

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-059

License No.: R-23

Report No.: 50-059/96-01

Licensee: Texas A&M University

Facility: AGN-201M Reactor

Location: Zachry Engineering Center, Texas A&M University,
College Station, Texas

Dates: September 30 through October 3, 1996, and October 24, 1996

Inspector: J. Blair Nicholas, Ph.D., Senior Radiation Specialist
Plant Support Branch

Approved By: Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety

Attachment: Supplemental Information

EXECUTIVE SUMMARY

Texas A&M University AGN-201M Reactor Facility NRC Inspection Report 50-059/96-01

This routine, announced inspection reviewed the reactor operations, reactor maintenance, surveillance testing, experiments, reactor oversight, reporting, reactor operator requalification, radiation protection, emergency preparedness, and security programs.

Operations

- Reactor operations were conducted well. No safety limits or limiting conditions for operation of the reactor were exceeded. The licensee's logs and records adequately documented reactor operations (Section O1.1).
- All Technical Specification surveillance requirements were properly performed (Section O1.2).
- All reactor experiments were properly reviewed, authorized, and performed. The reactor experiments were satisfactorily documented in the reactor operations log (Section O1.3).
- The licensee's inventory and control of special nuclear material on site were properly maintained (Section O1.4).
- Operating procedures, maintenance procedures, and experiment procedures provided adequate guidance to ensure that reactor operations, surveillances, and experiments were conducted properly and consistently (Section O3.1).
- Excellent reactor operations logs and records were properly maintained (Section O3.2).
- Annual operating reports for the reactor facility met reporting requirements (Section O3.3).
- The senior reactor operators were knowledgeable of routine operating procedures and performed reactor operational manipulations properly and efficiently (Section O4).
- An excellent reactor operator requalification program was conducted as required (Section O5).
- The reactor facility organizational structure and staffing and the Reactor Safety Board membership met requirements. All organizational positions were filled with qualified personnel. The reactor operational responsibilities were implemented as required (Section O6).

- The Reactor Safety Board met at least annually. However, the Reactor Safety Board did not ensure that the required reviews and audits of the reactor facility activities were performed. Quarterly audits were not conducted as required (Section O7).
- A violation was identified involving the failure to perform required audits of reactor facility activities (Section O7).

Maintenance

- Reactor maintenance activities were performed properly and in accordance with approved procedures. The licensee's logs and records satisfactorily documented reactor maintenance activities (Section M1).

Engineering

- There were no reactor design changes since the previous inspection (Section E2).

Facility Support

- Appropriate radiation protection practices were implemented. Minimal radiation hazards were present with the reactor operated as observed. Radiation surveys met Technical Specification and regulatory requirements. Portable radiation survey instruments assigned to the reactor facility were adequate and were calibrated properly (Section F1).
- A violation was identified involving the failure to perform annual reviews of the radiation protection program (Section R1).
- A good emergency preparedness program was maintained. Appropriate training was provided to onsite and offsite emergency response personnel (Section P1).
- Generally, the approved physical security plan was properly implemented. The Reactor Safety Board did not perform the required annual reviews of the physical security plan (Section S1).
- A violation was identified involving the failure to perform annual reviews of the physical security plan (Section S1).

Report Details

I. Operations

O1 Conduct of Operations

O1.1 Reactor Operations

a. Inspection Scope (40750)

Reactor operations logs and records were reviewed, and reactor operations were observed to determine compliance with reactor Operating License Conditions 2.C(1) and 2.C(2) and the requirements in Technical Specifications 2.0 and 3.0.

b. Observations and Findings

The inspector observed the licensee start up and operate the reactor at 0.5 watts for approximately 30 minutes on October 2, 1996, to observe operator activities and the operation of the reactor safety systems. The inspector noted that the reactor was operated approximately 95 hours during the 4 year period from June 1, 1992, through May 31, 1996, for the purpose of laboratory teaching, reactor system testing, and reactor surveillances.

Based on the review of the reactor operations log, the inspector verified that between October 1992 and September 1996, that the licensee did not exceed a thermal power level of 5 watts as specified in reactor Operating License Condition 2.C(1). The inspector verified that the reactor safety limits were not exceeded and were in compliance with Technical Specifications 2.1 and 2.2. The Technical Specification limiting conditions for operation of the reactor were reviewed. During the annual control rod reactivity worth determinations, the reactor shutdown margin and excess reactivity were verified to be within Technical Specification limits. The inspector verified that all of the required reactor control system instrument channels, safety circuits, and safety interlocks required by the Technical Specifications were tested and operable and were included as part of the reactor startup checklist which were completed prior to each startup of the reactor. The licensee's logs and records adequately documented reactor operations.

c. Conclusions

Reactor operations were conducted well. No safety limits or limiting conditions for operation of the reactor were exceeded. The licensee's logs and records adequately documented reactor operations.

01.2 Technical Specification Surveillance Requirements

a. Inspection Scope (40750)

Reactor surveillance test results were reviewed to determine compliance with the requirements in Technical Specification 4.0.

b. Observations and Findings

The inspector verified that all required reactor surveillance tests were completed for 1993, 1994, and 1995. The following Technical Specification required surveillance tests were verified to be completed according to approved maintenance procedures and at the required frequencies.

<u>Technical Specification Item</u>	<u>Frequency</u>	<u>Completion Date</u>
4.1.a Safety and Control Rod Reactivity Worth Determination (Maintenance Procedure RCAL)	Annual	7/08/92 5/18/93 9/08/94 8/24/95
4.1.b Total Excess Reactivity and Shutdown Margin Determination (Maintenance Procedure ROEX)	Annual	7/08/92 5/19/93 9/14/94 8/25/95
4.2.a Safety and Control Rod Scram Times Determination (Maintenance Procedure RDTM)	Annual	7/01/92 5/18/93 9/08/94 8/31/95
Average Control Rod Reactivity Insertion Rate Determination (Maintenance Procedure RITM)	Annual	6/30/92 5/18/93 9/08/94 8/28/95
4.2.b Safety and Control Rods and Drives Inspection (Maintenance Procedure CRIS)	Biennial	3/12/91 1/15/93 6/03/95

4.2.d	Channel Test of the Seismic Displacement Interlock (Maintenance Procedure EITL)	Semiannual	6/05/92
			12/08/92
			2/17/93
			8/22/93
			5/09/94
			10/04/94
			5/10/95
4.2.g	Calibration of the Period, Count Rate, and Power Level of the Measuring Channels (Maintenance Procedures PD2M, C1LT, C2LT, C2HT, and C3HT)	Annual	8/31/95
			6/30/92
			5/12/93
			9/05/94
4.2.h	Shield Tank Water Level Interlock (Maintenance Procedure WITL)	Annual	8/07/95
			6/30/92
			5/05/93
			9/12/94
	Shield Water Temperature Interlock (Maintenance Procedure TITL)	Annual	8/28/95
			6/30/92
			5/19/93
			9/14/94
4.3.b	Shield Tank Visual Inspection (Maintenance Procedure SWTI)	Annual	8/29/95
			6/30/92
			5/05/93
			9/12/94
4.4.a	Portable Radiation Survey Instrument Calibration (Maintenance Procedure RSIC)	Annual	8/28/95
			6/30/92
			5/05/93
			9/12/94
4.4.c	Radiation Survey of the Reactor Room, Reactor Control Room, and Accelerator Room (Maintenance Procedure RADS)	Annual	11/20/92
			11/04/93
			12/08/94
			12/20/95

c. Conclusion

All reactor surveillance tests were completed at the required frequencies, and the surveillance test results met Technical Specification requirements.

O1.3 Experiments

a. Inspection Scope (40750)

The program for control and conduct of the 10 approved reactor experiments including evaluations, authorizations, conduct, and documentation of experiments performed was reviewed to determine compliance with the requirements in Technical Specifications 3.3, 6.6, and 6.7.

b. Observations and Findings

The inspector verified that each experiment procedure was reviewed and approved by the reactor supervisor, reactor administrator (head of the nuclear engineering department), and the chairman of the Reactor Safety Board as required by Technical Specifications. It was noted that all 10 reactor experiments were approved in January 1976 and that the licensee had not approved any new experiments for the reactor since that time.

The reactor was used routinely as a research and instructional tool to support the requirements of several nuclear engineering courses and reactor operator training as well as performing preventive maintenance and operational surveillances required by the Technical Specifications. Experiments were performed in accordance with approved procedures under approved reactor conditions and were properly documented in the reactor operations log.

c. Conclusion

All reactor experiments were properly reviewed, authorized, and performed. The reactor experiments were satisfactorily documented in the reactor operations log.

O1.4 License Conditions and Control and Accountability for Special Nuclear Material

a. Inspection Scope (85102)

License conditions for special nuclear material and the special nuclear material control and accountability program were reviewed. The storage and inventory of the licensee's special nuclear material were reviewed for compliance with the reactor Operating License R-23, Amendment 12, dated April 25, 1979.

b. Observations and Findings

Reactor Operating License Condition 2.B(2) authorizes the possession of up to 700 grams of contained uranium-235, enriched to less than 20 percent in uranium dioxide embedded in radiation stabilized polyethylene, and up to 16 grams of plutonium-239 in the form of a sealed plutonium-beryllium neutron source, which may be used for reactor startup. The inspector verified that the licensee possessed

a 1-curie plutonium-beryllium neutron startup source and that it was stored in the reactor tank for use in reactor startup. The inspector reviewed the licensee's inventory of the reactor fuel installed in the reactor. Based on the licensee's inventory, the reactor's fuel contained 666.5 grams of uranium-235, which was less than the 700 grams of uranium-235 allowed by the Reactor Operating License. This uranium-235 was embedded in 26 fuel elements, two safety rods, and two control rods distributed in the reactor core. The inspector determined that there was no change in the quantity of reactor fuel since the previous NRC inspection conducted in October 1992.

c. Conclusion

The licensee's inventory and control of special nuclear material on site were properly maintained.

03 Operations Procedures and Documentation

03.1 Procedures

a. Inspection Scope (40750)

The procedures listed in the attachment were reviewed to determine compliance with the requirements in Technical Specification 6.6.

b. Observations and Findings

The licensee had approved procedures, checklists, and data forms for safety-related and operational activities that included reactor startup, operation, and shutdown; reactor maintenance and surveillance testing; and calibration of reactor instrumentation. The inspector determined that the licensee had 9 approved operating procedures, 28 approved maintenance procedures for surveillance testing and calibration activities, and 10 approved experiment procedures. The inspector noted that the last revision to the reactor operating procedures was made in April 1986 and approved in August 1986. The reactor maintenance procedures were written and approved in October 1979, and various maintenance procedures had been revised since then with the latest revisions approved in February 1988. The experiment procedures were written and approved in January 1976 and had not been revised since that time. No procedures had been written or revised since the previous NRC inspection conducted in October 1992. The inspector verified that all reactor facility procedures were reviewed and approved by the reactor supervisor, reactor administrator (Head of the Nuclear Engineering Department), and the Reactor Safety Board as required by the Technical Specifications.

c. Conclusion

Operating procedures, maintenance procedures, and experiment procedures provided adequate guidance to ensure that reactor operations, surveillances, and experiments were conducted properly and consistently to meet Technical Specification requirements.

O3.2 Operations Logs and Records

a. Inspection Scope (40750)

Documentation of reactor operations activities for the period November 1992 through September 1996 was reviewed to determine compliance with the requirements in Technical Specification 6.10.

b. Observations and Findings

Logs and records documenting reactor operation, experiment performance, reactor startups, instrument checks and calibrations, radiation surveys, and personnel radiation exposure were reviewed. The inspector determined that the annual reactor operating reports and the operations logs and records adequately documented reactor operations activities. The monthly, semi-annual, annual, and biennial reactor surveillance checklists and surveillance test results for the period January 1993 through September 1996 were reviewed. The licensee's logs and records were clear, concise, and legible. Reactor operations and testing were satisfactorily documented in accordance with the Technical Specification requirements.

c. Conclusion

Excellent reactor operations logs and records were properly maintained.

O3.3 Reports and Notifications

a. Inspection Scope (40750)

Reports and notifications to the NRC were reviewed to determine compliance with the requirements in Technical Specification 6.9.

b. Observations and Findings

The licensee submitted the required annual reports of the reactor facility activities and operations for the time periods June 1, 1992 through May 31, 1993, June 1, 1993 through May 31, 1994, June 1, 1994 through May 31, 1995, and June 1,

1995 through May 31, 1996. The inspector verified that these reactor facility annual reports met the Technical Specification requirements. No special reports were issued to the NRC since the last NRC inspection of the reactor facility.

c. Conclusion

Annual operating reports for the reactor facility met reporting requirements.

O4 Operator Knowledge and Performance

a. Inspection Scope

The two senior reactor operators were interviewed, and a reactor startup and shutdown were observed. Operating procedures were reviewed as the senior reactor operator conducted reactor operations.

b. Observations and Findings

No problems were identified.

c. Conclusions

The senior reactor operators were knowledgeable of routine operating procedures and performed reactor operational manipulations properly and efficiently.

O5 Operator Training and Qualification

a. Inspection Scope

The education and experience of the current reactor staff and the Reactor Safety Board members were reviewed.

The requalification training program for the senior reactor operators and the training program for nuclear engineering department students working in the reactor facility area were reviewed to determine agreement with recommendations in Industry Standard ANSI/ANS 15.4-1988 and Regulatory Guides 8.13 and 8.29 and compliance with the requirements in 10 CFR 19.12, operator requalification program, and Technical Specification 6.3.

b. Observations and Findings

The inspector determined that all of the reactor staff and Reactor Safety Board members met the qualifications per Technical Specifications.

The inspector noted that the reactor operator requalification program, dated May 20, 1988, was approved by the NRC, and it conformed to the requirements of 10 CFR Part 55.59. Lectures were conducted as required. Observations of operator manipulations were documented. The lecture outline for the reactor operator requalification program was comprehensive, and it included all the required subject material. Comprehensive annual written examinations for 1993, 1994, and 1995 were given and successfully passed by the senior reactor operators. The completed examinations were included in the senior reactor operators' individual training records as required. The requalification training records for the two senior reactor operators contained all of the documentation required by the approved operator requalification program. The licensee had developed good operator requalification record forms to track and document reactor operator requalification requirements. Annual medical examinations were satisfactorily passed by the two senior reactor operators.

The inspector reviewed the nuclear engineering department's orientation training given to students who work around the AGN-201M reactor. The student orientation training material and attendance records were reviewed. The students who worked routinely in the nuclear engineering department and around the reactor had received radiation protection and emergency training at the beginning of the academic year. The training conducted by the nuclear engineering department met the requirements of 10 CFR 19.12.

c. Conclusions

An excellent reactor operator requalification training program was being conducted and documented in accordance with a NRC approved program. Excellent reactor operator requalification training records were being maintained. A good student orientation program, which familiarized students working around the reactor facility with radiation protection and emergency procedures, was implemented.

O6 Operations Organization and Administration

a. Scope of Inspection (40750)

The organization and staffing were reviewed to determine compliance with the requirements in Technical Specification 6.1.

b. Observations and Findings

The inspector verified that the organizational structure and assignment of responsibilities were as specified in Technical Specification 6.1. All organizational positions were filled with qualified personnel. The licensee had two senior reactor operators. There were no reactor operators. The licensee had several staffing changes since the last NRC inspection conducted in October 1992. Over the past four years, the Dean of the College of Engineering (Chairman of the Reactor Safety

Board) changed three times. A new radiological safety officer was appointed. The inspector verified that the reactor operational responsibilities were implemented as specified in the Technical Specifications.

The Reactor Safety Board's membership was in accordance with Technical Specification requirements. The inspector noted that the Reactor Safety Board had responsibility for both the AGN-201M (Docket No. 50-059) and TRIGA (Docket No. 50-128) reactor facilities located at Texas A&M University.

c. Conclusions

The reactor facility organizational structure and staffing met the Technical Specification requirements. All organizational positions were filled with qualified personnel. The reactor operational responsibilities were implemented as required. The Reactor Safety Board membership met requirements.

O7 Quality Assurance in Operations

a. Scope of Inspection (40750)

The inspector reviewed the audits and reviews conducted to determine compliance with the requirements in Technical Specifications 6.1.6, 6.4.1, 6.4.2, and 6.4.3.

Minutes of the Reactor Safety Board meetings from January 22, 1993 to May 31, 1996 were reviewed.

b. Observations and Findings

The inspector determined that Reactor Safety Board meetings were held at least annually as required by Technical Specification 6.4.1. However, the inspector noted that the agendas and minutes of the Reactor Safety Board meetings included very few entries concerning the AGN-201M reactor facility. The required audits of reactor facility activities and reviews of procedures, equipment changes, proposed tests or experiments, were not documented in the Reactor Safety Board minutes, if performed.

During the previous inspection conducted in October 1992, the inspector observed, during the review of the quarterly audit reports, that it was sometimes difficult to always be certain that all of the requirements in Technical Specification 6.4.3.a and applicable operating license conditions were reviewed annually. This observation was discussed with the licensee during the inspection and along with the possibility of developing an audit checklist to ensure that all the items were reviewed and audited annually as required by Technical Specification 6.4.3.a. During the exit meeting on October 2, 1992, the licensee acknowledged the inspector's

observation and agreed to evaluate their audit process and the use of an audit checklist as guidance in performing the reactor facility audits. However, the evaluation of the audit process was not performed, and an audit checklist was not developed.

The inspector verified that biennial reviews of the emergency plan were conducted on February 8, 1991, January 22, 1993, and August 25, 1994. The reviews were performed by the Head of the Nuclear Engineering Department (Reactor Administrator for the AGN-201M reactor facility and member of the Reactor Safety Board) who was responsible for the development and implementation of the emergency plan and who was also the designated emergency director rather than an individual not responsible for the item reviewed and audited. The inspector noted that the review of the emergency plan performed on January 22, 1993, was documented in the reactor maintenance log but was not documented in the Reactor Safety Board minutes as being reviewed by the Reactor Safety Board. A biennial review of the security plan was last conducted and documented in the Reactor Safety Board minutes on August 25, 1994.

Technical Specification 6.1.6 states, in part, "The Reactor Safety Board shall be responsible for, . . . conducting periodic audits of procedures, reactor operations and maintenance, equipment performance, and records; . . . reporting all their findings and recommendations concerning the reactor facility to the Head of the Department of Nuclear Engineering."

Technical Specification 6.4.3 states, "Audits of facility activities shall be performed at least quarterly under the cognizance of the Reactor Safety Board but in no case by the personnel responsible for the item audited. These audits shall examine the operating records and encompass but shall not be limited to the following:

- a. The conformance of the facility operation to the Technical Specifications and applicable license conditions, at least annually.
- b. The Facility Emergency Plan and implementing procedures, at least every two years.
- c. The Facility Security Plan and implementing procedures, at least every two years."

On October 1, 1996, the inspector determined that quarterly audits to meet the requirements in Technical Specifications 6.4.2 and 6.4.3 were not conducted by members of the Reactor Safety Board since the second quarter of 1992. The inspector also determined that the audits of the emergency plan and the security plan were performed by the Head of the Nuclear Engineering Department (Reactor Administrator for the AGN-201M reactor facility) who was responsible for the development and implementation of the emergency plan and security plan rather than by someone not responsible for the items audited in accordance with Technical

Specification 6.4.3. The failure to ensure that quarterly audits of facility activities and reactor operations were performed since the second quarter of 1992, the failure to ensure that biennial audits of the emergency plan and implementing procedures were performed by an individual who was not responsible for the audited item since February 8, 1991, and the failure to ensure that biennial audits of the security plan and implementing procedures were performed by an individual who was not responsible for the audited item since August 25, 1994, is a violation of Technical Specifications 6.1.6 and 6.4.3. (VIO 9601-01)

c. Conclusions

The Reactor Safety Board met at least annually. However, the Reactor Safety Board did not ensure that the required reviews and audits of the reactor facility activities were performed. Quarterly audits were not conducted as required. A violation was identified involving the failure to perform required audits of reactor facility activities and required reviews using an individual who was not responsible for the audited item.

II. Maintenance

M1 Conduct of Maintenance

a. Scope of Inspection (40750)

Reactor maintenance logs and records were reviewed.

b. Observations and Findings

During the time period from June 1992 through May 1996, the licensee replaced several vacuum tubes, the 1.25-volt battery, the 10 -13 dashpot, both Keithley 4102 relays, and the power transformer in Channel 2; and repaired several electrical connections in Channel 2. All of the components replaced during the performance of the preventive and corrective maintenance programs were identical replacements and did not involve any unreviewed safety questions. The safety-related corrective maintenance performed on the reactor and operations console was properly documented in the reactor's maintenance log and the licensee's annual reports of reactor operation.

c. Conclusions

Reactor maintenance activities were performed properly and in accordance with approved procedures. The licensee's logs and records satisfactorily documented reactor maintenance activities.

III. Engineering

E2 Engineering Support of Facilities and Equipment

There were no reactor design changes since the previous inspection.

IV. Facility Support

R1 Radiological Protection Controls

a. Scope of Inspection

The radiation protection program was reviewed to determine compliance with the requirements in 10 CFR Part 20 and Technical Specifications 3.4, 4.4, 5.3.d, 6.1.8, 6.10.1.e, and 6.10.2.d.

The selected records were reviewed, personnel were interviewed, observations were made, and independent radiation surveys of the reactor facility were performed.

The following documents were reviewed:

- Annual radiation dose summaries for 1993-1995
- Annual radiation and contamination surveys for 1993-1995
- Survey instrument calibration records for 1993-1995

b. Observations and Findings

The inspector noted that all personnel who worked in the reactor facility had been issued proper whole body dosimetry which was sensitive to beta, gamma, and thermal neutron radiations. The inspector determined that the vendor who supplied and read the dosimeters was accredited in accordance with the requirements in 10 CFR 20.1501(c). Personnel exposure records for 1993, 1994, and 1995 indicated that the limits of 10 CFR 20.1201 were not exceeded.

The inspector determined that the licensee had implemented a proper radiation survey program. The required annual radiation surveys were thorough, included neutron surveys, and met Technical Specification and 10 CFR 20.1501(a) requirements. The licensee had developed survey maps of the reactor room and accelerator room located directly above the reactor room which designated specific locations where radiation dose rate measurements were to be taken at specified reactor operation power levels. Annual radiation dose rate surveys conducted in 1993, 1994, and 1995 were performed at nine specific locations designated on the reactor room map and at two specific locations designated on the accelerator room map. The dose rate surveys were performed at reactor operating power levels of 0,

1, 3, and 5 watts. It was noted that the maximum dose rate (beta-gamma-neutron) identified near the reactor was approximately 450 millirem per hour when the reactor was operating at a maximum of five watts thermal power.

The inspector performed an independent area radiation survey and confirmed that radiation levels in unrestricted areas did not exceed the limits of 10 CFR 20.1302(a)(2) while the reactor was operating at a maximum power level of 5 watts. The licensee had survey records as documentation of its radiation measurements, and the inspector's survey results compared very well with the licensee's survey results. Restricted areas were posted in accordance with 10 CFR 20.1902.

The inspector reviewed the licensee's inventory of portable radiation survey instruments and found them to be adequate. Calibrated instruments were available at the time of inspection. Calibrations of the instruments used to perform radiation surveys were performed with radioactive sources traceable to national standards.

10 CFR 20.1101(c) states, " The licensee shall periodically (at least annually) review the radiation protection program content and implementation." The inspector determined on October 16, 1996, while performing an in-office review of the licensee's audit and review program, that annual reviews of the radiation protection program, in accordance with 10 CFR 20.1101(c), were not performed since the implementation of "new" 10 CFR Part 20 on January 1, 1994. The licensee's failure to perform annual reviews of the radiation protection program is a violation of 10 CFR 20.1101(c). (VIO 9601-02)

c. Conclusions

Appropriate radiation protection practices were implemented. Minimal radiation hazards were present and observed when the reactor was operated. Radiation surveys met Technical Specification and regulatory requirements. Portable radiation survey instruments assigned to the reactor facility were adequate and were calibrated properly. A violation was identified involving the failure to perform annual reviews of the radiation protection program during 1994 and 1995.

P1 Conduct of Emergency Preparedness Activities

a. Scope of Inspection

The inspector reviewed the emergency plan for the reactor facility to determine compliance with the requirements in 10 CFR 50.54(r) and in Technical Specifications 6.4.3.b and 6.6.f.

The following documentation was reviewed:

- Emergency implementing procedures
- Exercise and drill scenarios
- Emergency call lists
- Letters of agreement from local offsite support organizations
- Training records

b. Observations and Findings

The inspector verified that there were no revisions to the emergency plan since the previous inspection.

The inspector verified that emergency call lists were accurate and posted in the proper places.

The licensee had conducted annual training for fire and police personnel in conjunction with conducting the required emergency drills. The licensee had conducted training of the emergency plan and emergency procedures for all pertinent nuclear engineering department personnel at the beginning of each academic year. The inspector also verified that emergency preparedness training was included in the annual requalification training for reactor operators as required by Technical Specifications.

The inspector confirmed that exercises or drills were conducted January 15, 1993, January 5, 1994, January 13, 1995, and January 10, 1996. The frequency was in accordance with the commitments of the emergency plan. The inspector reviewed the licensee's documentation of the emergency exercises and the critiques and evaluations performed following the exercises.

Letters of agreement with the City of College Station for ambulance and fire department services and Columbia Medical Center and St. Joseph Regional Health Center for medical services were maintained and current.

c. Conclusions

A good emergency preparedness program was maintained. Appropriate training was provided to onsite and offsite emergency response personnel.

S1 Conduct of Security and Safeguards Activities

a. Inspection Scope

The inspector reviewed the physical security plan to determine compliance with the requirements in 10 CFR 50.54(p), Operating License Condition 2.D, and Technical Specifications 6.4.3.c and 6.6.f.

The inspector interviewed the reactor supervisor. Additionally, the inspector toured the reactor facility and compared the reactor facility and security equipment with the description and requirements in the physical security plan.

b. Observations and Findings

The inspector verified that there were no revisions to the physical security plan since the previous inspection.

The inspector verified that the site and facilities were as described in the physical security plan and that all physical barriers required by the physical security plan were installed and operational. The inspector verified that the security key control and combination lock control programs were implemented satisfactorily to maintain security of the reactor facility. Through interviews with the reactor supervisor and reviews of logs, the inspector determined that security for the facility was implemented as specified in the physical security plan. There had been no security problems or safeguards events since the previous inspection.

License Condition 2.D states, "The licensee shall maintain in effect and fully implement all provisions of the NRC-approved physical security plan,"

Section 3.5 of the AGN-201M Reactor Facility Security Plan states, "The security program will be reviewed annually by the Reactor Safety Board described in the license. The results of each meeting will be forwarded to the NRC with the annual report for the facility."

On October 1, 1996, the inspector determined that the Reactor Safety Board did not perform the required annual reviews of the physical security plan in accordance with the requirements in Section 3.5 in the physical security plan since August 25, 1994, and the results of the annual reviews were never forwarded to the NRC with the annual reports for the facility. The failure to perform annual reviews of the physical security plan and forward the results of the annual reviews to the NRC with the annual reports for the facility is a violation of License Condition 2.D and the physical security plan. (VIO 9601-03)

c. Conclusions

Generally, the approved physical security plan was properly implemented. The However, the Reactor Safety Board did not perform the required annual reviews of the physical security plan. A violation was identified involving the failure to perform annual reviews of the physical security plan since August 25, 1994, and never forwarding the results of the annual reviews to the NRC with the annual reports for the facility.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to licensee representatives on October 3, 1996. The licensee's representatives acknowledged the findings presented. The licensee identified the physical security plan as proprietary information.

A followup exit meeting was conducted telephonically on October 24, 1996, to discuss a third violation dealing with the failure to perform annual reviews of the radiation protection program.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Adams, Assistant Professor, Member of Reactor Safety Board
R. Berry, Reactor Supervisor
I. Hamilton, Assistant Professor, Senior Reactor Operator
J. Holste, Assistant Dean, College of Engineering, Chairman of Reactor Safety Board
C. Meyer, Radiation Safety Officer
J. Poston, Reactor Administrator, Head of Nuclear Engineering Department
W. Reece, Associate Professor, Member of Reactor Safety Board

LIST OF INSPECTION PROCEDURES USED

IP 40750	Class II Research and Test Reactors Operations Procedure
IP 81401	Plans, Procedures, and Reviews
IP 81403	Receipt of New Fuel at Reactor Facilities
IP 81431	Fix Site Physical Protection of Special Nuclear Material of Low Strategic Significance
IP 85102	Material Control and Accounting - Reactors
IP 86740	Inspection of Transportation Activities

LIST OF ITEMS OPENED

Opened

059/9601-01	VIO	Quarterly Audits
059/9601-02	VIO	Annual Radiation Protection Program Reviews
059/9601-03	VIO	Annual Physical Security Plan Reviews

LIST OF DOCUMENTS REVIEWED

Operating Procedures

- 3.1, "General Operating Rules," August 15, 1986
- 3.2, "Operational Information," August 15, 1986
- 3.3, "Checkout Procedure," August 15, 1986
- 3.4, "Startup Procedure," August 15, 1986
- 3.5, "Operating Conditions," August 15, 1986
- 3.6, "Shutdown," August 15, 1986
- 3.7, "Other Conditions," August 15, 1986
- 3.8, "Radiation Protection," August 15, 1986
- 3.9, "Reactor Maintenance," August 15, 1986

Maintenance Procedures

- CAPH, "Maintenance Procedure for Checking Subcritical Assembly Water Conductivity," September 7, 1983
- EITL, "Maintenance Procedure for Testing Earthquake Interlock," October 11, 1979
- SWIT, "Maintenance Procedure for Conducting a Detailed Shield Water Tank Inspection," October 11, 1979
- PWCL, "Maintenance Procedure for Power Calibration," October 11, 1979
- CH1P, "Maintenance Procedure for Setting Channel 1 High Voltage," February 3, 1988
- CH2P, "Maintenance Procedure for Setting Channel 2 High Voltage," February 3, 1988
- CH3P, "Maintenance Procedure for Setting Channel 3 High Voltage," February 3, 1988
- SKMP, "Maintenance Procedure for Setting Skirt Monitor High Voltage," October 11, 1979
- PD2M, "Maintenance Procedure to Calibrate Channel 2 Period Meter and to Verify Short Period Trip," January 22, 1986
- C1LT, "Maintenance Procedure to Calibrate Channel 1 and Verify Low Trip," October 11, 1979
- C2LT, "Maintenance Procedure to Verify Channel 2 Low Trip," September 7, 1983
- C3LT, "Maintenance Procedure to Calibrate Channel 3 and Verify Low Trip," September 7, 1983
- C2HT, "Maintenance Procedure to Calibrate Channel 2 and Verify High Trip," October 11, 1979
- C3HT, "Maintenance Procedure to Calibrate Channel 3 and Verify High Trip," September 7, 1983
- ROEX, "Maintenance Procedure or Determining the Total Excess Reactivity," October 11, 1979

RCAL,	"Maintenance Procedure for Determining the Reactivity Worth of Each Control Rod," October 11, 1979
RDTM,	"Maintenance Procedure for Measuring Rod Drop Times," January 28, 1983
RITM,	"Maintenance Procedure for Measuring Control Rod Reactivity Insertion Rates," October 11, 1979
TITL,	"Maintenance Procedure for Testing Low Reactor Tank Temperature Interlock," October 11, 1979
W1TL,	"Maintenance Procedure for Testing Shield Water Level Interlock," January 31, 1986
RSIC,	"Maintenance Procedure for Calibrating Radiation Survey Instruments," October 11, 1979
RADS,	"Maintenance Procedure for Counting a Radiation Survey of the AGN-201M Reactor Facility," October 11, 1979
EVAC,	"Evacuation Procedure Drill," July 20, 1987
CRIS,	"Maintenance Procedure for Conducting a Detailed Control Rod Inspection and Functional Check," October 11, 1979
EPEX,	"Emergency Plan Exercise," July 20, 1987

Experiments

RXEP-1,	"Startup and Operation of the AGN-201M Reactor," January 27, 1976
REXP-2,	"Irradiation of Compounds Composed of Elements One Through Eighty-three in the Glory Hole or Access Port," January 27, 1976
REXP-3,	"Control Rod Calibration by the Rod Drop Method," January 27, 1976
REXP-4,	"Control Rod Calibration by Positive Period Measurement," January 27, 1976
REXP-5,	"Reactivity Perturbations," January 27, 1976
REXP-6,	"Delayed Neutron Half-life Measurements," January 27, 1976
REXP-7,	"Transfer Function Measurement," January 27, 1976
REXP-8,	"Irradiation of Natural or Enriched Uranium in the AGN-201M Glory Hole," January 27, 1976
REXP-9,	"Irradiation Experiments in the Thermal Column," January 27, 1976
REXP-10,	"A Critical Experiment for the AGN-201M Reactor," January 27, 1976

Operator Training Program

"Requalification Program for Licensed Reactor Operators and Senior Reactor Operators,"
May 26, 1987

Emergency Plan and Procedures

AGN-201M Reactor Facility Emergency Plan, September 1984

- PE-1, "Personnel Injury," October 8, 1984
- PE-2, "Personnel Injury Involving Radioactive Contamination," October 8, 1984
- PE-3, "Radioactive Contamination of Personnel or Spill of Radioactive Material Within the Reactor Facility," October 8, 1984
- PE-4, "Suspected Radiation Overexposure of Personnel," October 8, 1984
- EA-1, "Reactor Facility Fire," March 14, 1989
- EA-2, "Bomb Threat," March 14, 1989
- EA-3, "Civil Disturbance," March 14, 1989
- EA-4, "Severe Natural Phenomena," March 14, 1989
- EA-5, "General Emergency Alert," March 14, 1989
- RE-1, "Reactor Emergency," August 15, 1986

Physical Security Plan and Procedures

AGN-201M Reactor Facility Security Plan, February 27, 1991

- SP-1, "Security Procedure for Access to the Nuclear Engineering Laboratory Areas," October 5, 1984
- SP-2, "Security Procedure for Access to the AGN-201M Reactor Room," October 5, 1984
- SP-3, "Security Procedure for Access to the Accelerator Room," October 5, 1984

Annual Reports

- Annual Operating Report for June 1, 1992 - May 31, 1993
- Annual Operating Report for June 1, 1993 - May 31, 1994
- Annual Operating Report for June 1, 1994 - May 31, 1995
- Annual Operating Report for June 1, 1995 - May 31, 1996