

June 4, 2007

Dr. Joseph Cecchi, Dean
School of Engineering
University of New Mexico
Albuquerque, NM 87131-1341

SUBJECT: UNIVERSITY OF NEW MEXICO - NRC ROUTINE INSPECTION REPORT NO.
50-252/2007-201

Dear Dr. Cecchi:

On May 22-24, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your University of New Mexico AGN-201M Research Reactor Facility. The inspection included a review of activities authorized for your facility. The enclosed inspection report presents the results of that inspection.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel. Based on the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning this inspection, please contact Mr. Kevin M. Witt at 301-415-4075.

Sincerely,

/RA/

Johnny Eads, Branch Chief
Research and Test Reactors Branch B
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-252
License No. R-102

Enclosure: NRC Inspection Report No. 50-252/2007-201

cc w/enclosure: See next page

University of New Mexico

Docket No. 50-252

cc:

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Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

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U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No: 50-252

License No: R-102

Report No: 50-252/2007-201

Licensee: University of New Mexico

Facility: AGN-201M Reactor

Location: Albuquerque, New Mexico

Dates: May 22-24, 2007

Inspector: Kevin M. Witt

Approved by: Johnny Eads, Branch Chief
Research and Test Reactors Branch B
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

University of New Mexico AGN-201M Research Reactor Facility NRC Inspection Report No.: 50-252/2007-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects and activities since the last NRC inspection of the licensee's Class II non-power reactor safety programs including: organization and staffing, operations logs and records, operator requalification, surveillance and limiting conditions for operations, design changes, committees, audits and reviews, maintenance logs and records, and fuel handling.

The licensee's programs were acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements.

Organization and Staffing

- The organization and staffing were consistent with Technical Specification requirements.

Operations Logs and Records

- Operational activities were consistent with applicable Technical Specification and procedural requirements.

Operator Requalification

- The licensee's requalification program was up-to-date, and plan requirements were met.

Surveillance and Limiting Conditions for Operations

- The licensee's program for completing surveillance inspections satisfied Technical Specification and licensee administrative controls.

Design Changes

- Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required.

Committees, Audits and Reviews

- Review and oversight functions required by the Technical Specifications were acceptably completed by the Reactor Safety Advisory Committee.

Maintenance Logs and Records

- Maintenance logs, records, and performance satisfied Technical Specification and procedure requirements.

Fuel Handling

- Fuel handling and control rod inspection activities were completed and documented as required by Technical Specification and facility procedures.

Follow-up on Previous Open Items

- One open item identified in a previous inspection report was discussed and left open.

REPORT DETAILS

Summary of Plant Status

The licensee's Aerojet General Nucleonics-201M (AGN-201M) research reactor, licensed to operate at a maximum steady-state thermal power of 5 Watts (5 W), continues to be operated in support of operator training, surveillances, and classroom demonstrations. During the inspection, the reactor was operated for training purposes.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure [IP] 69001)

The inspector reviewed the following to verify compliance with the staffing requirements in Technical Specifications (TS) Sections 6.1 and 6.2:

- organization and staffing
- qualifications
- management responsibilities
- administrative controls
- Reactor Operation and Training Manual (ROTM), Section II, Administration, revised January 2005
- ROTM, Section II, Table II, Duties, revised January 2005
- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- 2006 Annual Report for the AGN-201M Reactor for dates July 1, 2004 - June 30, 2005, dated September 29, 2006
- TS for the University of New Mexico (UNM) AGN-201M Reactor, Amendment No. 4, dated November 7, 1995

b. Observations and Findings

The UNM AGN-201M Research Reactor Facility organizational structure and the responsibilities of the reactor management and staff had not changed since the last inspection (see NRC Inspection Report No. 50-252/2006-201). Current licensed staff consisted of the Chief Reactor Supervisor (CRS) and two reactor supervisors (RSs). The CRS and the two RSs are qualified Senior Reactor Operators (SROs). The licensee has several students working at the facility learning about the operation of the reactor.

The UNM staff's qualifications satisfied the training and experience requirements stipulated in the TS. The operations log and associated records confirmed that shift staffing met the minimum requirements for duty personnel. Review of records verified that management responsibilities were administered as required by TS and applicable procedures. The annual reports summarized the required information and was issued at the frequency specified in TS Section 6.9.1. No special reports were submitted pursuant to TS Sections 6.9.2 or 6.9.3.

c. Conclusion

The organization and staffing were consistent with TS requirements.

2. Operation Logs and Records

a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that selected records were maintained as required by TS Section 6.10:

- ROTM, Section II, Table II, Duties, revised January 2005
- ROTM, Section III, Operating Procedures, revised January 2005
- ROTM, Appendix III-A, Request for Use of the UNM AGN-201M Reactor, revised January 2005
- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- Completed Requests for Use forms, dated from May 2, 2006 to present
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- 2006 Annual Report for the AGN-201M Reactor for dates July 1, 2004 - June 30, 2005, dated September 29, 2006

b. Observations and Findings

Reactor operations were carried out following written procedures and TS requirements. The inspector verified that reactor operating characteristics, and other TS and procedure required entries, were recorded on the operations log. A review of the logs indicated that TS operational limits had not been exceeded. The information required for the pre-critical start-up checklist and the shutdown checklist are included in the operations log. Operations records confirmed that shift staffing met the minimum requirements for duty personnel. The inspector determined that reactor operations were carried out following written procedures. During review of the operations logs, the inspector noted that there were minimal unintentional scrams. When a scram occurs, the root cause analysis is completed by the RS on duty before the resumption of operations.

The inspector observed the reactor staff operating the reactor on May 23, 2007, and reviewed the operations logs. The inspector noted that the licensed operator and trainee on duty were knowledgeable and competent. Observation of operational activities also confirmed that reactor operations were carried out in accordance with written procedures and TS requirements.

c. Conclusions

Operational activities were consistent with applicable TS and procedural requirements.

3. Operator Requalification

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with the requirements in 10 CFR Part 55 and the requalification program:

- Operator and Senior Operator Requalification Program, dated December 20, 2004
- ROTM, Appendix III-A, Request for Use of the UNM AGN-201M Reactor, revised January 2005
- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- Completed Requests for Use forms, dated from May 2, 2006 to present
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- Written Requalification Examination, dated August 2006
- Requalification Training Records for the January 1, 2005 - December 31, 2006 Requalification Cycle
- Requalification Training Records for the January 1, 2007 - December 31, 2008 Requalification Cycle
- operator active license status
- operator physical examination records
- reactivity manipulation records

b. Observations and Findings

The licensee's requalification program is described in the program submitted to the NRC. The inspector reviewed the requalification program records for all of the licensed operators at the facility. There are two reactor operators licensed to operate the reactor and the licensee has stated that they are both inactive. The licensee committed to send a letter to the NRC requesting termination of the licenses. The CRS is responsible for the implementation of the requalification program and administers all tests. Records showed that the requirements in the requalification program were being followed.

The inspector verified that physical examinations of the operators were conducted biennially as required. The number of hours in the facility performing licensed duties were recorded on the training records to ensure that all operators met the required minimum number of hours operating the reactor. The inspector confirmed that the requalification program was being administered in a manner that sufficiently maintains the effectiveness of all licensed operators.

c. Conclusions

The licensee's requalification program was up-to-date, and plan requirements were met.

4. Surveillance and Limiting Conditions for Operation

a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that the surveillance requirements and limiting conditions for operations (LCO) specified in TS Section 4.0 were met:

- ROTM, Section III.E.1, Power Calibration, revised January 2005
- ROTM, Appendix III-A, Request for Use of the UNM AGN-201M Reactor, revised January 2005
- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- ROTM, Section IV, Maintenance and Inspections, revised January 2005
- Completed Requests for Use forms, dated from May 2, 2006 to present
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- Completed AGN-201M Reactor Monthly Inspection forms from June 2, 2006 to present
- Completed AGN-201M Annual Reactor Maintenance form, dated August 15, 2006
- Nuclear Engineering Laboratory Isotope Production Logs from August 25, 2006 to December 11, 2006

b. Observations and Findings

The inspector noted that daily, monthly, and annual checks, tests, and/or calibrations for TS-required surveillance items were completed as required. The LCO verifications were completed on schedule and in accordance with licensee procedures. All of the recorded results were within the TS and procedurally prescribed parameters. The records and logs were noted to be complete and were being maintained as required. The inspector noted that the annual power channel calibration for the inspection period were not recorded in the annual reactor maintenance form. The licensee provided the inspector with the appropriate information and has committed to ensuring that the information for power calibrations is in a easily identifiable location. The procedures for the surveillances provided clear and concise direction and control of reactor operational tests and surveillances.

c. Conclusions

The licensee's program for completing surveillance inspections satisfied TS and licensee administrative controls.

5. Design Changes

a. Inspection Scope (IP 69001)

In order to verify that any modifications to the facility were consistent with 10 CFR 50.59, the inspector reviewed selected aspects of:

- facility design changes and records for the past two years
- facility configuration and associated records
- ROTM, Section II.A.3, Reactor Safety Advisory Committee, revised January 2005
- Radiation Safety Advisory Committee (RSAC) meeting minutes, dated May 11 and December 19, 2006
- 10 CFR 50.59 Review of Safety Channel Detector Can Replacement for the UNM AGN-201 Reactor, dated August 8, 2006
- Procedure for Replacement of Channel 2 Detector Can, dated August 8, 2006
- Completed Requests for Use forms, dated from May 2, 2006 to present
- Completed Reactor Maintenance Log Sheet for Increasing Reactor Excess Reactivity, dated August 7, 2006
- Completed Reactor Maintenance Log Sheet for Checking Power Channel Calibrations, dated August 15, 2006
- 2006 Annual Report for the AGN-201M Reactor for dates July 1, 2004 - June 30, 2005, dated September 29, 2006

b. Observations and Findings

Through review of applicable records and interviews with licensee personnel, the inspector determined that no significant changes had been initiated and/or completed at the facility since the last inspection. The inspector verified that administrative controls were in place that required the appropriate review and approval of all changes prior to implementation. The inspector reviewed a change of the power channel #2 detector can from aluminum to polyethylene. The licensee evaluated the change and concluded that prior NRC approval was not necessary in accordance with 10 CFR 50.59. A similar change was made to the power channel #1 detector can about a year before with no observable effects on the safe operation of the reactor. The inspector verified that the licensee ensured the installation was completed safely and that the system was thoroughly tested after installation. The inspector noted that all 10 CFR 50.59 reviews and minor design changes conducted by the licensee are focused on safety and meet the applicable TS and procedural requirements.

c. Conclusions

Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required.

6. Committees, Audits, and Reviews

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required in TS Section 6.2 the inspector reviewed selected aspects of:

- ROTM, Section II.A.3, Reactor Safety Advisory Committee, revised January 2005
- RSAC meeting minutes, dated May 11 and December 19, 2006

b. Observations and Findings

The RSAC is defined in the TSs and the inspector verified that the committee is following all aspects of the requirements. The RSAC had semiannual meetings and a quorum was always present as required. Review of the minutes indicated the RSAC provided guidance, direction and oversight, and ensured suitable use of the reactor. The minutes provided an acceptable record of RSAC review functions and of RSAC safety oversight of reactor operations.

The RSAC conducted audits of the items required by TS 6.4.3 during the semiannual meetings. Minor issues that were not safety related were noted in the meeting minutes and the inspector observed that any safety related items were properly controlled. The inspector noted that the safety reviews and audits, and the associated findings, were acceptably detailed and that the licensee responded and took corrective actions as needed.

c. Conclusions

Review and oversight functions required by the TSs were acceptably completed by the RSAC.

7. Maintenance Logs and Records

a. Inspection Scope (IP 69001)

To verify that the licensee was complying with the applicable regulations, the inspector reviewed selected aspects of:

- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- ROTM, Section IV, Maintenance and Inspections, revised January 2005
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- Completed AGN-201M Reactor Monthly Inspection forms from June 2, 2006 to present
- Completed AGN-201M Annual Reactor Maintenance forms, dated August 15, 2006

- Completed Reactor Maintenance Log Sheet for Increasing Reactor Excess Reactivity, dated August 7, 2006
- Completed Reactor Maintenance Log Sheet for Checking Power Channel Calibrations, dated August 15, 2006
- 2006 Annual Report for the AGN-201M Reactor for dates July 1, 2004 - June 30, 2005, dated September 29, 2006

b. Observations and Findings

The inspector reviewed the maintenance records related to scheduled and unscheduled preventive and corrective maintenance activities that had occurred during the inspection period. Routine and preventive maintenance was controlled and documented on the maintenance log sheets. These documents indicated that all maintenance activities were controlled and documented in accordance with the requirements in 10 CFR 50.59. All maintenance of reactor systems were reviewed and approved by the CRS. Implementation of changes to equipment, systems, tests or experiments are generally done by the staff at the facility. After all maintenance items are completed, system operational checks are performed to ensure the affected systems function before returning them to service. The inspector reviewed a maintenance item for the increase of reactor excess reactivity. It appeared that the licensee had thoroughly analyzed the maintenance item and determined that it did not constitute a design change. The inspector verified that the licensee implemented appropriate controls to ensure the safe operation of the reactor after the maintenance was completed. During a facility tour, the inspector noted that the Control Room and Reactor Room equipment was operational.

c. Conclusions

Maintenance logs, records, and performance satisfied TS and procedure requirements.

8. Fuel Handling

a. Inspection Scope (IP 69001)

To verify that TS and procedural requirements were being met, the inspector reviewed selected aspects of:

- ROTM, Section III, Operating Procedures, revised January 2005
- ROTM, Appendix III-B, AGN-201M Reactor Operations Log, revised January 2005
- Completed AGN-201M Reactor Operations Logs, dated from May 9, 2006 to present
- Completed Requests for Use forms, dated from May 2, 2006 to present
- Completed Fuel Addition Data sheets, dated February 1, 2007
- Request for Approval to Perform Critical Experiment as a Regular Teaching Laboratory Experiment (Fuel Movement Procedures), dated September 25, 1967

- fuel handling equipment and instrumentation
- fuel movement records

b. Observations and Findings

The inspector observed that the data recorded for fuel was acceptable and was referenced in the operations logs. Log entries verified that fuel movements were completed under the direct supervision of an SRO as required. Through records review and interviews with licensee personnel, the inspector determined that fuel movements were conducted in accordance with TSs to authorized locations. Through records review and interviews with licensee personnel, the inspector confirmed that acceptable radiological and criticality controls were established and implemented for fuel movements as required.

c. Conclusions

Fuel handling and control rod inspection activities were completed and documented as required by TS and facility procedures.

9. Follow-up on Previous Open Items

a. Inspection Scope (IP 69001)

The inspector reviewed the actions taken by the licensee following identification of one Non-Cited Violation (NCV) during a previous inspection.

b. Observations and Findings

- (1) NCV 50-252/2006-201-01 - Failure to follow the NRC approved requalification program in accordance with 10 CFR 55.59(a)(1)

NRC Inspection Report No. 50-252/2006-201, dated May 22, 2006, outlined the situation. During that inspection, the inspector noted that the licensee did not follow all aspects of the requalification program by failing to administer a written requalification examination to the licensed operators on an annual basis. The most recent written requalification examination was administered January 2004, which is a period of 28 months. The licensee stated they understood that the requalification program was the same as the NRC regulations, which requires a requalification written examination on a biennial basis.

During this inspection, the inspector confirmed that the licensee had been properly implementing the requalification program. The licensee administered a written requalification examination on August 15, 2006. Due to the recent administration of this exam, the inspector could not verify whether the licensee is administering the written requalification examination on an annual basis in accordance with the requalification program. This issue will remain open and will be reviewed during the next inspection at the facility.

c. Conclusions

One open item identified in a previous inspection report was discussed and left open.

10. Exit Meeting

The inspector presented the inspection results to licensee management at the conclusion of the inspection on May 24, 2007. The inspector discussed the findings for each area reviewed. The licensee acknowledged the findings and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Busch, Chief Reactor Supervisor
K. Carpenter, Reactor Supervisor
B. Chapman, Laboratory Assistant
J. DeZetter, Radiation Safety Officer
J. Fulghum, Department Chair
A. Miller, Laboratory Assistant
A. Prinja, Reactor Administrator
J. Rodriguez, Laboratory Assistant

INSPECTION PROCEDURES USED

IP 69001 CLASS II NON-POWER REACTORS

ITEMS OPENED, CLOSED, AND DISCUSSED

OPENED:

None

CLOSED:

None

DISCUSSED:

50-252/2006-201-01 NCV Failure to follow the NRC approved requalification program in accordance with 10 CFR 55.59(a)(1)

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
AGN	Aerojet General Nucleonics
CFR	Code of Federal Regulations
CRS	Chief Reactor Supervisor
IP	Inspection Procedure
LCO	Limiting Condition for Operation
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
ROTM	Reactor Operation and Training Manual
RS	Reactor Supervisor
RSAC	Reactor Safety Advisory Committee
SRO	Senior Reactor Operator
TS	Technical Specifications
UNM	University of New Mexico
W	Watts