

November 22, 2011

Mr. Richard L. Holm
Reactor Administrator
216 Talbot Laboratory
104 South Wright St.
Urbana, IL 61801

SUBJECT: NRC INSPECTION REPORT 050-00151/10-001(DNMS) – UNIVERSITY OF ILLINOIS NUCLEAR REACTOR

Dear Mr. Holm:

On November 8, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed inspection activities at the permanently shut down University of Illinois Nuclear Reactor, Urbana, IL. The purpose of the inspection was to determine whether decommissioning activities were conducted safely and in accordance with NRC requirements. Specifically, during an on-site inspection on October 25 through 27, 2011, and subsequent in-office review through November 8, 2011, the inspector evaluated the licensee's organization and staffing, work controls, and decommissioning performance related to surveys of materials and equipment for disposal and release from the facility. At the conclusion of the on-site inspection, the inspector discussed the interim inspection results with you and members of your staff. At the conclusion of the in-office review, a final telephone exit meeting was conducted on November 8, 2011, to discuss the final results with you.

This inspection consisted of an examination of decommissioning activities at the site 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, observations of activities in progress, and interviews with personnel.

Based on the results of this inspection, the inspectors did not identify any violations of NRC requirements that were of greater than minor safety significance.

In accordance with Title 10 of the Code of Federal Regulations 2.390 of the NRC's "Rules of Practice," a copy of this letter and the enclosed report will be available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Document Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

R. Holm

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We will gladly discuss any questions you may have regarding this inspection.

Sincerely,

/RA/

Christine A. Lipa, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Docket No. 50-151
License No. R-115

Enclosure:
NRC Inspection Report No. 050-00151/10-001(DNMS)

cc w/encls: James Stubbins, University of Illinois
Joseph G. Klinger, Illinois Emergency Management Agency

R. Holm

-2-

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 050-00151

License No. R-115

Report No. 050-00151/10-001(DNMS)

Licensee: University of Illinois

Facility: Nuclear Reactor

Location: Urbana, Illinois

Dates: October 25-27, 2011 (on-site)
through November 8, 2011 (in-office review)

NRC Inspector: Jeremy Tapp, Health Physicist

Approved by: Christine A. Lipa, Chief
Materials Control, ISFSI, and
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosure

EXECUTIVE SUMMARY
University of Illinois – Nuclear Reactor
Inspection Report 050-00151/10-001(DNMS)

The University of Illinois Nuclear Reactor was shut down in 1998 and has been maintained in SAFSTOR condition since. In 2004, all spent fuel was shipped offsite for permanent storage. In October 2011, the site transitioned to active decommissioning as the qualified contractor arrived onsite; project policies, programs, and procedures were developed and approved; and dismantlement work commenced. This routine decommissioning inspection included a review of the licensee's organization and staffing, work controls, and current performance related to decommissioning activities, specifically, surveys of equipment and materials for disposal.

Research and Test Reactor Decommissioning

Organization and Staffing

The licensee's organization satisfied the requirements in the Decommissioning Plan (DP) and associated site procedures, and with the addition of the site specific training, provided the expertise and skills necessary to ensure safe completion of decommissioning. In addition, the staffing plan described in the site specific procedures will ensure the appropriate qualified personnel will be on site for each phase of the project (Section 1.1).

Work Controls

The licensee's plans and procedures reviewed were written in accordance with the DP, Technical Specifications (TS), and applicable U.S. Nuclear Regulatory Commission (NRC) requirements with one exception. The procedure for free release of material was not written to ensure material and equipment was released in accordance with NRC requirements, but it was promptly corrected after identification and no free release of material to an unauthorized recipient occurred. The licensee also maintained an adequate and appropriate level of contractor oversight as required by procedures through document review and direct observations (Section 1.2).

Health Physics

Inspector observations of the facility determined that radiological and industrial controls ensured worker safety and prevented loose radiological contamination in uncontrolled areas. The inspector found that the licensee performed adequate radiological surveys to determine if materials and equipment had detectable surface contamination and if so, could adequately calculate the activity present. Radiation safety training content was adequate for the conditions at the site and met the requirements of the DP. For the staff training reviewed by the inspector, all received the required passing score as described in the licensee's procedures (Section 1.3).

Report Details

1.0 Research and Test Reactor Decommissioning (69013)

1.1 Organization and Staffing

a. Inspection Scope

The inspector reviewed the licensee's organization requirements in the approved DP and associated site procedures and compared them to the organization currently onsite to verify they were consistent. The inspector performed interviews of selected individuals in the organization to verify they possessed the appropriate qualifications to adequately perform the duties in their respective position. The inspector reviewed the licensee's project plans to ensure the staffing is adjusted as necessary for changes in work scope as decommissioning activities progress. In addition, the inspector determined whether general site training was performed as required in the DP.

b. Observations and Findings

The inspector noted that the licensee's contractor for the project has recently completed decommissioning a similar reactor. The individuals involved with that project have transferred to the University of Illinois for the decommissioning of the Nuclear Reactor. Therefore, the individuals involved in the decommissioning have recent experience working at a similar reactor and with each other as a team. All individuals interviewed by the inspector were cognizant of their duties and responsibilities. All current qualified contractor staff was trained on the site specific hazards including emergency procedures. Decommissioning work commenced once the qualified contractor staff had completed the required site specific training and could begin work in a safe manner.

The inspector also found that the licensee had an approved staffing plan for each phase of the decommissioning project that clearly defined the appropriate staff required for safe completion of each phase.

No findings of significance were identified.

c. Conclusions

The licensee's organization satisfied the requirements in the DP and associated site procedures, and with the addition of the site specific training, provided the expertise and skills necessary to ensure safe completion of decommissioning. In addition, the staffing plan described in the site specific procedures will ensure the appropriate qualified personnel will be on site for each phase of the project.

1.2 Work Controls

a. Inspection Scope

The inspector reviewed selected licensee plans and procedures to determine if they were written in accordance with the approved DP and TS. This review consisted of procedures in project management, quality assurance, radiation protection and health

and safety. While onsite, the licensee was performing surveys of material and equipment to determine if it was acceptable for free release or was required to be disposed of at a licensed radwaste disposal facility. The inspector determined whether the licensee was performing the surveys in accordance with the applicable procedure and in accordance with the DP and NRC requirements.

In addition, the inspector determined whether the licensee maintained adequate control and oversight of the contracted workforce through both direct involvement and administrative controls. The inspector reviewed select work plans to determine the controls required by procedure and observed the oversight activities conducted while onsite.

b. Observations and Findings

The inspector found that for all plans and procedures reviewed, each was written in accordance with the DP, TS, and applicable NRC requirements with one exception. The procedure involved with free release of materials contained release limits for beta/gamma and alpha surface activity levels that could be released to an industrial landfill. According to NRC requirements, no detectable licensed material is allowed to be released to an unauthorized recipient, such as an industrial landfill without a license to receive radioactive material for disposal. Since this issue has been brought to the licensee's attention, they have begun implementing corrective actions to ensure no detectable licensed radioactive material will be sent to an unauthorized recipient. In addition, the inspector verified that no shipments had been sent to an unauthorized recipient before the issue was identified. The inspector will follow up in a future inspection once all corrective actions have been completed to determine if they are adequate and appropriate.

The inspector noted that the licensee is required by the work plan reviewed to review all procedures before they are implemented in the field by the contractors. In addition, the licensee reviews completed survey reports for equipment and materials surveyed for release and maintain a constant presence onsite to oversee ongoing decommissioning activities as necessary.

No findings of significance were identified.

c. Conclusions

The licensee's plans and procedures reviewed were written in accordance with the DP, TS, and applicable NRC requirements with one exception. The procedure for free release of material was not written to ensure material and equipment was released in accordance with NRC requirements, but it was promptly corrected after identification and no release of material to an unauthorized recipient occurred. The licensee also maintained an adequate and appropriate level of contractor oversight as required by procedures through document review and direct observations.

1.3 Health Physics

a. Inspection Scope

The inspector interviewed site personnel and performed a facility tour to observe field conditions. The inspector evaluated the site's material condition and housekeeping, area radiological conditions, and radiological access control and associated posting/labeling. Independent radiation measurements were made throughout the areas toured and compared to the licensee's postings.

The inspector observed radiation protection technicians performing surveys on equipment and material for final disposition as clean or contaminated waste. A selection of surveys of equipment and materials performed during the week of October 24, 2011 was reviewed. The efficiency determination for the instrument being used for these surveys was also reviewed by the inspector. The inspector verified survey instrument calibration was current. In addition, the inspector reviewed the licensee's training file to determine if the staff working in radiologically controlled areas completed the required radiation safety training as described in the DP.

b. Observations and Findings

The inspector found that the facility was generally clean and free of debris and personnel hazards. Access control and postings were determined to be adequate for the radiological conditions of the facility. Radiation protection technicians adequately performed surveys of materials and equipment using proper scanning speed, distance from the surface on the material being surveyed, and survey coverage of the material and equipment. Smears were taken as appropriate to determine if there was any removable contamination, including tritium. Static counts were then taken by the survey instrument at each smear location as required.

The inspector found for the survey documentation reviewed, each piece of material or equipment had no detectable surface contamination. In addition, the inspector determined the efficiency factor used for the survey instrument to calculate the surface contamination activity was appropriate for the expected radionuclides that were potentially present on the material. The inspector verified that for each instrument reviewed, the calibration was current. In addition, the radiation protection training taken by each individual reviewed by the inspector had the required passing score. The content of the training covered those areas required by the DP and 10 CFR 19.

c. Conclusions

Inspector observations of the facility determined that radiological and industrial controls ensured worker safety and prevented loose radiological contamination in uncontrolled areas. The inspector found that the licensee performed adequate radiological surveys to determine if materials and equipment had detectable surface contamination and if so, could adequately calculate the activity present. Radiation safety training content was adequate for the conditions at the site and met the requirements of the DP. For the staff training reviewed by the inspector, all received the required passing score as described in the licensee's procedures.

2.0 Exit Meeting Summary

The inspector presented the interim inspection results to licensee management at the conclusion of the onsite inspection on October 27, 2011. After in-office review was completed on November 8, 2011, a final exit teleconference was held. The licensee acknowledged the results presented and did not identify any of the documents reviewed by the inspectors as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION
PARTIAL LIST OF PERSONS CONTACTED

Licensee

^{1,2}R. Holm, Reactor Administrator
¹C. Dewitt, Assistant Project Manager
¹D. Ball, Construction Manager
¹C. Higgins, Project Radiation Safety Officer
¹D. Jordan, Waste Management Supervisor

¹Indicates presence at the interim on-site exit meeting held on October 27, 2011.

²Indicates presence at the telephone exit meeting held on November 8, 2011.

LIST OF PROCEDURES USED

IP 69013 Research and Test Reactor Decommissioning

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened None

Closed None

Discussed None

LIST OF ACRONYMS USED

ADAMS Agencywide Documents Access and Management System
CFR Code of Federal Regulations
DNMS Division of Nuclear Materials Safety
DP Decommissioning Plan
NRC U. S. Nuclear Regulatory Commission
TS Technical Specifications

DOCUMENTS REVIEWED

UI-MCP-AD-01, UI-NRL Project Management Plan, Revision 0

UI-MCP-HS-01, UI-NRL Health and Safety Plan, Revision 0

UI-MCP-QA-01, UI-NRL Quality Assurance Project Plan, Revision 0

UI-MCP-RC-01, UI-NRL Radiological Protection and ALARA Plan, Revision 0

DOCUMENTS REVIEWED (Continued)

UI-MCP-OP-01, UI-NRL Facility Preparation Work Plan, Revision 0

UI-MCP-RC-03, Radiation Work Permit Procedure, Revision 0

UI-MCP-RC-04, Radiological Surveys Procedure, Revision 0

UI-MCP-RC-05, Decontamination Acceptance Procedure, Revision 0