APPENDIX A

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Report: 50-59/84-01

Docket: 50-59 License: R-23

Licensee: Texas A&M University (TAMU)
College Station, Texas

Facility Name: AGN-201M Reactor (5 W)

Inspection Conducted: December 6-7, 1984

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W. A. Crossman, U. S. Nuclear Regulatory Commission, Region IV — Date

Inspection Summary

Inspection on December 6-7, 1984 (Report 50-59/84-01)
Routine, unannounced inspection of: (1) organization, logs, and records; (2) reviews and audits; (3) requalification training; (4) procedures; (5) surveillance activities; (6) experiments; (7) fuel handling activities; (8) radiation control; (9) radwaste management; (10) emergency planning; (11) physical security; and (12) nuclear materials safeguards. The inspection involved 20 inspector-hours onsite by two NRC contract inspectors, and 2 inspector-hours onsite by one NRC inspector.

Results: No items of noncompliance or deviations were identified during this inspection.

DETAILS

1. Persons Contacted

*C. A. Erdman, Head, Department of Nuclear Engineering
*D. C. Carpenter, Reactor Supervisor and SRO
G. A. Schlapper, Professor, Department of Nuclear Engineering
J. E. Simet, Senior Health Physicist
*F. D. Jennings, Chairman, Reactor Safety Board

*Indicates those present at the exit interview.

2. General

This inspection, which began at 8:30 a.m. on December 6, 1984, was conducted to examine the overall program at the Texas A&M University (TAMU) AGN-201M reactor. The facility was toured shortly after arrival, and the conditions of the facility were found to be acceptable.

During the period from June 1, 1982, through May 31, 1983, the reactor was operated for a total of 55 W-h,including 110 reactor startups. During the period from June 1, 1983, through May 31, 1984, the reactor was operated for about 54 W-h, including 123 startups. The reactor was operated about 10 times between June 1 and September 14, 1984, and has not be operated since that date.

The AGN-210M reactor laboratory is being rearranged to better use teaching space. The large Nuclear Engineering Laboratory is being divided into two separate rooms by a concrete block wall, and the reactor control console is being moved into one corner of the new reactor room. A shielding wall of solid concrete blocks is being constructed around the control console, and additional shielding is being placed around the base of the reactor to reduce neutron scatter in the reactor room.

The reactor has not been operated in this new spatial configuration; thus, radiation levels in the control console area and in the adjacent class room area are unknown. A detailed radiation survey should be conducted as soon as the reactor is operational. This is an open item (50-59/8404-01).

3. Licensee Action of Previous Inspection Findings

a. (Closed) Open Item 59/8201-01

The surveillance test records of 25 randomly selected tests performed during the past 30 months were examined in depth. All requirements were met and recorded. Required maintenance of components involved in the systems being tested also was reviewed for documentation and reverification of operational performance. This closes open item 8201-01.

b. (Closed) Open Item 59/8201-02

The safety and control rod interlock verification was added to the pre-startup checklist, effectively assuring that the Technical Specification (3.2) requirement was met. This closes open item 8201-02.

c. (Closed) Open Item 59/8201-03

The requalification program has been modified to include quarterly reactor manipulations, examinations, and lectures that include the theory and principles of reactor operations, general and specific plant operating characteristics, instrumentation and control systems, normal and abnormal systems and procedures, radiation control and safety, and Technical Specification requirements. This closes open item 8201-03.

4. Organization, Logs, and Records

The facility organization was reviewed and verified to be consistent with the Technical Specifications. The minimum staffing requirements were verified to be present during reactor operation and fuel handling operations.

The reactor logs and records were reviewed to verify that:

a. Required entries were made

b. Significant problems or incidents were documented

c. The facility was being maintained properly

d. Records were available for inspection

No items of noncompliance or deviations were identified.

5. Reviews and Audits

The licensee's review and audit program records were examined by the inspectors to verify the following.

a. Reviews of facility changes, operating and maintenance procedures, design changes, and unreviewed experiments had been conducted by a safety review committee as required by the Technical Specifications.

b. The review committee and/or subcommittees were composed of qualified members, and quorum and frequency of meeting requirements had been met.

c. Required safety audits had been conducted in accordance with Technical Specifications requirements, and any identified problems were resolved.

Technical Specification 6.4.3 requires quarterly audits of the AGN-201M operations. It was noted that only three audits were conducted in 1982 and again during 1983. The licensee noted these omissions by letter to the Reactor Safety Board, and an audit was conducted during each calendar quarter in 1984. Thus, this problem appears to be corrected.

No items of noncompliance or deviations were identified.

6. Requalification Training

The inspectors reviewed procedures, logs, and training records. The requalification program was found to be in conformance with regulatory requirements and licensee commitments. The written examinations and reexaminations (when required) administered to the operators and the records documenting the "hands-on" experience for each operator during the three requalification periods since the last overall inspection (June 1982) were reviewed. The written examinations and reexaminations covered the subject material thoroughly and in adequate depth.

No items of noncompliance or deviations were identified.

7. Procedures

The inspectors reviewed the licensee's procedures to determine that procedures were issued, reviewed, changed or updates, and approved in accordance with Technical Specifications requirements. The single operating procedure was revised during October 1983.

This review verified that:

a. Procedure content was adequate to safely operate and maintain the facility

b. Responsibilities were defined clearly

c. Required checklists and forms were used

The inspectors determined that the required procedures were available and that the contents of the procedures were adequate.

No items of noncompliance or deviation were identified.

8. Surveillance Activities

The inspectors reviewed surveillance records and had discussions with appropriate operations personnel. The licensee's surveillance program was found to be adequate, well implemented, and conducted in accordance with the Technical Specifications. Procedures available for surveillance activities are adequate for performance of the required tests.

A new revised reactor maintenance schedule was approved by the Reactor Safety Board (RSB) and implemented by the AGN facility. The new schedule was implemented to better reflect the Technical Specification limits and to facilitate the surveillance audits.

The shutdown maintenance log for the past 30 months was reviewed. All maintenance activities were performed and documented in accordance with regulatory requirements and procedural commitments.

No items of noncompliance or deviations were identified in this section of the inspection.

9. Experiments

The inspector verified the following by reviewing experiment records and other reactor logs.

a. Experiments were conducted using approved procedures.

b. New experiments or changes in experiments were reviewed properly and approved.

c. The experiments did not involve an unreviewed safety question.

d. Experiments involving potential hazards or reactivity changes were identified in the procedures.

e. Reactivity limits were not or could not have been exceeded during the experiment.

A total of 10 experiments using the TAMU AGN-201M reactor were approved in 1976. These experiments have been reviewed, but no changes have been made since that date.

No items of noncompliance or deviations were identified.

10. Fuel Handling Activities

The facility fuel handling program was reviewed by the inspectors. The review included verifying approved procedures for fuel handling and their technical adequacy in the areas of radiation protection, criticality

safety, Technical Specifications, and security plan requirements. The inspectors determined (by records review and discussions with personnel) that fuel-handling operations were carried out in conformance with the proper procedures. The only fuel handling involved the inspection of the uranium-impregnated polyethylene disks.

No items of noncompliance or deviations were identified.

11. Radiation Control

The NRC inspectors reviewed records, interviewed personnel, and made observations to verify that radiation controls were being carried out in accordance with the license and NRC regulations. The areas covered were:

a. Posting and labeling of areas and radioactive materials

b. Calibration of radiation-detection instruments

c. Required periodic radiation and contamination surveys

d. Exposure records of personnel

e. Posted areas of the facility

f. Personnel training

No items of noncompliance or deviations were identified.

12. Radwaste Management

This facility generates no radioactive waste. The only samples irradiated are high purity metal foils for flux mapping studies. These slightly activated samples are allowed to decay and then are reused for additional studies.

No items of noncompliance or deviations were identified.

13. Emergancy Planning

The licensee submitted the emergency plan for the TAMU AGN-201M reactor by letter dated October 28, 1982. This plan was approved by the Commission on June 25, 1983. The licensee had implemented the approved plan fully by October 13, 1983 (within the 120-day time limit). The emergency plan was updated on October 8, 1984, to reflect the new location of the reactor control console.

The inspectors determined that commitments made in the plan, such as an annual review and update, annual drills, procedures, training, emergency equipment, and testing of alarms, had been conducted.

No items of noncompliance or deviations were identified.

13. Physical Security

The NRC inspectors reviewed the implementation of the licensee's physical security program through visual examination, review of records, and discussions with appropriate facility personnel. The review indicated that the physical security plan was well implemented, responsibilities and response requirements were defined clearly and understood, and appropriate test procedures were being used.

The security plan was revised (updated September 24, 1984) to reflect the move of the reactor control console.

No items of noncompliance or deviations were identified.

15. Nuclear Materials Safeguards

The inspectors reviewed the accountability procedures and practices records and materials status reports for the past 3 years. The procedures, practices, and records were found to be well organized, complete, and in conformance with regulatory requirements and were found to provide adequate nuclear materials accountability and security. Material status reports were found to be complete and accurate and were submitted as required.

No items of noncompliance or deviations were identified.

16. Open Items

Open items are matters discussed during the course of the inspection that will be reviewed during future inspections to determine if further NRC action is appropriate. During the course of this inspection, one new open item was identified.

Number	Title	Paragraph
8401-01	Radiation levels in new control console area and the adjacent class room area are unknown	2

17. Exit Interview

The inspection team met with licensee representatives (listed in paragraph 1) at the conclusion of the inspection on December 7, 1984, and summarized the scope and findings of the inspection indicated in the previous paragraphs.