

May 25, 2000

Idaho State University
ATTN: Dr. Jay Kunze, Dean
College of Engineering
Box 8063
Pocatello, ID 83209

SUBJECT: NRC INSPECTION REPORT NO. 50-284/00-201

Dear Dr. Kunze:

This letter refers to the inspection conducted on April 17-19, 2000, at your Idaho State University Reactor Laboratory. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations of activities in progress. Based on the results of this inspection, no safety significant issues were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact Craig Bassett at 404-562-4712.

Sincerely,

/RA/

Ledyard B. Marsh, Chief
Events Assessment, Generic Communications
and Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

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

Enclosure: NRC Inspection Report

cc w/encl: Please see next page

cc w/encl:

Idaho State University
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Test, Research and Training
Reactor Newsletter
202 Nuclear Sciences Center
University of Florida
Gainesville, FL 32611

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U. S. NUCLEAR REGULATORY COMMISSION

Docket No: 50-284

License No: R-110

Report No: 50-284/00-201

Licensee: Idaho State University

Facility: Idaho State University Reactor Laboratory

Location: Pocatello, ID 83209

Dates: April 17-19, 2000

Inspector: C. H. Bassett

Approved by: Ledyard B. Marsh, Chief
Events Assessment, Generic Communications and
Non-Power Reactors Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Idaho State University
Report No: 50-284/00-201

This routine, announced inspection included onsite review of selected aspects of various licensee programs including: organization and staffing, audit and review, radiation controls and procedures, transportation of radioactive materials, physical security, and material control and accountability since the last NRC inspection of this Aerojet General Nuclear (AGN) AGN-201 research reactor.

Organization and Staffing

- The licensee's organization and staffing remain in compliance with the requirements specified in the Technical Specifications.

Review and Audit Functions

- Audits were being conducted acceptably by the Reactor Safety Committee in compliance with the requirements specified in the Technical Specifications.

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 well 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 and ALARA Programs satisfied regulatory requirements.
- There were no measurable releases of radioactive effluents from the facility.

Transportation of Radioactive Materials

- The licensee did not ship any radioactive material under the reactor license.

Physical Security

- The licensee had implemented and was maintaining an adequate physical security program.

Material Control and Accountability

- No deficiencies were identified in the licensee's Material Control and Accounting 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 continues to be operated at various power levels up to four point seven (4.7) watts for physics experiments and to support research and training.

1. Organization and Staffing (69001)

a. Inspection Scope

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of the Technical Specification (TS) were being met:

- organizational structure
- management responsibilities
- staffing requirements for the research reactor facility

b. Observations and Findings

Through discussions with licensee representatives, the inspector determined that management responsibilities and the organization at the facility had not changed since the previous NRC inspection in March 1999 (Inspection Report No. 50-284/99-201).

Through review of records and logs and through discussions with licensee personnel, the inspector determined that the staffing at the facility was acceptable to support the current workload and ongoing activities. The staffing and organization were consistent with the requirements of the TS.

c. Conclusions

The licensee's organization and staffing remain in compliance with the requirements specified in the TS.

2. Review and Audit Functions (69001)

a. Inspection Scope

The inspector reviewed the following to ensure that the audits and reviews stipulated in the requirements of the TS were being completed:

- Reactor Safety Committee (RSC) meeting minutes
- TS duties specified for the RSC including review and audit functions
- audits completed by the RSC

b. Observations and Findings

The inspector reviewed the RSC's meeting minutes from January 1998 to present. These meeting minutes showed that each committee met as required by the TS with a quorum being present. The inspector also noted that the RSC had considered the types of topics outlined by the TS.

It was noted that RSC members completed audits of the radiation protection and security programs and that the audits were generally completed within the time stipulated by TS. The inspector noted that the audits and the resulting findings were acceptable. If the findings contained recommendations for possible changes, the licensee responded and took corrective actions as necessary.

A memorandum was reviewed during this inspection that outlined the details of a licensee-identified violation of TS 6.4.3.d. The TS requires that an audit of the emergency plan be conducted at least once every twenty-four months. An audit of the emergency plan had been completed in June 1997 but the next audit was not completed until January 2000. This issue, the results of the audit, and the follow-up to be actions taken as a result were reviewed by the inspector during this inspection. It was determined that the audit and corrective actions were acceptable. The licensee was informed that this licensee-identified and corrected violation is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy (NCV 50-284/00-201-01). This item is considered closed.

c. Conclusions

Audits were being conducted acceptably by the RSC according to the requirements specified in the TS.

3. Radiation Control (69001)

a. Inspection Scope

The inspector reviewed the following to verify compliance with 10 CFR Part 20 and the applicable licensee TS requirements and procedures:

- health physics survey records
- radiological signs and posting
- dosimetry records
- calibration and periodic check records for radiation monitoring instruments
- the Radiation Protection Program
- the ALARA Program
- the 1998 and 1999 Annual Reports

The inspector also toured the licensee's facility and observed the use of dosimetry and radiation monitoring equipment. Licensee personnel were interviewed as well.

b. Observations and Findings

(1) Surveys

The various periodic contamination and radiation surveys were completed by the Radiation Safety Department staff and by the reactor staff as required by TS and procedure. Results were evaluated to ensure that the survey results had not exceeded established action levels.

(2) Postings and Notices

Postings at the entrances to the controlled areas, including the Reactor Room, were acceptable for the hazards present. The facility's radioactive material storage areas were properly posted. No unmarked radioactive material was noted. Copies of current notices to workers required by 10 CFR Part 19, including NRC Form-3, were posted in appropriate areas in the facility.

(3) Dosimetry

The licensee used a National Voluntary Laboratory Accreditation Program (NVLAP) accredited vendor to process personnel dosimetry. Examination of the records for the past two years through the date of the inspection showed that all exposures were well within NRC limits and the licensee action levels. Dosimetry was acceptably used by facility personnel.

(4) Radiation Monitoring Equipment

The calibration of portable survey meters was typically completed by Radiation Safety Department personnel. Calibration frequency met TS requirements and records were maintained as required.

(5) Radiation Protection Program

The licensee's Radiation Protection Program was established in the Idaho State University (ISU) Radiation Safety Manual, Revision 2, dated September 1994. The program included requirements that all personnel who had unescorted access to the facility receive training in radiation protection, policies, procedures, requirements, and facilities. Completion of this training was verified by each person's supervisor and by Radiation Safety personnel. The program appeared to be acceptable and was being reviewed annually as required. It was noted during this inspection that the Radiation Safety Manual is in the process of being updated and revised.

(6) ALARA Program

The ALARA Program was also outlined and established in the ISU Radiation Safety Manual. The ALARA program provided guidance for keeping doses as low as reasonably achievable and was consistent with the guidance in 10 CFR Part 20.

(7) Facility Tours

The inspector toured the Reactor Room, selected laboratories, and support areas. Control of radioactive material and control of access to radiation areas were acceptable. The inspector also determined that there were no measurable releases of gaseous or liquid radioactive material from the research reactor facility.

c. Conclusions

Surveys were being completed and documented acceptably. Postings met regulatory requirements. Personnel dosimetry was being worn as required and doses were well within the licensee's procedural action levels and the NRC's regulatory limits. Radiation monitoring equipment was being maintained and calibrated as required. The Radiation Protection Program and the ALARA Program satisfied regulatory requirements. No radioactive effluents had been released from the research reactor facility.

4. Transportation (86740)a. Inspection Scope

The inspector reviewed selected aspects of:

- radioactive materials shipping procedures
- radioactive materials transportation and transfer records

b. Observations and Findings

Through records review and discussions with licensee personnel, the inspector determined that the licensee had not shipped any radioactive material from the reactor facility under the reactor license. Such material typically would be transferred to the ISU Broad Scope license and handled, shipped, and/or disposed of under that license.

TS Section 6.6 requires the licensee to follow written procedures. During this inspection it was noted that procedure, "Idaho State University Reactor Isotope Production and Disposition Log," requires the Reactor Supervisor to review the log monthly and requires that the various forms be filed in separate sections of the log. After reviewing the Production and Disposition Log the inspector noted that the log had not been reviewed by the Reactor Supervisor in over a year and that the various forms were all basically placed in one section of the log. This issue was discussed with the licensee and was noted as an area that needed improvement. The licensee was also informed that this failure constitutes a violation of minor safety significance and is being treated as a Non-Cited Violation, consistent with Section IV of the NRC Enforcement Policy (NCV 50-284/00-201-02). This item is considered closed.

c. Conclusions

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

5. Physical Safeguards and Security (81401, 81402, 81431)a. Inspection Scope

The inspector reviewed selected aspects of:

- the Physical Protection Plan
- security systems, equipment and instrumentations
- implementation of the Physical Protection Plan

b. Observations and Findings

The inspector reviewed the implementation of the licensee's "Physical Security Plan for Lillibridge Lab Idaho State University," Rev. 3, dated February 23, 1990. The site and facilities were verified to be as described in the Physical Security Plan. Keys to access doors were held and controlled only by designated personnel. The facility was patrolled by Campus Public Safety personnel as required. It was verified that there had been no safeguards events since the last inspection.

c. Conclusion

The licensee had implemented and was maintaining an adequate physical security program.

6. Material Control and Accounting (85102)a. Inspection Scope

To verify compliance with 10 CFR Part 70, the inspector reviewed:

- control of storage areas
- annual inventory results of Special Nuclear Material (SNM)
- associated records and reports

b. Observations and Findings

Records showed that SNM was adequately controlled and that physical inventories were conducted at least annually as required by 10 CFR 70.51(d). Nuclear Material Transaction Reports (DOE/NRC Form 741) and Material Status Reports (DOE/NRC Form 742) were being submitted by the licensee as required by 10 CFR 74.13(a)(1).

c. Conclusion

No deficiencies were identified in the licensee's Material Control and Accounting program.

7. Follow-up on Previously Identified Items (92701, 92702)**a. Inspection Scope**

The inspector reviewed the licensee's actions taken in response to previously identified Inspector Follow-up Items.

b. Observation and Findings

- (1) (Open) IFI 50-284/97-201-01 - During an inspection in September 1997, problems with the dashpots were reviewed. The licensee subsequently rebuilt the dashpots to correct the problems identified. During this inspection it was noted that the licensee has decided to fabricate new dashpots based on a design obtained from a research reactor facility in Texas. This item will remain open and will be reviewed by the NRC during a subsequent inspection.
- (2) (Closed) IFI 50-284/97-201-04 - During the inspection in September 1997, it was also noted that the licensee needed to develop a form to calculate and record rod worth and the shut down margin. This form has been developed and was reviewed and approved at the last meeting of the RSC. During this inspection, the inspector reviewed the form and found it to be acceptable. This item is considered closed.
- (3) (Open) IFI 50-284/97-201-05 - During that same inspection in September 1997, the issues of upgrading and installing a new reactor console and the review of the process by the RSC were discussed with the licensee. Although the concept of the upgrade and installation has been reviewed by the RSC, the actual installation will require that a new procedure be written to complete this task. Therefore, the RSC will need to review that procedure and provide an overview of the installation as well. Because several tasks remain to be completed, this item will remain open and will be reviewed by the NRC during a subsequent inspection.
- (4) (Closed) IFI 50-284/99-201-01 - During an inspection in March 1999, it was noted that the licensee was maintaining various logs at the facility including a Maintenance Log, a Surveillance Log, and a Health Physics Log, as well as the Operations Log. It was also noted that loose sheets of paper were also being maintained as part of the "log." The licensee subsequently decided to keep just one log and have the loose sheets bound so that none of that information would be lost and that it would all be readily available when needed. The RSC approved of this action and this item is considered closed.
- (5) (Closed) IFI 50-284/99-201-02 - During the inspection in March 1999, it was noted that there was no documentation of the critique of the 1998 Annual Emergency Drill. The licensee indicated that a critique had been held but that the documentation was not completed expeditiously. Subsequent to the inspection, the licensee sent a copy of the drill critique to the inspector and it was determined to be acceptable. The critique was circulated to the RSC for review as well. This item is considered closed.

8. Exit Meeting Summary

The inspection scope and results were summarized on April 19, 2000, with licensee representatives. The inspector discussed the findings for each area reviewed. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Bennion, Reactor Administrator
T. Gansauge, Reactor Supervisor
J. Kunze, Dean, College of Engineering

Radiation Safety Office

T. Gesell, Radiation Safety Officer

Public Safety Office

S. Chatterton, Director, Department of Public Safety

INSPECTION PROCEDURES USED

IP 69001: Class II Non-Power Reactors
IP 81401: Plans, Procedures, and Reviews
IP 81402: Reports of Safeguards Events
IP 81431: Fixed Site Physical Protection of Special Nuclear Material of Low Strategic Significance
IP 85102: Material Control and Accounting - Reactors
IP 86740: Inspection of Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-284/00-201-01	NCV	Failure to perform an audit of the emergency plan at least once every twenty-four months as required by TS 6.4.3.d.
50-284/00-201-02	NCV	Failure of the Reactor Supervisor to perform a review of the "Idaho State University Reactor Isotope Production and Disposition Log," monthly and failure to file the forms properly as required by procedure.

Closed

50-284/97-201-04	IFI	Follow-up on the development and implementation of a form used to calculate and record rod worths and the shut down margin.
50-284/99-201-01	IFI	Follow-up on the licensee's actions to resolve the log keeping issues at the facility.

50-284/99-201-02	IFI	Follow-up on and review the licensee's documentation of the critique for the 1998 annual emergency drill.
50-284/00-201-01	NCV	Failure to perform an audit of the emergency plan at least once every twenty-four months as required by TS 6.4.3.d.
50-284/00-201-02	NCV	Failure of the Reactor Supervisor to perform a review of the "Idaho State University Reactor Isotope Production and Disposition Log," monthly and failure to file the forms properly as required by procedure.

Discussed

50-284/97-201-01	IFI	Follow-up on the licensee's actions to replace all the dashpots, perform aggressive inspection of the control rods annually, and modify the safety rod drive logic circuits to allow manual scrambling of the reactor.
50-284/97-201-05	IFI	Follow-up on the Reactor Safety Committee's review of an anticipated upgrade to the reactor console and on the modification itself.

LIST OF ACRONYMS USED

ALARA	As low as reasonably achievable
AGN	Aerojet General Nuclear (research reactor)
CFR	Code of Federal Regulations
IFI	Inspector Follow-up Item
ISU	Idaho State University
IP	Inspection Procedure
HP	Health physics
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
RSC	Reactor Safety Committee
SNM	Special Nuclear Material
TS	Technical Specifications