



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 14, 2020

Dr. Mary Lou Dunzik-Gougar
Reactor Administrator
Idaho State University
Professor of Nuclear Engineering
921 S. 8th Avenue, MS 8060
Pocatello, ID 83209-8060

SUBJECT: IDAHO STATE UNIVERSITY – U.S. NUCLEAR REGULATORY COMMISSION
ROUTINE INSPECTION REPORT NO. 05000284/2020202 AND NOTICE OF
VIOLATION

Dear Dr. Dunzik-Gougar:

From June 29–July 1, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an inspection at the Idaho State University AGN-201M Research Reactor Facility. The enclosed report documents the inspection results discussed on July 1, 2020, with you; John Longley, campus Radiation Safety Officer; Dr. Jay Kunze, Professor Emeritus and member of the Reactor Safety Committee; Jonathan Scott, Reactor Supervisor; and, Theodore Pollock, Senior Reactor Operator.

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 various activities, and interviewed personnel.

Based on the results of this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at <https://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is being cited in the Notice because it constitutes a failure to meet regulatory requirements that has more than minor safety significance and the licensee failed to identify the violation.

The NRC has concluded that information regarding the reason for the violation and the licensee actions taken to correct the violation and prevent recurrence were adequately addressed during the inspection and documented in this inspection report.

Therefore, you are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice. In accordance with Title 10 of the *Code of Federal Regulations* Section 2.390, "Public inspections, exemptions, requests for withholding," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the

NRC's document system (Agencywide Documents Access Management System (ADAMS)). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, please contact Craig Bassett at (240) 535-1842, or by electronic mail at Craig.Bassett@nrc.gov.

Sincerely,

/RA/

Travis Tate, Chief
Non-Power Production and Utilization Facility
Oversight Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

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

Enclosures:
As stated

cc: w/enclosures: See next page

Idaho State University

Docket No. 50-284

cc:

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Test, Research and Training
Reactor Newsletter
Attention: Ms. Amber Johnson
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SUBJECT: IDAHO STATE UNIVERSITY – U.S. NUCLEAR REGULATORY COMMISSION
ROUTINE INSPECTION REPORT NO. 05000284/2020202 DATED:
AUGUST 14, 2020

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NOTICE OF VIOLATION

Idaho State University
AGN-201M Research Reactor Facility

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

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted from June 29-July 1, 2020, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Technical specification (TS) Section 4.1.a requires that “[s]afety and control rod reactivity worths shall be measured annually.” TS Section 4.1.b requires that “[t]otal excess reactivity and shutdown margin shall be determined annually.” TS Section 1.30.b indicates that allowable surveillance intervals shall not exceed, “Annual - interval not to exceed 15 months.”

Contrary to the above, the licensee failed to measure and determine the reactivity worths of the safety and control rods and the shutdown margin within the required 15 months interval for 2019.

This has been determined to be a Severity Level IV violation (Section 6.1).

The NRC has concluded that information regarding the reason for the violation and the corrective actions to correct the violation and prevent recurrence have been adequately addressed in the inspection report. Therefore, you are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond, clearly mark your response as a “Reply to a Notice of Violation,” include the violation number, and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the responsible inspector, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001. Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC’s document system Agencywide Documents Access and Management System, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, “Protection of Safeguards Information: Performance Requirements.”

In accordance with 10 CFR 19.11, “Posting of notices to workers,” you may be required to post this Notice within two working days.

Dated this 14th day of August 2020.

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

Docket No: 50-284

License No: R-110

Report No: 05000284/2020202

Licensee: Idaho State University

Facility: AGN-201M Research Reactor Facility

Location: Pocatello, Idaho

Dates: June 29 – July 1, 2020

Inspector: Craig Bassett

Approved by: Travis Tate, Chief
Non-Power Production and Utilization Facility
Oversight Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

Idaho State University
AGN-201M Research Reactor Facility
Inspection Report No. 05000284/2020202

The primary focus of this routine, announced inspection included onsite review of selected aspects of Idaho State University (ISU, the licensee) Class II research reactor safety program including: (1) organization and staffing; (2) procedures; (3) health physics; (4) design changes; (5) committees, audits and reviews; and (6) transportation activities since the last U.S. Nuclear Regulatory Commission (NRC) inspection of these areas. The NRC staff determined 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 licensee's organization structure and staffing were in compliance with requirements specified in the technical specifications (TSs).

Procedures

- Facility procedural review, revision, control, and implementation satisfied TS requirements.

Health Physics

- Surveys were completed and documented acceptably to permit evaluation of the radiation hazards present.
- Postings met regulatory requirements.
- Personnel dosimetry was worn as required and doses were well within the licensee's procedural action levels and NRC regulatory limit.
- Radiation monitoring equipment was maintained and calibrated, as required.
- The Radiation Protection and as low as reasonably achievable (ALARA) programs satisfied regulatory requirements.
- Training was provided to staff members in the area of radiation protection in accordance with regulatory requirements.
- Effluent monitoring satisfied license and regulatory requirements and releases were within the specified regulatory and TS limits.

Design Changes

- The design change program developed by the licensee was in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59, "Changes, tests and experiments," guidance.

Committees, Audits and Reviews

- The Reactor Safety Committee (RSC) was meeting at least annually as required and completing the review and audit program acceptably.

Transportation Activities

- No radioactive material was shipped from the reactor facility under the reactor license during the past several years.

REPORT DETAILS

Summary of Facility Status

The ISU Aerojet General Nucleonics-201 Modified (AGN-201M) Research Reactor Facility, licensed to operate at a maximum steady-state thermal power of 5 watts, continued to operate in support of operator training, surveillance, experiments, and laboratory work. During the inspection the reactor was not operated due to ongoing work on the new console.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure (IP) 69001, Section 02.01)

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of the TS Sections 6.1 and 6.2 were met:

- organizational structure and staffing for the facility
- administrative controls and management responsibilities
- ISU AGN-201M reactor facility master logs for the periods from March 2018 through November 2019 and December 2019 to the present
- ISU AGN-201M reactor facility annual operating report for calendar year (CY) 2017, dated June 29, 2018
- ISU AGN-201M reactor facility annual operating report for CY 2018, dated June 26, 2019
- ISU AGN-201M reactor facility annual operating report for CY 2019, dated June 29, 2020, and
- American National Standards Institute/American Nuclear Society (ANSI/ANS)-15.4-1988, "Standards for Selection and Training for Personnel for Research Reactors"

b. Observations and Findings

(1) Organization

Through document review and interviews with licensee personnel, the inspector noted that no changes were made in the organizational structure since the last health physics inspection in July 2018. The organization remained the same as stipulated in TS Section 6.1. The inspector reviewed TS Section 6.2 dealing with personnel qualifications and determined that individuals occupying the various management, operations, and safety committee positions met the qualifications specified in the TS, as well as, those specified in ANSI/ANS-15.4-1988.

(2) Staffing

Through review of records and logs, and 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 TSs.

(3) Annual Report Review

TS Section 4.1.a requires that “[s]afety and control rod reactivity worths shall be measured annually.” Section 4.1.b requires that “[t]otal excess reactivity and shutdown margin shall be determined annually.” TS Section 1.30.b indicates that allowable surveillance intervals shall not exceed, “Annual – interval not to exceed 15 months.”

The inspector reviewed the licensee’s recent facility annual reports for CYs 2017, 2018, and 2019. The annual reports were completed and submitted consistent with the requirements of the TSs. Upon review of the CY 2019 report, the inspector noted that in Section 1, Narrative Summary, paragraph B.5) d), the licensee reported that the reactivity worths of the safety and control rods were not measured in 2019. The summary outlined the assumptions the licensee used to determine the reactivity worths and fastest rod insertion time to arrive at a value for the largest reactivity insertion rate. In paragraph B.5) e), the licensee indicated the shutdown margin had not been calculated because the safety and control rod worths (reactivity worths) were not individually measured in 2019. The licensee then explained their assumptions to arrive at a value for the shutdown margin.

The inspector reviewed the licensee’s annual reports for 2017 and 2018 and noted that the safety and control rod reactivity worths were measured and the shutdown margins determined on February 28, 2017, and February 8, 2018, as required. Applying the 15 months interval allowed by the TSs, the safety and control rod reactivity worths and shutdown margin were due by May 8, 2019, for 2019. When questioned about the reason the measurements and calculations could not be made in 2019, the licensee indicated that a laboratory experiment that provides much of the data needed could not be completed in 2019. After further extensive document review, the licensee found that the data for calculating the Fine Control Rod (FCR) reactivity worth was obtained in February 2019 and the data for Safety Rods (SRs) 1 and 2, and the Coarse Control Rod (CCR) was obtained in May 2019. The licensee indicated that, due to miscommunication about the data and concentration on trying to get the new control console functioning properly, the safety and control rod reactivity worths and the shutdown margin were not determined at that time in 2019. After retrieving the information during this inspection, the licensee then calculated/determined the safety and control rod reactivity worths and the shutdown margin for 2019. The inspector verified that operating the reactor with values based on what the licensee had originally assumed did not adversely affect safe operations of the reactor. The values were based on those listed in the safety analysis report, were conservative, and differed very little from those calculated by the licensee.

The inspector inquired about the safety and control rod reactivity worths and shutdown margin determinations for 2020. After additional review, the licensee indicated that the data for calculating the FCR reactivity worth was obtained in February of this year. The maintenance procedure, which also provided the data for calculating the reactivity

worths of SRs 1 and 2 and the CCR, was completed June 18, 2020, and the licensee was in the process of completing these calculations and determinations for 2020. The licensee also concluded that they would revise the affected pages in their 2019 annual report and submit them to the NRC to reflect the fact that the calculations and determinations were made as required by the TSs (albeit not within the time frame specified in the TSs). The licensee was informed by the inspector that failure to measure and determine the reactivity worths of the safety and control rods and the shutdown margin within the 15-month surveillance interval for 2019 was a violation (VIO) of TS Sections 4.1.a and b (VIO 05000284/2020202-01).

The inspector noted that, since the licensee obtained the necessary data and was in the process of determining the reactivity worths of the FCR, SRs 1 and 2, and the CCR, and the shutdown margin within the current TS surveillance interval, no further corrective action by the licensee to address the issue was necessary. The licensee was also in the process of developing a procedure to ensure that the proper data was compiled in one place so that the determination and calculation of the reactivity worths and shutdown margin would be completed in a timely and appropriate manner in the future, consistent with the TSs. The licensee was informed that the development of a procedure or protocol for obtaining the appropriate data for these determinations and completing the calculations in order to meet the TS surveillance would be noted as an Inspector Follow-up Item (IFI) and would be reviewed for adequacy of the corrective action during a future inspection (IFI 05000284/2020202-02)

c. Conclusion

The inspector determined that the organization and staffing at the facility met the requirements specified in the TSs. The inspector also determined the licensee met the TS requirements for the annual report. As noted above, the inspector identified a VIO of TS Sections 4.1.a and b.

2. Procedures

a. Inspection Scope (IP 69001, Section 02.03)

To ensure the requirements of TS Section 6.6 were met, the inspector reviewed the following:

- ISU AGN-201M operating procedure (OP) #1, Revision 5, dated March 6, 2020
- ISU AGN-201M OP #2, Revision 4, dated April 20, 2014
- ISU AGN-201M reactor facility master logs for the periods from March 2018 through November 2019 and December 2019 to the present

- ISU Nuclear Engineering Laboratory Administrative Procedure, AP-ISU-NEL-001, “10 CFR 50.59 Evaluations,” Revision 1
- selected ISU AGN-201M experimental, maintenance, and surveillance procedures

b. Observations and Findings

The inspector reviewed the licensee’s procedures and found that appropriate procedures were in place for current facility operations. The inspector noted that a procedure was recently developed for completing 10 CFR 50.59 reviews and evaluations. Various existing procedures were revised, updated, and rewritten. The inspector verified that the licensee submitted the revised procedures to the Reactor Safety Committee (RSC) for review and approval as required by TSs. The inspector observed an attempt to startup and operate the reactor during the inspection. The inspector observed that proper forms were filled out and procedural steps followed for the startup of the reactor. Apparent electrical problems with the new console prevented completion of the startup. However, procedural adherence was noted by the inspector to be adequate.

c. Conclusion

The inspector determined the procedural review, revision, control, and implementation program satisfied TS requirements. Procedure compliance was acceptable.

3. Health Physics

a. Inspection Scope (IP 69001, Section 02.07)

To ensure the requirements of 10 CFR Part 19, “Notices, Instructions and Reports to Workers: Inspection and Investigations,” and 10 CFR Part 20, “Standards for Protection against Radiation,” and TS Sections 3.4, 4.4, 5.1, and 6.9 were met, the inspector reviewed selected aspects of the following:

- radiological signs and postings in and around the reactor facility
- reactor facility personnel dosimetry records for the past 3 years
- radiation safety officer (RSO) annual reports for the past 2 years
- copy of the most recent “Reactor Full Power Survey,” completed June 11, 2019, by ISU environmental health and safety (EH&S) department technicians
- ISU AGN-201M surveillance procedure #4, “Shield Tank Water Level Interlock Calibration,” dated June 16, 2017, which documented that the licensee checked the shield tank water level
- “Idaho State University Radiation Safety Manual,” Revision 13, dated December 5, 2019
- “Radiation Safety – Refresher Training Study Guide,” Revision 08/07 and associated refresher training test
- records documenting the maintenance and calibration of facility radiation monitoring equipment for the past 3 years

- ISU AGN-201M reactor facility master logs for the periods from March 2018 through November 2019 and December 2019 to the present
- ISU AGN-201M OP #1, Revision 5, dated March 6, 2020, containing instructions for operators including checking shielding and establishing proper radiation barriers required for operations
- ISU AGN-201M reactor operations log forms for 2019 and to date in 2020 (which documented the completion of radiation surveys prior to each reactor startup)
- ISU AGN-201M reactor facility annual operating reports for the past 3 years
- “RPR 50C Radiation Laboratory Evaluation Checklist,” forms completed by ISU EH&S technicians
- “RPR 11 – Laboratory Contamination and Radiation Survey” forms - survey maps completed by ISU EH&S technicians documenting contamination and radiation surveys of the reactor room and associated labs for the past 2 years
- “Radiation Procedures Manual,” containing procedures used by the ISU EH&S Department including: “Dosimetry,” No. TSO-08-02-REV 3, “Radionuclide Laboratory Safety,” No. TSO-08-07-REV 1, and, “Calibrations,” No. TSO-08-12-REV 1

b. Observations and Findings

(1) Surveys

The inspector interviewed the campus RSO and reviewed semiannual radiation and contamination surveys of licensee-controlled areas within the facility for the past 2 years. These surveys were conducted by campus EH&S department personnel. The inspector also reviewed the records documenting general area radiation surveys of the reactor room which were completed by licensee personnel prior to each startup from 2018 to present. The inspector verified that an annual radiation survey was performed by EH&S personnel with the reactor at a “high power level” as required by TS Section 4.4. The results of all the surveys reviewed were documented and evaluated as required.

The inspector reviewed the results of the actions taken by the licensee to check the integrity of the shielding and shield tank surrounding the reactor as required by TS Section 3.4. The inspector verified that the licensee inspected the shield tank prior to each reactor operation and inspected/verified the water level in the tank annually.

As noted previously, during the inspection, the inspector observed a senior reactor operator (SRO) initiated reactor startup. ISU AGN-201M OP #1 was used and closely followed by the SRO. The inspector observed that appropriate checks were made but console problems prohibited the completion of the startup.

The inspector conducted a radiation survey of the reactor room. No anomalies in radiation levels were noted.

(2) Postings and Notices

During tours of the facility, the inspector determined that the caution signs and postings in place and the controls established for the controlled areas were acceptable for the hazards involving radiation, high radiation, and contamination, and were posted as required by 10 CFR Part 20. Through observations and interviews with licensee staff, the inspector confirmed that personnel complied with the signs, postings, and controls. The inspector observed the facility's radioactive material storage areas were properly posted. The inspector noted that no unmarked radioactive material was detected in the facility, copies of notices to workers were posted in various areas in the facility, and radiological signs were posted at the entrances to controlled areas. Other postings also characterized the industrial hygiene hazards that were present in the areas as well. During facility tours, the inspector also noted that the copies of NRC Form 3, "Notice to Employees," were posted at the facility as required by 10 CFR 19.11, "Posting of notices to workers," and were the correct, current version. Notices, caution signs, postings, and controls for radiation areas were as required in 10 CFR Parts 19 and 20.

(3) Dosimetry

The inspector determined that the licensee used optically stimulated luminescence dosimeters (OSLs) for whole body monitoring of beta and gamma radiation exposure. Certain OSLs had an additional component to measure neutron radiation. The licensee also used thermoluminescent dosimeter (TLD) finger rings for monitoring beta and gamma radiation exposure of the extremities. The dosimetry was supplied and processed by a National Voluntary Laboratory Accreditation Program accredited vendor. Through direct observation, the inspector determined that dosimetry was acceptably used by facility personnel and was in accordance with university radiation protection requirements. Review of the OSL and TLD results indicating radiation exposures at the facility for the past 3 years showed that all occupational doses were well within 10 CFR Part 20 limitations.

(4) Radiation Monitoring Equipment Use and Calibration

The use and calibration of radiation monitoring equipment was reviewed by the inspector. Portable survey meters, friskers, and fixed radiation monitors, as well as the air sampler, were calibrated annually by EH&S staff personnel. Neutron survey instruments were sent offsite for calibration. Some of the other instruments were also sent offsite to a vendor for calibration.

The inspector reviewed calibration records maintained by the EH&S office. Through this review, the inspector determined that records were maintained as required and that calibration frequencies met the requirements established in the applicable EH&S procedures. Through observations of activities at the facility, the inspector determined that the monitoring equipment was used and maintained acceptably. EH&S

personnel routinely checked the instruments in use at the facility and removed those that were due for calibration or in need of repair to preclude inadvertent use. No uncalibrated instruments were noted to be in use by the inspector at the facility.

(5) Radiation Protection Program and ALARA Policy

The licensee's Radiation Protection Program was established in various ISU EH&S documents including: (1) the Radiation Procedures Manual and associated procedures, and (2) the "ISU Radiation Safety Manual," Revision 13, dated December 5, 2019. The program indicated that all personnel who worked in a radiation area or who worked with radioactive material were required to receive training in radiation protection policies, principles, procedures, and requirements prior to starting work. The inspector confirmed that the facility radiation protection program was reviewed annually, as required by 10 CFR 20.1101, "Radiation protection programs," paragraph (c).

The ALARA Policy was also outlined and established in the manuals and procedures mentioned above. The inspector determined the ALARA program provided appropriate guidance for keeping doses ALARA and was consistent with the regulation in 10 CFR Part 20.

(6) Radiation Worker Training

All university employees and students who might receive a dose greater than ten percent of the occupational dose limits, including licensee staff, were required to receive training in radiation protection. This was accomplished by completion of an "online" course, entitled "Radiation Safety Training Study Guide," and taking a quiz. Completion of this training by facility personnel was verified by EH&S personnel, as well as by the Reactor Administrator (RA) and/or the Reactor Supervisor. Upon completion of the course, reactor staff members were issued a dosimeter and allowed to work under the direction of a responsible user.

The inspector reviewed documentation of the training provided to selected licensee staff members. The documents indicated that all current staff members had received the initial training as required. In addition, it was noted that staff members were also required to take annual refresher training. This was done by studying the "Radiation Safety – Refresher Training Study Guide," Revision 08/07 and taking the associated test. The inspector verified that all but two staff members had taken the refresher training as required. The RSO indicated these two individuals were notified that their badges were scheduled to be deactivated if they failed to take the training.

The inspector determined that the personnel training program satisfied requirements in 10 CFR 19.12, "Instruction to workers." The training materials were designed to help all personnel understand the various concepts of radiation protection. The inspector determined the content

and periodicity of training were in accordance with the program requirements and; therefore, acceptable.

(7) Environmental Monitoring and Effluents

The inspector noted that airborne concentrations of gaseous releases were calculated by the licensee. These calculations were based on the power level at which the reactor was operated and the duration of the operation. The inspector determined the calculations showed that gaseous releases were well within the concentrations stipulated in 10 CFR Part 20, Appendix B, Table 2. The results were acceptably documented in the facility annual reports, as required. The inspector noted that the calculated dose rate to the public, as a result of the gaseous releases, was substantially below the dose constraint of 10 millirem per year in 10 CFR 20.1101(d). The inspector verified that there were no radioactive liquid releases from the facility to the sanitary sewer within the past 2 years. It was also noted that no solid waste was transferred from the facility to the campus EH&S during the past 2 years. The inspector reviewed the area radiation monitor (ARM) calibration records. The ARMs at the facility was calibrated semiannually by EH&S staff in accordance with procedures. Corrective actions were taken if problems were noted, including recalibration if needed.

The inspector observed that on-site and off-site gamma radiation monitoring was completed using environmental TLDs in accordance with the applicable university procedures. The data, which was reviewed by both facility and EH&S staff members, indicated that there were no unusual dose rates in the areas surrounding the facility and that there were no measurable doses above any regulatory limits. The inspector determined these results were also acceptably reported in the ISU AGN-201M Reactor Facility Annual Operating Reports. Through observation of the facility, the inspector did not identify any new potential release paths.

(8) Facility Tours

The inspector toured the control room, reactor room, and selected support laboratories and offices. The inspector determined that control of radioactive material and control of access to radiation and high radiation areas were acceptable. As noted earlier, the postings and signs for these areas were appropriate.

c. Conclusion

Based on the observations made and the records reviewed, the inspector determined that the Radiation Protection Program implemented by the licensee satisfied regulatory requirements. Specifically, (1) surveys were completed and documented acceptably; (2) postings met regulatory requirements; (3) personnel dosimetry was worn as required and doses were well within the NRC's regulatory limits; (4) radiation monitoring equipment was maintained and calibrated as required; (5) training was conducted as required; and, (6) calculations of effluents

released from the facility satisfied license and regulatory requirements and releases were well within the specified regulatory limits.

4. Design Changes

a. Inspection Scope (IP 69001, Section 02.08)

To ensure that the requirements of TS Sections 6.4.2 and 6.5 were met, the inspector reviewed the following:

- RSC meeting minutes for meetings held on March 29, 2017, April 23, 2018, February 26, 2019, and January 21, 2020
- ISU AGN-201M reactor facility master logs for the periods from March 2018 through November 2019 and December 2019 to the present
- ISU AGN-201M reactor facility annual operating reports for the past 3 years

b. Observations and Findings

The inspector determined the licensee had not forwarded any changes to the RSC for review since the last inspection. As noted above, the licensee had updated some procedures, reviewed them according to their 10 CFR 50.59 procedure, and submitted the revised procedures to the RSC for review and approval as required by TSs. The inspector found that the screening and administrative process that the licensee developed to review and approve changes was in accordance with 10 CFR 50.59 regulation.

c. Conclusion

The inspector determined the design change program developed by the licensee was in accordance with 10 CFR 50.59 regulation.

5. Committees, Audits and Reviews

a. Inspection Scope (IP 69001, Section 02.09)

To ensure that the requirements of TS Section 6.4 were met, the inspector reviewed the following:

- completed audits and reviews documented in RSC meeting minutes
- RSC meeting minutes for meetings held on March 29, 2017, April 23, 2018, February 26, 2019, and January 21, 2020
- ISU AGN-201M reactor facility annual operating reports for the past 3 years

b. Observations and Findings

(1) Reactor Safety Committee

The inspector reviewed the RSC meeting minutes for the past 3 years. The minutes showed the committee met at least once per CY and that a quorum

was present, as required by TSs. The inspector found the topics considered during the meetings were appropriate as required by TS Section 6.4.

(2) Audits and Reviews

TS Section 6.4.3.c requires that audits of facility activities shall be performed under the cognizance of the RSC and shall examine the operating records and encompass, “[t]he results of all actions taken to correct deficiencies occurring in facility equipment, structures, systems or method of operation that affect nuclear safety, at least annually.” TS Section 1.30.b indicates that allowable surveillance intervals shall not exceed, “Annual - interval not to exceed 15 months.”

During prior inspections, the inspector noted that members of the RSC had completed the audits and reviews as required by TS 6.4. However, during a conference call on April 24, 2020, the licensee indicated that an audit required by TS Section 6.4.3(c) for 2019 was overdue because it was not completed by February 24, 2020. The audit was then scheduled for early March 2020, but, due to the Public Health Emergency (PHE) caused by the Coronavirus Disease 2019 (COVID-19) campus closure, the already overdue audit had to be cancelled. The licensee inquired about an exemption to allow for extended time to complete the required audit. The licensee also noted that they were already out of compliance by several weeks when the exemption inquiry was made. Because of the time that had passed, no exemption was submitted and the licensee was informed that the issue would be evaluated in the inspection process.

The inspector reviewed this situation and determined that the TS Section 6.4.3(c) audit (called the “Correct Deficiencies” audit) was last performed on November 21, 2018. TS Section 1.30.b indicates that allowable surveillance intervals shall not exceed, “Annual – interval not to exceed 15 months.” Therefore, allowing for a 15-month interval, the Correct Deficiencies audit was due by February 21, 2020. The licensee was informed by the inspector that failure to complete the TS Section 6.4.3(c) Correct Deficiencies audit within the 15-month allowed time frame was a VIO. However, the inspector noted that the licensee informed the NRC that the allowable surveillance interval to complete the audit was missed. As noted above, due to the COVID-19 PHE, the Correct Deficiencies audit was postponed. The inspector noted the audit was completed by two members of the RSC on June 25, 2020. Therefore, the licensee was informed by the inspector that this non-willful, licensee-identified and corrected VIO would be treated as a Non-Cited VIO (NCV), consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000284/2020202-03).

c. Conclusion

The inspector determined the RSC met at least annually as required. One NCV was noted involving failure to complete a surveillance interval associated with the audit program.

6. Transportation Activities

a. Inspection Scope (IP 86740)

To ensure compliance with NRC regulatory and licensee procedural requirements for shipping or transferring licensed material were met, the inspector reviewed the following:

- shipper certification
- ISU AGN-201M reactor facility master logs for the periods from March 2018 through November 2019 and December 2019 to the present
- ISU AGN-201M reactor facility annual operating reports for the past 3 years

b. Observations and Findings

Through records review and discussions with licensee personnel and the campus RSO, the inspector verified that the licensee did not ship any radioactive material from the facility under the reactor license in recent years. It was noted that radioactive material produced in the reactor was either transferred to the campus broadscope license and shipped under that license, transferred to other authorized users on campus, or maintained at the reactor facility for use in laboratories in accordance with procedure.

The inspector also verified that no reactor staff members were authorized to ship radioactive material. If material needed to be shipped, a qualified EH&S designated shipper would process the shipment. The inspector noted that three EH&S personnel were qualified shippers and verified they were certified within the past 3 years.

c. Conclusion

The inspector determined no radioactive material was shipped from the reactor facility under the reactor license during the past several years.

7. Follow-up On An Event Notification

a. Inspection Scope (IP 92702)

The inspector reviewed the licensee's actions taken in response to a previously identified issue and Event Notification.

b. Observation and Findings

On Tuesday, March 31, 2020, at approximately 5:50 PM (Mountain Time), a 6.2 magnitude earthquake occurred in southeast central Idaho, with the epicenter west of Challis, Idaho. That location is approximately 200 miles from Pocatello, Idaho, where it was felt. At the time of the earthquake, the facility's AGN-201M reactor was shutdown and there were no individuals (staff or students) in the facility. The campus was shutdown due to the COVID-19 PHE.

On Wednesday, April 1, 2020, the RA reported the event to the NRC Operations Center, Event Notification #54628. Subsequently, on April 2, 2020, the RA, the Reactor Supervisor, and an SRO visited the facility and performed a visual inspection and radiation level survey of the reactor and surrounding offices and laboratories. No visible damage was noted to the reactor or immediate surrounding area. No unusual/elevated radiation levels were detected. Upon inspection of the seismic interlock sensor located beneath the reactor, the licensee found it undisturbed and in its usual position. On April 3, 2020, the licensee submitted a letter informing the NRC of the earthquake and identifying it as an unusual event in accordance with the "Emergency Plan for the Nuclear Facilities at Idaho State University."

During this inspection, the inspector reviewed the actions taken by the licensee to assess for any damage to the facility and interviewed those involved. The inspector determined that the actions were appropriate. In addition, the inspector toured the facility and conducted a radiation level survey of the reactor and surrounding areas. No levels above those noted in the past were observed. A visual inspection of the reactor, reactor room, and adjacent student areas was also performed by the inspector. No problems such as cracks or other issues were noted. Interviews by the inspector with the licensee did not reveal any issues and they reported everything was functioning as normal. This issue is considered closed.

c. Conclusion

The inspector reviewed the actions taken by the licensee in response to one unusual event and found them to be appropriate.

8. Exit Meeting Summary

The inspection scope and results were summarized on July 1, 2020, by the inspector with the licensee representatives. The inspector discussed the findings for each area reviewed. The licensee acknowledged the results of the inspection and did not identify any information as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee Personnel

M. Dunzik-Gougar	Reactor Administrator
J. Kunze	Member, RSC, and Former Reactor Administrator
T. Pollock	Senior Reactor Operator
J. Scott	Reactor Supervisor

Other Personnel

J. Longley	Radiation Safety Officer, EH&S Department, ISU
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INSPECTION PROCEDURES USED

IP 69001	Class II Research and Test Reactors
IP 86740	Inspection of Transportation Activities
IP 92702	Follow-up

ITEMS OPENED, CLOSED, AND DISCUSSED

OPENED:

05000284/2020202-01	VIO	Failure to determine the rod worths and the shutdown margin in accordance with the surveillance interval in 2019 as required by TS Section 4.1.
05000284/2020202-02	IFI	Follow-up on the licensee's actions to develop a procedure or protocol to ensure that the proper data is compiled in one place so that the determination and calculation of the reactivity worths and shutdown margin is completed every year within the TS allowed time frame.
05000284/2020202-03	NCV	Failure to complete the TS Section 6.4.3(c) Correct Deficiencies audit within the 15 months TS allowed time frame.

DISCUSSED

None

CLOSED:

05000284/2020202-01	VIO	Failure to determine the rod worths and the shutdown margin in accordance with the surveillance interval in 2019 as required by TS Section 4.1.
05000284/2020202-03	NCV	Failure to complete the TS Section 6.4.3(c) Correct Deficiencies audit within the 15 months TS allowed time frame.

LIST OF ACRONYMS USED

10 CFR	Title 10 of the <i>Code of Federal Regulations</i>
AGN-201M	Aerojet General Nucleonics-201 Modified
ALARA	As Low As Reasonably Achievable
ANSI/ANS	American National Standards Institute/American Nuclear Society
ARM	Area Radiation Monitor
CCR	Coarse Control Rod
COVID-19	Coronavirus Disease 2019
CY	Calendar Year
EH&S	Environmental Health and Safety
FCR	Fine Control Rod
IFI	Follow-up Items
IP	Inspection Procedure
ISU	Idaho State University
NCV	Non-Cited Violation
NRC	U.S. Nuclear Regulatory Commission
OP	Operating Procedure
OSL	Optically-stimulated luminescent (dosimeter)
PHE	Public Health Emergency
RA	Reactor Administrator
RSC	Reactor Safety Committee
RSO	Radiation Safety Officer
SRO	Senior Reactor Operator
SRs	Safety Rods
TLD	Thermoluminescent dosimeter
TSs	Technical Specifications
VIO	Violation