent member of the RSC and attend the quarterly meetings. If she/he cannot attend a suitable representative attends in their stead.

4. Item 7, "radiation Safety Committee," Section 8.7.2 of NUREG-1556, Volume 11, Revision 1 requests a description of the duties and responsibilities of the Radiation Safety Committee (RSC). It does not appear that the information was included in your renewal application.

a. If you do not want authorization to have flexibility to make some program changes and revise some procedures previously approved by the NRC without amendment of the license. Please describe the duties and responsibilities of the RSC.

b. If you want authorization for the above flexibility, then you will need to provide the following:

i. A description of the duties and responsibilities of the RSC including the following:

1. Review and approval of the permitted program and procedural changes prior to implementation,

2. Implementation of program and procedural changes,

3. Audit of licensed operations to determine compliance, and

4. The appropriate actions taken when noncompliance is identified, including analysis of the cause, corrective actions, and actions to prevent recurrence.

- The Radiation Safety Committee is composed of the Provost of the university or his/her representative, the Vice President for Health Sciences or his/her representative, the Dean of the College of Medicine or his/her representative, the President of West Virginia University Hospitals, Inc. or his/her representative, others who may be nominated by any of the above, the Radiation Safety Officer, Faculty Authorized Users, and the chairperson of each of the Radiation Safety Sub-Committees reporting to the Radiation Safety Committee.
- The Committee meets at least quarterly for:
    - Review and approval of permitted program and procedural changes prior to implementation;
    - Implementation of program and procedural changes;
    - Taking appropriate actions when non-compliance is identified, including analysis of the cause, corrective actions, and actions to prevent recurrence;
    - Adopt rules and policies on the use of ionizing radiation within the institute;
    - Review plans for all new buildings and modifications of existing structures where ionizing radiation is to be used;
    - Audit of licensed operations to determine compliance;
    - Review reports by the Radiation Safety Officer and the chairs of the Radiation Safety Sub-Committees;
    - Approve or modify proposals for amendments to the various licenses or applications for new licenses;
    - Perform an annual review of the content and implementation of the Radiation Safety Program including ALARA considerations. This includes a review of the

operation of the Radiation Safety office on at least an annual basis to ensure that all license obligations and regulations of the U.S. NRC and the West Virginia Department of Health are met and that sources of ionizing radiation are being used in a safe manner;
- Approve changes in the Radiation Safety Manual and recommend changes when these become necessary.

ii. A description of the process for procedure and program review and approval, including documentation of the specific change. (At a minimum, documentation should state the reason for the change and summarize the radiation safety matters that were considered prior to approval of the change.)

- We request the flexibility to make some program changes and revise some procedures previously approved by the NRC without amendment of the license.
- Therefore:
  - The proposed program or procedure revision will be documented, reviewed, and approved by the Radiation Safety Committee in accordance with established procedures prior to implementation. Documentation will include the reason for the change and consideration of the radiation safety matters prior to approval of the change.
  - The revised program or procedure will be in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.
  - Staff will be trained in the revised program or procedure changes prior to implementation.
  - The audit program will evaluate the effectiveness of the change and its implementation.

5. Item 8, "Training for Individuals Working in or Frequenting Restricted Areas," Section 8.8 of NUREG-1556, Volume 11, Revision 1 requests a description of the process that will be used to revise and implement the submitted training programs by the RSC. It does not appear that this information was submitted with your license renewal application. Please describe the process that will be used to revise and implement the submitted training programs by the RSC.

- We request the flexibility to revise the radiation safety training program without amendment of the license.
- Therefore:
  - New training or proposed revisions to current training will be documented, reviewed, and approved by the Radiation Safety Committee in accordance with established procedures prior to implementation.
  - The revised training will be in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.
  - The new training or training revisions will be made available for staff for completion.

- The audit program will evaluate the effectiveness of the change and its implementation.

6. Item 8, "Training for Individuals Working in or Frequenting Restricted Areas," Section 8.8g of NUREG-1556, Volume 11, Revision 1 requests a description of the minimum required training and experience that a person must have before being an Authorized User or Principal Investigator. It does not appear that this information was included in your renewal application. Please describe the minimum required training and experience that a person must have before being an Authorized User or Principal Investigator.

- For an individual to become an Authorized User, the person must have completed Radiation Safety training provided by the Radiation Safety Department. The provided Authorized Radiation User training consists of the following topics:
  - Radiation Basics and Radiobiology
  - Surveying and Monitoring
  - Lab Protection
  - Purchasing
  - Laboratory Inspection
  - Obtaining and Maintaining an Authorization
  - Training of Laboratory Personnel
  - Overview of Radioactive Waste Disposal Procedures
- Prospective Authorized Users must also have ample experience before the Radiation Safety Committee will authorized his or her use of radioactive materials or radiation producing devices. The Authorized User (or Prospective Authorized User) must file an application that meets the requirements of this section. The application process includes a technical review of qualifications by the Radiation Safety Department staff, who will make a recommendation to the Radiation Safety Officer. This recommendation will be reviewed by the Radiation Safety Officer and if deemed appropriate forwarded to the Radiation Safety Committee for consideration. Authorized Users must complete Radiation Safety refresher training annually in order to maintain his/her authorization status.
- Authorized User application evaluations include the following:
  - Identification and review of the types and proposed uses of all radiation sources in the application form. The review and subsequent permit approval is based on the radioactivity used at one time or the design parameters of the radiation producing device. Requests that include possession of radionuclides will consider the amount used at one time, with possession limits that are adequate to cover laboratory operations. In addition, the applicant must agree to abide by all policies and procedures for acquisition, use, storage, and disposal of radioisotopes.

  - The Prospective Authorized User must be a full time staff member demonstrating the appropriate education, training, and practical experience commensurate with the radiation sources to be used. Prospective Authorized Users who wish to be approved by a radiation safety committee must submit a

statement from a sponsoring faculty member that he or she is the appropriate principal investigator and is granted full responsibility for the laboratory.

- The Radiation Safety Officer will review the application and may suggest changes prior to consideration for approval by the Radiation Safety Committee (RSC). The application will then be considered at the next meeting of the appropriate RSC which may accept the proposal or suggest additional changes necessary for approval. The RSC has sole authority to authorize radiation users and there will be no delegation of authority in this respect.

- Applicants must give pertinent information about their training and experience, a protocol for the proposed project and a description of their laboratory. Current policy requires that a prospective radionuclide user demonstrate his or her knowledge of radiation protection practices by successfully completing a short examination. An investigator may arrange to take the exam at any time by calling the Radiation Safety Department.

- A representative of the Radiation Safety staff may wish to interview the applicant or inspect the laboratory before radionuclide use is permitted. This will assure that the laboratory is properly set up, that acceptable monitor and survey instruments are available, and that required notices are posted.

7. Item 8, "Training for Individuals Working in or Frequenting Restricted Areas" states that you will implement the model training program described in Appendix F of NUREG-1556, Volume 7. Please confirm that you are implementing the model training program from Appendix F of NUREG-1556, Volume 7, Revision 1.

- We will implement the model training program from Appendix F of NUREG-1556, Volume 7, Revision 1.

8. Item 9, "Facilities and Equipment," Section 8.9 of NUREG-1556, Volume 11, Revision 1 requests a description of the criteria the RSC and/or the Radiation Safety Officer (RSO) will use to review and approve facilities and equipment. It does not appear that this information was included in your renewal application. Describe the criteria the RSC and/or the RSO will use to review and approve facilities and equipment.

- Individuals applying to become an Authorized User must submit an application which includes a description of the facilities and equipment they will be utilizing (including research laboratories, waste storage, and survey and counting equipment). The RSC and RSO will review and approve facilities and equipment using criteria in accordance with Appendix E NUREG -1556 Volume 11, Revision 1. Additionally, applications including use of radionuclides in animals will also be reviewed and approved against criteria in Appendix D of NUREG-1556 Volume 7, Revision 1.

9. Item 10, "Audit Program," Section 8.10.2 of NUREG-1556, Volume 11, Revision 1 states that no submittal of the audit program is required. However, it is requested that the applicant describe the

mechanisms used by executive management to ensure that adequate oversight of the program is exercised as well as the RSC's involvement in this oversight mechanism. Also, it is requested that the applicant describe the audit mechanism implemented by the RSO and/or RSC to determine user compliance with NRC regulations, the NRC license, and good health practices. It does not appear that this information was included in your renewal application. Please describe the mechanisms executive management uses to ensure adequate oversight of the program. Specifically, describe the RSC's involvement in these oversight mechanisms and the audit mechanism implemented by the RSO and/or RSC to determine user compliance with NRC regulations, the NRC license, and good health practices.

- The audit mechanism is primarily comprised of Monthly Compliance Inspections. These inspections include the following areas:
    - As Low As Reasonably Achievable (ALARA)
        - Surveys
        - Wipe Tests
        - External Personnel Dosimetry
        - Internal Dosimetry (bioassays)
        - Proper Personal Protective Equipment (PPE)
    - Security of materials
    - Facility design
        - Adequate shielding commensurate with radioisotopes in use
        - Proper and clear designation of radioisotope usage areas including equipment and devices
        - Fully operable ventilation hoods when necessary
    - Training
        - Authorized Users (AU) and Radiation Users up to date on training requirements
        - Provide radiation safety awareness training to any non-radiation using lab personnel
    - Recordkeeping
        - Documentation of post experiment and monthly surveys
        - Usage and disposal records
    - Waste Management
        - Properly labeled waste
        - Segregated waste materials
        - Secondary containment vessels for liquids
- In regards to inspections, any deficiencies found are immediately brought to the attention of the Radiation Safety Officer (RSO). Citations are given to the AU with necessary corrective actions included. AUs are required to respond with verification that appropriate corrective actions were implemented. The RSO presents any issues and/or citations in the form of a Quarterly Report to the Radiation Safety Committee (RSC) of which the Executive Management is a participant. The RSC discusses each issue and any necessary further action is determined by the committee.
- Further audit program mechanisms include quarterly and annual meetings of the Radiation Safety Committee and various Sub-Committees during which the following audit program elements are addressed:

- Review and approval of permitted program and procedural changes prior to implementation;
- Taking appropriate actions when noncompliance is identified, including analysis of the cause, corrective actions, and actions to prevent recurrence;
- Adopt rules and policies on the use of ionizing radiation within the institute;
- Review plans for all new buildings and modifications of existing structures where ionizing radiation is to be used;
- Review reports by the Radiation Safety Officer and the chairs of the Radiation Safety Sub-Committees;
- Approve or modify proposals for amendments to the various licenses or applications for new licenses;
- Perform an annual review of the content and implementation of the Radiation Safety Program including ALARA considerations. This includes a review of the operation of the Radiation Safety office on at least an annual basis to ensure that all license obligations and regulation of the U.S. NRC and the West Virginia Department of Health are met and that sources of ionizing radiation are being used in a safe manner;
- Approve changes in the Radiation Safety Manual and recommend changes when these become necessary.

In addition, please state whether you request the flexibility to revise the audit mechanism implemented by the RSO without amendment to the license. If you wish to request the flexibility, describe the process they will use to revise and implement the audit program.

- We request the flexibility to revise the audit mechanism implemented by the RSO without amendment to the license.
- Therefore:
  - Revisions to the audit mechanisms will be documented, reviewed, and approved by the Radiation Safety Committee in accordance with established procedures prior to implementation.
  - The revised audit mechanism will be in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.
  - Staff will be trained in the revised audit mechanism prior to implementation.
  - The effectiveness and implementation of the revised audit mechanism will be evaluated by the RSC and RSO.

10. Item 10, "Radiation Monitoring Instruments," Section 8.10.12 of NUREG-1556, Volume 11, Revision 1 requests a description of how the RSC and/or the RSO will ensure that instruments are properly calibrated at the prescribed frequencies. It does not appear this information was included in your renewal application. Please describe how the RSC and/or RSO will ensure that instruments are properly calibrated at the prescribed frequencies.

In addition, please state whether you request the flexibility to revise instrument specifications and procedure for calibration of instruments without amendment of the license. If you wish to request the flexibility, describe the process that will be used to revise and implement the submitted procedures.

- Survey instruments utilized at WVU will be calibrated annually with record of verification that indicates the procedure used and the data obtained. It also includes the owner or user of the instrument, a description of the instrument, including the manufacturer's name, model number, and serial number, description of the calibration source, including the exposure rate at a specified distance or activity on a specific date, and also the name of the person who performed the calibration and the date it was calibrated. A listing of all instruments is maintained at the Radiation Safety Department's Central Database System. The database is checked periodically by the Radiation Safety Department for calibration due dates to ensure all survey instruments are not out of calibration. The calibration of all instruments and procedures will be reviewed by the RSO during subsequent inspection and audits and it will be reported during the RSC quarterly meetings.
- We request the flexibility to revise instrument specifications and procedures for calibration of instruments without amendment of the license.
- Therefore:
    - The proposed revision will be documented, reviewed, and approved by the Radiation Safety Committee in accordance with established procedures prior to implementation.
    - The revised program will be in accordance with regulatory requirements, will not change the license conditions, and will not decrease the effectiveness of the Radiation Safety Program.
    - Staff will be trained in the revised procedures prior to implementation.
    - The audit program will evaluate the effectiveness of the change and its implementation.

11. Item 10, "Radiation Monitoring Instruments," Section 8.10.12 of NUREG-1556, Volume 11, Revision 1 requests that you state the frequency at which instruments will be calibrated. It does not appear that this information was included in your renewal application. Please state the frequency at which instruments will be calibrated.

- We will calibrate radiation monitoring instruments on an annual basis.
- We will use instruments that meet the radiation monitoring instrument specifications published in Appendix H of NUREG 1556, Volume 11, Revision 1. Our original application referenced Appendix I in NUREG-1556, Volume 7, Revision 1 in error.
- Additionally, we request authorization to calibrate our own survey instruments and commit to implementing the model calibration procedures in Appendix H of NUREG 1556, Volume 11, Revision 1.

12. Please confirm the following statement from Item 10, "Material Receipt and Accountability," Section 8.10.3 of NUREG-1556, Volume 11, Revision 1: "We will develop, implement, and maintain procedures for ensuring accountability of licensed material at all times."

- We will develop, implement, and maintain procedures for ensuring accountability of licensed material at all times.

13. Item 10, "Material Receipt and Accountability," Section 8.10.3 of NUREG-1556, Volume 11, Revision 1 requests a description of the administrative controls and provisions related to materials control, accounting, and security. It does not appear that this information was include in your renewal application. Please describe the administrative controls and provisions related to materials control, accountability, and security.

- All individuals wishing to purchase radioactive materials at West Virginia University (WVU) must first have authorization to possess such material in the type and quantity requested. The authorization for possession and use of radioactive materials is issued through the Radiation Safety Committee (RSC). The safe use of radioactive material and monitoring of possession limits is managed by the Radiation Safety Department. Orders for non-authorized items or activities that go above the authorization limit will not be permitted.
- Approval of Radionuclide Order
    - All radioactive materials orders must first be approved by the RSD before placement of the order to ensure that the person ordering the material is authorized for what is being requested. The RSD makes the determination of approval based on the Authorized User/Principal Investigator's (ARU/PI) current on-hand inventory of radioactive materials versus the ARU/PI's possession limits.
- Ordering Process
    - ARU/PI or his/her designee must submit the request through Mountaineer Marketplace. *The Radioactive button MUST be selected on the Non-Catalog Form.* In the product description include the isotope, activity, compound, license #, expiration and PI name.
    - Shipping address MUST be:

      Radiation Safety Department
      G252 South
      64 Medical Center Drive
      Morgantown, WV 26506

    - Radionuclides cannot be ordered using a procurement card or any other credit card.
    - A separate Mountaineer Marketplace order must be generated for each radionuclide ordered, with an allowable quantity limit of 1. (Ex: 1 mCi of P-32, 1 mCi of P-33.
    - Authorized Radiation User/Principle Investigator must have prior authorization for the radioactive materials and activity being ordered.
    - ARU/PI can only have in inventory (including waste) the total activity they are authorized to possess for a particular isotope.

- Radionuclide Order Receipt
  - NRC regulations require individuals receiving shipments of radioactive materials to follow procedures for opening packages safely. Also included in the regulations is the requirement to monitor the inside of these packages in order to mitigate the spread of contamination in the event of inner container leakage, and to further assure that packaging materials are free of contamination prior to disposal in to the normal waste stream.
- Order Arrival
  - All radioactive material orders shipped to WVU must be sent to Central Receiving C/O the Radiation Safety Department. The RSD performs the required procedures for inspecting and monitoring packages. However, establishing the integrity of the innermost container is the responsibility of the AU.
  - If no contamination is detected, there is reasonable assurance that the shipping container and packaging materials are not contaminated. The laboratory contact will be notified of the arrival of the package and arrangements will be made for pickup and delivery. The lab may proceed by opening and inspecting the inner vial(s) before use or storage.
  - If contamination is detected, a survey must be done of the packing materials and of the area around where the package was opened. Any contamination of the shipping container, packaging materials, or surroundings must be controlled or removed. Contaminated shipping materials must be treated as radioactive waste. The company that shipped the package will be notified of the findings. The lab will be notified in order to seed a replacement shipment if necessary.
- Disposal of Packaging Materials
  - To provide further assurance that packaging materials are at background levels prior to disposal in the normal waste stream, the lab should survey them with a hand-held instrument whenever it is reasonable to do so (package originally contained beta or gamma emitters of sufficient energy). The AU is responsible for ensuring that radioactive material labels have been defaced or removed prior to their disposal into the normal waste stream.

14. Please revise your statement to reflect the correct Appendix of Item 10, "Surveys,": "We will survey our facility and maintain contamination levels and perform bioassays of occupationally exposed workers in accordance with the survey frequencies and the contamination levels published in Appendix L of NUREG-1445, Volume 11, Revision 1, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Licenses of Broad Scope.""

- We will survey our facility and maintain contamination levels and perform bioassays of occupationally exposed workers in accordance with the survey frequencies and the contamination levels published in Appendix L of NUREG-1556, Volume 11, Revision 1, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Licenses of Broad Scope."

15. Please confirm the following: "Pursuant to 10 CFR 30.35(g) we will maintain records important to decommissioning and transfer these records to an NRC or Agreement State licensee before licensed activities are transferred or assigned in accordance with 10 CFR 30.34(b). Furthermore, pursuant to 10

CFR 30.51(f) prior to license termination, we will forward the records required by 10 CFR 30.35(g) to the appropriate Regional Office."

- Pursuant to 10 CFR 30.35(g), we will maintain records important to decommissioning and transfer these records to an NRC or Agreement State licensee before licensed activities are transferred or assigned in accordance with 10 CFR 30.34(b). Furthermore, pursuant to 10 CFR 30.51(f) prior to license termination, we will forward the records required by 10 CFR 30.35(g) to the appropriate Regional Office.

16. Upon completion of the renewal of your license, certain issues regarding your financial assurance submittal will need to be addressed which may change based on your responses to this Request for Additional Information. Please note the following:

a. The Certification of Financial Assurance enclosed with the license renewal application does not list all of the isotopes that are listed as "any" form with a half-life of greater than 120 days. If there are no changes in your requested licensed material, Germanium-68 at 10 millicuries would need to be added to the Certification of Financial Assurance.

- We would like to revise our application to remove 10 mCi of Germanium-68 in "any" form and 10 mCi of Cobalt-57 in "any" form, which were requested in error.
- See attachments for revised Item 5 Table of Requested Radionuclides.

b. The Statement of Intent enclosed with the license renewal application lists only the facilities at 64 Medical Center Drive, Morgantown, WV. The license renewal application indicates that the location of use is the West Virginia University Morgantown Campus. Amendment 27 of your license indicates the locations of use are WVU Evansdale Campus, WVU Downtown Campus, WVU Health Sciences Campus, and the WVU Farm. Once the discrepancy is resolved, it will be determined if the Statement of Intent needs to be revised.

c. The increase in the possession limit of Sodium-22 and the addition of Iron-55 and Germanium-68 in "any" form to your license will require the submission of a Decommissioning Funding Plan (DFP) if not addressed during the license renewal process. A DFP is required when the possession limit of the requested licensed material is greater than 105 times the value of Appendix B of 10 CFR Part 30. In the case of multiple isotopes being requested, the sum of the fractions as outlined in the notes to Appendix B of Part 30 which is called "The Unity Rule" is used. You may choose on the following options:

i. Decrease your possession limits so that the "Unity Rule" value of the licensed material authorized is less than 1.

- We would like to revise our application to remove 10 mCi of Germanium-68 in "any" form and 10 mCi of Cobalt-57 in "any" form the list of requested radionuclides.

ii. Determine if any of the requested items need not be in "any" form and can be possessed as sealed sources (Provide Manufacturer name, model number of sealed sources to be possessed).

- We would like to revise our application to remove 0.5 mCi of Americium-241 in "any" form, and request to add 10 μCi of Americium-241 to be possessed as sealed sources.

We currently do not possess Americium-241 in unsealed form. Since we are requesting removal of 0.5 mCi of Americium-241 in "any" form, we intend to remove it from the Certification of Financial Assurance.

- We are requesting to add 10 μCi of Cobalt-60 to our license to be possessed as sealed sources.
- Additionally, we are requesting an increase in our possession limit of Sodium-22 from 3.5 millicuries to 8 millicuries, since the requested change in the licensing of Americium-241 will allow accommodation of increased possession of Sodium-22 under the unity rule.
- See attachments for revised table of requested radionuclides.

iii. Make no changes to the requested authorizations and provide a DFP.

Byproduct, source, and/or special nuclear material	Chemical and/or physical form	Maximum amount that licensee may possess at any one time under this license	Authorized use
Any byproduct material with Atomic Numbers 1 through 83 with half-life less than or equal to 120 days, with exceptions	Any	500 millicuries per radionuclide and 4000 millicuries total	For research and development as defined in 10 CFR 30.4, including animal studies; teaching and training of students; and calibration and checking of the licensee's instruments
Hydrogen-3	Any	2000 millicuries total	
Carbon-14	Any	300 millicuries total	
Sodium-22	Any	8 millicuries total	
Chlorine-36	Any	10 millicuries total	
Calcium-45	Any	10 millicuries total	
Iron-55	Any	10 millicuries total	
Zinc-65	Any	10 millicuries total	
Cadmium-109	Any	10 millicuries total	
Cesium-137	Any	1 millicuries total	
Barium-133	Any	9 millicuries total	
Americium-241	Sealed Sources (Eckert & Ziegler Model GF-241-R)	10 microcuries total	Gamma leak test standard
Cobalt-60	Sealed Sources (Eckert & Ziegler Model GF-60-R)	10 microcuries total	Gamma leak test standard
Krypton-85	Gas	20 millicuries total	For possession and use for the neutralization of aerosols.
Cesium-137	Sealed Sources (QSA Global, Inc. (formerly AEA Technology-QSA Incorporated), Model CDC.800 Series)	165 millicuries per source and 165 millicuries total	For use in QSA Global, Inc. (formerly AEA Technology-QSA Incorporated) Model 773 instrument calibrator for calibration and checking of the licensee's survey instruments.