

January 20, 2006

Mark Haenchen, M.S., J.D.
Director and Radiation Safety Officer
Office of Environmental Safety & Services
Saint Louis University
1402 South Grand Blvd.
St. Louis, MO 63104-5560

SUBJECT: NRC INSPECTION REPORT 030-11789/05-002(DNMS) -
SAINT LOUIS UNIVERSITY

Dear Mr. Haenchen:

On January 18, 2006, the NRC completed inspection activities associated with Saint Louis University's Radioactive Waste Storage Facility, located at 1008 South Spring Avenue, St. Louis, Missouri. The purpose of the inspection was to determine if decommissioning activities were conducted safely and in accordance with your license and NRC requirements. The inspection included onsite visits on December 1 and 2, 2005. Specifically, the inspection included a review of your Decommissioning Survey Report, your remediation and survey activities, and the performance of NRC confirmatory surveys in the former Waste Storage Facility. At the conclusion of the on-site inspection on December 2, 2005, the NRC inspectors discussed the preliminary findings with you and members of your staff. On January 18, 2006, the inspectors conducted a telephone exit interview with you after completing an in-office review of laboratory data results from the analysis of wipe samples that were collected during the inspection to assess removable contamination.

This inspection consisted of an examination of decommissioning activities at the Saint Louis University Radioactive Waste Storage Facility as they relate to safety and compliance with the Commission's rules and regulations. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with available personnel, and confirmatory radiological surveys and tests for removable contamination.

Based on the results of this inspection, the NRC did not identify any violations. Our response to your license amendment request to release the Radioactive Waste Storage Facility for unrestricted use will be provided separately from this correspondence.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). The NRC's document system is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

M. Haenchen

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We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA by W. Snell Acting for/

Jamnes L. Cameron, Chief
Decommissioning Branch

Docket No. 030-11789
License No. 24-00196-07

Enclosure: Inspection Report 030-11789/05-002(DNMS)

cc w/encl: K. Henke, Department of Health and Senior Services

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No.: 030-11789

License No.: 24-00196-07

Report No.: 030-11789/05-002(DNMS)

Licensee: Saint Louis University

Facilities: Saint Louis University Radioactive Waste Storage Facility

Location: 1008 South Spring Avenue
St. Louis, Missouri

Dates: December 1 and 2, 2005 (onsite)
January 18, 2006 (in-office review)

Inspectors: George M. McCann, Senior Health Physicist
Samuel J. Mulay, Health Physicist

Approved By: Jamnes L. Cameron, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Saint Louis University Radioactive Waste Storage Facility Inspection Report No. 030-11789/05-002(DNMS)

This closeout inspection and survey focused on the licensee's performance related to decommissioning survey activities. These activities were conducted in the licensee's Radioactive Waste Storage Facility. The facility was authorized for use by NRC License No. 24-00196-07, Amendment No. 25, dated March 19, 1999. The licensee was authorized to use any byproduct material with atomic numbers between 3 and 83 for use in medical applications, therapy, and research activities, including animal studies. The licensee's use and storage of radioactive material in the facility ceased on August 12, 2005. The licensee submitted an October 31, 2005, letter with an attached Decommissioning Survey Report to the NRC for review.

Closeout Inspection and Survey

- The inspectors concluded that residual radioactive contaminants in the liquid and solid radioactive waste storage areas were remediated to levels consistent with the NRC's radiological criteria for unrestricted use as specified in 10 CFR Part 20, Subpart E. (Section 1.0).

Report Details¹

1.0 Closeout Inspection and Survey (83890)

1.1 Inspection Scope

The inspectors performed independent confirmatory radiological surveys, which included direct radiological measurements, and the collection of 27 wipe samples to assess removable contamination. The surveys included walkover surface scans of the facilities concrete floors using a gas proportional floor monitor equipped with a 425 square centimeter Mylar detector. The inspectors also performed direct radiological surveys using hand held radiation survey instruments on walls, floors, ventilation ducts, drains, sewer lines, offices, and areas where waste processing, and compaction activities had been performed. These areas, structures and equipment were evaluated for levels of gross alpha and beta contaminants using calibrated survey meters which employed gas-proportional, and Geiger-Mueller pancake probes for beta scanning and zinc sulfide probes for alpha scanning. A radiological measurement consisting of a direct one-minute count was performed at each location where a sample for removable contamination was collected. Table 1 lists the NRC survey instrumentation used during this inspection.

The inspectors reviewed the licensee's contractor's October 27, 2005, "Decommissioning Survey Report, Saint Louis University Medical Center," which was attached to a letter to the NRC from the licensee dated October 31, 2005. The licensee's Decommissioning Survey Report is publicly available through NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML060180319.

1.2 Observations and Findings

The licensee's Decommissioning Survey Report referenced NRC Regulatory Guide 8.23, "Radiation Safety Surveys at Medical Institutions," Table 2, "Recommended Action Levels for Removable Surface Contamination in Medical Institutions," and Table 3 "Acceptable Surface Contamination Levels for Uncontrolled Release of Equipment." The licensee's contractor used these table values for establishing release criteria for determining the suitability for release of the licensee's facility and associated equipment. Specifically, Table 3 cites the average and maximum fixed contamination criteria for the uncontrolled release of items contaminated with beta-gamma emitters as 5,000 disintegrations per minute per 100 centimeters squared (dpm/100 cm²), and 15,000 dpm/100 cm², respectively, and uncontrolled release of items contaminated with fixed alpha emitters as 5,000 dpm/100 cm² average fixed contamination, and 15,000 dpm/100 cm² maximum fixed. Table 2 of the Regulatory Guide cites criteria for uncontrolled release of items contaminated with removable beta-gamma emitters as 220 dpm/100 cm² and for uncontrolled release of items contaminated with removable alpha emitters as 22 dpm/100 cm².

¹A list of acronyms used in the report is included at the end of the Report Details.

The licensee's contractor concluded in the Decommissioning Survey Report, "that the property consisting of all surveyed floors, walls, ceiling items, drains, duct work, drain pipes and equipment items belonging to the Saint Louis University Medical Waste Facility located in Saint Louis, Missouri, are free of significant contamination due to former radionuclide usage."

The NRC inspectors surface radiation surveys of the Radioisotope Waste Storage Facility did not identify any residual contamination above the facility's ambient background levels. Further, the wipe samples collected to assess removable contamination were analyzed for gross alpha and gross beta contamination by the NRC's contract laboratory Oak Ridge Institute for Science and Education (ORISE), and no removable contamination greater than the laboratory's counting systems established Minimum Detectable Concentrations (MDCs) was identified. The MDCs established by ORISE were 8.9 dpm per wipe for gross alpha and 15 dpm per wipe for gross beta. The ORISE analysis report is publicly available through NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML060170454.

The inspectors compared the NRC survey findings and the licensee's Survey Report results against criteria cited in the NRC's NUREG-1757, Vol. 1, "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees," Appendix B, Table B.1, "Acceptable License Termination Screening Values of Common Radionuclides for Building-Surface Contamination," to determine if the survey results were consistent with the NRC's unrestricted release dose criteria cited in Title 10, Code of Federal Regulations (CFR), Part 20, "Standards for Protection Against Radiation, Subpart E, Section 20.1402. The results of the licensee's Decommissioning Survey Report and the NRC survey findings did not identify any radiological contaminants above the NRC's unrestricted release limits.

1.3 Conclusions

The inspectors concluded that levels of residual radioactive contaminants in the former Radioisotope Waste Storage Facility, were consistent with the NRC's radiological criteria for unrestricted release as specified in 10 CFR Part 20, Subpart E.

2.0 **Exit Meeting**

The NRC inspectors presented preliminary inspection findings to the licensee's Radiation Safety Officer following the onsite inspection. On January 18, 2006, the inspectors discussed the final inspection findings with the Radiation Safety Officer. The licensee acknowledged the findings presented and did not identify any documents or processes reviewed by the inspectors as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Mark Haenchen, Radiation Safety Officer
Kevin Ferguson, Health Physicist

INSPECTION PROCEDURES USED

IP 83890 Closeout Inspection and Survey

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened	None
Closed	None
Discussed	None

PARTIAL LIST OF DOCUMENTS REVIEWED

October 31, 2005, letter from Saint Louis University, with a "Decommissioning Survey Report," attached.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
DNMS	Division of Nuclear Materials Safety
dpm	Disintegrations per minute
MDC	Minimal Detectable Concentration
NRC	Nuclear Regulatory Commission
ORISE	Oak Ridge Institute for Science and Education
PARS	Publicly Available Records

NRC SURVEY INSTRUMENTATION

Meters are calibrated annually

Survey Meter	Instrument Model	Instrument Serial	Detectors Model	Detector Serial	Calibration Date	Calibration Due
1-Ludlum NRC kit #1	2241-2	130055	44-10 (2x2 Sodium Iodide)	PR110269	06/03/05	06/03/06
1-Ludlum NRC kit #1	2241-2	130055	44-9 (GM Pancake 15.5 cm ²)	PR110210	06/03/05	06/03/06
1-Ludlum NRC kit #1	2241-2	130055	43-5 (ZnS alpha detector 50 cm ²)	PR110327	06/03/05	06/03/06
1-Ludlum NRC kit #1	2241-2	130055	44-38 (energy compensated gm)	PR110163	06/03/05	06/03/06
2-Ludlum NRC kit #2	2241-2	130052	43-05 (ZnS alpha detector 50 cm ²)	PR110309	03/18/05	03/18/06
2-Ludlum NRC kit #2	2241-2	130052	44-9 (GM Pancake 15.5 cm ²)	PR110219	03/18/05	03/18/06
2-Ludlum NRC kit #2	2241-2	130052	44-38 (energy compensated gm)	PR110167	03/18/05	03/18/06
3-Ludlum Floor Monitor	239-1F	105930	43-68 (gas proportional floor monitor 425 cm ²)	PR133776	02/16/05	02/16/06