March 27, 2008

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

#### SUBJECT: UNIVERSITY OF NEW MEXICO -- NRC INSPECTION REPORT NO. 50-252/2008-201

Dear Dr. Cecchi:

On March 10-13, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your University of New Mexico AGN-201M Research Reactor Facility. The enclosed inspection report presents the results of that inspection which were discussed on March 13, 2008, with Anil Prinja, Reactor Administrator, and other members of the reactor staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the NRC'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 Section 2.390, "Public inspections, exemptions, and requests for withholding," of Title 10 of the Code of Federal Regulations (CFR), 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 Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <u>http://www.nrc.gov/reading-rm/adams.html</u> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Craig Bassett at 404-358-6515.

Sincerely,

#### /RA/

Johnny H. 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. 50-252/2008-201 cc w/enclosure: See next page

#### University of New Mexico

CC:

City Manager City of Albuquerque City Hall Albuquerque, NM 87101

Robert D. Busch, Ph.D, P.E. Chief Reactor Supervisor Chemical and Nuclear Engineering Dept, FEC 209 MSC01 1120 1 University of New Mexico Albuquerque, NM 87131-0001

Dr. Anil Prinja, Reactor Administrator Chemical and Nuclear Engineering Department University of New Mexico 209 Farris Engineering, MSC 01-1120 Albuquergue, NM 87131-0001

Mr. James De Zetter, Radiation Safety Officer Safety, Health, Environmental Affairs University of New Mexico 1801 Tucker NE, Bldg. 233MSC 07-4100 Albuquerque, NM 87131-0001

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 Dept. 1190 St. Francis Drive, Suite 4050N Sante Fe, NM 87502-6110

Test, Research, and Training Reactor Newsletter University of Florida 202 Nuclear Sciences Center Gainesville, FL 32611 March 27, 2008

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

#### SUBJECT: UNIVERSITY OF NEW MEXICO -- NRC INSPECTION REPORT NO. 50-252/2008-201

Dear Dr. Cecchi:

On March 10-13, 2008, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your University of New Mexico AGN-201M Research Reactor Facility. The enclosed inspection report presents the results of that inspection which were discussed on March 13, 2008, with Anil Prinja, Reactor Administrator, and other members of the reactor staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the NRC'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 Section 2.390, "Public inspections, exemptions, and requests for withholding," of Title 10 of the Code of Federal Regulations (CFR), 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 Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <a href="http://www.nrc.gov/reading-rm/adams.html">http://www.nrc.gov/reading-rm/adams.html</a> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Craig Bassett at 404-358-6515.

Sincerely, /RA/ Johnny H. Eads, Branch Chief Research and Test Reactors Branch B Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

**TEMPLATE #: NRR-106** 

Docket No. 50-252 License No. R-102 Enclosure: NRC Inspection Report No. 50-252/2008-201 cc w/enclosure: See next page <u>DISTRIBUTION</u>: PUBLIC PRTA r/f RidsNrrDprPrta RidsNrrDprPrtb DBarss (MS 06-H2) BDavis (Ltr only 05-A4) ACCESSION NO.: ML080850455

| OFFICE | PRTB:RI     | PRT:LA      | PRTB:BC   |
|--------|-------------|-------------|-----------|
| NAME   | CBassett cb | EHylton egh | JEads jhe |
| DATE   | 3/25/08     | 3/25/08     | 3/27/08   |

OFFICIAL RECORD COPY

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

| Docket No:   | 50-252   |
|--------------|--|
| License No:  | R-102  |
| Report No:   | 50-252/2008-201  |
| Licensee:    | University of New Mexico   |
| Facility:    | AGN-201M Research Reactor  |
| Location:    | Albuquerque, New Mexico  |
| Dates:       | March 10-13, 2008  |
| Inspector:   | Craig Bassett  |
| Approved by: | Johnny H. Eads, Branch Chief<br>Research and Test Reactors Branch B<br>Division of Policy and Rulemaking<br>Office of Nuclear Reactor Regulation |

# EXECUTIVE SUMMARY

#### University of New Mexico AGN-201M Research Reactor Facility NRC Inspection Report No.: 50-252/2008-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the licensee's 5 Watt Class II research and test reactor safety program including: organization and staffing, review and audit and design change functions, radiation protection program, procedures, experiments, transportation of radioactive materials, and emergency preparedness since the last NRC inspection of these areas. The licensee's program was 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.

### Review and Audit and Design Change Functions

- Review and oversight functions required by the Technical Specifications were acceptably completed by the Reactor Safety Advisory Committee.
- The design change program was being implemented as required.

#### Radiation Protection Program

- Surveys were being completed and documented acceptably.
- Postings met the regulatory requirements.
- Personnel dosimetry was being worn as required and doses were within the licensee's procedural action levels and NRC's regulatory limits.
- Radiation monitoring equipment was being maintained and calibrated as required.
- The Radiation Protection Program was outlined and established through the University of New Mexico's Radiation Safety Manual.
- Appropriate radiation safety training was being provided to reactor staff members and students who had access to the Nuclear Engineering Laboratory.

#### **Procedures**

• Procedural control and implementation satisfied Technical Specification requirements.

#### Experiments

• The approval and control of experiments met Technical Specification requirements.

# Transportation of Radioactive Materials

• The licensee did not ship any radioactive material from the facility using the reactor license.

# Emergency Preparedness

• The emergency preparedness program was conducted in accordance with the requirements stipulated in the Emergency Plan

# **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, continued to be operated primarily in support of teaching experiments, but was also operated for operator training and completing surveillances. During the inspection, the reactor was not operated.

### 1. Organization and Staffing and Reporting Requirements

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

The inspector reviewed the following to verify compliance with the organization and staffing requirements, the staff qualification requirements, and the reporting requirements in Technical Specifications (TS) Sections 6.1, 6.2, and 6.9:

- reactor staff requirements and qualifications
- management responsibilities and administrative controls
- Reactor Operation and Training Manual (ROTM), Section II entitled "Administration," revised March 2008
- ROTM, Appendix III-B, "AGN-201M Reactor Operations Log," revised March 2008
- selected AGN-201M Reactor Operations Log entries dated from December 21, 2006 to the present
- 2006 Annual Report for the AGN-201M Reactor for the period from July 1, 2005 -June 30, 2006, submitted on September 29, 2006
- 2007 Annual Report for the AGN-201M Reactor for the period from July 1, 2006 June 30, 2007, submitted on September 18, 2007
- "The Technical Specifications for the University of New Mexico (UNM) AGN-201M Reactor," Amendment No. 4, dated November 7, 1995, (latest revision submitted for license renewal dated February 2007)

#### 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. 50-252/2007-201). Current licensed staff consisted of the Chief Reactor Supervisor (CRS) and two reactor supervisors. The CRS and the two supervisors were qualified Senior Reactor Operators (SROs). There were no Reactors Operators (ROs) currently working at the facility. It was noted that three ROs, who had worked at the facility in the past and were part-time staff members but full time students, had graduated and left the university.

The qualifications of the UNM staff 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 were issued at the frequency specified in TS Section 6.9.1. No abnormal occurrence reports or special reports had been submitted, nor were any required to be, pursuant to TS Section 6.9.2 or 6.9.3.

### c. Conclusion

The organization and staffing were consistent with TS requirements. Reporting requirements were being fulfilled as stipulated.

## 2. Review and Audit and Design Change Functions

### a. Inspection Scope (IP 69001)

In order to verify that reviews and audits were being conducted as stipulated in TS Section 6.4 and to ensure that any modifications to the facility were consistent with 10 CFR 50.59, the inspector reviewed selected aspects of:

- facility configuration and associated records
- facility design changes and records for the past two years
- Reactor Safety Advisory Committee meeting minutes dated from May 2006 to January 2008
- 2006 Annual Report for the AGN-201M Reactor for the period from July 1, 2005 -June 30, 2006, submitted on September 29, 2006
- 2007 Annual Report for the AGN-201M Reactor for the period from July 1, 2006 June 30, 2007, submitted on September 18, 2007
- ROTM, Section II.A.3, entitled "Reactor Safety Advisory Committee," revised March 2008

#### b. Observations and Findings

(1) Review and Audit Functions

The functions and responsibilities of the Reactor Safety Advisory Committee (RSAC) were defined in the TS. The inspector verified that the RSAC held semiannual meetings and a quorum was present as required. Review of the RSAC meeting minutes showed that an acceptable record of RSAC review functions and of RSAC safety oversight of reactor operations was being maintained. The minutes indicated that the RSAC provided guidance, direction, and oversight, and ensured suitable use of the reactor.

The RSAC conducted audits of the items required by TS 6.4.3 during the semiannual meetings. Typically audit findings were noted in the meeting minutes. Any safety related items detected during the audits were brought to the attention of management. The inspector noted that there were no safety significant issues recorded during the audits of the past two years.

(2) Design Change Functions

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 the records documenting the detector can replacement of Nuclear Safety Channels 2 and 3. Post installation verification testing of the system was documented.

### c. Conclusions

Review and oversight functions required by the TS were acceptably completed by the RSAC. The design change program was being implemented as required.

### 3. Radiation Protection Program

### a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with TS Section 4.4 as well as 10 CFR Part 19 and Part 20 requirements:

- radiological signs and posting and area control
- UNM Radiation Safety Manual (RSM), revised July 1999
- quarterly dosimetry records for the reactor room for 2006 and 2007
- quarterly dosimetry records for reactor staff and students for 2006 and 2007
- completed AGN-201 Annual Maintenance forms for 2006 and 2007
- maintenance and calibration of portable radiation survey instruments
- completed AGN-201 Monthly Non-Operational Radiation Survey forms, which included documentation of an inventory of decontamination equipment, for the period from January 5, 2006 to present
- completed Nuclear Engineering AGN-201 Annual Reactor Radiation Survey forms, dated March 2, 2006, February 15, 2007, and February 14, 2008
- Instrument Calibration Summary for the Area Radiation Monitors, dated April 24, 2006 and April 21, 2007
- Radiation Safety Procedure RSP-50, "UNM Safety Health & Environmental Affairs Radiation Dosimetry Program," dated June 1998
- Radiation Safety Procedure RSP-60, "Radiation Safety Training," dated April 1998
- Radiation Safety Form RSF-50-2, "Dosimeter Questionnaire," dated April 2000
- Radiation Safety Form RSF-50-3, "Dosimetry Program Orientation," dated October 2005
- Radiation Safety Form RSF-60-1, "Radiation Worker's Training & Experience," dated June 1998
- UNM Safety & Risk Services Radiation Safety Division Annual Report (November 2005 October 2006)
- UNM Safety & Risk Services Radiation Safety Division Annual Report (November 2006 - October 2007)

#### b. Observations and Findings

The inspector toured the Nuclear Engineering Laboratory (NE Lab) and observed the use of dosimetry and radiation monitoring equipment. Licensee personnel were interviewed as well. The inspector also discussed the subjects of surveys, dosimetry, training, and radioactive effluents with UNM Department of Safety & Risk Services (SRS), Radiation Safety Division representatives.

# (1) Surveys

The inspector reviewed monthly radiation and contamination surveys of the licensee's controlled areas completed by the SRS Radiation Safety Division personnel. The surveys had been completed in accordance with procedure and the results were documented on the appropriate forms and evaluated as required. The surveys also typically included a check of the supplies stored in the Decontamination Facilities of the NE Lab. It was noted that the SRS Radiation

Safety Division personnel also completed an annual radiation survey of the facility while the reactor was at power in accordance with TS 4.4.c. No readings in excess of those noted in the past were discovered.

(2) Postings and Notices

The inspector toured the NE Lab and reviewed the postings required by 10 CFR Parts 19 and 20 at the entrances to various controlled areas including the Reactor Facility, the Reactor Room, and radioactive material storage areas. The postings were acceptable and indicated the radiation and contamination hazards present. The facility's radioactive material storage areas were noted to be properly posted. No unmarked radioactive material was found in the facility. Control of radioactive material and control of access to radiation and high radiation areas were acceptable.

#### (3) Dosimetry

The inspector determined that the licensee typically used thermoluminescent dosimeters (TLD) for whole body monitoring of beta and gamma radiation exposure. The TLDs also contained a component to measure neutron radiation. The dosimetry was supplied and processed by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited vendor, Global Dosimetry Solutions, Inc. An examination of the TLD results indicating radiological exposures at the facility for the past two years showed that the highest occupational doses, as well as doses to the public, were within 10 CFR Part 20 limitations. The records showed that the highest annual whole body exposure received by a single individual working in the NE Lab for 2006 (a reactor staff member) was 86 millirem (mr) deep dose equivalent (DDE) and 86 mr shallow dose equivalent (SDE). The records further indicated that the highest annual whole body exposure received by a single individual working in the NE Lab for 2007 (a student) was 802 mr DDE and 870 mr SDE. These doses were noted by the inspector to be much higher than expected. It was also noted that, according to the exposure records provided by the vendor, a large component of the dose was attributable to neutron radiation and that the "large" doses had been received during the second and third guarters of the year.

This issue was discussed with the UNM Radiation Safety Officer (RSO). It was noted that the Radiation Safety Division typically investigated any dosimetry readings that indicated a quarterly exposure above 600 mr for whole body and/or 6,000 mr for the extremities. However, since the 2007 doses were less than 600 mr per quarter, no action had been taken to investigate the higher than normal or expected results. The RSO consulted with the reactor staff personnel about this issue during the inspection. It was thought that the higher than usual results for 2007 were possibly attributed to the licensee's acquisition and use of a Californium-252 source during the escond and third quarters of that year. Since the actual cause was unknown, the inspector informed the licensee that the issue of determining the cause of the higher than expected doses for reactor staff members and students who had worked in the NE Lab for the second and third quarter of 2007 would be identified as an Inspector Follow-up Item (IFI) and would be reviewed during a subsequent inspection (IFI 50-252/2008-201-01).

Through direct observation the inspector determined that dosimetry was generally acceptably used by facility personnel and exit frisking practices were in accordance with facility radiation protection requirements.

(4) Radiation Monitoring Equipment

The calibration of portable survey meters and friskers was completed either by SRS Radiation Safety Division personnel or by a company that specializes in calibrations. Fixed area radiation monitors were calibrated at the facility by reactor staff personnel using a portable source. The calibration records of portable survey meters and fixed radiation detectors in use at the facility were reviewed. The calibration frequencies of the various instruments examined met the requirements established in TS 4.4.a and records were being maintained as required.

(5) Radiation Protection Program

It was noted that the licensee's Radiation Protection Program (RPP) was established through the UNM Radiation Safety Manual. The inspector verified that the RPP was being reviewed annually as required and that no issues related to radiation protection at the NE Lab had been program had identified in the review of the program.

(6) Training

The Radiation Safety Manual required that all personnel who worked with radioactive materials receive training in radiation protection, policies, procedures, requirements, and the facilities prior to having unescorted access at the facility. UNM SRS Radiation Safety Division personnel were responsible for conducting the training and all of the training was typically conducted by a radiation safety specialist. A test was administered at the end of the training to verify that the individuals understood the material presented. The training covered the topics required to be taught in 10 CFR Part 19 and a review of training materials and tests indicated that reactor staff and student personnel were instructed on the appropriate subjects.

(7) Environmental Monitoring

The licensee complied with NRC regulations for environmental monitoring by ensuring that all doses at the site boundary were less than the dose limits specified in 10 CFR 20.1301. Several TLDs were strategically placed in several locations around the inside perimeter of the facility. Records for 2006 and 2007 indicated slightly elevated doses that were generally below the applicable requirements. The licensee stated that the levels measured outside of the facility were within the regulatory requirements. There were no liquid or gaseous effluents discharged from the facility for 2006 and 2007.

c. Conclusions

The licensee's RPP was found to be adequate because: (1) surveys were being completed and documented acceptably, (2) postings met the regulatory requirements, (3) personnel dosimetry was being worn as required and doses were within the licensee's procedural action levels and NRC's regulatory limits, (4) radiation monitoring equipment was being maintained and calibrated as required, and (5) appropriate radiation safety training was being provided to reactor staff members and students who had access to the NE Lab.

### a. Inspection Scope (IP 69001)

The inspector reviewed the following to ensure that the procedural control requirements of TS Section 6.6 were being met:

- records of changes to procedures
- selected administrative and operations procedures
- administrative controls and procedural implementation
- ROTM, Section III, entitled "Operating Procedures," revised March 2008
- Reactor Safety Advisory Committee meeting minutes dated from May 2006 to January 2008

### b. Observations and Findings

The inspector determined that written procedures were available for the activities delineated in TS Section 6.6 and were approved by the RSAC before they were implemented. The clarity and detail in the procedures was acceptable. Temporary changes to the procedures that did not change their original intent could be authorized by the CRS but were then subsequently reviewed by the RSAC. It was noted that reactor staff personnel conducted activities in accordance with applicable procedures.

The inspector also noted that the ROTM was being revised and would then be submitted to the RSAC for approval. As of the date of the inspection, the only portion left for revision was that dealing with the control rod calibration curves. Even though there were minor revisions to be made, the CRS had approved the use of the revised ROTM, which contained all of the facility procedures.

c. Conclusions

Procedural control and implementation satisfied TS requirements.

# 5. Experiments

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

The inspector reviewed selected aspects of the following to verify compliance with TS Sections 3.3 and 6.7:

- review and approval process for experiments
- approved reactor experiments documentation
- experimental administrative controls and precautions
- completed Requests for Use forms, dated from January 25, 2006 to the present
- completed AGN-201M Reactor Operations Logs, dated from December 21, 2006 to the present
- Nuclear Engineering Laboratory Isotope Production Logs from September 20, 2006 to December 9, 2007
- AGN-201 Experiment No. 0, "Preliminary Experiment," undated
- AGN-201 Experiment No. 1, "Approach to Critical," undated
- AGN-201 Experiment No. 2, "Reactor Period, Excess Reactivity and Control Rod Calibration," undated
- AGN-201 Experiment No. 3, "Importance Functions Measurements," undated
- AGN-201 Experiment No. 4, "Reactor Neutron Temperature," undated

- AGN-201 Experiment No. 5, "Flux Distribution and Power Calibration," undated
- ROTM, Section III, entitled "Operating Procedures," revised January 1997
- ROTM, Appendix III-A, "Request for Use of the UNM AGN-201M Reactor," revised March 2008
- ROTM, Appendix III-B, "AGN-201M Reactor Operations Log," revised March 2008
- ROTM, Section IV, entitled "Maintenance and Inspections," revised March 2008

# b. Observations and Findings

No new experiments had been initiated, reviewed, or approved since the previous inspection at the facility. If any new experiments were to be initiated, they would be reviewed and approved by the RSAC prior to being conducted in the Lab. The inspector confirmed that the experiments being conducted at the facility were in accordance with TS limits and procedural requirements. Request for Use (RFU) of the UNM AGN-201 Reactor forms had been completed and approved for the various experiments as required. New RFU forms were typically completed each quarter for each of the experiments.

The most frequently used experimental facility was the glory hole position. Samples were typically loaded and unloaded from the sample irradiation position while the reactor was at the desired power level. Samples that had been irradiated at UNM included various metal foils and detectors. Other experiments conducted at the AGN-201M reactor facility included sub-critical multiplication and other reactor physics demonstrations. The CRS approved all routine samples that were to be irradiated in accordance with the TS limitations.

c. Conclusions

The approval and control of experiments met TS requirements.

# 6. Transportation

a. Inspection Scope (IP 86740)

To verify compliance with procedural requirements for shipping radioactive material, the inspector interviewed licensee personnel, SRS Radiation Safety Division personnel, and reviewed various records.

#### b. Observations and Findings

Through records review and discussions with licensee and UNM SRS Radiation Safety Division personnel, the inspector determined that the licensee had not shipped any radioactive material from the reactor facility under the auspices of the reactor license. If the licensee needed to ship radioactive material, it would likely be transferred to the UNM's Broad Scope license and shipped or disposed of under that license.

#### c. Conclusions

No radioactive material was shipped from the reactor facility under the reactor license.

## 7. Emergency Preparedness

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

To ensure compliance with the "Emergency Plan for the UNM AGN-201M Reactor Facility," revision dated January 29, 2008, the inspector reviewed selected aspects of:

- emergency supplies, equipment, and instrumentation
- AGN-201 Annual Maintenance forms for 2006 and 2007
- maintenance and calibration of portable radiation survey instruments
- Instrument Calibration Summary for the Area Radiation Monitors, dated April 24, 2006 and April 21, 2007
- completed AGN-201 Monthly Non-Operational Radiation Survey forms, which included documentation of an inventory of decontamination equipment, for the period from January 5, 2006 to present
- Letter of Agreement with the UNM Hospital, dated February 21, 2007
- Letter of Agreement with the Albuquerque Ambulance Service, dated February 22, 2007
- Letter of Agreement with the City of Albuquerque Fire Department, dated March 1, 2007
- Reactor Emergency Drill (scenarios and critiques) dated February 7, 2006 and March 29, 2007, and March 6, 2008
- E-Plan Appendix A, "Emergency Organization and Personnel," dated August 16, 2007
- E-Plan Appendix B, "Notification Roster," dated August 16, 2007
- ROTM, Section V, "Emergency Procedures," revised March 2008

#### b. Observations and Findings

The Emergency Plan (E-Plan) in use at the facility was the same as the version approved by the NRC and was last revised January 2008. The E-Plan was audited and reviewed biennially by the RSAC as required. Implementing procedures were also reviewed and revised by the licensee as needed to implement the E-Plan. The inspector reviewed the emergency facilities, instrumentation, and equipment and verified that the emergency response facilities and supplies were as described in the E-Plan. It was also noted that emergency response equipment and supplies at the NE Lab were being maintained and inventoried as required.

The inspector verified that the Letters of Agreement (LOAs) that had been established with the City of Albuquerque Fire Department, the UNM Hospital, and the Albuquerque Ambulance Service were in place and being maintained. It was noted that the LOA with the Albuquerque Ambulance Service stated that they would transport "decontaminated" individuals to the UNM hospital. The inspector determined that the RSAC had reviewed this situation and the committee members were comfortable that the city services would provide the necessary care when needed.

Through direct observation, records review, and interviews with emergency organization personnel, the inspector determined that they were capable to respond, and knowledgeable of the proper actions to take in case of an emergency. The facility staff was responsible for responding to an emergency during all hours and making an initial assessment of an emergency situation and implementing corrective and protective actions. The responsibility and authority for directing and coordinating emergency response activities was assigned to the CRS, acting as the Emergency Director. All facility personnel received annual emergency response training.

Emergency drills had been conducted annually as required by the E-Plan. The drills for 2006, 2007, and 2008 were practical exercises and basically tested the notification of emergency personnel. The results of the exercised were discussed following the drills and critiques were written to document any problems and identified during the exercises. During the most recent drill, the licensee discovered that the emergency procedures might not provide the correct guidance for certain situations. The licensee was currently in the process of revising the emergency procedures to correct this noted deficiency.

The inspector, accompanied by the UNM RSO, visited the City of Albuquerque Fire Department Station #3 on March 13, 2008. The subject of what supplies and equipment would be available in case of an emergency was discussed with the Captain who was on duty at the station. The Captain indicated that they had limited radiation training and if additional support were needed, a nearby Hazardous Materials (HAZMAT) Team could respond. The inspector confirmed that the fire department (FD) was well prepared to handle a variety of situations that could happen at the AGN-201M reactor facility. It was also noted that there appeared to be a good working relationship between the licensee and the fire department. Also during the visit, the RSO provided the Captain with two portable survey meters that could be used by FD personnel when responding to an emergency potentially involving radioactive material. It was noted that the RSO had previously given the FD personnel training in the use of survey meters.

#### c. Conclusions

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

#### 8. Follow-up on Previous Open Items

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

The inspector reviewed the actions taken by the licensee following identification of an IFI during a previous inspection.

#### b. Observations and Findings

IFI 50-252/2006-201-02 - Follow-up to verify that the licensee would arrange tours of the AGN-201M Reactor Facility for the City of Albuquerque Fire Department for emergency preparedness training.

During an inspection in April 2006, an NRC inspector had visited the City of Albuquerque Fire Station #3. At that time the Captain stated that it would be useful to have a periodic tour of the NE Laboratory facility to orient himself and the other FD personnel with hazards contained in the research reactor building. The RSO, who was present at the meeting, agreed that a periodic facility tour would be useful to the fire department. This issue was established as an Inspector Follow-up Item.

During this inspection, the inspector checked on the progress of conducting periodic tours of the NE Lab for FD personnel. This had been initiated with the latest tours occurring in May 2007. The inspector noted that another set of tours for FD personnel was being arranged and had tentatively been set for May 2008. This issue is considered closed.

# c. <u>Conclusions</u>

All open items identified in previous inspection reports were closed.

# 9. Exit Meeting

The inspector presented the inspection results to licensee management at the conclusion of the inspection on March 13, 2008. 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 Personnel

- R. Busch, Chief Reactor Supervisor and Senior Reactor Operator
- K. Carpenter Reactor Supervisor and Senior Reactor Operator
- J. Fulghum Department Chair
- A. Prinja Reactor Administrator

#### Other Personnel

- R. Collado Captain, Heavy Rescue Unit, City of Albuquerque Fire Department
- J. DeZetter Radiation Safety Officer, Department of Safety and Risk Services, Division of Radiation Safety, UNM

#### **INSPECTION PROCEDURES USED**

IP 69001Class II Research and Test ReactorsIP 86740Inspection of Transportation Activities

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### OPENED:

50-252/2008-201-01 IFI Follow-up on the licensee's efforts to determine the cause of the much higher than expected doses for reactor staff members and students who had worked in the NE Lab during the second and third quarters of 2007.

#### CLOSED:

50-252/2006-201-02 IFI Follow-up to verify that the licensee arranges tours of the AGN-201M Reactor Facility for the City of Albuquerque Fire Department for emergency preparedness training.

# LIST OF ACRONYMS USED

| ADAMS  | Agencywide Document Access and Management System |
|--------|--|
| AGN    | Aerojet General Nucleonics                       |
| CFR    | Code of Federal Regulations                      |
| CRS    | Chief Reactor Supervisor                         |
| DDE    | Deep dose equivalent                             |
| E-Plan | Emergency Plan                                   |
| FD     | Fire Department                                  |
| HAZMAT | Hazardous Materials                              |
| IFI    | Inspector Follow-up Item                         |
| IP     | Inspection Procedure                             |
| LOA    | Letter of Agreement                              |
| mr     | Millirem   |

| NRC  | Nuclear Regulatory Commission         |
|------|---------------------------------------|
| RO   | Reactor Operator                      |
| ROTM | Reactor Operation and Training Manual |
| RSAC | Reactor Safety Advisory Committee     |
| RSM  | Radiation Safety Manual               |
| RSO  | Radiation Safety Officer              |
| SDE  | Shallow dose equivalent               |
| SRO  | Senior Reactor Operator               |
| SRS  | Safety and Risk Services (Department) |
| TLD  | Thermoluminescent dosimeter           |
| TS   | Technical Specifications              |
| UNM  | University of New Mexico              |
|      |                                       |