UNIVERSITY OF MICHIGAN

KRESGE COMPLEX DECONTAMINATION & DECOMMISSIONING PROJECT

[NRC Materials License No. 21-00215-04 / Docket No. 030-01988]

(2009)

Background

The University of Michigan (U-M) is preparing for the demolition of the entire Kresge Complex of research buildings. The complex occupies a portion of the U-M medical campus located principally along the northeast quadrant of the intersection of Zina Pitcher Place and East Ann Street. The Kresge Complex consists of six buildings, some dating back to 1954, and each of which housed traditional laboratory rooms located throughout the facilities along with some research animal care facilities. A variety of radionuclides were used in these buildings dating back to the 1950's including H-3, C-14, P-32, P-33, S-35, I-125, I-131, etc.

In addition, the Kresge Complex (Kresge III) houses a cyclotron that had been in use, since 1982, solely for the production of short-lived radionuclides used clinically and for research purposes involving positron-emission tomography (PET) scanning. The Michigan Department of Environmental Quality (MDEQ) is overseeing the D&D of the cyclotron facility.

All researchers have moved out of the Kresge Medical Research Complex and the complex is slated for demolition starting July 1, 2009. Identification of significant radioactive contamination (in excess of DCGLs) is not anticipated in those areas where NRC-licensed byproduct materials were used. This is premised on survey data and usage histories collected for the purposes of assembling a historical site assessment for the Kresge Complex.

All D&D work at the Kresge Complex will be conducted under the D&D contractor's (Chase Environmental Group, Inc.) radioactive material license – Kentucky Radioactive Materials License No. 201-605-90 - and established reciprocity with the Nuclear Regulatory Commission.

Description of Kresge Medical Research Complex

The Kresge Medical Research Complex consists of six interconnected buildings located at the U-M Medical School Campus and is bounded by Zina Pitcher Place to the west, Catherine Street to the northwest and Ann Street to the south. The complex is bounded by, but does not include, the U-M Hospital Cardiovascular Center to the east and additional medical school buildings to the north. The table below lists pertinent information relative to each building.

Building	Address	Year Built	Net Assignable Square Feet	Radioactive Material Rooms
Kresge I	200 Zina Pitcher	1954	45621	173
Kresge II	1299 E. Ann	1964	23404	67
Kresge III	200 Zina Pitcher	1955	22339	5
KHRI	1301 E. Ann	1963	20085	11
Upjohn Center	1326 Catherine	1970	8470	25
ACL	1331 E. Ann	1954	14196	4

Kresge Research Building I (Kresge I) - housed an animal care facility (6655 ft^2 of 45,621 total net ft^2) in addition to numerous traditional laboratory rooms.

Kresge Research Building II (Kresge II) - housed traditional laboratory spaces.

Kresge Research Building III (Kresge III) - built in 1955, served solely as the Medical School Library until the Library relocated in 1981. After which, it was converted to house traditional laboratory spaces and the U-M Department of Radiology / Nuclear Medicine - PET / Cyclotron and radiopharmaceutical facilities. The cyclotron vault facility was constructed in 1981 as a new addition on new footings attached to the East end of the Kresge III building.

Kresge Hearing Research Institute (KHRI) - housed traditional laboratory spaces.

Upjohn Center for Clinical Pharmacology (Upjohn Center) - housed traditional laboratory spaces.

Alice Crocker Lloyd - Radiation Therapy Center (ACL) – in addition to housing traditional laboratory spaces, the ACL contained the Department of Radiation Oncology clinical radiation therapy facility for brachytherapy and Co-60 teletherapy treatment until approximately 1986 when the brachytherapy operations were relocated to the then newly-constructed U-M Hospital. The Co-60 teletherapy unit was decommissioned and shipped off site by MDS Nordion, Inc. on February 6, 2003 and license (NRC Materials License No. 21-00215-05) was terminated July 31, 2003. [AECL Theratron 80 teletherapy unit (Model T80 #339)].

Develop and Implement a Site Characterization Plan

Chase Environmental Group, Inc. (Chase) will develop and implement a plan to identify the type, magnitude, location, and extent of radiological contamination within the Kresge Medical Research Complex, excluding the cyclotron facility. The characterization will include a historical site assessment, the collection of samples, and radiological scoping surveys.

Characterization activities will focus primarily on laboratory rooms and support facilities within the Kresge Medical Research Complex that were identified through the historical site assessment process. Characterization may also include infrastructure or environmental assessments as may be necessary based on the historical site assessment, scoping surveys, and characterization results.

Develop a Decontamination and Decommissioning Work Plan

Chase will develop a D&D Work Plan with the advice of and subject to the approval of U-M OSEH using the characterization information gathered during the site characterization process. The work plan will be designed to cost-effectively ensure residual radioactivity levels are at or below the standards established by the NRC for unrestricted release in Subpart E of 10 CFR Part 20 giving due consideration to the ALARA requirements of 10 CFR 20.1402.

Implement and Complete Decontamination and Decommissioning

Chase will decontaminate the surfaces, items, equipment, and facilities found to contain residual radioactivity in accordance with the D&D Work Plan, including the decontamination of or removal for disposal as radiological waste, all items and materials identified as radiologically contaminated including exhaust hoods, ventilation ducts, sinks, plumbing, bench tops, etc.

Implement and Complete Decontamination and Decommissioning

Chase will conduct a Final Status Survey (FSS) using the guidelines presented in NUREG-1575 ('Multi-Agency Radiation Survey and Site Investigation Manual' / MARSSIM) and NUREG -1757 ('Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees') to confirm that the facility meets or exceeds the standards for unrestricted release in Subpart E of 10 CFR 20 with results reported using dose based units as specified in 10 CFR 30.36(j).

Provide Documentation of Site Activities

Chase will provide the U-M with documentation detailing the results of the historical site assessment, characterization, decontamination and disposal of contaminated materials, and final status survey results including certifications indicated in 10 CFR 30.36(j).

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