

November 8, 2017

Robert D. Busch, Ph.D., P.E.  
Nuclear Engineering Department  
1 University of New Mexico  
MSC-01-1120  
Albuquerque, NM 87131-0001

SUBJECT: UNIVERSITY OF NEW MEXICO – U.S. NUCLEAR REGULATORY  
COMMISSION ROUTINE INSPECTION REPORT NO. 50-252/2017-201

Dear Dr. Busch:

From August 8 – 10, 2017, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the University of New Mexico AGN-201M Research Reactor Facility. The enclosed report presents the results of that inspection, which were discussed on August 10, 2017, with members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with 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. No response to this letter is required.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (Agencywide Documents Access and Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

R. Busch

- 2 -

Should you have any questions concerning this inspection, please contact Mr. Johnny Eads at 301-415-0136 or electronic mail at [Johnny.Eads@nrc.gov](mailto:Johnny.Eads@nrc.gov).

Sincerely,

***/RA/***

Anthony J. Mendiola, Chief  
Research and Test Reactors Oversight Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

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

Enclosure:  
As stated

cc: w/enclosure: See next page

University of New Mexico

Docket No. 50-252

cc:

City Manager  
City of Albuquerque  
City Hall  
Albuquerque, NM 87101

Dr. Anil Prinja, Chair  
Nuclear Engineering Department  
1 University of New Mexico  
MSC 01-1120  
Albuquerque, NM 87131-0001

Kimberly Paffett, Radiation Safety Office  
1 University of New Mexico  
MCS08-4560  
Albuquerque, NM 87131

Chief, Radiation Control Bureau  
Field Operations Division  
Environment Department  
Harold S. Runnels Bldg.  
1190 St. Francis Drive, Rm S2100  
Santa Fe, NM 87505-4173

Deputy Secretary, Office of the Secretary  
New Mexico State Environment Department  
1190 St. Francis Drive, Suite 4050N  
Santa Fe, NM 87502-6110

Test, Research and Training  
Reactor Newsletter  
P.O. Box 118300  
University of Florida  
Gainesville, FL 32611

Gary Cooper Ph.D  
Nuclear Engineering Department  
1 University of New Mexico  
MSC-01-1120  
Albuquerque, NM 87131-0001

SUBJECT: UNIVERSITY OF NEW MEXICO, U.S. NUCLEAR REGULATORY COMMISSION  
ROUTINE INSPECTION REPORT NO. 50-252/2017-201  
DATED: NOVEMBER 8, 2017

**DISTRIBUTION:**

PUBLIC	PROB r/f	RidsNrrDlpProb Resource
RidsNrrDlp Resource	MNorris (MS T3B 46M)	MCompton, NRR
NParker, NRR	AMendiola, NRR	JEads, NRR
LTran, NRR		

**ADAMS Accession No.: ML17205A645; \*concurrent via e-mail**

**NRC-002**

<b>OFFICE</b>	<b>NRR/DLP/PROB/PM*</b>	<b>NRR/DLP/PROB/LA*</b>	<b>NRR/DLP/PROB/BC</b>
<b>NAME</b>	JEads	NParker	AMendiola
<b>DATE</b>	11/2/17	11/1/17	11/8/17

**OFFICIAL RECORD COPY**

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

Docket No.: 50-252

License No.: R-102

Report No.: 50-252/2017-201

Licensee: University of New Mexico

Facility: AGN-201M Reactor Facility

Location: Albuquerque, New Mexico

Dates: August 8 -10, 2017

Inspector: Johnny Eads

Approved by: Anthony J. Mendiola, Chief  
Research and Test Reactors Oversight Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

## EXECUTIVE SUMMARY

University of New Mexico  
AGN-201M Research Reactor Facility  
NRC Inspection Report No. 50-252/2017-201

The primary focus of this routine, announced inspection included onsite review of selected aspects of the University of New Mexico (UNM, the licensee) Class II research reactor safety program including: (1) organization and staffing; (2) operations logs and records; (3) surveillance and limiting conditions for operations; (4) emergency planning, (5) maintenance logs and records; and (6) fuel handling logs and records. The licensee's programs was acceptably directed toward the protection of public health and safety, and in compliance with U.S. Nuclear Regulatory Commission (NRC) requirements.

### Organization and Staffing

- Organizational structure and staffing satisfied technical specification (TS) requirements.

### Operations Logs and Records

- The facility was maintaining and retaining records in accordance with the TS.

### Surveillance and Limiting Condition for Operation

- Surveillances and limiting conditions for operation were being performed and observed in accordance with the TS.

### Emergency Planning

- The facilities emergency preparedness program was consistent with the approved Emergency Plan.

### Maintenance Logs and Records

- Maintenance activities were performed in accordance with facility procedures. Maintenance records were retained in accordance with TS required periodicity.

### Fuel Handling Logs and Records

- Fuel Handling operations were performed in accordance with facility procedures, protocol, and adhered to TS reactivity specifications for storage in a secured location outside the reactor.

## REPORT DETAILS

### Summary of Facility Status

The University of New Mexico (UNM, the licensee) Aerojet General Nucleonics-201 Modified (AGN-201M) research reactor continued to operate the reactor in support of operator training, surveillances, and teaching and classroom experiments/demonstrations. During the inspection, the reactor was shut down for maintenance.

#### 1. Organization and Staffing

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

The inspector reviewed the following to ensure that the requirements of technical specification (TS) Section 6.0 (revised November 2010) were being met:

- Management responsibilities
- Qualifications of facility personnel
- Organization chart
- Selected portions of the Reactor Operations Logs

##### b. Observations and Findings

This organization was consistent with that specified in the TS. The organizational structure and the responsibilities of the reactor staff had not changed since the last inspection.

Staffing levels remained consistent with those noted during the last inspection of the facility. Through the review of selected records, during operations when the reactor was not secured, the facility met the minimum operating staff requirements specified in TS Section 6.1.12.

##### c. Conclusion

Organizational structure and staffing satisfied TS requirements.

#### 2. Operation Logs and Records

##### a. Inspection Scope (IP 69001)

The inspector reviewed administrative procedures and reviewed record retention to verify compliance with TS Section 6.10. This included:

- Reactor Operations Logs, various 2016 and 2017

Enclosure

- Surveillance and limiting conditions for operation (LCOs) records, various 2016 and 2017
- Maintenance records, various 2016 and 2017

b. Observations and Findings

Reactor operations logs are maintained on an Appendix IIIB form “The University of New Mexico AGN-201M Reactor Operations Log.” The logs identify the completion of the pre-critical startup checklist, startup, power changes, and shutdown of the reactor. The logs and records identify the installation or removal of fuel elements, control rods, or experiments that could affect core reactivity. The logs and records identify rod worth measurements and other reactivity measurements.

It was noted that the reactor operators followed the appropriate procedures, were knowledgeable of the required actions, and professional in the conduct of their duties. The reactor logs were generally found to be properly completed and maintained.

c. Conclusion

The facility was maintaining and retaining records in accordance with the TS.

**3. Surveillance and Limiting Conditions for Operation**

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with TS Section 3.0 and Section 4.0:

- AGN-201M Annual Maintenance form, dated August 15, 2016
- Reactor Operations Logs, various 2016 and 2017
- Monthly Reactor Inspection AGN-201M, SN-112 Reactor forms, various for 2016 and 2017

b. Observations and Findings

The inspector verified that LCOs for reactor core reactivity conditions, reactor control and safety systems, limitations of experiments, and radiation monitoring, control and shielding were met since the last NRC inspection. At the UNM reactor facility, LCOs are verified through monthly and annual surveillances, the results are maintained within the Monthly Maintenance Logbook. Monthly maintenance activities include such determinations as nuclear instrumentation channel checks to verify scram set points and interlocks and rod drop tests. The annual maintenance involves extensive determinations such as power calibration, core excess reactivity, shutdown margin, and rod worth calibrations.

c. Conclusion

Surveillances and LCOs were being performed and observed in accordance with facility TS.

**4. Emergency Planning**

a. Inspection Scope (IP 69001)

The inspector verified compliance with the facilities Emergency Plan (E-Plan) by reviewing selected aspects of:

- E-Plan for the UNM AGN-201M Reactor Facility, dated August 31, 2015
- Emergency Drill Critique, dated September 22, 2016
- Emergency Contact Lists
- Emergency Facilities and Capabilities

b. Observations and Findings

The inspector reviewed the E-Plan, emergency implementing procedures, and toured the facility, noting emergency response capabilities. The E-Plan did not have significant changes and did not appear to change its effectiveness.

The inspector conducted a walk down of the facility to verify that the equipment specified in E-Plan Section 8.0, "Emergency Facilities and Equipment," was available.

In addition, the inspector reviewed the latest facility drill critique dated September 22, 2016. The drill was found to satisfy the requirements of E-Plan Section 10.2, "Training and Drills."

c. Conclusion

The licensee was maintaining acceptable emergency preparedness in accordance with TS and E-Plan requirements.

**5. Maintenance Logs and Records**

a. Inspection Scope (IP 69001)

To verify that maintenance was being performed in accordance with procedures, the inspector reviewed the following:

- Maintenance Log
- Selected portions of the Reactor Operations Logs

b. Observations and Findings

The inspector reviewed selected portions of the control room and maintenance logbooks governing the interval of time since the previous inspection.

Maintenance during this inspection period included troubleshooting and minor repairs. Routine and preventive maintenance was controlled and documented in the appropriate logs. These documents indicated that all maintenance activities were in accordance with the requirements in licensee administrative controls. The inspector verified that all maintenance was conducted in accordance with the requirements of TS Section 4.0, and system operational checks were performed before returning them to service.

c. Conclusion

Maintenance activities were performed in accordance with facility procedures. Maintenance records were retained in accordance with TS required periodicity.

**6. Fuel Handling Logs and Records**

a. Inspection Scope (IP 69001)

To verify compliance with TS 5.2, the inspector interviewed facility staff and reviewed the following:

- Reactor Operations Log, various 2016 and 2017

b. Observations and Findings

Through discussion with reactor facility staff and record reviews it was determined that the majority of fuel handling was performed during laboratory experiments (e.g., 1/M plots for criticality determination) or annual surveillances (e.g., rod drop tests).

The inspector found that the records of fuel movements completed during the inspection period adequately documented the location of fuel elements at all times.

c. Conclusion

Fuel Handling operations were performed in accordance with facility procedures, protocol, and adhered to TS reactivity specifications for storage in a secured location outside the reactor.

**7. Exit Meeting**

The inspection scope and results were summarized on August 10, 2017, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings. The licensee acknowledged the findings presented 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

**INSPECTION PROCEDURES USED**

IP 69001	Class II Research and Test Reactors
----------	-------------------------------------

**ITEMS OPENED, CLOSED, AND DISCUSSED**

OPENED:

None

CLOSED:

None

DISCUSSED:

None

**LIST OF ACRONYMS USED**

E-Plan	Emergency Plan
IP	Inspection Procedure
LCOs	Limiting Conditions for Operation
NRC	U.S. Nuclear Regulatory Commission
TSs	Technical Specifications
UNM	University of New Mexico