UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report No. 50-160/82-01

Licensee: Georgia Institute of Technology
225 North Avenue
Atlanta, GA 30332

Facility Name: Georgia Tech Research Reactor (GTTR)

Docket No. 50-160

License No. R-97

Inspectors: A. K. Hardin — Date Signed: 7/26/82

C. W. Hehl — Date Signed: 7/27/82

Approved by: C. W. Burger, Section Chief, Division of Project and Resident Programs — Date Signed: 7/29/82

SUMMARY

Inspection on June 29 - July 2, 1982

Areas Inspected

This routine, unannounced inspection involved 34 inspector-hours on site in the areas of previous enforcement matters; previous unresolved items; inspector identified items; review and audit; organization, logs and records; requalification training; procedures, surveillance; and experiments.

Results

Of the nine areas inspected, one violation was found in one area (surveillance testing paragraph 5).

DETAILS

1. Persons Contacted

   Licensee Employees

   *J. Russell, Director, Nuclear Research Center
   *T. Stetson, Vice President for Research
   *R. Kirkland, Reactor Supervisor

   Other licensee employees contacted included reactor and senior reactor operators.

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summarized on July 2, 1982, with those persons indicated in paragraph 1 above. The licensee acknowledged the apparent item of noncompliance.

3. Licensee Action on Previous Inspection Findings

   a. (Closed) Unresolved Item (80-03-02) a review of Nuclear Safeguard Committee meeting minutes for the period March 3, 1981 thru May 13, 1982 indicate reviews are being conducted by the committee as required by Technical Specification 6.2.e. The item is closed.

   b. (Open) Unresolved Item (78-03-05) a licensee representative stated that there were approximately 130 drawings for the GTTR and that all drawings except two have been updated. The licensee stated the two drawings would be revised within six months. This item remains open.

   c. (Closed) Noncompliance (80-01-01) from discussion with a licensee representative and review of Nuclear Safeguards Committee Meeting Minutes, the inspector determined that audit requirements of the Technical Specification were being met. The item is closed.

   d. (Open) Noncompliance (80-01-03) the licensee has assembled a program for review of experiments which includes a QA program. The licensee committed to having the program in place by October 1982. The item is open.

   e. (Closed) Inspector Followup Item (80-01-13) the licensee has investigated and could not determine why short (2 inch) leads had been attached to the K-2 and K-3 relay contacts. The licensee stated and the inspector verified that the leads had been removed. The item is closed.

f. (Closed) Noncompliance (81-01-01) the inspector reviewed the licensee's surveillance test program. The commitments made by the licensee in their response of July 31, 1981 are being implemented. The item is closed.

g. (Closed) Noncompliance (81-01-02) a review of the surveillance test program and the Nuclear Safeguards Committee meeting minutes indicated that the Nuclear Safeguards Committee is reviewing surveillance test documents. The item is closed.

h. (Closed) Noncompliance (81-01-03) the licensee demonstrated to the inspector by means of surveillance test records and console log books, that all licensed operators had met the required reactivity manipulations. The item is closed.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Surveillance

The inspector examined records of various surveillance tests conducted during the period April 10, 1981 to June 29, 1982.

During the conduct of this review, the inspector determined that weekly channel checks of power trip channels and pico-ammeter channels, requiring comparison with heat balance data were not performed as required when the reactor was operated at a power of one Mw or above. The inspector identified the following three examples:

a. During the period of March 30 to April 29, 1982, the required channel checks were not performed, yet the reactor was operated at one Mw or above on April 14, 16, and 20, 1982.

b. During the period of May 10 to May 25, 1982, the required channel checks were not performed, yet the reactor was operated at one Mw or above on May 19, 20, and 24, 1982.

c. Similarly, during the period of May 30 to June 17, 1982, the required channel checks were not performed, yet the reactor was operated at one Mw or above on June 10 and 11, 1982.

These missed surveillances are a violation of Technical Specification 4.2.b. (82/01/04).

6. Procedures

The inspector reviewed a sampling of operating, maintenance and surveillance procedures to determine that the procedures met technical specification requirements and that they are technically adequate to accomplish their intended purpose.

During the conduct of the inspection, the licensee identified an item of noncompliance in that GTTR procedure No. 2000 requires a "stamp reading" be taken subsequent to a reactor startup, but that numerous examples exist where this requirement has not been met. The licensee has indicated that current method of implementation of this requirement is being reviewed; and that they are committed to meeting this requirement until a suitable alternative method of obtaining this data is found and the procedure revised. This is an open item (82-01-01).

A review of operator logs and discussions with the licensee revealed that on several occasions since GTTR's conversion to 5 Mw operation, certain required modifications were made to the flux trip units and the heavy water temperature and flow monitoring system in order that the reactor could operate in either Mode 1 or Mode 2. These modifications were made in accordance with the FSAR and through use of the instrument manufacturer's manuals, but without the benefit of a formally reviewed and approved procedure. The licensee has committed to generate such a procedure. This is an open item (82-01-02).

In conjunction with the review of GTTR procedural requirements associated with the violation identified in paragraph 5 above, the inspector identified a conflict between the weekly channel check delineated in Technical Specification 4.2.b and GTTR procedure No. 2015 which specifies that the subject channel check be performed every 30 days. The licensee acknowledged that this discrepancy does exist and that GTTR Procedure No. 2015 would be changed to reflect the weekly channel check requirement. This is an open item (82-01-03).

7. Review and Audit Functions

The Nuclear Safeguards Committee (NSC) minutes for the GTTR for the period March 3, 1981 thru May 13, 1982 were reviewed. Eight meetings were conducted during the period. The inspector verified that the composition of the committee, quorum requirements, meeting frequency, and subjects reviewed met the requirements of the GTTR Technical Specifications. Although no regulatory areas were involved, the inspector discussed two errors found while reviewing the minutes. These were: no statement in the minutes dated June 29, 1981 regarding whether a member was present or absent, and on May 13, 1982 an alternate was listed as a member. Neither of the above items affected quorum requirements.

8. Reactor Experiments

The inspector reviewed the title listing for 32 experiments conducted or planned for January 1 to June 30, 1982 and 46 experiments conducted during calendar year 1981. Most of the experiments conducted are relatively routine and present little hazard to the reactor, the reactor personnel or to the public. One experiment, the irradiation of argon and xenon gas, was reviewed in more detail. The Nuclear Safeguards Committee had required a written procedure prior to performing the test. The inspector verified by

record review that a procedure had been prepared, presented to and approved by the committee prior to the test being run.

In the May 13, 1982 minutes of the NSC meeting a discussion of an experiment involving neutron radiography of explosives up to 5kg of TNT equivalent was discussed. The licensee has recognized the requirement to obtain a license amendment to authorized an irradiation of this type.

As discussed in a previously identified citation (80-01-03), the licensees QA program as it relates to reactor experiments is not adequate. In IE report 160/81-01, the licensee's on-going program for the development of QA for experiments was reviewed without comment and left as an open item. On the current inspection, the program was again reviewed by the inspector. The program, as developed by the licensee, appears to cover the areas of concern. The licensee has committed to having the system for adequately documenting verification of the significant safety aspects of all reactor experiments by October 31, 1982.

9. Operator Requalification

The inspector reviewed elements of the Licensed Operator Requalification Program. Observations regarding compliance with reactivity manipulations were made for six licensed operators. By Surveillance Program records in combination with records of reactor operations console log book entries, the licensee was able to demonstrate that each licensed operator had completed five reactivity manipulations during CY 1981 as required by the Requalification Program. The content of RO and SRO examinations were reviewed including sections of completed examinations. The licensee had not graded the 1982 exams at the time of the inspection.

In IE report Number 50-160/81-03, the licensee had been cited for failure to perform reactivity manipulations and do performance and competency evaluations. On the current inspection, the licensee's committments made in response to the previous citation were verified to have been completed.