



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

Report No. 50-124/82-01

Licensee: Virginia Polytechnic Institute
 and State University
 Blacksburg, VA 24060

Facility Name: Nuclear Research Reactor

Docket No. 50-124

License No. R-62

Inspectors:	<u>A. K. Hardin</u>	<u>12/7/82</u>
	A. K. Hardin	Date Signed
	<u>C. W. Hehl</u>	<u>12/8/82</u>
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Approved by:	<u>P. R. Bemis</u>	<u>12/14/82</u>
	P. R. Bemis, Section Chief, Division of Project and Resident Programs	Date Signed

SUMMARY

Inspection on November 17-19, 1982

Areas Inspected

This routine, unannounced inspection involved 32 inspector-hours on site in the areas of review and audit, organization, logs and records, requalification training, procedures, surveillances, experiments and previous unresolved items.

Results

Of the seven areas inspected, no violations or deviations were identified in six areas; two violations were found in one area (review and audit, paragraphs 7 and procedures, paragraph 9).

DETAILS

1. Persons Contacted

Licensee Employees

- *A. K. Furr, Director, Safety & Health Program
- *T. F. Parkinson, Director, Nuclear Reactor Laboratory
- *J. B. Jones, Head, Mechanical Engineering Department
- *D. C. Smiley, Campus Radiation Safety Officer
- *R. A. Teeke1, Chairman, Radiation Safety Committee
- *T. S. Smithwick, Reactor Radiation Safety Officers
- *P. D. Holian, Reactor Supervisor
- *E. R. Ellis, Senior Reactor Operator
- *D. R. Krause, Senior Reactor Operator

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on November 19, 1982, with those persons indicated in paragraph 1 above. The open items and areas of noncompliance were discussed with, and acknowledged by the licensee.

3. Licensee Action on Previous Enforcement Matters

- A. (Closed) Unresolved Item (50-124/79-02-05). This unresolved item dealt with manual withdrawal of control rods during performance of the rod drop time measurements. The item was reviewed in August 1981, in IE Inspection Report 81-02, and was left unresolved pending completion of a commitment by the licensee to document the procedure to NRR. As of the current inspection, no action has been taken by the licensee. The item is closed as an unresolved item and changed to noncompliance as discussed in paragraph 9.
- B. (Closed) Noncompliance (50-124/81-02-02). On August 17, 1982, the licensee was cited for noncompliance with VPI procedure VI.6, paragraph II.B. The licensee had revised nuclear reactor procedure II.2 without completing the procedurally required reviews and approvals. On August 25, 1981, the licensee responded, stating their corrective and preventive measures. The inspector verified that the procedure change had been reviewed by the Reactor Safety Committee and that preventative measures, committed to in the response, had been implemented.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Organization, Logs and Records

a. Organization

The inspector reviewed the organizational changes which have occurred with respect to the VPI Radiation Safety Committee and the formation of a Reactor Safety Committee. The Radiation Safety Committee, which is assigned specific review and audit functions by the facility Technical Specifications, has delegated these specific functions of review and audit to the Reactor Safety Committee, with the Radiation Safety Committee retaining overall review authority. NRC Region II was notified of this organizational change by letter in 1979. The VPI Radiation Safety Manual, revision dated September 22, 1980, supports this present organizational structure and delineates the responsibilities assigned the Reactor Safety Committee, but the listing of Reactor Safety Committee responsibilities falls short of the responsibilities delineated in Technical Specification 8.2. An audit by the inspector of the review and approval activities of Reactor Safety Committee has shown that with exception of one area (see paragraph 7 of this report), the Reactor Safety Committee has met the requirements of Technical Specifications. The inspector's concerns were discussed during the exit interview and the licensee committed to reviewing this area and to bringing the Radiation Safety Manual listing of Reactor Safety Committee responsibilities in line with those delineated in the Technical Specifications. The licensee also committed to reviewing the need for an administrative Technical Specification change in order that the TS more closely reflect the present organization. This is an open item. (50-124/82-01-01)

b. Logs and Records

The inspector reviewed the console logs and found the records complete and traceable. The inspector had no further questions.

6. Requalification Program

The inspector reviewed the requalification program for 1981 and 1982. The examinations, the examined individuals answers, Reactor Supervisor observations and evaluations, and documentation of required reactor control manipulations were satisfactory. Records of the required monthly meetings of qualified operators were reviewed for July 1981 to October 1982 in response to a previous open item in this area. The monthly meeting minutes during the late 1981 and early 1982 contained satisfactory detail but recent minutes have deteriorated in quality. The minutes for the April 1982 meeting was missing. This item was discussed during the exit interview. The licensee stated that the decline in the quality of the minutes probably resulted from the misunderstanding of the requirement by the newly assigned person in charge of this area, and that an increased effort would be expanded in this area. Previously identified open item (50-124/79-02-09) remains open.

7. Review and Audit

The records of Reactor Safety Committee (RSC) meetings for April 1981 through August 1982 were reviewed. The inspector verified that the meetings were conducted in accordance with Technical Specification requirements regarding quorum, membership, and meeting frequency. The RSC reviewed procedure changes, unusual incidents and occurrences, recent modifications and maintenance to the coolant systems and recent changes in the facility staff. A review of the RSC audit functions disclosed the following deficiency.

The Radiation Safety Committee is required by Technical Specification 8.2.2 to review and approve conformity of operations with the Technical Specifications. The VPI Radiation Safety Manual, page 1-4, states that the Reactor Safety Committee shall be responsible for assuring that an annual audit of reactor operations, security, SNM inventory and safeguards are performed. For 1981, an annual audit of reactor operations was not documented, therefore no documentation of the Radiation Safety Committee's required review of the conformity of operations with Technical Specifications was available. This is a violation. (50-124/82-01-02)

8. Plant Tour

A tour of the facility was conducted on November 17, 1982 with the reactor shutdown. Housekeeping in the reactor room and the control room were satisfactory. The inspector noted that portable radiation monitoring equipment in the control room and outside the reactor room displayed current calibration stickers. Previous open item (50-124/81-02-01) is considered closed. The inspector identified no discrepancies in this area.

9. Procedures

The VPI Procedure manual was reviewed. Six major categories of procedures are included in the manual. The inspector observed through a review of Reactor Safety Committee meeting minutes and a review of procedure issue dates that procedures are routinely reviewed for accuracy and applicability, and that the content and scope of the procedures was adequate to control safety related operations.

During an inspection conducted January 30 through February 2, 1979, documented in IE Report 79-02, an unresolved item was established regarding procedure IV. 15, the rod drop test procedure. The procedure permitted manual withdrawal of control rods for testing purposes. The procedure was reviewed and approved by the Reactor Safety Committee. The basis for manual withdrawal of the rods for this test had not been established but was to be included in new proposed Technical Specifications as a part of a license renewal application. As of the current inspection, the licensee had not revised the procedure, nor established a basis for the manual rod withdrawal.

Technical Specification 6.2.2 states that the safety rods and shim rods shall each have a reactivity worth of approximately 0.55 percent delta k/k and further that the maximum reactivity input rate of the safety and shim rods shall not exceed 0.02 percent delta k/k/second. Compliance with this Technical Specification during manual withdrawal of a control rod can not be assured. At the exit interview, the inspector discussed the above findings and the basis for the concerns. The inspector stated that Technical Specification 8.2.5 requires the Radiation Safety Committee to review changes to procedures to determine if they constitute an unreviewed safety question. Procedure IV.15 which allows the manual rod withdrawal was approved on March 5, 1979, however, there was no evidence that the effect of this procedure on the margin of safety in Technical Specification 6.2.2 was evaluated. Based on these findings the event appears to represent noncompliance with Technical Specification 8.2.5. (50-124/82-01-03)

10. Surveillance

Several surveillance test procedures were examined for technical content and adequacy. With the exception of Procedure IV.15, discussed in paragraph 9, the procedures and related administrative requirements were adequate. Surveillance requirements were being accomplished on schedule. No areas of noncompliance or deviation were identified.

11. Experiments

The records of "Active Irradiation Requests", "Experiment Activation Plans" and procedures related to routine experiments were reviewed. No items of noncompliance were identified. However, the criteria by which the licensee measures and determines whether an irradiation is a new experiment was not considered sufficiently inclusive by the inspector. The irradiation request form used by the licensee requires review that the experiment is not flammable, corrosive, or explosive, and does not contain special nuclear material. A limit of not more than one curie or a dose rate of not more than 2 REM at 10 cm is also imposed. If the irradiation request meets the above requirements, the experiment is defined as not a new experiment. The irradiation request form does not require evaluation of reactivity effects or experimental failures which might cause rod or fuel problems. The potential for overlooking a problem with an experiment was discussed at the exit interview. The licensee agreed to review their irradiation request procedure and made appropriate changes. This was left as an open item. (50-124/82-01-04)