

August 25, 2011

Dr. Jay F. Kunze
Reactor Administrator
Idaho State University
P.O. Box 8060
Pocatello, ID 83209-8060

SUBJECT: IDAHO STATE UNIVERSITY - NRC INSPECTION REPORT NO.
50-284/2011-201

Dear Dr. Kunze:

On July 24-26, 2011, the U.S. Nuclear Regulatory Commission (NRC, the Commission) completed an inspection at the Idaho State University AGN-201M Research Reactor Facility. The enclosed report documents the inspection results, which were discussed on July 25, 2011, with you, members of your staff, and members of the Reactor Safety Committee.

The inspection examined activities conducted under your license as they relate to safety and compliance with the 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.

In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, "Public inspections, exemptions and 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 (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Greg Schoenebeck at 301-415-6345 or by electronic mail at Greg.Schoenebeck@nrc.gov.

Sincerely,

/RA/

Johnny H. Eads Jr., Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-284
License No. R-110

Enclosure: NRC Inspection Report No. 50-284/2011-201

cc w/enclosure: See next page

Idaho State University

Docket No. 50-284

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

Docket No: 50-284

License No: R-110

Report No: 50-284/2011-201

Licensee: Idaho State University

Facility: AGN-201M Reactor Facility

Location: Pocatello, Idaho

Dates: July 24-26, 2011

Inspector: Gregory M. Schoenebeck

Approved by: Johnny H. Eads, Jr., Chief
Research and Test Reactors Oversight Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Idaho State University
AGN-201M Research Reactor Facility
NRC Inspection Report No.: 50-284/2011-201

The primary focus of this routine, announced inspection included onsite review of selected aspects of the Idaho State University's (the licensee's) Class II research reactor safety program including: organizational structure and staffing, review and audit and design control functions, procedures, radiation protection, environmental protection, and transportation of radioactive materials since the last U.S. Nuclear Regulatory Commission (NRC) inspection of these areas. The licensee's programs were acceptably directed toward the protection of public health and safety and in compliance with NRC requirements.

Organizational Structure and Staffing

- Staffing requirements at the reactor appear to be generally meeting the requirements specified in the Technical Specifications (TS).

Operations Logs and Records

- The licensee's operations record keeping program conformed to TS requirements.

Surveillances and Limiting Conditions for Operation (LCO)

- The licensee had completed surveillances and LCOs in accordance with TS.

Requalification Training

- The licensee appears to generally meet the conditions of license operation.

Emergency Planning

- The records reviewed by the inspectors indicated that the emergency preparedness program was conducted in accordance with the approved Emergency Plan.

Maintenance Logs and Records

- Experiments were being reviewed in accordance with procedures and standard practice.

Fuel Handling Logs and Records

- The licensee performs limited fuel handling operations and is conducted in accordance with procedure.

Follow-up

- The facility was generally resolving the follow-up items from previous inspections; there are newly opened items to be resolved.

REPORT DETAILS

Summary of Plant Status

The Idaho State University (ISU) Aerojet General Nucleonics-201M (AGN-201M) Research Reactor Facility, licensed to operate at a maximum steady-state thermal power of 5 Watts, continued to be operated in support of operator training, surveillance, experiments, and laboratory work. During the inspection the reactor was operated in conjunction with an operator licensing examination.

1. Organization and Staffing

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

The inspector reviewed the following to verify that the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 55 and Section 6.1.3, Administrative Controls, of the Technical Specifications (TS) were being met:

- Minutes of Reactor Safety Committee Meeting of March 30, 2011
- American National Standards Institute/American Nuclear Society (ANSI/ANS) 15.1-2007

b. Observations and Findings

During interviews with reactor licensee staff, it was learned that the previous Radiation Safety Officer (RSO) abruptly resigned without adequate forewarning to backfill their position. One of the requirements for the RSO position is that the individual must be a Certified Health Physicist (CHP). Dr. Jay Kunze, the current Reactor Administrator, has CHP credentials and is filling in on a temporary basis as the RSO; additionally, he remains in the Reactor Administrator (RA) position. The position description of the RSO (i.e., TS 6.1.10) states that the individual shall enforce all federal, state, and university rules, regulations, and procedures relating to reactor safety. Additionally, the RSO shall perform routine surveys of the reactor facility and report their findings to the RA and the RSO shall advise the RA on all matters concerning radiological safety at the reactor facility. With Dr. Kunze performing dual roles as the RSO and the RA and by the described TS requirements it is not apparent that there is a separation of roles such that a conflict of interest does not exist. However, there are no TS requirements which preclude Dr. Kunze from performing the dual role as RSO and RA. The inspector discussed this observation with the facility staff; it was determined that the licensee is going through the hiring process and expects to have a replacement in the short term. The inspector will open this item as an Inspector Follow-up Item (IFI) 50-284/2011-201-01 to determine if there have been any issues as a result of this change in staffing.

There have been no other changes to Level I, II, or III organizational staff structure as described in ANSI/ANS 15.1-2007; however there were administrative name changes to the University Officer (now V.P. Research) and the Dean, College of Engineering (now the Dean, College of

Science/Engineering). The most recent copy of TS did not reflect this title change and was discussed with the licensee during the exit meeting.

c. Conclusion

TS staffing requirements at the reactor appear to be generally met.

2. **Operations Logs and Records**

a. Inspection Scope (IP 69001)

The inspector reviewed selected parts of the following reactor operations records to verify that the requirements of TS Section 6.6, Procedures, and TS Section 6.10 Record Retention were being met:

- General Operating Rules, dated September 19, 1994
- ISU AGN-201 Reactor Master Log No. 5, dated April 21, 2008 through December 1, 2009
- ISU AGN-201 Reactor Master Log No. 5, dated December 7, 2009 through May 9, 2011
- AGN-201 Operating Procedure #1
- Letter to Mr. Frank Just, Chairman, "Assist visit for preparation of the upcoming Nuclear Regulatory Commission Inspection of the Idaho State University Reactor Facility, dated July 19, 2010

b. Observations and Findings

The inspector followed-up on previous issues discussed from the non-routine inspection (Inspection Report No. 50-284/2010-201) conducted during the period of February 23-24, 2010. Specifically, it was discussed that the licensee would commit to revising the procedures that identify the storage location of the startup source. Additionally, the inspector followed-up on logging requirements of the startup source per the current operating procedure. The current Operating Procedure #1 has not been revised to reflect at what point during the procedure the startup source is removed, nor does it address where the startup source is stored when it is removed. When spot checking the reactor logs, in some instances the position of the source was not logged as required by Operating Procedure #1, step III, D. The facility staff noted that it had failed to perform their commitment to update their procedures. Additionally, the facility staff noted that they will be revising the whole Operating Procedure #1. The inspector has opened IFI 50-284/2011-201-02 to follow-up on the newly revised procedure and to determine if it was reviewed and approved in accordance with facility TS.

To help track issues and (e.g., violations, follow-up items, etc.), the inspector noted that the facility performs an internal assessment to identify weak areas and provide corrective action recommendations. Generally, the reactor facility staff have been making strides to correct the deficiencies in a timely manner before the next NRC on-site inspection.

c. Conclusion

The licensee's operations record keeping program conformed to TS requirements.

3. Requalification Training

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify that the requirements of 10 CFR 50.55, Operators' Licenses, were being met:

- TS Section 6.3, 6.4.3
- Reactor operator requalification program
- ISU nuclear engineering laboratory requalification program progress checklist
- Reactor console logs, December 7, 2009 to present
- Medical records for licensed reactor operators and licensed senior reactor operators
- Letter, "Audit of conformance of Idaho state university reactor facility to technical specification" dated August 12, 2010
- Letter, "Assist visit for preparation of upcoming Nuclear Regulatory Commission inspection of the Idaho state university reactor facility" dated July 14, 2010
- Certified observer qualification exam
- E-mail, "Inactive Senior Reactor Operator Licenses" from Dr. Kunze, dated August, 11, 2010

b. Observations and Findings

The inspector followed up on Unresolved Item (URI) 50-284/2010-202-01 regarding the termination of the two operator license. The RA sent a letter to the NRC last August requesting both licenses be terminated. Subsequently, the NRC terminated said licenses. This issue is considered closed.

During the inspection it was noted that the licensee had notified the inspector that two more individuals holding valid SRO licenses were not meeting the requirements stipulated in 10 CFR 55.53(h). One individual is a graduate school student who has since moved on from the University and does not require an operating license. The other is still performing research at the University and has had recent, active participation in the requalification program. The facility intends to send a termination request to the NRC for the SRO license which has moved

on from the ISU reactor facility. The NRC inspector has opened URI 50-284/2011-201-03 to follow-up on the termination of one SRO license and to determine if the second SRO meets the requirements for 10 CFR 55.53 (h).

The inspector reviewed the requalification program checklists of the SROs and ROs. For the most part, the checklists were generally being maintained but some operator checklists did not include much of the required information to track the licensed activities. Although these checklists are beneficial for record keeping, it is not a requirement to have. The checklists were instituted as a commitment by the facility from Non-Cited Violation NCV 50-284/2007-201-01 (NRC Report 50-284/2007-201, ADAMS # ML072390213) where one SRO had been operating without meeting the requirements of 10 CFR 55.59. Additionally, the NRC inspector had noted the importance of the checklists during record reviews as it is difficult to interpret the operating logs and discern who the operator of record is and how many hours the individual has been performing licensed activities. Because of the licensee's commitment to keep up-to-date checklists and difficulty with deciphering the logs, the inspector is relying on the checklists to adequately determine if the reactor facility has been meeting the requirements of 10 CFR 55.59. The inspector discussed this issue with the facility and the licensee has made a new commitment to having the logs and records maintained more accurately with the required hours, lecture dates, and other requirements filled in as appropriate for all the licensed operators. The inspector has opened IFI 50-284/2011-201-04 to follow-up on this commitment.

The inspector did note that two individuals whose names were legible in the operating logs and who had fully completed checklists, did meet the requirements of 10 CFR 55.53(e).

c. Conclusion

The licensee appears to generally meet the conditions of license operation.

4. Surveillance and Limiting Conditions for Operation

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with TS Section 3.0, Limiting Conditions for Operation (LCO), and to determine if the periodic surveillance tests on safety systems were performed as stipulated in TS Section 4.0, Surveillance Requirements:

- Audit of the Conformance of the Idaho State University (ISU) Reactor Facility to Technical Specifications, dated August 12, 2010
- Audit of the Conformance of the Idaho State University (ISU) Reactor Facility to Technical Specifications, dated October 19, 2009
- ISU AGN-201 Reactor Master Log No. 5, dated April 21, 2008 through December 1, 2009

- ISU AGN-201 Reactor Master Log No. 5, dated December 7, 2009 through May 9, 2011
- AGN-201 Surveillance Log, various surveillance check-off sheets

b. Observations and Findings

To ensure that the reactor facility staff performs TS-required surveillances and audits, the Technical Safety Office performs a conformance audit in accordance with TS 6.4.3.a. Generally, this has been performed in accordance with the required periodicity; at least annually. The inspector spot checked the following LCO's: excess reactivity, shutdown margin, and total scram withdrawal time; in each instance, the resulting data conformed to the TS LCO. The inspector spot checked the following Surveillances: channel calibration and verification of the channel #2 low and high level power level trip points, shield tank water temperature scram. For the specific surveillance checks noted, the reactor facility staff performed them in accordance to the required periodicity and they were performed without incident.

c. Conclusion

The licensee had completed surveillances and LCOs in accordance with TS.

5. Emergency Planning

a. Inspection Scope (IP 69001-02.10)

Inspector reviewed the following documents and selective records to verify compliance with 10 CFR 50.34, Appendix E:

- Emergency Plan for the Nuclear Facilities at Idaho State University, dated August 14, 2006
- Reactor Facility Emergency Notification Roster
- Emergency response supplies, equipment and instrumentation
- Test/Inventory of Emergency Equipment
- Summary of Emergency Exercise involving the ISU Reactor

b. Observation and Findings

The inspector reviewed the Emergency Plan (E-Plan) of the facility and found that no change had been made to the plan; the same version was being used since previous inspection. The reactor facility emergency notification roster had been revised and it was posted at all the areas as required in the E-plan. It was noted that the updated emergency notification roster had not been incorporated into any copy of the E-Plan and the one currently being employed was quite dated. The inspector had discussed this issue with the licensee and they intend to revise the E-Plan.

The supplies, equipment and instruments maintained at the facility were being

controlled and inventoried as per requirement of the E-Plan. The inspector verified that the equipment was properly calibrated.

Emergency drills had been conducted annually as required by the E-Plan. The inspector reviewed the critiques of the most recent annual drill. Critiques were written to document the strengths and weaknesses identified during the exercise. Action items were developed to correct the problems identified.

c. Conclusion

The records reviewed by the inspectors indicated that the emergency preparedness program was conducted in accordance with the approved E-Plan.

6. Maintenance Logs and Records

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with the record-keeping requirements for preventive and corrective maintenance of electronic and reactor equipment pursuant to TS Sections 6.7.1.c and 6.7.1.g:

- ISU AGN-201 Reactor Master Log No. 5, dated April 21, 2008 through December 1, 2009
- ISU AGN-201 Reactor Master Log No. 5, dated December 7, 2009 through May 9, 2011
- AGN-201 Rod Maintenance Procedure, Rev. 5 dated June 15, 1994

b. Observations and Findings

The inspector noted that records of maintenance operations were being retained in accordance with the periodicity specified in TS 6.10. Maintenance activities generally consisted of routine surveillances.

c. Conclusion

The licensee maintained records documenting principal maintenance activities in compliance with TS requirements.

7. Fuel Handling Logs and Records

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify that requirements of TS and Administrative Procedures were being met:

- Control rod scram check procedures

b. Observations and Findings

Through discussion, it was determined that the licensee does not handle any of their polyethylene fuel discs. The licensee does handle their fueled control rods for maintenance and LCO (i.e., rod drop timing) purposes in accordance with procedure.

c. Conclusion

The licensee performs limited fuel handling operations and is conducted in accordance with procedure.

8. Follow-up on Previously Identified Issue

a. Inspection Scope (IP 92701)

The inspector followed up on URI 50-284/2010-202-01 regarding the termination of the two Senior Reactor Operator licenses.

b. Observations and Findings

URI 50-284/2010-202-01

The inspector followed-up on the NCV 50-284/2007-201-01 (NRC Report 50-284/2007-201, ADAMS # ML072390213) regarding an SRO not meeting the requirements of 10 CFR 55.59. During this inspection it was noted that a second SRO had an inactive license, neither of which were actively participating in a requalification program. Per 10 CFR 55.53(h) it states that the licensee shall complete a requalification program as described by 10 CFR 55.59. However, it was noted during the exit that the facility intended to provide in writing a request to the NRC to terminate the operating licenses. On August 11, 2010, the facility sent a letter to the NRC via e-mail to request the termination of said licenses. Subsequently, the licenses for the two individuals have been terminated. The URI is considered closed.

c. Conclusion

The URI 50-284/2010-202-01 is considered closed.

9. Exit Meeting Summary

The inspection scope and results were summarized on July 25, 2011, with licensee representatives. The inspector discussed the findings for each area reviewed. No dissenting comments were received from the licensee.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

A. Mallicoat Reactor Supervisor
J. Kunze Reactor Administrator and Interim Chair, Nuclear Engineering Department

Other Personnel

None

INSPECTION PROCEDURES USED

IP 69001 Class II Research and Test Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

OPENED:

IFI 50-284/2011-201-01	Follow-up on any issues resulting from the RA and RSO roles being performed by the same individual
IFI 50-284/2011-201-02	Follow-up on previous issues discussed from the non-routine inspection (Inspection Report No. 50-284/2010-201) and commitments made to revise Operating Procedure #1. Additionally, the inspector will follow-up on the newly Operating Procedure #1 and determine if was reviewed and approved in accordance with facility TS.
URI 50-284/2011-201-03	Follow-up to potential violation of 10 CFR 55.53(h) for failure to complete a requalification program for two licensed SROs.
IFI 50-284/2011-201-04	Follow-up to the licensee's commitment of having their requalification checklists up-to-date; the checklists are used as an aid for their requalification program tracking and were instituted by the facility as a result of Non-Cited Violation NCV 50-284/2007-201-01 (NRC Report 50-284/2007-201)

CLOSED:

URI 50-284/2010-201-01	Follow-up to potential violation of 10 CFR 55.53(h) for failure to complete a requalification program for two licensed SROs.
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LIST OF ACRONYMS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
ADAMS	Agencywide Documents Access and Management System
AGN-201M	Aerojet General Nucleonics-201M
ALARA	As Low As Reasonably Achievable
CHP	Certified Health Physicist
E-Plan	Emergency Plan
IFI	Inspection Follow-up Item
IP	Inspection Procedure
ISU	Idaho State University
NRC	Nuclear Regulatory Commission
RA	Reactor Administrator
Rev.	Revision
RSC	Reactor Safety Committee
RSO	Radiation Safety Officer
TS	Technical Specification
TSO	Technical Safety Office
URI	Unresolved Item