



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

October 6, 2020

Mr. Robert Horton, Reactor Administrator  
U.S. Geological Survey  
Denver Federal Center  
P.O. Box 25046, MS 911  
Denver, CO 80225-0046

**SUBJECT: U.S. GEOLOGICAL SURVEY - REGULATORY AUDIT RE: PROPOSED  
LICENSE AMENDMENT NO. 14 TO INCREASE THE SPECIAL NUCLEAR  
MATERIAL POSSESSION LIMIT (EPID L-2020-LLA-0201)**

Dear Mr. Horton:

By letter dated October 1, 2020 (Agencywide Documents Access and Management System Accession No. ML20275A267), U.S. Geological Survey (USGS) staff applied for an amendment to Renewed Facility Operating License No. R-113 for the USGS TRIGA Research Reactor. The license amendment request (LAR) proposes to increase the special nuclear material possession limit of the license to receive, possess, but not use or separate, in connection with the operation of the facility, up to 4 kilograms of contained uranium-235 enriched to less than 20 percent in the form of TRIGA-type reactor fuel.

The U.S. Nuclear Regulatory Commission (NRC) staff will conduct an onsite regulatory audit on October 15, 2020, and continue the audit remotely (via teleconference) as necessary throughout the review period, in order to expedite the NRC staff review. The intent of the audit is to gain a better understanding of the LAR. In addition, the regulatory audit will identify information that will support the basis of the licensing decision, or needs to be docketed, and will allow the NRC staff to efficiently gain insights necessary to complete the review of the USGS LAR. The NRC staff has provided a copy of the audit plan as an enclosure to this letter.

At the completion of the regulatory audit, a regulatory audit summary will be prepared and provided to you. If necessary, you will have the opportunity to supplement the application to provide additional information, or the option to withdraw the application.

We appreciate your support in providing space, the requested documentation and access to the necessary personnel and other materials that will assist in an efficiently conducted audit.

If you have any questions regarding the NRC staff's audit, please contact me at 301-415-0893, or by electronic mail at [Geoffrey.Wertz@nrc.gov](mailto:Geoffrey.Wertz@nrc.gov).

Sincerely,

*/RA/*

Geoffrey A. Wertz, Project Manager  
Non-Power Production and Utilization  
Facility Licensing Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Docket No. 50-274  
License No. R-113

Enclosure:  
As stated

cc: See next page

U.S. Geological Survey

Docket No. 50-274

cc:

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Steve Tarlton  
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Jonathan Wallick, Reactor Supervisor  
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Test, Research and Training  
Reactor Newsletter  
Attention: Amber Johnson  
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4418 Stadium Drive  
College Park, MD 20742-2115

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LICENSE AMENDMENT NO. 14 TO INCREASE THE SPECIAL NUCLEAR  
MATERIAL POSSESSION LIMIT (EPID L-2020-LLA-0201) DATED: OCTOBER  
6, 2020

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**ADAMS Accession No.: ML20279A591 \*concurred via email****NRR-106**

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|--------|-------------------|-------------------|-------------------|-------------------|
| NAME   | GWertz            | NParker           | GCasto            | GWertz            |
| DATE   | 10/6/2020         | 10/6/2020         | 10/6/2020         | 10/6/2020         |

**OFFICIAL RECORD COPY**

OFFICE OF NUCLEAR REACTOR REGULATION  
REGULATORY AUDIT PLAN  
REGARDING PROPOSED AMENDMENT NO. 14 TO  
RENEWED FACILITY OPERATING LICENSE NO. R-113  
U.S. GEOLOGICAL SURVEY  
U.S. GEOLOGICAL SURVEY TRIGA RESEARCH REACTOR  
DOCKET NO. 50-274

Background

The U.S. Nuclear Regulatory Commission (NRC) staff is continuing its review of the U.S. Geological Survey (USGS) TRIGA Research Reactor license amendment request (LAR), provided by letter dated October 1, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20275A267). The LAR proposes to increase the special nuclear material (SNM) possession limit of the license to receive and possess, but not to use or separate, in connection with the operation of the facility, up to 4 kilograms of contained uranium-235 enriched to less than 20 percent in the form of TRIGA-type reactor fuel from a foreign research reactor. This regulatory audit is intended to assist the NRC staff in its review of the LAR.

Regulatory Audit Bases

The purpose of this audit is to determine if the licensee's proposed LAR requesting an increase in the SNM possession limit meets all the applicable regulatory requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) and addresses applicable guidance provided in NUREG-1537, "Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors," Part 1, "Format and Content," and Part 2, "Standard Review Plan and Acceptance Criteria" (ADAMS Accession Nos. ML042430055 and ML042430048, respectively).

Regulatory Audit Scope

The NRC staff will tour the facility to gain an understanding of the licensee's fuel storage plan, review the applicable USGS safety analysis report (SAR) design bases, determine if any technical specification (TS) requirements are necessary, and review applicable processes and procedures needed for maintaining the safe and secure possession of the additional TRIGA reactor fuel. This audit will provide information necessary to complete the NRC staff's evaluation of the LAR. In addition, the regulatory audit may identify additional information that will be required to be docketed to support the basis of the licensing decision and will allow NRC staff to efficiently gain insights for the LAR.

Information and Other Material Necessary for the Regulatory Audit

USGS staff should be prepared to support the NRC staff with a comprehensive tour of the facility, including observation of the proposed fuel storage locations. A copy of the licensee's

Enclosure

current SAR, TSs, physical security plan, emergency plan, Operator Requalification Program, and Operating Procedures should also be made available to the NRC staff.

The following information, most of which was referenced in the LAR, should be available for the audit includes:

- Discussion on USGS compliance with 10 CFR 70.24, "Criticality accident requirements"
- K-effective information on the proposed fuel storage configurations
- Certificate of Compliance No. 9225, revision 69, docket 71-9225, package ID USA/9225/B(U)F-96
- Nuclear Assurance Corporation drawings 315-40-086, 087, and 088
- USGS SAR, Section 3.3
- "Benchmarking criticality analysis of TRIGA fuel storage racks," Applied Radiation and Isotopes, issue 119 (2017)
- TRIGA Fuel Element Examination sheet, FRM-898

### Team Assignments

The NRC staff performing this audit will be:

- Geoffrey Wertz (Audit Lead, Technical Reviewer)
- Molly-Kate Gavello (Technical Reviewer)

### Logistics

The audit will initiate on Thursday, October 15, 2020, with an entrance meeting, and will involve up to one day on-site, consisting of a focused review between the NRC staff and USGS staff, as agreed by teleconference on September 24, 2020. Following the on-site audit review on October 15, 2020, the audit period will continue remotely (via teleconference) as necessary until the NRC staff have adequate understanding of issues to be addressed to complete the review of the LAR.

### Audit Questions

Audit questions will be provided during and following the on-site tour and detailed review of the proposed storage locations. The NRC staff will generate a list of open items, if any, during the audit to discuss and close as applicable. At the conclusion of the audit, necessary requests for additional information (RAIs) will be drafted to ensure the licensee has a clear understanding of the RAI scope.

### Deliverables

At the completion of the regulatory audit the NRC staff will prepare a regulatory audit summary, which will be issued by letter, within 90 days after the audit. The regulatory audit summary will include the documents reviewed, the audit activities, and any RAIs that were discussed, or that will be issued based on the audit, as applicable.

Audit Schedule

The NRC staff will conduct the on-site portion of the audit during a site visit on October 15, 2020. Additional audit interaction will continue remotely (via teleconference) as necessary.