September 15, 2004

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

SUBJECT: NRC INSPECTION REPORT NO. 50-252/2004-201

Dear Dr. Cecchi:

This letter refers to the inspection conducted on July 27-29, 2004, at your AGN-201M Research Reactor Facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. Based on the results of this inspection, no noncompliance of NRC requirements or safety concerns was identified. No response to this letter is required.

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

Should you have any questions concerning this inspection, please contact Stephen W. Holmes at 301-415-8583.

Sincerely,

/RA/

Patrick M. Madden, Section Chief
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-252

Enclosure: NRC Inspection Report No. 50-252/2004-201

cc w/encl: Please see next page

cc:

City Manager
City of Albuquerque
City Hall
Albuquerque, NM 87101

Dr. Robert D. Busch, Chief Reactor Supervisor
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Albuquerque, NM 87131-1341

Dr. Anil Prinja, Reactor Administrator
University of New Mexico
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Mr. James DeZetter, Radiation Safety Officer
Radiation Control Program Director,
State of New Mexico
University of New Mexico
Albuquerque, NM 87131-1341

TRTR Newsletter
202 Nuclear Reactor Building
Department of Nuclear Engineering Sciences
University of Florida
Gainesville, FL 32611

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U. S. NUCLEAR REGULATORY COMMISSION

Docket No:	50-252
License No:	R-102
Report No:	50-252/2004-201
Licensee:	University of New Mexico
Facility:	AGN-201M Reactor
Location:	Albuquerque, New Mexico
Dates	July 27-29, 2004
Inspector:	Stephen W. Holmes
Approved by:	Patrick M. Madden, Section Chief Research and Test Reactors Section New, Research and Test Reactors Program Division of Regulatory Improvement Programs Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

The primary focus of this routine, announced inspection was the onsite review of selected aspects of the licensee's safety program for its five watt Class II research reactor. This inspection audited the following functional areas of the licensee's program: organizational structure and staffing, reactor operations, procedures, operator requalification, surveillance, experiments, review, audit, and design change functions, emergency preparedness, maintenance, and fuel handling. Overall the licensee's programs were found to be acceptably directed toward the protection of public health and safety, and in compliance with NRC requirements.

Organization

- Facility staffing and operational organization met requirements specified in Technical Specifications Section 6.0.

Reactor Operations

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

Procedures and Procedural Compliance

- Based on the procedures and records reviewed and observations of staff during the inspection, the inspector determined that the procedural control and implementation program was acceptably maintained.

Operator Licenses, Requalification, and Medical Activities

- The Requalification Program was being acceptably implemented, the program was up-to-date, and plan requirements were met.

Surveillance

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

Experiments

- The approval and control of experiments met Technical Specifications and licensee procedural requirements.

Review, Audit, and Design Change Functions

- Audits, reviews, and approvals conducted by the Reactor Safety Advisory Committee were in accordance with the requirements specified in Technical Specifications Sections 6.2, 6.4, and 6.5 and licensee procedures. No design changes under 50.59 had been made since the last inspection.

Emergency Preparedness

- The emergency preparedness program was conducted in accordance with the Emergency Plan.

Maintenance

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

Fuel Handling and Movement

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

REPORT DETAILS

Summary of Plant Status

Although the licensee's research reactor was not operated during this inspection, a review of the applicable records indicated that the reactor continued to be operated at various power levels up to the maximum authorized level of five watts in support of research, physics experiments, teaching, and operator training.

1. **Organization**

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

To verify the organization structure and staffing met the requirements specified in Technical Specifications (TS) Sections 6.1 and 6.2, the inspector reviewed:

- TS for the University of New Mexico (UNM) AGN-201M Reactor, Amendment No. 4, dated November 7, 1995
- organization and staffing for the AGN-201M Reactor Facility
- administrative controls and management responsibilities specified in the TS Section 6.0
- Reactor Log Book entries from January 23, 2003 to June 30, 2004
- Reactor Operations and Operator Training Manual (ROOTM), Section II, Administration, Revised January 1997
- ROOTM, Section II, Table II, Duties, revised January 1997

b. Observations and Findings

Through discussions with licensee representatives, the inspector determined that management responsibilities and the organization at the facility had not functionally changed since the previous NRC inspection in October 2003 (refer to NRC Inspection Report No. 50-284/2003-202, ADAMS Accession No. ML030450553). The inspector determined that the Reactor Administrator (RA) retained direct control and overall responsibility for management of the facility as specified in TS Section 6.1.3.

The licensee's operational organization consisted of the RA, the Chief Reactor Supervisor (CRS), a Reactor Supervisor (RS), a Senior Reactor Operator (SRO) and a number of trainees. The inspector confirmed that the RA and RS met the qualifications in TS Sections 6.1.3 and 6.2. The licensee's current operational organization structure and assignment of responsibilities were consistent with that specified in the TS Section 6.1.

By reviewing records and logs and through discussions with licensee personnel, the inspector determined that the staffing at the facility met TS Section 6.1.13 requirements for duty personnel and was acceptable to support the current workload and ongoing activities.

c. Conclusions

Facility staffing and operational organization met requirements specified in TS Section 6.0.

2. Reactor Operations

a. Inspection Scope (IP 69001)

To verify that the licensee was operating the reactor and conducting operations in accordance with TS and procedural requirements, the inspector reviewed the following:

- Reactor Log Book entries from January 23, 2003 to June 30, 2004
- Reactor Use Requests from No. 437, dated January 21, 2003 to No. 456, dated June 22, 2004 ROOTM, Section II, Administration, Revised January 1997
- Precritical Start-up Check-outs from January 2003 to present
- Reactor shutdown data from January 2003 to present
- ROOTM, Section II, Table II, Duties, revised January 1997
- ROOTM, Section III, Operating Procedures, Revised January 1997
- ROOTM, Section III.A, General Operating Procedures, Revised January 1997
- ROOTM, Section III.B, Routine and Nonroutine Operations of UNM AGN-201M REACTOR, Revised January 1997
- ROOTM, Section III.C, Requests for Use, Revised January 1997
- ROOTM, Section III.D, Detailed Operational Procedures, Revised January 1997
- ROOTM, Section III.D.2, Start-up Check-out Procedures, Revised January 1997
- ROOTM, Section III.D.3, Start-up Procedure, Revised January 1997
- ROOTM, Section III.D.4, Procedures During Operation at Power, Revised January 1997
- ROOTM, Section III.D.5, Shut-down Procedure, Revised January 1997
- ROOTM, Section III. Appendix III.A, Request for Use of the UNM AGN-201 Reactor, Revised January 1997
- ROOTM, Section III. Appendix III.B, The UNM AGN-201 REACTOR Operations Log, Revised January 1997

b. Observations and Findings

Reactor operations were carried out following written procedures and TS requirements. Significant problems and events, including unanticipated reactor scrams, were identified in the logs and records, and were reported and resolved as required before the resumption of operations under the authorization of an SRO. The inspector verified that these items, and other TS and procedure required entries, were logged in the Operating Log and cross-referenced with other logs and checklists as required by TS Section 6.10 and licensee procedures. A review of the logs and records indicated that TS operational limits had not been exceeded. Operations records confirmed that shift staffing met the minimum requirements for duty personnel.

A review of the reactor operations and maintenance logs showed that they were being completed as required and problems, if any, were being documented.

c. Conclusions

Operational activities were consistent with applicable TS and procedural requirements.

3. Procedures and Procedural Compliance

a. Inspection Scope (IP 69001)

To determine whether facility procedures met the requirements outlined in TS Sections 6.5 and 6.6, the inspector reviewed:

- ROOTM, Section III, Operating Procedures, Revised January 1997
- selected administrative and operations procedures
- records of changes and temporary deviations to procedures
- RSAC meeting minutes documenting procedure change reviews and approvals
- administrative controls

b. Observations and Findings

The inspector determined that written procedures were available for the activities delineated in TS Section 6.6. These procedures provided guidance for the administrative, operations, and health physics functions of the facility and were found to be acceptable for the current facility status and staffing level. It was noted that the procedures specified the responsibilities of the various members of the staff.

The procedures were being reviewed and routinely updated as needed. Changes were approved as required by TS Section 6.5. Temporary changes to the procedures that did not change the original intent or involve a safety question were made with the approval of the CRS as outlined in TS Section 6.6. These changes were subsequently reviewed by the RSAC as required. No operations were conducted during this inspection but adherence to procedure was determined through a review of logs and other related records.

c. Conclusions

Based on the procedures and records reviewed and observations of staff during the inspection, the inspector determined that the procedural control and implementation program was acceptably maintained.

4. Operator Requalification and Medical Activities

a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that the requirements of the Operator and Senior Operator Requalification Program (OSORP) for the UNM dated March 1986, were being met:

- OSORP dated March 1986
- ROOTM, revised October 2002
- active license status of all current operators
- logs and records of reactivity manipulations for January 2003 through the present
- medical examination records since January 2003
- operator training and examination records since January 2003

- Reactor Log Book entries from January 23, 2003 to June 30, 2004
- radiation protection training since January 2003

b. Observations and Findings

The facility has three qualified, licensed SROs. The inspector verified that the operators were successfully completing the emergency procedure and abnormal events training, reactivity manipulations, and participating in the ongoing training as required by the NRC-approved OSORP.

A review of the training records indicated that training had been conducted in the areas outlined in the OSORP. Records reviewed verified that annual written and operational examinations were being administered as required. The inspector noted that the licensee was tracking and documenting hours and reactor manipulations to ensure that the operators met the requalification program requirements and those stipulated in 10 CFR 55.53(e) to maintain operating licenses in an active status. Biennial medical exams had been conducted as required. Checklists used for tracking requalification requirements were up-to-date and ensured that the plan elements were accomplished.

c. Conclusions

The OSORP was being acceptably implemented, the program was up-to-date, and plan requirements were met.

5. Surveillance Activities

a. Inspection Scope (IP 69001)

To determine that reactor surveillance and Limiting Conditions for Operation (LCO) activities and verifications were being completed as required by TS Sections 2.0, 3.0 and 4.0, the inspector reviewed:

- ROOTM, Section III.D.2, Start-up Check-out Procedures, Revised January 1997
- ROOTM, Section III.E.1, Power Calibration, Revised January 1997
- ROOTM, Section IV, Maintenance and Inspections, Revised January 1997
- ROOTM, Section IV.A, Monthly Reactor Inspections, Revised October 2002
- ROOTM, Section IV.B, Semiannual and Annual Reactor Maintenance, Revised January 1997
- Monthly Inspections from January 21, 2003 to June 23, 2004
- Semiannual and Annual Reactor Maintenance from January 21, 2003 to June 23, 2004
- AGN-201 Experiment No. 2, Reactor Period, Excess Reactivity and Control Rod Calibration
- AGN-201 Experiment No. 3, Importance Functions Measurements
- AGN-201 Experiment No. 5, Flux Distribution and Power Calibration
- surveillance, calibration, and test data sheets and records
- Nuclear Engineering Laboratory production Log from September 24 to December 10, 2003

b. Observations and Findings

The licensee used various checklists to track daily, monthly, and other periodic checks, audits, drills, training, and inspections, as well as verifications for TS required LCOs. The checklists included the date the surveillance, check, or test was performed and information on where the data was documented, and by whom. These checklists provided clear and concise documentation and control of reactor operational tests and surveillances.

The inspector reviewed selected records of all TS required surveillances and LCO verifications performed since January 2003. All data reviewed, including surveillance inspections and LCO verifications showed that the periodic checks, tests, and verifications were completed in accordance with and at the intervals defined in TS Section 4 and licensee procedures. The results of these surveillances and LCOs were within prescribed TS Sections 2.0, 3.0, 4.0, and licensee procedural limits and were consistent with the previous surveillance results.

c. Conclusions

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

6. Experiments

a. Inspection Scope (IP 69001)

In order to verify that experiments were being conducted within approved guidelines specified in TS Sections 3.3 and 6.7, the inspector reviewed:

- experimental administrative controls and precautions
- approved reactor experiments documentation
- review and approval process for experiments
- AGN-201 Preliminary Experiment - NE413l
- AGN-201 Experiment No. 1, Approach to Critical
- AGN-201 Experiment No. 2, Reactor Period, Excess Reactivity and Control Rod Calibration
- AGN-201 Experiment No. 3, Importance Functions Measurements
- AGN-201 Experiment No. 4, Reactor Neutron Temperature
- AGN-201 Experiment No. 5, Flux Distribution and Power Calibration
- Reactor Safeguards Advisory Committee (RSAC) meeting minutes from March 2003 through the present
- ROOTM, Section II, Administration, Revised January 1997
- ROOTM, Section III. Appendix III.A, "Request for use of the UNM AGN-201 Reactor," Revised January 1997
- Reactor Use Requests from No. 437, dated January 21, 2003 to No. 456, dated June 22, 2004

b. Observations and Findings

The inspector noted that all the experiments conducted were outlined in well-established procedures and these procedures were approved by the RSAC and had been in place for many years. No new experiments had been requested since the last NRC operation inspection January 2003. The inspector confirmed that they all met TS Section 3.3 limits for experiments and were conducted, as required by TS Section 6.7.b, under the cognizance of the CRS. The results of the experiments were documented in the reactor operations log book.

c. Conclusions

The approval and control of experiments met TS and licensee procedural requirements.

7. Review, Audit, and Design Change Functions

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required in TS Section 6.4 and to determine whether modifications to the facility, if any, were consistent with 10 CFR 50.59, the inspector reviewed:

- RSAC meeting minutes from March 2003 through the present
- Radiation Control Committee meeting minutes for the past two years
- safety review records and audit reports since January 2003
- responses to the review and audit reports
- design changes reviewed under 10 CFR 50.59 since January 2003
- ROOTM, Section II.A.3, Reactor Safety Advisory Committee, latest revision dated January 1995

b. Observations and Findings

The inspector reviewed minutes of the last three RSAC meetings. The minutes showed that the committee met semiannually as required by TS and that a quorum was present at each meeting. Review of the meeting minutes since January 2003 indicated that the committee provided guidance, direction, and oversight for the reactor and ensured suitable and safe reactor operations. The topics considered during the meetings were appropriate and as stipulated in TS Section 6.4.

The RSAC minutes and audit records showed that safety reviews and individual audits had been completed for the functional areas specified by TS Sections 6.4.2 and 6.4.3 at the frequencies specified therein. It was noted that the RSAC committee completed audits of the security and emergency plans, the operator requalification program and records, and conformance of facility operations to the TS and applicable license conditions as required by TS Section 6.4.3. The inspector determined that the audit findings and licensee actions taken in response to the findings were acceptable.

Through review of applicable records and interviews with licensee personnel, the inspector determined that no changes had been initiated and/or completed at the facility

since the last NRC inspection. However, the inspector verified that changes or modifications to the facility would be analyzed by the staff, presented to and reviewed by the RSAC using the 10 CFR 50.59 review process, prior to being approved as required by TS Section 6.4.2.

c. Conclusions

Audits, reviews, and approvals conducted by the RSAC were in accordance with the requirements specified in TS Sections 6.4 and licensee procedures. No design changes under 50.59 had been made since the last inspection.

8. Emergency Preparedness

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of:

- Emergency Plan (E-Plan) for the UNM AGN-201M Reactor Facility, dated February 1, 2001
- ROOTM, "Section V Emergency Procedures," latest revision dated January 1995
- emergency response facilities, supplies, equipment and instrumentation
- training records
- offsite support and letters of agreement
- documentation of the emergency drill held in 2003 and the follow-up critiques

b. Observations and Findings

The E-Plan in use at the reactor and emergency facilities was the same as the version most recently approved by the NRC. During March 2003, the RSAC performed the biennial audit and review of the E-Plan as required by TS and E-Plan Sections 6.4.3.b and 10.1.1 respectively.

Through direct observation, records review, and interviews with emergency organization personnel (i.e., emergency responders), the inspector determined that they were capable to respond, and knowledgeable of the proper actions to take, in case of an emergency. Training for reactor staff had been conducted annually as required by E-Plan Section 10.2.2. Agreements with outside response organizations were available in Appendix B as noted in E-Plans Section 3.6.3. Communications capabilities were acceptable with these support groups and the licensee indicated that they had been tested October 2003 in conjunction with updating the response rosters, as stipulated in E-Plan Section 10.1.3.

Emergency facilities and equipment required by E-Plan Section 8.0 were being maintained as required by Section 10.3.

The inspector reviewed documentation of the latest emergency drill. The annual drill required by the E-Plan had been conducted on October 24, 2003. The drill involved the delivery of a suspicious package possibly containing radioactive material to the Nuclear Engineering Laboratory. Both reactor and radiation staffs participated in a "spill

response" action to this scenario. Critiques were held following the drills to discuss the strengths and weaknesses identified during the exercise and to develop possible solutions to any problems identified. The results of these critiques were documented as required by E-plan Section 10.2.3.

The inspector verified that, as required by E-Plans Section 10.2.2, alternate year drills included tests of communication and notification procedures with offsite support agencies.

c. Conclusions

The emergency preparedness program was conducted in accordance with the E-Plan.

9. Maintenance

a. Inspection Scope (IP 69001)

To verify that the licensee was meeting the requirements of their Preventive Maintenance Program and complying with TS Section 5.0, the inspector reviewed the following:

- ROOTM, Section IV, Maintenance and Inspections, Revised January 1997
- ROOTM, Section IV.A, Monthly Reactor Inspections, Revised October 2002
- ROOTM, Section IV.B, Semiannual and Annual Reactor Maintenance, Revised January 1997
- Reactor Log Book entries from January 23, 2003 to June 30, 2004
- Reactor Maintenance log entries for June 27, 2003 and August 6, 2003
- Monthly Inspections from January 21, 2003 to June 23, 2004
- Semiannual and Annual Reactor Maintenance from January 21, 2003 to June 23, 2004
- equipment maintenance sheets since January 2003

b. Observations and Findings

Routine/preventive maintenance was controlled and documented in the Reactor Operations and Maintenance logbooks consistent with TS Section 5.0 and licensee procedures. Unscheduled maintenance or repairs were reviewed to determine if they required a 50.59 evaluation. Following maintenance and/or repair, equipment verifications and operational systems checks were performed to ensure system operability before being returned to service. This included a signature by the RS on the maintenance check sheet verifying that the system had been tested for operation and that the reactor was approved for operation.

During a facility tour, the inspector noted that Control/Reactor Room equipment was operational. No missing or malfunctioning equipment was noted. Equipment, and the facility in generally, appeared to be well maintained.

c. Conclusions

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

10. Fuel Handling

a. Inspection Scope (IP 69001)

In order to verify adherence to fuel handling and inspection requirements the inspector reviewed:

- DNRRP No. 3.5, "Reactor Operations Log Book," dated 1967
- fuel handling procedures
- fuel handling equipment and instrumentation
- fuel movement and inspection records

The inspector also reviewed the "Approach to Critical Experiment" for a nuclear engineering class.

b. Observations and Findings

The inspector determined that, except for the well established "Approach to Critical Experiment," reactor fuel had not been handled in the period since the last operation inspection. Through records review and on-site observation, it was verified that acceptable radiological and criticality controls were established for the experiment and were implemented as required. No fuel inspection was required.

c. Conclusions

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

11. Exit Interview

The inspection scope and results were summarized on July 29, 2004, with licensee representatives. 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

Other Personnel

R. Becker	Assistant Radiation Safety Officer, Radiation Safety Division, UNM Safety, Health, & Environmental Affairs Department
J. Daniles	Commander, UNM Police Department

INSPECTION PROCEDURE USED

IP 69001: Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Closed

NONE

Discussed

NONE

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
CRS	Chief Reactor Supervisor
E-Plan	Emergency Plan for the UNM AGN-201M Reactor Facility
IP	Inspection Procedure
LCO	Limiting Condition for Operations
NRC	Nuclear Regulatory Commission
OSORP	Operator and Senior Operator Requalification Program
PARS	Publicly Available Records
RA	Reactor Administrator
ROOTM	Reactor Operations and Operator Training Manual
RS	Reactor Supervisor
RSAC	Reactor Safety Advisory Committee
RSO	Radiation Safety Officer
SRO	Senior reactor operator
TS	Technical Specifications
UNM	University of New Mexico