

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-27/82-03

Docket No. 50-27 License No. R-76 Safeguards Group _____

Licensee: Washington State University

Pullman, Washington 99163

Facility Name: Nuclear Radiation Center

Inspection at: Washington State University, Pullman, Washington

Inspection conducted: November 8-10, 1982

Inspectors: *R. T. Dodds* 11/23/82
A. D. Johnson, Enforcement Director Date Signed

R. J. Dodd 11/23/82
A. D. Toth, Reactor Inspector Date Signed

Approved by: *R. T. Dodds* 11/23/82
R. T. Dodds, Chief, Reactor Projects Section I Date Signed

Summary:

Inspection November 8-10, 1982 (Report No. 50-27/82-03):

Areas Inspected: Routine, unannounced inspection of organization, logs, records, reviews and audits, requalification training, procedures, surveillance, and experiments. The inspection involved 36 inspection hours on-site by two NRC Region V inspectors.

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Washington State University, Nuclear Radiation Center

- *W. Wilson, Associate Director
- *J. Neidiger, Reactor Supervisor
- D. Rosenberg, Reactor Technician
- D. Lempke, Technical Assistant

*Denotes personnel present at the exit management meeting.

2. General

The facility is a modified TRIGA reactor. An NRC Safety Evaluation Report was issued May 1982. An amendment to the facility operating license was issued by NRC on August 11, 1982, including revised technical specifications.

3. Organization, Logs and Records

The inspectors reviewed current staffing, operating organization structure, operating and maintenance logs, two recorder charts (linear power and fuel temperature), and two detailed equipment maintenance files (fuel temperature and fast scram calibration). These matters were considered with respect to requirements of the technical specifications and the licensee annual reports to NRC for 1981-1982.

No items of noncompliance were identified.

4. Review and Audit

The inspectors reviewed the records of the reactor safeguards committee meetings and records of experiments conducted at the facility. Discussions with personnel and review of documents indicated that no design changes were involved which had not been addressed in the Safety Evaluation Report. These matters were considered with respect to requirements of the technical specifications and the annual report to NRC.

5. Requalification Training

The inspectors interviewed the personnel associated with operating the reactor and reviewed related operating and training records. These included review and discussion of examinations, manipulation of controls, continuity of responsible activities, attendance at training sessions, supervisor reviews, familiarity with facility changes, and reviews of emergency procedures. These matters were considered with respect to requirements of the technical specifications and the licensee's requalification plan.

No items of noncompliance were identified.

6. Procedures

The inspectors reviewed operating and administrative procedures (SOP-4, 8, 10) relative to definition of responsibilities, methods of changing and adherence to procedures. Operating procedures for test-pulsing of the reactor (SOP-4, 5, 14) were reviewed for technical adequacy (SOP-4, 5, 14), and were verified by walk-through and direct witnessing. Procedures were checked for proper revision, approvals, and use by the operators. These matters were considered relative to technical specification requirements.

No items of noncompliance were identified.

7. Surveillance

The inspectors selected seventeen parameters from the technical specifications and verified implementation at the prescribed frequency. This included review of operating and maintenance procedures and observation and review of logs and chart recorder records. The parameters considered included:

- a. Three Safety Limits - Technical Specifications 4.2.(1), .(2), and .(3).
- b. Six Limiting Conditions for Operation - Technical Specifications 3.6.1; 4.3.1.(1), .(3), .(4), .(5); 4.3.3; and 4.3.4.
- c. Two Primary Coolant Conditions - Technical Specifications 4.5.(1) and .(2).
- d. Four Design Criteria - Technical Specifications 5.2.(2); 5.5; 5.6.(3); and 5.7.

Related reactor operating procedures included SOP-4, 5, 7, 15 and 17, with the principal operational procedure being SOP-5. In some cases the operating procedures had not been updated to include additional requirements defined in the recently issued technical specifications. Procedure revisions were in-progress, but had not yet been completed and approved by the safeguards review board.

The licensee representative stated that the procedures revisions would be completed by January 1. This would include a specific review of the facility procedures to assure that all requirements of the recently issued amended technical specifications have been incorporated into the appropriate procedures.

No items of noncompliance were identified.

8. Experiments

The inspectors examined the licensee's annual reports, experiment logs, and experiment/irradiation evaluation reports. This included consideration of review and approvals, compliance with safety analysis report limitations, potential hazards, reactivity effects (generally, irradiations were with less than a penny in reactivity), and inventory control of the materials.

During routine irradiation activity on November 10, the inspectors observed loading of specimens into rotating specimen holders. Also noted were a rabbit system with lockout/enable controls at the reactor console and a TV monitor of the receiving glovebox (hood) at the console.

No safety hazards were identified. Proper control of radiation/contamination and monitoring activities was observed.

No items of noncompliance were identified.

9. Records Examined

The inspectors examined the following specific records relative to the above matters:

Annual Reports:

July 1, 1980 - June 30, 1981
July 1, 1981 - June 30, 1982

Preventive Maintenance Checklists:

January 1, 1981 - October 30, 1982

Reactor Startup Checkoff:

January 1, 1981 - October 30, 1982

Control Element Calibration Log:

December 1980 - July 30, 1982

Control Element Inspection Log:

July 1, 1981 - July 1, 1982

Core Change Log:

January 1, 1980 (Core 31A)

Core Reactivity Parameters:

January 1, 1981 - October 30, 1982

Maintenance Log:

January 1, 1981 - October 30, 1982

Irradiation Request Forms:
January 1, 1981 - October 30, 1982

Scram Summary Log:
January 1, 1981 - October 30, 1982

Pulsing Summary Log:
January 1, 1981 - October 30, 1982

Reactor Operations Summary:
January 1, 1981 - October 30, 1982

Operator Requalification Records:
1981 and 1982

Specific Maintenance Logs:
Fuel Temperature Calibration
Fast Scram Calibration

Calculation Sheet for Fuel Rack K_{eff} :
2 x 9 array and 2 x 12 array

10. Plant Tour

Shortly after arrival at the site, the inspectors toured the facility with a radiation monitor, assessing the radiation levels at the various areas of storage, operations, glove boxes, and beam ports.

No items of noncompliance were identified.

11. Management Meeting

At the conclusion of the inspection the inspectors met with the Associate Director and Reactor Supervisor and discussed the inspection findings as described in the body of the report.