

-

March 11, 2003

Dr. Joseph Cecchi  
Chair, Chemical and Nuclear Engineering Department  
University of New Mexico  
Albuquerque, NM 87131-1341

SUBJECT: NRC INSPECTION REPORT NO. 50-252/2003-201

Dear Dr. Cecchi:

This letter refers to the inspection conducted on January 27-29, 2003, at your AGN 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 safety concern or noncompliance with NRC requirements was identified. No response to this letter is required.

In accordance with 10 CFR 2.790 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/NRC/ADAMS/index.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  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 50-252

Enclosure: NRC Inspection Report No. 50-252/2003-201

cc w/encl: Please see next page  
University of New Mexico

Docket No. 50-252

cc:

City Manager  
City of Albuquerque  
City Hall  
Albuquerque, NM 87101

Dr. Robert D. Busch, Chief Reactor Supervisor  
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Dr. Norman Roderick, Reactor Administrator  
University of New Mexico  
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Mr. James DeZetter, Radiation Safety Officer  
Radiation Control Program Director,  
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TRTR Newsletter  
202 Nuclear Reactor Building  
Department of Nuclear Engineering Sciences  
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U. S. NUCLEAR REGULATORY COMMISSION

Docket No: 50-252

License No: R-102

Report No: 50-252/2003-201

Licensee: University of New Mexico

Facility: AGN-201M Reactor

Location: Albuquerque, New Mexico

Dates: January 27-29, 2003

Inspector: Stephen W. Holmes

Approved by: Patrick M. Madden, Section Chief  
Research and Test Reactors Section  
Operating Reactor Improvements Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

## EXECUTIVE SUMMARY

This routine, announced inspection included onsite review of various aspects of the licensee's programs concerning the conduct of operations and emergency preparedness as they relate to the licensee's five watt Class II research reactor.

### Organization, Operations, and Maintenance Activities

- Staffing, operations, reporting, and record keeping met requirements specified in Technical Specifications Section 6.0. Maintenance was being completed as required.

### Review, Audit, and Design Change Functions

- The Reactor Safety Advisory Committee acceptably completed review and oversight functions required by Technical Specifications Section 6.4. No design changes had been initiated since the last NRC operations inspection.

### Operator Licenses, Requalification, and Medical Activities

- The Requalification Program was being completed as required and records were being maintained. The operators were maintaining their licenses in an active status.

### Procedures and Procedural Compliance

- Facility procedures and document reviews satisfied Technical Specifications Section 6.6 requirements. Procedural compliance was acceptable.

### Fuel Handling and Movement

- Fuel movement was acceptable in accordance with a well-established experiment.

### Surveillance

- The program for surveillance and Limiting Conditions for Operations confirmations was being implemented in accordance with Technical Specifications Sections 3.0 and 4.0 requirements.

### Experiments

- Experiments were being conducted in accordance with properly reviewed and approved procedures and were satisfactorily documented in the operations log.

### Emergency Preparedness

- The Emergency Plan and Emergency Implementation Procedures were being audited and reviewed annually as required.
- Letters of Agreements documenting emergency support to be provided by offsite agencies were being maintained and updated as required.
- Annual drills were being held as required and documentation was maintained concerning the follow-up critiques and subsequent corrective actions if needed.

## 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, Operations, and Maintenance Activities**

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

To verify staffing, operations, reporting, and record keeping requirements specified in Technical Specifications (TS) Sections 6.1, 6.9, and 6.10 were being met, the inspector reviewed:

- organization and staffing for the AGN Reactor Facility
- administrative controls and management responsibilities specified in TS Section 6.0
- reactor console logs and maintenance logs for 2001 through the present
- Reactor Operations and Operator Training Manual, Section II, "Administration," latest revision dated January 1995
- Reactor Operations and Operator Training Manual, Section III, "Operating Procedures," latest revision dated January 1995
- Reactor Operations and Operator Training Manual, Section IV, "Maintenance and Inspections," latest revision dated January 1995
- AGN-201M Reactor Facility Annual Report for July 1, 2001 - June 30, 2002

##### b. Observations and Findings

The licensee's current operational organization structure and assignment of responsibilities were consistent with that specified in TS Section 6.1. Through discussions with licensee representatives the inspector determined that no functional changes had occurred in the organization since the last NRC inspection in January of 2001.

A review of the reactor operations and maintenance logs showed that they were being completed as required by TS Section 6.10 and problems, if any, were being documented. The annual reports summarized the required information and were issued at the frequency specified in TS Section 6.9.1.

##### c. Conclusions

Staffing, operations, reporting, and record keeping met the requirements specified in TS Section 6. Maintenance was being completed as required.

## 2. 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:

- Reactor Safeguards Advisory Committee (RSAC) meeting minutes from October 2000 through the present
- completed audits and reviews for 2000 through 2002
- design changes reviewed under 10 CFR 50.59 for 2001 and 2002
- Reactor Operations and Operator Training Manual, Section II.A.3, "Reactor Safety Advisory Committee," latest revision dated January 1995

### b. Observations and Findings

The inspector reviewed minutes of the last six RSAC meetings. The minutes showed that the committee met more frequently than semiannually as required by the TS and that a quorum was present at each meeting. The topics considered during the meetings were appropriate and as stipulated in TS Section 6.4. The RSAC conducted audits and reviews of emergency preparedness and security plans and the licensee's conformance of operations and maintenance items to the TS, as required by TS Section 6.4.3. Results of the audits were discussed with the licensee and recommendations for improvement were made. The committee also reviewed the licensee's response and corrective actions for a previous physical security plan violation and its approval of TS administrative changes. The inspector's review confirmed they were fulfilling their duties as required by TS Section 6.4.

Through review of applicable records and interviews with licensee personnel, the inspector determined that no design changes had been initiated since the last NRC inspection. NRC Inspection Report No. 50-252/2001-201, dated November 8, 2001.

### c. Conclusions

The RSAC acceptably completed review and oversight functions required by TS Section 6.4. No design changes had been initiated since the last NRC operations inspection.

## 3. Operator Licenses, Requalification, and Medical Activities

### a. Inspection Scope (IP 69001)

To determine that operator requalification activities and training were conducted as required and that medical requirements were met, the inspector reviewed:

- Operator and Senior Operator Requalification Program for the University of New Mexico dated March 1986
- active license status of all current operators

- logs and records of reactivity manipulations for 2000 through the present
- written examinations given during 2001 and 2002
- training lectures and records for the current training cycle
- medical examination records

b. Observations and Findings

The facility has three qualified, licensed senior reactor operators (SROs). All of the operators' licenses were current.

A review of the training records indicated that training had been conducted in the areas outlined in the licensee's "Operator and Senior Operator Requalification Program for the University of New Mexico." 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. In order to comply with the requirement for actively performing the functions of a senior operator for a minimum of four hours per calendar quarter, the licensee included time spent on the reactor console, supervisory functions, and maintenance. This was consistent with the duties defined for SROs in TS Section 6.1.13.b.

Although it appeared that operators were receiving their required biennial medical examinations, the record for one operator's 2002 exam could not be located. Both the Chief Reactor Supervisor and the individual operator stated that the exam had been performed and that the requalification records would be updated with the proper documentation. This will be reviewed during a subsequent inspection and is identified as an Unresolved Item (URI) (URI 50-251/2003-201-01).

c. Conclusions

The Requalification Program was being completed as required and records were being maintained. The operators were maintaining their licenses in an active status.

**4. Procedures and Procedural Compliance**

a. Inspection Scope (IP 69001)

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

- Reactor Operations and Operator Training Manual, Section III, "Operating Procedures," latest revision dated January 1995
  - A) General Operating Rules 1-14
  - B) Routine and Non-Routine Operations
  - C) Detailed Operating Procedures
    - 2) Startup Checkout Procedure
    - 3) Startup Procedure
    - 4) Procedures During Operation at Power



5) Shutdown Procedure

- administrative records
- procedural reviews and updates documented in the RSAC meeting minutes

b. Observations and Findings

The inspector confirmed that written procedures were available for those tasks and items required by TS Section 6.6. The procedures were being reviewed and routinely updated as needed. Temporary changes to the procedures that did not change the original intent or involve a safety question were made with the approval of the Chief Reactor Supervisor 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

Facility procedures and document reviews satisfied Technical Specifications Section 6.6 requirements. Procedural compliance was acceptable.

**5. Fuel Handling and Movement**

a. Inspection Scope (IP 69001)

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

- fuel handling procedures
- applicable logs and 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 movement was acceptable.

**6. Surveillance**

a. Inspection Scope (IP 69001)

To determine that surveillances and Limiting Conditions for Operations (LCOs)

verifications were being completed as required by TS Sections 3.0 and 4.0, the inspector reviewed:

- Reactor Operations and Operator Training Manual, "Section III Operating Procedures," latest revision dated January 1995
  - E) Calibration Procedures
    - 1) Power Calibration
- Reactor Operations and Operator Training Manual, "Section IV Maintenance and Inspections," latest revision dated January 1995
  - A) Monthly Reactor Inspection
    - 1) Channel 1 High Voltage Plateau
    - 2) Channel 1 Check
    - 5) Safety Interlocks
    - 6) Control Rod Limit Settings and Insertion Time
    - 7) Manual Scram
  - B) Semi-Annual and Annual Reactor Maintenance
- associated surveillance and calibration data and records for 2000-2002

b. Observations and Findings

The inspector determined that selected daily, monthly, annual, other periodic checks, tests, verifications, and calibrations for TS-required surveillances and LCOs were completed as stipulated. The surveillances, LCOs, and calibrations reviewed were generally completed on schedule and in accordance with licensee procedures. All the recorded results were within the TS and procedurally prescribed parameters. The records and logs reviewed were accurate, complete, and being maintained as required.

c. Conclusions

The program for surveillance and calibration of equipment was being carried out in accordance with TS requirements.

## 7. Experiments

a. Inspection Scope (IP 69001)

In order to verify that experiments were being conducted within approved guidelines specified in TS Sections 3.2 and 6.7, the inspector reviewed:

- review and approval process for experiments
- Reactor Safeguards Advisory Committee (RSAC) meeting minutes from October 2000 through the present
- Reactor Operations and Operator Training Manual, Section III.C, "Request For Use," latest revision dated January 1995
- selected Requests For Use forms for 2001 and 2002

b. Observations and Findings

The inspector noted that all the experiments conducted were well-established

procedures that had been in place for many years. No new experiments had been requested since the last NRC operation inspection, January 2001. All experiments that were performed were conducted under the cognizance of the Chief Reactor Supervisor as required by TS Section 6.7.b. The results of the experiments were documented in the reactor operations log book.

c. Conclusions

Experiments were being conducted in accordance with properly reviewed and approved procedures and were satisfactorily documented in the operations log.

## 8. Emergency Preparedness

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of:

- Emergency Plan for the University of New Mexico AGN-201M Reactor Facility (E-Plan), dated February 1, 2001
- Reactor Operations and Operator Training Manual,, "Section V Emergency Procedures," latest revision dated January 1995
- emergency response facilities, supplies, equipment and instrumentation
- training records
- offsite support and letters of agreement
- emergency drills and exercises

b. Observations and Findings

The E-Plan in use at the reactor and emergency facilities was the same as the version most recently submitted to the NRC. During April 2002, the RSAC audited and reviewed the E-Plan as required by TS and E-Plan Sections 6.4.3.b and 10.1.1 respectively.

Through records review, and interviews with licensee personnel, the inspector determined that emergency responders were knowledgeable of the proper actions to take in case of an emergency. Agreements with outside response organizations had been updated and maintained as necessary. Communications capabilities were acceptable with these support groups and the licensee indicated that they had been tested September 27, 2002, as stipulated in E-Plan Section 10.1.3.

Emergency facilities and equipment remained as required by E-Plan Section 8.0 and 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 29, 2002. The drill involved a spill of liquid of unknown origin on the bottom level floor of the AGN reactor room. Both reactor and radiation staffs participated in the response. 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.

c. Conclusions

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

**9. Follow-up on Previously Identified Violations and Inspector Follow-up Items**

a. Inspection Scope (IP 69001)

The inspector followed up on one Inspector Follow-up Item (IFI) and one Violation (VIO) as identified and documented in Inspection Report No. 50-252/2001-201. The inspector reviewed these issues with the licensee to determine what actions, if any, had been taken.

b. Observations and Findings

- 1) IFI 50-252/2001-201-02 (Open): Follow-up on the resolution of the apparent discrepancies between Section V of the AGN Operations Manual and Section 7.3.2 of the E-Plan concerning the conditions requiring evacuation of the NE Laboratory Building.

Although a temporary "pen-in-ink" change had been made to the Operations Manual a permanent update had not as yet been reviewed and approved by the RSAC. The licensee stated that the change would be submitted to the RSAC for review and approval. This IFI will remain open and the NRC will continue to follow this issue.

- 2) VIO 50-252/2001-201-01 (Closed): Failure to test all security alarm functions on a semiannual basis as required by Physical Security Plan Section.

During the inspection the inspector observed the semi-annual testing of the security system by the University of New Mexico Telecommunications Division Alarm Systems Supervisor. The testing confirmed the functioning of the system and met the Physical Security Plan Section 4.7 requirements. Subsequent to the test both electronic and hard copy documentation was provided to the reactor staff by the systems supervisor. This item is considered closed.

c. Conclusions

One IFI and one VIO identified during a previous inspection were reviewed and the VIO was closed during this inspection.

**10. Exit Interview**

The inspection scope and results were summarized on January 29, 2003, 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, University of New Mexico Safety, Health, & Environmental Affairs Department  
K. Guimond, Chief of Police, UNM Police Department  
J. Daniles, Commander, UNM Police Department  
F. McQuerry, Supervisor, Alarm Systems, Telecommunications Division, UNM

## INSPECTION PROCEDURE USED

IP 69001: Class II Non-Power Reactors

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-252/2003-201-01	URI	Biennial medical examination record for one operator's 2002 exam could not be located.
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### Closed

50-252/2001-201-01	VIO	Failure to test all the alarm functions on a semiannual basis as required by the Physical Security Plan.
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### Discussed

50-252/2001-201-02	IFI	Follow-up on the resolution of the apparent discrepancies between the AGN Operations Manual and the E-Plan concerning the conditions requiring evacuation of the NE Laboratory Building.
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## LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
E-Plan	Emergency Plan for the University of New Mexico AGN-201M Reactor Facility
IFI	Inspector Follow-up Item
IP	Inspection Procedure
LCO	Limiting Condition for Operations
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
RSAC	Reactor Safety Advisory Committee
SRO	Senior reactor operator
TS	Technical Specifications
UNM	University of New Mexico
URI	Unresolved Item

VIO Violation