

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-73/81-03
Docket No. 50-73 License No. R-33 Safeguards Group _____
Licensee: General Electric Company
Vallecitos Nuclear Center
Pleasanton, California 94566
Facility Name: Nuclear Test Reactor (NTR)
Inspection at: Vallecitos Nuclear Center
Inspection conducted: July 21 and 22, 1981

Inspectors: G. B. Zwetzig August 7, 1981
G. B. Zwetzig, Reactor Inspector Date Signed

J. W. Hornor August 10, 1981
J. W. Hornor, Reactor Inspector Date Signed

Approved by: Tolbert Young Jr. 8-11-81
Tolbert Young, Chief, Reactor Projects Section 2 Date Signed
Reactor Operations Projects Branch

Summary:

Inspection on July 21 and 23, 1981 (Report No. 50-73/81-03)

Areas Inspected: A routine, unannounced inspection of facility organization, logs and records; review and audit functions; operator requalification training; and facility procedures, surveillance, and experiments. The inspection involved 28 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

- *Mr. R. W. Darmitzel, Manager, Irradiation Processing Products Section
- *Mr. E. Strain, Engineer, Nuclear Safety Technology
- *Mr. C. Leighty, Manager, Nuclear Test Reactor (NTR)
- Mr. B. Johnson, Operations Supervisor, Nuclear Test Reactor
- Mr. S. R. Thompson, Senior Reactor Operator
- Mr. D. J. Morena, Reactor Operator

*Denotes those attending exit meeting.

2. Organization, Logs, and Records

The inspector determined through personal communications, observations, and review of the 1980 NTR Annual Report that the facility organization was consistent with technical specifications requirements. In addition, based on the inspector's observations, it appeared that the minimum staffing requirements were met or exceeded.

The inspector examined, on a sampling basis, the following logs covering the periods listed:

- Console Logs - January 2, 1980 to April 15, 1981
- Control Room Data Sheets - January 2, 1980 to April 15, 1981
- Daily Operational Check Sheets - January 2, 1980 to April 15, 1981
- Monthly Operations Check Sheets - January 2, 1980 to July 9, 1981
- Preventive Maintenance (PM) Sheets - January 2, 1980 to April 15, 1981
(also includes corrective maintenance)
- Equipment Service Log - January 2, 1980 to April 16, 1981
- Scram Reports - January 2, 1980 to April 16, 1981

As part of the above review, the inspector specifically verified conformance with Technical Specification requirements 2.1, 3.1, and 3.2.

In addition, the following recorder charts were reviewed for the following dates:

- Log N Recorder - April 8 to 14, 1981 and September 18 to 22, 1980
- Primary Flow Recorder - May 6 to August 8, 1980

No items of noncompliance or deviations were identified.

3. Review and Audit

Based on discussions with a senior member of the licensee's audit group, the inspector determined that there had been no significant

changes in the membership and qualifications of the review and audit group since the previous inspection (Inspection Report 50-73/80-02).

The inspector verified that the five facility changes reported by the licensee in the Facility Annual Report for calendar year 1980 had been properly reviewed and approved as required by facility procedures.

The inspector also performed an overall review of the change involving relocation of the primary coolant flow orifice (CA NTR-144). This review indicated that an appropriate safety analysis had been performed, that suitable procedures and specifications had been developed for the modification, that appropriate post-modification testing had been specified and conservative acceptance criteria had been established. The review also indicated that the acceptance criteria for the post-modification testing had not been satisfied. As a result, recalibration of the orifice was required. The inspector also determined that the change did not affect any facility procedures because the new calibration constant was not used directly in a procedure - rather, it was posted on the console flow meter and used to convert indicated flow percentage to pounds per hour. The data supporting the new calibration constant, however, was included in the change documentation. The inspector also determined that facility drawings had been updated to reflect the modification.

The inspector verified that audits had been performed by the licensee-designated audit group. During 1980 and early 1981, this included audits of conformance with technical specifications and audits of nuclear criticality control. Most of the auditor's comments had been satisfactorily resolved or were in the process of being resolved.

No items of noncompliance or deviations were identified.

4. Licensed Operator Requalification Program

Based on discussions, observations, and review of records, the inspector verified that all licensed operators at the facility were actively engaged as operators or senior operators.

The inspector examined the requalification records for the various operators and verified that the files included the most recent (and current) written examination, the results of observation and evaluation of licensed operators by supervision, the documentation of required manipulations, and a signature sheet indicating review of emergency procedures. No requalification lectures were scheduled because none of the operator's scores required conduct of such lectures.

The inspector also reviewed the written examination most recently administered to the operators and the examination which preceded it. The inspector determined that different examinations were utilized and that both examinations appeared to contain appropriate questions.

No items of noncompliance or deviations were identified.

5. Reactor Procedures

The inspector reviewed Facility Procedure 9.25, "Standard Operating Procedure," and determined that methods for changing procedures and the approvals required for such changes were clearly established and appeared to conform to technical specification's requirements.

The inspector also reviewed Standard Operating Procedures (SOPs) 1.1, "Primary Cooling Systems," 6.3, "Normal Reactor Operation," and 6.5, Rev. 1, "Heat Balance Calculation," for technical content and, except as noted below, concluded that all appeared to be technically adequate. The exception relates to the fact that SOP 1.1, which includes engineering drawings of the primary cooling system, had not been updated to include the latest revised drawings showing the new location of the primary coolant flow orifice. This matter was brought to the attention of the facility manager who immediately initiated action to correct this condition.

The inspector observed an operator while he was performing SOP 9.4, "Daily Operation Check Sheet." This procedure defines the checks made both in the reactor cell and in the control room daily prior to startup. The operator's activities appeared to conform to the procedure requirements.

The inspector also examined, on a sampling basis, the procedures provided in the control room for the use of the operators. Based on this examination, and comparison with the original copies, it appeared that the control room copies included the latest revisions and that the procedures had been properly approved. It was noted, however, that due to the licensee's method of updating procedures, it was difficult to follow the pedigree of procedures that contained several revisions. The licensee was advised of this problem.

No items of noncompliance or deviations were identified.

6. Reactor Surveillance

Facility records were examined by the inspector to determine the status of compliance with Technical Specifications Surveillance Requirements, 10.1, 10.2, and 10.3.

Compliance with surveillance requirement 10.1 was satisfied by reviewing, on a sampling basis, the Daily Operational Check Sheets for the period January 2, 1980 to April 15, 1981, and by accompanying the reactor operators during a reactor startup. The specific items observed and/or recorded were primary coolant conductivity, radiation levels in the reactor cell, area contamination surveys, primary system venting, poison sheet status, cell negative air pressure, instrumentation checks including trip setpoints and scram circuits, radiation instruments availability, and logging of required data. Based on this review, it appeared that all surveillances required by 10.1 were satisfactorily completed.

Technical Specification 10.2 requires that Safety Rod scram times be measured at least four (4) times per year at three month intervals. Conformance with this requirement was verified by the inspector by examining the Monthly Operation Check Sheets for the period from January 2, 1980 to April 15, 1981. It was also noted that the measured rod insertion times were all less than the acceptance criterion of 270 milliseconds, with the longest being 253 milliseconds. These latter results satisfied Technical Specification 6.2.1.

Technical Specification 10.3 requires that the direction of air flow be checked while the ventilation system is operating, once each six months to assure that the air flow is toward the reactor cell. The air flow direction is determined by measuring the pressure difference between the control room and the reactor cell. This is done daily and the results are recorded on the NTR Daily Operational Check Sheets. These sheets were reviewed for the period from January 2, 1980 to April 15, 1981, and the pressure difference was never less than 0.5 inches of water. This verifies compliance with Technical Specification requirement 2.1 on pressure difference, and the daily measurement satisfies (exceeds) the surveillance requirement of 10.3.

The inspector selected two limiting conditions for operation which do not have a surveillance frequency stated in the technical specifications and investigated if and how these conditions had been met. With regard to maintaining the core tank full of water (Technical Specification 3.2), the inspector determined that there is a low water level alarm which is checked monthly. In addition, the inspector examined the Monthly Operations Check Sheets for the period from January 2, 1980 to July 9, 1981, and verified that the recorded water level was always above the alarm point. Since the low water level alarm point is in excess of two feet above the core tank, it appears that this limiting condition was satisfied during the interval noted above.

Regarding Technical Specification 4.2, which imposes the conditions that the temperature coefficient of the coolant be negative above 124^oF, this will only be affected if there is a change in the core geometry, fuel, or moderator. Since examination of the Console Logs (para. 2) did not reveal any such changes were made, the inspector concluded that this condition continued to be met.

No items of noncompliance or deviations were identified.

7. Reactor Experiments

The inspector reviewed facility SOP 9.30, "Experiment Type Approval." This SOP sets forth the steps to be followed and factors to be considered in determining the acceptability of a given type of experiment or irradiation which is expected to be performed on a regular basis. Based on his review, the inspector concluded that the procedure appeared technically and administratively adequate.

The inspector also reviewed experiment procedure CA NTR-150, "Neutrography of Explosives in the North Room (MSM)." The review examined whether the experiment had received the required approvals, had been reviewed to determine that it did not create an unreviewed safety question, potential hazards had been identified, reactivity effects had been considered as appropriate, and radiation protection measures were specified as appropriate. Based on this review, the inspector concluded that this procedure satisfied regulatory requirements.

No items of noncompliance or deviations were identified.

8. Exit Meeting

The inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on July 22, 1981. The inspector summarized the scope and findings of the inspection.