

U. S. NUCLEAR REGULATORY COMMISSION

Docket No: 50-252

License No: R-102

Report No: 50-252/98-202

Licensee: University of New Mexico

Facility: AGN-201M Reactor

Location: Albuquerque, New Mexico

Dates: October 5-8, 1998

Inspector: Craig Bassett, Senior Non-Power Reactor Inspector

Approved by: Seymour H. Weiss, Director
Non-Power Reactors and Decommissioning Project
Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

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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. The licensee's programs were directed toward the protection of public health and safety and were in compliance with NRC requirements. No safety concerns or violations of regulatory requirements were identified.

Conduct of Operations

- Staffing, reporting, and record keeping met requirements specified in Technical Specifications (TS) Chapter 6.
- Review and oversight functions required by TS 6.4 were acceptably completed by the Reactor Safety Advisory Committee. No 10 CFR 50.59 changes had been implemented since the last NRC operations inspection.
- The Requalification Program was being completed as required and records were being maintained. The operators were maintaining their licenses in an active status. Medical examinations were being completed as required.
- Facility procedures and document reviews satisfied TS 6.4 and 6.6 requirements.
- The licensee's reactor fuel was not required to be inspected annually but was generally handled once during the academic year for the "Approach to Criticality" student experiment.
- The program for surveillance and LCO confirmations was being implemented in accordance with TS requirements.
- Experiments were being conducted in accordance with properly reviewed and approved procedures and were satisfactorily documented in the operations log.

Emergency Preparedness

- The licensee's Emergency Plan was found to be acceptable by the NRC in 1985 and no major revisions had been made. The licensee is currently revising the Plan and will submit the revision once it is reviewed and approved as required.
- The Emergency Plan and Implementing Procedures were being revised and were adequate to implement the provisions of the Plan. An Inspector Follow-up Item was identified because of apparent discrepancies between the AGN Operations Manual and the Emergency Plan concerning conditions requiring the evacuation of the Nuclear Engineering Laboratory.

- Emergency responders were knowledgeable of proper actions to take in case of an emergency but an Inspector Follow-up Item was identified for failure to maintain first aid supplies in the storage cabinets as required.
- The Letters of Agreement with offsite agencies maintained by the licensee were being updated. The letters indicated that support would be available in case of an emergency. Communications with these support agencies were being tested periodically as required.
- Annual drills were being held as required. The licensee took credit for an actual event in 1998 in lieu of a simulated drill. A critique identifying lessons learned was written following the event. This was determined to be acceptable.
- Emergency preparedness training was being completed as part of the reactor operators' requalification program.

Report Details

Summary of Plant Status

Although the licensee's non-power reactor (NPR) 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 for physics experiments and to support research.

1. Conduct of Operations

a. NPR Organization, Operations, and Maintenance Activities (Inspection Procedure [IP] 69001)

1) Inspection Scope

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

- organization and staffing for the facility,
- administrative controls,
- the reactor console logs, and
- the annual reports.

2) Observations and Findings

The licensee's current operational organization structure and assignment of responsibilities were consistent with that specified in the TS 6.1.

A review of the reactor console logs showed that they were being maintained as required and problems, if any, were being documented. The annual reports summarized the required information and were issued at the frequency specified in the TS 6.9.

3) Conclusions

Staffing, reporting, and record keeping met the requirements specified in TS Chapter 6.

b. NPR Review, Audit, and Design Change Functions (IP 69001)

1) Inspection Scope

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

- Reactor Safety Advisory Committee meeting minutes,
- audits and reviews, and
- engineering changes under 10 CFR 50.59.

2) Observations and Findings

Minutes of the Reactor Safety Advisory Committee (RSAC) showed that the committee met at the required frequency and that a quorum was present. The topics considered during the meetings were appropriate and as stipulated in TS 6.4. The RSAC and/or persons from other institutions conducted audits and reviews as required and the results were reviewed. Problems noted during audits were discussed and recommendations for improvement were made. The licensee implemented the improvements.

The inspector noted that a former member of the RSAC had recently retired and left the committee. The resume of the individual who replaced the former member was reviewed. The individual was well qualified to serve on the RSAC.

Through review of applicable records and interviews with licensee personnel, the inspector determined that no engineering changes had been initiated or completed since the last NRC operations inspection.

3) Conclusions

Review and oversight functions required by TS 6.4 were acceptably completed by the RSAC. No 10 CFR 50.59 changes had been carried out since the last NRC operations inspection.

c. NPR Operator Licenses, Requalification, and Medical Activities (IP 69001)

1) Inspection Scope

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

- active license status,
- logs and records of reactivity manipulations and maintenance,
- written examinations,
- training records, and
- medical examination records.

2) Observations and Findings

The licensee currently has three qualified senior reactor operators (SROs) and one reactor operator (RO). It was noted that, although no reactor operator licenses had expired, one person would be required to renew his license next year. The licensee was aware of this.

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." Written and operational examinations were also being administered as required. It was noted that the licensee was tracking and documenting hours to ensure that the operators met the requirements stipulated in 10 CFR 55.53(e) pertaining to maintaining operating licenses in an active status. In order to comply with the requirement for actively performing the functions of an operator or senior operator for a minimum of four hours per calendar quarter, the licensee included time spent in reactor console/reactivity manipulations, supervisory functions, and performing maintenance. This was consistent with the duties defined for SROs in TS 6.1.13.b.

Operators were receiving the required medical examinations at the frequency specified.

3) Conclusions

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

d. NPR Procedures (IP 69001)

1) Inspection Scope

To determine whether facility procedures met TS requirements, the inspector reviewed:

- operating procedures,
- administrative procedures, and
- procedural reviews and updates.

2) Observations and Findings

Operating procedures were acceptable for the facility and the current staffing level. Documents were being reviewed as required and updated as needed. It was noted that the Operations and Maintenance Procedures were last revised in January 1997. No operations were conducted during this inspection but adherence to procedure was determined from a review of logs and other records.

3) Conclusions

Facility procedures and document reviews satisfied TS 6.4 and 6.6 requirements.

e. NPR Fuel Movement (IP 69001)1) Inspection Scope

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

- fuel handling procedures, and
- applicable logs and records.

2) Observations and Findings

The inspector determined that, except for the well established "Approach to Criticality" project (experiment), reactor fuel had not been handled in the period since the last inspection. Acceptable radiological controls were established for the experiment and were implemented as required.

3) Conclusions

The licensee's reactor fuel was not required to be inspected annually but was generally handled once during the academic year for the "Approach to Criticality" student experiment.

f. NPR Surveillance (IP 69001)1) Inspection Scope

To determine that surveillances and Limiting Conditions for Operations verifications were being completed as required by TS 4.0, the inspector reviewed:

- surveillance and maintenance procedures,
- selected surveillance data and records, and
- Limiting Conditions for Operations.

2) Observations and Findings

The inspector noted that selected daily and other periodic checks, tests, verifications, and/or calibrations for TS-required surveillances and Limiting Conditions for Operations (LCO) were completed as required. The surveillances and LCO verifications reviewed were completed on schedule as required and in accordance with licensee procedures. All the recorded results were within the TS and procedural prescribed parameters. The records and logs reviewed were accurate, complete, and being maintained as required.

3) Conclusions

The program for surveillance and LCO confirmations was being carried out in accordance with TS requirements.

g. NPR Experiments (IP 69001)

1) Inspection Scope

In order to verify that experiments were being conducted within approved guidelines, the inspector reviewed:

- experiment review and approval by the RSAC,
- potential hazards identification, and
- control of irradiated items.

2) 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 initiated, reviewed, or approved since the last inspection. The experiments were conducted under the cognizance of the Chief Reactor Supervisor as required. The results of the experiments were documented in the reactor operations log book.

3) Conclusions

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

2. **Emergency Preparedness**

a. Changes to the Emergency Plan (IP 69001)

1) Inspection Scope

To determine compliance with the requirements of 10 CFR 50.54(q) and the licensee's Emergency Plan, the inspector reviewed:

- the Emergency Plan and Implementing Procedures,
- RSAC meeting minutes,
- recent revisions and updates, and
- applicable letters and documents concerning the Emergency Plan.

2) Observations and Findings

The licensee submitted a revised Emergency Plan (E-Plan) to the NRC on March 11, 1985. The NRC reviewed the changes and found that they were acceptable to implement the requirements of 10 CFR Part 50, Appendix E. No substantial changes have been made since then. The inspector did note that the E-Plan was last reviewed by the RSAC on April 28, 1998, and that some changes and improvements had been suggested. Therefore, the plan is currently being revised and will be submitted to the NRC upon completion of the revision and upon approval by the RSAC and the Reactor Administrator.

3) Conclusions

The licensee's Emergency Plan was found to be acceptable by the NRC in 1985 and no major revisions had been made. The licensee is currently revising the Plan and will submit the revision once it is reviewed and approved as required.

b. Emergency Plan and Implementing Procedures (IP 69001)

1) Inspection Scope

In order to verify the adequacy of the licensee's Emergency Plan and Implementing Procedures, the inspector reviewed:

- the Emergency Plan,
- RSAC meeting minutes, and
- recent suggestions for revisions and updates.

2) Observations and Findings

As noted above, the RSAC had recently reviewed the E-Plan and had made suggestions for improvement. During this inspection and review of the E-Plan, the inspector noted that the Implementing Procedures were basically included in the Plan itself. The procedures appeared to be acceptable to implement the provisions stipulated in the E-Plan.

During the review of the E-Plan, the inspector noted that an evacuation of the Nuclear Engineering (NE) Laboratory is called for under certain conditions. The AGN Operations Manual also specified certain conditions requiring evacuation of the NE Lab but those conditions did not correspond to the ones listed in the E-Plan.

The licensee was informed that the apparent discrepancies between the AGN Operations Manual and the E-Plan concerning the conditions requiring evacuation of the NE Lab would be considered by the NRC as an Inspector Follow-up Item (IFI) and the resolution of the apparent problem would be verified during a future inspection (IFI 50-252/98-202-01).

3) Conclusions

The Emergency Plan and Implementing Procedures were being revised and were adequate to implement the provisions of the Plan. An Inspector Follow-up Item was identified because of apparent discrepancies between the AGN Operations Manual and the Emergency Plan concerning conditions requiring the evacuation of the Nuclear Engineering Laboratory.

c. Emergency Preparedness Program Implementation (IP 69001)

1) Inspection Scope

To determine the adequacy of the licensee's Emergency Preparedness Program implementation, the inspector reviewed:

- facilities,
- equipment,
- instrumentation,
- supplies on hand, and
- emergency response personnel training.

2) Observations and Findings

The facilities and equipment set aside for emergency response were generally being maintained as required. However, the inspector noted that not all the supplies listed in E-Plan were in the cabinets or storage locations that had been set aside for this purpose. Specifically, no first aid supplies were located in the storage cabinets, no calibrated portable survey instrument which could detect alpha radiation was present, and no self-reading personnel dosimeters were available for use. The inspector interviewed the acting Radiation Protection Officer for the university and noted that, in response to an emergency, the campus health physics personnel would bring two trunks/suit cases with them. The trunks contained various survey instruments, including one that would detect alpha radiation. The trunks also contained self-reading personnel dosimeters that could be used by facility personnel. However, no first aid supplies were maintained in the health physics emergency response trunks.

The licensee was informed that the lack of the required first aid supplies would be noted by the NRC as an IFI and the acquisition of the supplies would be verified during a future inspection (IFI 50-252/98-202-02).

Through records review and interviews with licensee personnel, emergency responders were determined to be knowledgeable of the proper actions to take in case of an emergency.

3) Conclusions

Emergency responders were knowledgeable of proper actions to take in case of an emergency but an Inspector Follow-up Item was identified for failure to maintain first aid supplies in the storage cabinets as required.

4. Offsite Support (IP 69001)

1) Inspection Scope

To verify the adequacy of the offsite support that would be provided to the licensee in case of an emergency, the inspector reviewed:

- the Emergency Plan,
- Letters of Agreement, and
- communications capabilities.

2) Observations and Findings

Although Letters of Agreement were on file indicating that various local agencies were available to respond in case of an emergency, it was noted that the letters were dated 1995. The licensee was in the process of obtaining updated letters from the various agencies during the week of the inspection. The inspector noted that an agreement had been established with the University of New Mexico (UNM) Hospital in case a contaminated injured person required medical treatment.

Through a review of the applicable records, the inspector determined that communications with support agencies had been tested on a periodic basis as required. However, upon checking with the UNM Police, the inspector noted that the dispatcher for the police did not have a current Notification Roster for persons to call in case of an emergency involving the research reactor. The dispatcher made a copy of the current roster that the inspector had and placed the current copy in the dispatcher's log book for future reference. The licensee was informed about this problem. Licensee personnel indicated that steps would be taken to ensure that a current roster is forwarded to the UNM Police whenever it is updated.

3) Conclusions

The Letters of Agreement with offsite agencies maintained by the licensee were being updated. The letters indicated that support would be available in case of an emergency. Communications with these support agencies were being tested periodically as required.

e. Emergency Preparedness Exercises and Drills (IP 69001)1) Inspection Scope

To determine that the licensee was conducting the exercises and drills as specified in the Emergency Plan, the inspector reviewed:

- the critiques of drill performance by emergency responders, and
- the documentation of recent drills.

2) Observations and Findings

The inspector noted that drills had been conducted annually as required by the Emergency Plan. Critiques were generally written following the drills to discuss the positive and negative aspects of the exercise and to outline possible solutions to any problems identified. It was noted that no drill was held in 1998 but credit for completion of the annual drill was taken for an actual event. The event involved a water leak in the Cobalt-60 Cell located in the same Nuclear Engineering (NE) Laboratory as the research reactor. Because of the event, the licensee exercised various portions of the Emergency Plan even though the reactor facility was not involved. The licensee wrote a critique of the event and of the lessons learned. This was determined to be acceptable by the inspector.

3) Conclusions

Annual drills were being held as required. The licensee took credit for an actual event in 1998 in lieu of a simulated drill. A critique identifying lessons learned was written following the event. This was determined to be acceptable.

f. Emergency Preparedness Training (IP 69001)1) Inspection Scope

In order to verify the adequacy of the licensee's emergency training, the inspector reviewed:

- the Emergency Plan, and
- training records.

2) Observations and Findings

In the area of Emergency Preparedness and Response, training was reportedly being completed as part of the reactor operators' requalification program. A review of the requalification program indicated that the training was completed as required.

3) Conclusions

Emergency preparedness training was being completed as part of the reactor operators' requalification program.

3. Follow-up on Previously Identified Violations

a. Inspection Scope

The inspector followed up on three violations that had been identified during a previous inspection and documented in Inspection Report No. 50-252/97-201. The inspector reviewed the licensee's response, evaluation, and corrective actions, as applicable, to the problems or issues noted.

b. Observations and Findings

1) VIO 50-252/97-201-01 (Closed): Failure to Monitor Operator Proficiency.

The inspector verified that the licensee had established a program for tracking operator requalification actions. Forms used to record this data had been changed to document the hours spent by each individual as a reactor operator, as a supervisor and in performing maintenance. Records reflected that all operators have maintained an active license since the problem was identified.

2) VIO 50-252/97-201-02 (Closed): Failure to Measure Rod Scram Times.

The inspector verified that the licensee had taken corrective actions. The licensee developed a set-up that could be used to measure the rod scram times. An infrared emitter/receiver connected to a digital acquisition was used, along with a computer, to measure the scram times. The results indicated that the scram times were well within the limit specified in the TS.

3) VIO 50-252/97-201-03 (Closed): Failure to Control Access to the Nuclear Engineering Laboratory.

The inspector verified that the licensee changed the combination to the lock on the NE Lab door every semester. Then, people not formerly on the access list are required to sign the correct form and are given the new code to allow them to open the locked door to the NE Lab. People no longer needing access to the facility are dropped from the access list.

c. Conclusions

Three violations identified during previous a NRC inspection were closed during this inspection.

4. Exit Interview

The inspection scope and results were summarized on October 9, 1998, 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. Becker, Interim Radiation Protection Officer (RPO)
R. Busch, Chief Reactor Supervisor
J. Cecchi, Chair, Chemical and Nuclear Engineering Department
K. Carpenter, Reactor Supervisor
G. Cooper, Reactor Supervisor
N. Roderick, Reactor Administrator

INSPECTION PROCEDURES USED

IP 69001: Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-252/98-202-01 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 Lab.

50-252/98-202-02 IFI Follow-up on the lack of the required first aid supplies in the NE Lab and the acquisition of the supplies.

Closed

50-252/97-201-01 VIO Failure to Monitor Operator Proficiency.

50-252/97-201-02 VIO Failure to Measure Rod Scram Times.

50-252/97-201-03 VIO Failure to Control Access to the NE Laboratory.

LIST OF ACRONYMS USED

AGN Aerojet General Nuclear
CFR Code of Federal Regulations
IFI Inspector Follow-up Item
IP Inspection Procedure
LCO Limiting Condition for Operations
NE Nuclear Engineering
NPR Non-Power Reactor
NRC Nuclear Regulatory Commission

RO	Reactor operator
RPO	Radiation Protection Officer
RSAC	Reactor Safety Advisory Committee
SRO	Senior reactor operator
TS	Technical Specifications
TRTR	Test, Research, and Training Reactor
VIO	Violation

**INSPECTION FOLLOW-UP SYSTEM (IFS)
SPEED CLOSEOUT / UPDATE FORM**

DOCKET NUMBERS	5	0	-	0	2	5	2	RESPONSIBLE INDIVIDUAL: <u>C. Bassett</u> REVIEWED BY: <u>S. Weiss</u> FACILITY: <u>University of New Mexico</u>
			-					
			-					

AFFECTED UNITS (1/2/3)			ITEM TYPE	INSPECTION ITEM NUMBER									CLOSEOUT / UPDATE REPORT NO.				INSPECTION END DATE	ITEM STATUS		
1			V I O	9	7	-	2	0	1	-	0	1	9	8	-	2	0	2	10/8/98	C
1			V I O	9	7	-	2	0	1	-	0	2	9	8	-	2	0	2	10/8/98	C
1			V I O	9	7	-	2	0	1	-	0	3	9	8	-	2	0	2	10/8/98	C

(FOR ESCALATED ITEMS ONLY)

AFFECTED UNITS (1/2/3)			ITEM TYPE	EA NUMBER				NGV ID NUMBER				CLOSEOUT / UPDATE REPORT NO.				INSPECTION END DATE	ITEM STATUS	
			VIO			-												
			VIO			-												
			VIO			-												

Item Seq. No.:	0	2	Item Type:	I	F	I	Severity Level:		Supplement No.:	4	EA NO.						
ITEM STATUS:	Unit 1:	Unit 2:	Unit 3:	(Fill in the EA NO. if opening an 'EEI' item. The EA NO. can be obtained from EICS)													

Title: Follow-up on first aid supplies. _____ (110 Characters Max)

Inspection Procedure Number:	SALP Functional Area:	Cause Code:	Closeout Org. Code:
69001	PS	30, 31	P D N D

NOV Summary/Comments: Follow-up on the lack of the required first aid supplies in the Nuclear Engineering Laboratory and the acquisition of the required supplies.

Item Seq. No.:			Item Type:				Severity Level:		Supplement No.:		EA NO.						
ITEM STATUS:	Unit 1:	Unit 2:	Unit 3:	(Fill in the EA NO. if opening an 'EEI' item. The EA NO. can be obtained from EICS)													

Title: _____ (110 Characters Max)

Inspection Procedure Number:	SALP Functional Area:	Cause Code:	Closeout Org. Code:

NOV Summary/Comments:

U.S. Nuclear Regulatory Commission INSPECTION FOLLOW-UP SYSTEM (IFS) Nuclear Reactor Regulation
 POWER REACTOR, FUEL FACILITY & VENDOR DATA ENTRY FORM
 OPEN NEW ITEMS ONLY - (non escalated)

SITE NAME: University of New Mexico

REPORT NO.:	UNIT	DOCKET NO.:
98 - 202	1	50 - 0252
	2	

SUBMITTED BY: Craig Bassett DATE: _____
 REVIEWED BY: Sy Weiss DATE: _____

Report Transmittal Date: _____

Lead Responsible Inspector RITS initials: A Q U P D N D

Last Name: Bassett

Responsible Org. Code: P D N D

ANY NEW ITEMS?
 No - Stop here
 Yes - Continue

Item Seq. No.:	01	Item Type:	IF I	Severity Level:	8	EA NO.	
ITEM STATUS:	0	Unit 1:		Unit 2:		(Fill in the EA NO. if opening an 'EEI' item. The EA NO. can be obtained from EICS)	

Title: Follow-up on apparent discrepancies between the Ops Manual and the Emergency Plan

(110 Characters Max)

Inspection Procedure Number:	69001	SALP Functional Area:	PS	Cause Code:	30	Closeout Org. Code:	P D N D
					31		

NOV Summary/Comments: Follow-up on the correction or resolution of the apparent discrepancies between the AGN Operations Manual and the Emergency Plan concerning the conditions requiring evacuation of the NE Laboratory.

* NOTE: See back for CODES