Nuclear Reactor Laboratory
University of Illinois at Urbana-Champaign
Department of Nuclear, Radiological and Plasma Engineering / College of Engineering

214 Nuclear Engineering Laboratory
103 South Goodwin Avenue
Urbana, IL 61801-2984

217-333-7755
217-333-0866 fax
r-holm@uiuc.edu

Reactor Administrator: Richard L. Holm

February 6, 2006
Docket No. 50-151

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, DC 20555

Dear Sir,

SUBJECT: ANNUAL REPORT: Illinois Advanced TRIGA Reactor
License No. R-115 / Docket No. 50-151

The following is written to comply with the requirements of section 6.8.d of the Technical Specifications and the conditions of 10CFR50.59. The outline of the report follows the numbered sequence of section 6.8.d of the Technical Specifications.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 6, 2006.

Sincerely,

Richard L. Holm
Reactor Administrator

James F. Stubbins, Head
Department of Nuclear, Plasma and Radiological Engineering

c: Nuclear Reactor Committee
American Nuclear Insurers
File

A020

ANNUAL REPORT
JANUARY 1, 2006-DECEMBER 31, 2006
ILLINOIS ADVANCED TRIGA
FACILITY LICENSE R-115

I. SUMMARY

The reactor was in a shutdown SAFSTOR status for all of 2006. Monitoring of the facility is through the use of weekly, monthly and quarterly surveillance checklists performed by the Reactor Administrator. Additional surveillances are performed at other intervals where appropriate. The checklists created for SAFSTOR have proven to be more than adequate to ensure that the facility is monitored safely.

A decommissioning plan was submitted in March of 2006.

II. UNSCHEDULED REACTOR SHUTDOWNS

Not applicable.

III. MAJOR PREVENTIVE AND CORRECTIVE MAINTENANCE HAVING SAFETY SIGNIFICANCE

No major maintenance was performed having safety significance.

IV. CONDITIONS UNDER SECTION 50.59 OF 10CFR50

No 50.59 reviews were performed.

V. RELEASE OF RADIOACTIVE MATERIAL

A. Gaseous Effluents

1) ^{41}Ar

No longer produced: reactor shutdown, defueled, and in SAFSTOR condition.

2) ^{3}H

The estimated total release of ^{3}H to the Reactor Building atmosphere (and consequently out the Exhaust Stack) from the evaporation of water in the Primary Tank (PT) was less than 25% of the allowable limit based on previous year's sampling and no further operation to generate a source term.

B. Liquid Effluent

1) Waste Water discharged to the municipal sanitary sewer system

Waste Water is collected in the Reactor Building Retention Tank. When the Tank becomes full it is pumped over to a Holdup Tank. The water passes through a coarse and a fine filter assembly on route to the Holdup Tank where it is then sampled. The water is discharged from the Holdup Tank into the municipal sanitary sewer system when the soluble activity results are satisfactory and it is verified that no insoluble activity is present. If insoluble activity is detected before the discharge then the contents of the Holdup Tank can be recirculated through a 0.4 micron process filter until the insoluble activity has been removed and it is verified that no insoluble activity is present.

There were no liquid effluent discharges in 2006.

VI. ENVIRONMENTAL SURVEYS

Continuous radiation monitoring utilizing Thermoluminescent Dosimeters (TLDs) supplied by a vendor (ICN Worldwide Dosimetry Service) was conducted at the Site Boundary and in the Surrounding Environs. The Lower Limit of Detection (LLD) for these TLDs = 10 mRem/Quarter).

A. Site Boundary

The site boundary is established at the Reactor Building Walls with extensions at the fence around the Cooling Towers and the perimeter of the roof over the Mechanical Equipment Room. This is also defined as the boundary between the Restricted and Unrestricted Areas. The average annual dose at this perimeter was 177 mRem with a range of 99 mRem to 521 mRem. However, pursuant to 10 CFR 20.1302 (b) (1) an Annual Site Boundary Dose Calculation for Members of the Public, based on Occupancy Time, was performed. The highest calculated dose at the site boundary for 2006 was 1.45 mRem for the Year. These calculations are maintained and updated in the files of the Reactor Health Physicist.

B. Surrounding Environs

A background TLD was deployed ~100 meters from the Reactor Building. The total annual dose recorded on this monitor was 88 mRem.

VII. PERSONNEL RADIATION EXPOSURE AND SURVEYS WITHIN THE FACILITY

A. Personnel Exposure

1) Whole Body

One individual was assigned dosimetry at the facility. The dosimetry was provided by ICN Worldwide Dosimetry Service, a National Voluntary Laboratory Accreditation Program (NVLAP) accredited Dosimetry Vendor.

The increased whole body/extremity exposure for 2006 was due to the handling/disassembly of the reactor RaBe source and campus RaBe sources in preparation for shipping.

Whole Body Exposure (mRem)	Number of Individuals
10 to 100	0
> 100 to 250	1
> 250	0
Total	0

ManRem Total: 0.154

2) Extremity Exposure

One individual was assigned dosimetry at the facility.

ManRem Total: 0.402

3) Skin Dose

There were no significant deviations between the Shallow Dose and Deep Dose reported by the vendor for any personnel.

4) Internal Exposure

There were no incidents or events that required investigation or assessment of internal exposure. Contamination levels are acceptably low and areas few (see B. below). There were no evolutions performed or events that occurred which caused, or could have caused, the presence of Airborne Radioactivity.

5) Visitor Exposures

All recorded exposures for Visitors were 0 mRem by Electronic Pocket Dosimeter (EPD).

B. Contamination Surveys

Smear surveys from various locations around the laboratory were taken on a quarterly basis. The removable contamination was determined by counting the smears on an Eberline BC-4 or RM-14/HP-210T Beta Counter, and/or a SAC-4 Scintillation Alpha Counter.

Routine surveys for Alpha Contamination were all < 100 dpm/100 cm^2.

Routine surveys for beta contamination were all < 1000 dpm/100cm^2.

VIII. REACTOR COMMITTEE

Dr. Barclay Jones, Professor of Nuclear Engineering continued as the chairman. The following members remained on the Committee: Mr. Daniel Hang (Professor Emeritus of Nuclear Engineering), Mr. David Scherer (Campus Radiation Safety Officer), Mr. Rich Holm (Reactor Administrator), Mr. Mark Kaczor (Reactor Health Physicist - Emeritus). Dr. Jonathan Nadler resigned from the committee.

The committee held 2 meetings during the calendar year. Major topics reviewed were: a) Reactor and Health Physics Surveillances; b) NRC Annual Report; c) Decommissioning plan; d) Reports on - Reactor Committee Audit of Operations, Annual Review of the Radiation Protection and ALARA Programs, and Operations and Health Physics Quarterly Reports.