March 15, 2007

Mr. Richard L. Holm
Nuclear Reactor Administrator
College of Engineering
University of Illinois at Urbana-Champaign
310 Engineering Hall, MC-266
1308 West Green Street
Urbana, IL 61801

SUBJECT: NRC INSPECTION REPORT 050-00151/07-01(DNMS) - UNIVERSITY OF ILLINOIS NUCLEAR REACTOR

Dear Mr. Holm:

On February 27, 2007, the NRC completed inspection activities at the University of Illinois Nuclear Reactor. The purpose of the inspection was a routine inspection to evaluate current reactor activities and discuss planned decommissioning activities. At the conclusion of on-site inspection on February 27, the inspectors discussed the inspection findings with you.

This inspection consisted of an examination of current activities at the Nuclear Reactor 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 included 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 NRC did not identify any violations.

By letter dated March 28, 2006, the University of Illinois submitted a Decommissioning Plan to the NRC for the decommissioning of the Nuclear Reactor Laboratory. NRC personnel in the Office of Nuclear Materials Safety and Safeguards, Division of Waste Management and Environmental Protection (DWM), reviewed the Decommissioning Plan and, based on the review, provided the inspectors with comments on the Plan that were discussed with you during the inspection. The primary areas of discussion identified by DWM involved the use of site specific derived concentration guideline levels (DCGLs), uncertainty in interpreting selected parts of the supporting radiological characterization data, and the potential for soil contamination under the building. Based on discussions with you, most of the concerns raised can be readily addressed by revising the Decommissioning Plan to provide additional clarifying information, while several issues will require further review. You indicated that once you had addressed all the issues, you would revise and resubmit the Decommissioning Plan.

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 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.

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

Sincerely,

***/RA/***

Jamnes L. Cameron, Chief
Decommissioning Branch

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

Enclosure:
NRC Inspection Report 050-00151/07-01(DNMS)

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Joe Klinger, IEMA

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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| Docket No: | 050-00151 |
| License No: | R-115 |
| Report No: | 050-00151/07-01(DNMS) |
| Licensee: | University of Illinois |
| Facility: | Nuclear Reactor |
| Location: | Urbana, Illinois |
| Date: | February 27, 2007 |
| Inspectors: | William Snell, Senior Health Physicist, Region III<br>Kevin Witt, Office of Nuclear Regulatory Research |
| Approved by: | Jamnes L. Cameron, Chief<br>Decommissioning Branch<br>Division of Nuclear Materials Safety |

Enclosure

## EXECUTIVE SUMMARY

**University of Illinois**
**Nuclear Reactor**
**NRC Inspection Report 050-00151/07-01(DNMS)**

These inspection activities included a routine inspection to evaluate current reactor activities and discuss planned decommissioning activities. During the inspection the inspectors toured the nuclear reactor facilities and examined licensee records and procedures.

Contamination Control and Monitoring

- The licensee's decommissioning radiation protection program was effective in controlling contamination and radioactive materials. Radiation postings and boundaries were observed to be adequate and appropriate. (Section 1.0)

Staffing and Audits

- The licensee's design change program was implemented as required and review and oversight functions required by the Technical Specifications were completed acceptably by the licensee. (Section 2.0)

## Report Details[1]

### 1.0 Contamination Control and Monitoring (69013)

1.1 Inspection Scope

The inspectors toured the facility to assess the radiation protection program and evaluate the licensee's postings and control of radioactive material and contamination. The inspectors reviewed the facility license and Technical Specifications for required surveillances. The inspectors also reviewed the calendar year 2006 Annual Report: Illinois Advanced TRIGA Reactor License No. R-115/Docket No. 50-151.

1.2 Observations and Findings

The licensee's activities were limited to routine maintenance and surveillances. Since the reactor had been permanently shut down and all reactor fuel removed, area dose rates throughout most parts of the reactor facility were close to background levels. A high activity radium-beryllium source, which is addressed by the campus license and regulated by the State of Illinois, was stored in an underground storage vault, while the licensee coordinated with the Department of Energy to remove the source. A gated, locked, and posted area contained radioactive sources and miscellaneous contaminated items and equipment in excess of 2 millirem per hour. The licensee had roped off and posted another area to control access to stored activated graphite. All boundaries and postings were appropriate for the existing radiological conditions.

With all the fuel removed, there were no radiological surveillances specifically required by either the license or the Technical Specifications. However, to meet the license requirement to comply with 10 CFR Part 20, the licensee conducted surveys that were reasonable under the circumstances. Specifically, the licensee performed various weekly, monthly and quarterly surveillances, including quarterly contamination surveys and radiation surveys within the facility, and kept one airborne radiation monitor in continuous operation. The licensee indicated that the surveillances had identified no significant safety concerns.

1.3 Conclusion

The licensee's decommissioning radiation protection program was effective in controlling contamination and radioactive materials. Radiation postings and boundaries were adequate and appropriate.

### 2.0 Staffing and Audits (IP 69013)

2.1 Inspection Scope

In order to verify that any modifications to the facility were consistent with 10 CFR 50.59 and to verify that the licensee had established and conducted reviews and audits as

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

required in Technical Specification (TS) Section 6.2, the inspector reviewed selected aspects of the following documents:

- Facility configuration and associated records,
- Procedural changes and the associated approvals,
- Annual Report: Illinois Advanced TRIGA Reactor License No. R-115/Docket No. 50-151, dated February 6, 2007 and February 6, 2006,
- Audit of Reactor Operations and Radiation Protection Activities, dated February 7, 2005, February 15, 2006, and February 17, 2007,
- Reactor Committee (RC) Meeting Minutes, dated July 26 and October 28, 2004, May 19 and November 1, 2005, June 20 and November 7, 2006, and
- Document entitled, "Authority and Responsibility of the RC," not dated.

2.2 Observations and Findings

The licensee had not initiated or completed any significant changes at the facility since the last inspection. Administrative controls were in place that required the appropriate review and approval of all changes prior to implementation. The Reactor Committee (RC) had approved all procedure changes for conducting the monthly and quarterly facility checks.

Based on the minutes of the last six RC meetings, the RC membership satisfied the TS requirements. The RC had semiannual meetings and a quorum was always present as required. The RC provided guidance, direction and oversight, and ensured the continued safe storage of the reactor.

An individual designated by the Reactor Administrator (RA) conducted annual audits of the operational checks, instrumentation, emergency preparedness, and the As-Low-As-Reasonably-Achievable (ALARA) and radiation protection programs, as required by TS 6.2.3. The safety reviews and audits, and the associated findings, were acceptably detailed and that the RA was supportive of the audits. The records of audit results did not identify any significant issues.

2.3 Conclusion

The licensee's design change program was implemented as required and review and oversight functions required by the Technical Specifications were completed acceptably by the licensee.

## 3.0 Exit Meeting Summary

The inspectors presented the inspection findings to licensee personnel at the conclusion of onsite inspection February 27, 2007. The licensee indicated that none of the information discussed was proprietary in nature.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

## PARTIAL LIST OF PERSONS CONTACTED

Licensee

*Richard Holm, Reactor Administrator
Dr. Barkley Jones, Reactor Committee Chair

*Persons present at the exit meeting on February 27, 2007.

## INSPECTION PROCEDURES USED

IP 69013 Research and Test Reactor Decommissioning

## ITEMS OPENED, CLOSED, AND DISCUSSED

Opened None

Closed None

Discussed None

## PARTIAL LIST OF DOCUMENTS REVIEWED

Licensee documents reviewed and utilized during the course of this inspection are specifically identified in the "Report Details" above.

## LIST OF ACRONYMS USED

| | |
|---|---|
| ALARA | As-Low-As-Reasonably-Achievable |
| CFR | Code of Federal Regulations |
| DCGL | Derived Concentration Guideline Levels |
| DWM | Division of Waste Management |
| NRC | Nuclear Regulatory Commission |
| RA | Reactor Administrator |
| RC | Reactor Committee |
| TS | Technical Specifications |