



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

February 25, 2020

Catherine Ribaud
Radiation Safety Officer
Department of Health & Human
Services
National Institutes of Health
31 Center Drive, MSC 2260
Bethesda, MD 20892-2260

SUBJECT: NRC INSPECTION REPORT 03001768/2020001

Dear Ms. Ribaud:

This letter refers to the U.S. Nuclear Regulatory Commission (NRC) inspection conducted January 27-28, 2020, at your office and at Twinbrook Buildings 1 and 2, located at 12441 Parklawn Drive, Rockville, Maryland. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, performance of independent radiological surveys, and interviews with personnel. The enclosed report presents the results of this inspection.

The inspection included a review of decommissioning activities conducted at Twinbrook Buildings 1 and 2 under your Materials License Number 19-00296-10. The inspection results were presented to you and members of your staff on January 28, 2020. No violations were identified, and no response to this letter is required. Twinbrook Buildings 1 and 2 are acceptable for unrestricted release.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, 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 from the NRC's Agencywide Documents Access and Management System (ADAMS) accessible from the NRC Web Site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, if you choose to provide one, should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

Should you have any questions regarding this inspection, please contact Orysia Masnyk Bailey at 864.427.1032.

Sincerely,

/RA/

Anthony Dimitriadis, Chief
Decommissioning, ISFSI and Reactor HP
Branch
Division of Nuclear Materials Safety

Docket No.: 030-01786
License No.: 19-00296-10

Enclosure:
Inspection Report 03001768/2020001

NRC INSPECTION REPORT 03001768/2020001 DEPT. OF HEALTH AND HUMAN SERVICES, NATIONAL INSTITUTES OF HEALTH DATED February 25, 2020.

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■ SUNSI Review ADAMS: ☐ Non-Publicly Available ■ Non-Sensitive
■ By: OMB ■ Yes ☐ No ■ Publicly Available ☐ Sensitive

OFFICE	RI:DNMS	RI:DNMS	RI:DNMS	
NAME	OMasynkBailey	EAndrews	ADimitriadis	
SIGNATURE	<i>ad for/</i>	<i>ea</i>	<i>ad</i>	
DATE	2/18/20	2/18/20	2/25/20	

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 030-01786

License No.: 19-00296-10

Report No. 2020001

Licensee: National Institutes of Health (NIH)

Location: 31 Center Drive, Bethesda, MD and 12441
Parklawn Drive, Rockville, MD

Dates: January 27-28, 2020

Inspectors: Orysia Masnyk Bailey, Health Physicist
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety
Region I

Elizabeth Andrews, Health Physicist
Decommissioning, ISFSI, and Reactor HP Branch
Division of Nuclear Materials Safety
Region I

Approved by: Anthony Dimitriadis, Chief
Decommissioning, ISFSI and Reactor HP Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY

National Institutes of Health (NIH), Maryland
NRC Inspection Report No. 03001786/2020001

This U.S. Nuclear Regulatory Commission (NRC) inspection was a routine, announced inspection of the NIH's Twinbrook Buildings 1 and 2 in Rockville, Maryland. The purpose of the inspection was to review decommissioning activities at the site, including the Final Status Survey (FSS), and or the NRC staff to perform selected independent surveys at the site.

No violations were identified. Twinbrook Buildings 1 and 2 were found to be acceptable for unrestricted use.

REPORT DETAILS

Background

Twinbrook Buildings 1 and 2 were leased by the NIH from the JBG Company. Research done by the National Institute of Allergy and Infectious Diseases and the National Institute of Diabetes, Digestive and Kidney Disease involved protocols using radioactive materials in unsealed form. Possible contaminants included Tritium, Carbon-14, Sulfur-35, Iron-55, Iodine-125, and Uranium-238 with progeny in equilibrium. There was only one sealed source used at the facility that required a leak test and inventory; it was contained in a self-shielded irradiator (JLS Mark-1) at Twinbrook Building 2. Several other small check and calibration sources were also used. In 2009, a Tritium and Carbon-14 contamination event was identified in Laboratory 239 in Twinbrook Building 2. This laboratory was remediated shortly after the contamination was identified.

NIH is in the process of relocating research operations to other facilities under the NIH license of broad scope. The NIH submitted an FSS in support of the buildings' release for unrestricted use.

1 Closeout Inspection and Survey (83890)

1.1 Inspection Scope

The inspectors reviewed the FSS survey reports for both buildings, the Historical Site Assessments (HSA) for both buildings, and the Radiological Survey Report for Laboratory 239, generated as a result of the contamination incident. All work was done by Clym Environmental Services, LLC (Clym). In addition, the inspectors reviewed procedures and records, interviewed licensee and contractor personnel, and performed selected surveys at the Twinbrook Buildings.

1.2 Observations and Findings

The inspectors found that the FSS was conducted in accordance with NUREG-1575, "Multi-Agency Radiological Survey and Site Investigation Manual, Revision 1." The derived concentration guideline levels (DCGL) used for the release criteria were, for most of the isotopes, those published in NUREG-1757, Volume 1, Revision 2, Appendix B, Table B.1, except that in the report the contractor "rounded up" the numbers. For Uranium-238 and Iodine-125, the contractor used DandD software, Version 2.1, Building Scenario to develop site specific DCGLs. A review of the DandD reports showed that the values were derived using the recommended default values. Although these were slightly higher than NRC published DCGLs, actual readings were less than acceptable release levels.

The FSS referred to the scoping survey performed by the contractor prior to the conduct of the FSS. The contractor did not generate a scoping survey report, but the inspectors reviewed the resulting data and interviewed the contractor responsible for the survey. The scoping survey was used to inform the FSS. Surface scans included 100% of accessible floor and lower wall areas, 50% of the upper wall areas and 10% of the ceiling.

Included in the lower wall areas were all surface areas. The contractor took wide area smears (that numbered in the thousands) of all accessible areas, including areas inside the fume hoods, drawers and cabinets, vacuum pump system, neutralization water

holding tank, and sink drains. All scans and smears were below the minimum detectable activities (MDA), which were 10 -50% of the DCGLs. Survey equipment was appropriate and properly calibrated. The impacted areas in the buildings were correctly designated as Class 3 survey units.

The inspectors reviewed the Historical Site Assessments (HSA) for both buildings. These relied heavily on the NIH Division of Radiation Safety database and archived records. This is a data base that includes the operating history as well as all survey records for each place of use under the NIH materials license. NIH staff have developed this comprehensive data base by populating it with historical and ongoing radiological data. This includes radiological material use, disposal, and surveys. The surveys are done by the authorized users, radiation safety staff, and contractors. It serves as a continuously updated and searchable HSA and is a noteworthy aspect of the radiation safety program.

There was only one sealed source used at the facility that required a leak test and inventory; it was in a self-shielded irradiator (JLS Mark-1) at Twinbrook Building 2. The inspectors reviewed the leak test records; there was no evidence of the source leaking. The irradiator was moved to the main NIH campus.

In 2009, a Tritium and Carbon-14 contamination event was identified in Laboratory 239 in Twinbrook Building 2. The inspectors reviewed the Radiological Survey Report. The report described decontamination and remediation work in accordance with licensee and regulatory requirements, with no remaining contamination left behind.

The inspectors toured the buildings and took biased surveys of selected areas. None of the observed readings were above background levels or above MDA. The buildings were empty except for built in furniture such as lab tables, cabinets, and fume hoods. All licensed material had been removed.

1.3 Conclusions

No violations or safety concerns were identified. Twinbrook Buildings 1 and 2 are acceptable for unrestricted release.

2 Exit Meeting Summary

The inspectors presented the inspection results to the licensee's representatives at the end of the onsite inspection on January 28, 2020. The licensee was advised that no violations or safety concerns had been identified and that Twinbrook Buildings 1 and 2 are acceptable for unrestricted release. The inspectors verified that no proprietary information was retained or documented in this report.

SUPPLEMENTAL INSPECTION INFORMATION

Partial List of Persons Contacted

D. Gibbs, Health Physicist
I. Koenig, Health Physicist
L. Ngitter, Health Physicist and Contracting Officer's Representative for NIH Contract
C. Ribaud, Radiation Safety Officer
M. Roberson, Deputy Radiation safety Officer
F. Watts, Manager, Clym Environmental, LLC

Inspection Procedures Used

83890 Closeout Inspection and Survey

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS

ADAMS	Agencywide Documents Access and Management System
DCGL	derived concentration guideline limits
FSS	final status survey
MDA	minimum detectable activity
NIH	National Institutes of Health
NRC	U.S. Nuclear Regulatory Commission

SURVEY METERS USED

Ludlum Model 3001 Multi-Detector Survey Meter, Serial Number: 25017486, Calibration Date:
January 9, 2021

Ludlum Model 14C Geiger Counter, Serial Number: 83477, Calibration Date: September 10, 2020

Ludlum Model 14C Geiger Counter, Serial Number: 44045, Calibration Date: April 4, 2020