

April 12, 2004

Dr. Warren Day, Reactor Administrator
U.S. Department of the Interior
Geological Survey
Box 25046, MS 911
Denver Federal Center
Denver, CO 80225-0046

SUBJECT: NRC INSPECTION REPORT NO. 50-274/2004-201

Dear Dr. Day:

This letter refers to the inspection conducted on March 22-25, 2004, at your U.S. Geological Survey TRIGA Reactor Facility. The inspection included a review of activities authorized for your facility. 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 concern or noncompliance of NRC requirements were identified. No response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>.

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

Sincerely,

/RA/

Patrick M. Madden, Section Chief
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-274
License No. R-113

Enclosure: NRC Inspection Report No. 50-274/2004-201

cc w/enclosure: Please see next page

U.S. Geological Survey

Docket No. 50-274

cc:

Mayor
City Hall
Denver, CO 80202

Mr. Robert M. Quillin, Director
Laboratory and Radiation Services
Division
Colorado Department of Public Health
and Environment
8100 Lowry Boulevard
Denver, CO 80220-6928

Mr. Timothy DeBey
Reactor Director
U.S. Geological Survey
Box 25046 - Mail Stop 424
Denver Federal Center
Denver, CO 80225

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

April 12, 2004

Dr. Warren Day, Reactor Administrator
U.S. Department of the Interior
Geological Survey
Box 25046, MS 911
Denver Federal Center
Denver, CO 80225-0046

SUBJECT: NRC INSPECTION REPORT NO. 50-274/2004-201

Dear Dr. Day:

This letter refers to the inspection conducted on March 22-25, 2004, at your U.S. Geological Survey TRIGA Reactor Facility. The inspection included a review of activities authorized for your facility. 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 concern or noncompliance of NRC requirements were identified. No response to this letter is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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 (the Public Electronic Reading Room) <http://www.nrc.gov/reading-rm/adams.html>.

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

Sincerely,

/RA/

Patrick M. Madden, Section Chief
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No. 50-274

License No. R-113

Enclosure: NRC Inspection Report No. 50-274/2004-201

cc w/enclosure: Please see next page

DISTRIBUTION:

PUBLIC	RNRP/R&TR r/f	AAdams	CBassett
PDoyle	TDragoun	WEresian	RidsNrrDrip
SHolmes	DHughes	EHylton	Plsaac
JLyons	PMadden	MMendonca	CNagel
KWitt	PYoung	DBarss (MS O6-H2)	
BDavis (Ltr only O5-A4) NRR enforcement coordinator (Only for IRs with NOVs, O10-H14)			

ACCESSION NO.: ML040960263

TEMPLATE #: NRR-106

OFFICE	RNRP:RI	RNRP:LA	RNRP:SC
NAME	CBassett:rd	EHylton:rd	PMadden
DATE	4/ /2004	4/ 8 /2004	4/ 8 /2004

C = COVER

**E = COVER & ENCLOSURE
OFFICIAL RECORD COPY**

N = NO COPY

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

Docket No: 50-274

License No: R-113

Report No: 50-274/2004-201

Licensee: United States Geological Survey,
Department of the Interior

Facility: U.S. Geological Survey TRIGA Reactor

Location: Building 15, Denver Federal Center
Denver, Colorado

Dates: March 22-25, 2004

Inspector: Craig Bassett

Approved by: Patrick M. Madden, Section Chief
Research and Test Reactors Section
New, Research and Test Reactors Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

United States Geological Survey
Report No. 50-274/2004-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the licensee's Class II research reactor safety program including: organizational structure and staffing, design change and review and audit functions, procedures, radiation protection, environmental protection, transportation of radioactive material, security, and, material control and accounting since the last 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

- The organizational structure and functions were consistent with the requirements specified in Section H of the Technical Specifications and Section 3 of the Reactor Operations Manual.

Design Change and Review and Audit Functions

- Reviews and audits were being conducted by the Reactor Operations Committee in compliance with the requirements specified in Section 3 of the Reactor Operations Manual and Section H of the Technical Specifications.
- Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required using the criteria specified in 10 CFR 50.59 with the required acceptance reviews and approvals.

Procedures

- The procedural control and implementation program met Technical Specification requirements.

Radiation Protection

- Periodic surveys were completed and documented as required by procedure.
- Postings and signs met regulatory requirements.
- Personnel dosimetry was being worn as required and recorded doses were within the NRC's regulatory limits.
- Radiation survey and monitoring equipment was being maintained and calibrated as required.
- The Radiation Protection and ALARA Programs met regulatory requirements.
- Radiation protection training was acceptable.

Environmental Protection

- Effluent monitoring in accordance with license and regulatory requirements and releases were within the specified regulatory and Technical Specification limits.
- The environmental protection program met NRC requirements.

Transportation of Radioactive Material

- Radioactive materials were transferred to the licensee's Byproduct Materials license for shipment and/or disposal.

Security

- Security facilities, equipment, and procedures were as required by Physical Security Plan requirements.

Material Control and Accountability

- The licensee's program for controlling and tracking Special Nuclear Material as required by 10 CFR Part 70 was being implemented acceptably.

REPORT DETAILS

Summary of Plant Status

The licensee's one megawatt Research and Test Reactor continued to be operated in support of U.S. Geological Survey (USGS) programs and non-USGS entities. During the inspection the reactor was operated at full power to support on-going research and contract irradiation work.

1. Organizational Structure and Staffing

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

The inspector reviewed selected aspects of the following regarding the licensee's organization and staffing to ensure that the requirements of Section H of Technical Specifications (TS), Amendment No. 8, dated March 16, 1998, were being met:

- organizational structure for the Geological Survey TRIGA Reactor (GSTR) Facility
- staffing requirements for safe operation of the facility
- current staff qualifications
- Reactor Operations Manual (ROM), Section 3, "Nuclear Center Organization," dated January 1995 and revised June 1998
- U.S. Geological Survey TRIGA Reactor Annual Reports for 2002 and 2003

b. Observations and Findings

The organizational structure and functions had not functionally changed since the last inspection (refer to NRC Inspection Report No. 50-274/2003-201). However, there had been changes in the staffing. The Reactor Administrator had left the organization, as had one part-time reactor operator. An Acting Reactor Administrator had been appointed in the interim until a decision was made concerning a permanent replacement. The licensee had also hired another part-time reactor operator (RO) who was in training for the position. In addition, a full-time Reactor Health Physicist had been hired as well. This would allow the person who had been filling that position to devote more time to his job as the Radiation Safety Officer (RSO) for various USGS organizations, as well as to his job as an RO. The organizational structure and staffing at the facility were as required by TS. Qualifications of the staff met TS requirements. Review of records verified that management responsibilities were administered as required by TS and the ROM.

c. Conclusions

The licensee's organization and staffing were in compliance with the facility TS Section H and ROM Section 3.

2. Review and Audit Functions

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required by TS Section H.2 and ROM Section 3, the inspector reviewed selected aspects of:

- Reactor Operations Committee (ROC) meeting minutes for 2002 and 2003
- safety review records and audit reports for the past two years
- responses to the review and audit reports
- ROC Committee functions outlined in the U.S. Department of the Interior, U.S. Geological Survey Manual, Series/Chapter/Paragraph 308.44.1, "Reactor Operations Committee," dated February 5, 1999
- ROM, Section 3, "Nuclear Center Organization," dated January 1995 and revised June 1998
- facility design change records for the past two years
- facility configuration records

b. Observations and Findings

(1) Review and Audit Functions

The inspector verified that the ROC semiannual meeting schedule and membership met TS Section H.2, ROC charter, and ROM requirements. Review of the meeting minutes for the past two years indicated that the committee provided guidance, direction, and oversight for the reactor and ensured suitable and safe reactor operations.

The ROC minutes and audit records showed that safety reviews and individual audits had been completed for the functional areas specified by TS Sections H.3, H.4, and H.5, and at the frequency specified in Section 3.8 of the ROM. Audits were tracked using a spreadsheet that included the assigned auditor, date due, and audit topic. The inspector noted that the licensee conducted an audit of reactor operations, maintenance and operations logs, fuel movement, facility procedures, the operator requalification program, and various aspects of the Radiation Protection Program. The results of the audits for the past two years were documented in reports dated January 23, 2003, and January 8, 2004, respectively. The inspector determined that the audit findings and licensee actions taken in response to the findings were acceptable.

(2) Design Change

The inspector determined that design changes at the GSTR required a facility staff review followed by an ROC review and subsequent approval. Only one design change had been processed during the past several years. It involved replacement of the reactor console chart recorder with a new paperless chart recorder. The inspector reviewed the records and determined that the review had

been performed as required and had been reviewed and approved by the ROC. From the review, the inspector also determined that ROC 10 CFR 50.59 reviews and approvals were focused on safety and met licensee program requirements.

c. Conclusions

Audits and reviews conducted by the ROC were in accordance with the requirements specified in Section H of the TS and Section 3 of the ROM. Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required using the criteria specified in 10 CFR 50.59 with the acceptance reviews and approvals.

3. Procedures

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to ensure that safety standards and written instructions for those activities specified in TS Sections H.2 and H.3 were in effect:

- selected ROM Sections and GSTR procedures
- records of changes and temporary changes to procedures
- observation of procedural implementation
- ROC meeting minutes documenting procedure change reviews and approvals

b. Observations and Findings

The inspector reviewed ROM Sections 4, 5, and 8, and selected GSTR procedures contained in ROM Section 5. These ROM Sections and GSTR procedures provided guidance for the administrative, operations, and health physics (HP) functions of the facility. The inspector confirmed that written procedures were available for those tasks and items required by TS Sections H.2 and H.3. The licensee controlled changes to procedures and the ROC conducted the review and approval process as required.

After review of the 2003 training records and interviews with staff, the inspector determined that the training of personnel on procedures was adequate. During tours of the facility, the inspector observed that personnel performed facility operations and tasks in accordance with applicable procedures.

c. Conclusions

Based on the procedures and records reviewed and observations of staff during the inspection, the inspector determined that the procedural control and implementation program was acceptably maintained.

4. Radiation Protection

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify compliance with 10 CFR Parts 19 and 20 and TS Section F requirements:

- radiological signs and posting in various areas of the facility
- routine periodic survey and monitoring records for the past year documented on USGS TRIGA Reactor Facility Start-Up Checklists and Radiological Survey maps
- dosimetry/exposure records for 2002 through 2004 to date
- maintenance and calibration records of radiation monitoring equipment for the past two years documented in the Instrument Calibration Log
- U.S. Geological Survey TRIGA Reactor Annual Reports for 2002 and 2003
- GSTR HP Logbook #39
- GSTR Radiation Protection Program as outlined in ROM, Section 8, "Radiation Protection Program," dated October 1994
- ROM, Section 8, Subsection 8.1, "Radiation Protection Policy," dated October 1994
- ROM, Section 8, Subsection 8.2, "Health Physics Training," dated October 1994
- ROM, Section 8, Subsection 8.3, "Radioactive Material Control," dated October 1994
- ROM, Section 8, Subsection 8.4, "Radiation Monitoring," dated October 1994
- ROM, Section 8, Subsection 8.5, "Instrumentation," dated October 1994
- ROM, Section 8, Subsection 8.6, "Records," dated October 1994
- ROM, Section 8, Subsection 8.7, "Emergency Response and Exposure Guidelines," dated October 1994
- ROM, Section 8, Subsection 8.8, "Declared Pregnant Woman Guidelines," dated October 1994
- ROM, Section 8, Subsection 8.9, "Planned Special Exposures," dated October 1994
- ROM GSTR Procedure No. 15, "Pocket Dosimeter Drift Check Procedure," last review dated April 29, 2002
- ROM GSTR Procedure No. 16, "Pocket Dosimeter Calibration Procedure," last review dated April 29, 2002
- ROM GSTR Procedure No. 20, "Procedure for Radiation Instrument Calibrations," last review dated November 5, 2002
- ROM GSTR Procedure No. 24, "Procedure for Operation of Harshaw TLD System," last review dated April 29, 2002
- The As Low As Reasonably Achievable (ALARA) Program outlined in ROM, Section 8, dated October 1994, and recent ALARA reviews
- training records for GSTR staff, facility users, and students

b. Observations and Findings

(1) Surveys

Selected start-up and monthly radiation and/or contamination surveys were reviewed by the inspector. The surveys had been completed by HP staff members as required. Any contamination detected in concentrations above established action levels was noted and the area was decontaminated. Results of the surveys were documented so that facility personnel would be knowledgeable of the radiological conditions that existed in the controlled areas of the facility.

During the inspection the inspector conducted a radiation survey along side a licensee representative in the Reactor Bay. Proper techniques were used during the survey. The radiation levels noted by the inspector were comparable to those found by the licensee and no anomalies were noted.

(2) Postings and Notices

Copies of current notices to workers were posted in appropriate areas in the facility. Radiological signs were typically posted at the entrances to controlled areas. Other postings also showed the industrial hygiene hazards that were present in the areas as well. Copies of NRC Form-3, "Notice to Employees," noted at the facility were the latest issue, as required by 10 CFR Part 19.11, and were posted in various areas throughout the facility. These locations included the bulletin boards in the hallways by each entrance to the facility Protected Area and in the hallway by the facility calibration range. Caution signs, postings, and controls for radiation areas were as required in 10 CFR Part 20, Subpart J. Licensee personnel observed the precautions for access to radiation areas.

(3) Dosimetry

The inspector determined that the licensee used thermoluminescent dosimeters (TLDs) for whole body monitoring of beta and gamma radiation exposure with an additional component to measure neutron radiation. The licensee used TLD finger rings for extremity monitoring. The dosimetry was supplied and processed by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited vendor. An examination of the TLD results indicating exposures to radiation 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 for 2002 was 173 millirem (mr) deep dose equivalent (DDE). The highest annual extremity exposure for that year was 411 mr shallow dose equivalent (SDE). For 2003, the highest annual whole body exposure received by a single individual was 69 mr DDE and the highest annual extremity exposure was 252 mr SDE.

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

(4) Radiation Monitoring Equipment

Examination of selected radiation monitoring equipment indicated that the instruments had the acceptable up-to-date calibration sticker attached. The instrument calibration records indicated that calibration of portable survey meters was typically completed by licensee staff personnel. However, some instruments, including the neutron detection instruments, were shipped to vendors for calibration. Calibration frequency met procedural requirements and records were maintained as required. Area Radiation Monitors and stack monitors were also being calibrated as required. These monitors were also typically calibrated by licensee staff personnel.

During the inspection the inspector observed the calibration range at the facility. The calibration range appeared to be adequate and the appropriate techniques were outlined in the applicable procedures. Proper precautions and controls had been established and were in place to maintain doses ALARA.

(5) Radiation Protection Program

The licensee's Radiation Protection and ALARA programs were established and described in ROM Section 8 and through associated GSTR procedures that had been reviewed and approved. The programs contained instructions concerning organization, training, monitoring, personnel responsibilities, audits, record keeping, and reports. The ALARA program provided guidance for keeping doses as low as reasonably achievable which was consistent with the guidance in 10 CFR Part 20. The programs, as established, appeared to be acceptable.

The inspector also determined that the licensee had completed an annual review of the radiation protection program for 2002 and 2003 in accordance with 10 CFR 20.1101(c).

The licensee did not require or have a respiratory protection program.

(6) Radiation Protection Training

The inspector reviewed the radiation worker (or rad worker) training given to staff members, to those who are not on staff but who are authorized to use the experimental facilities of the reactor, and to part-time assistants such as students. Training, and refresher training, for reactor staff and students was given every two years; everyone else was trained every three years.

The initial and refresher training covered the topics specified in 10 CFR 19 as required. Training records showed that personnel were acceptably trained in radiation protection practices. The training program was acceptable.

(7) Facility Tours

The inspector toured the Reactor Control Room, the Reactor Room, and selected support laboratories and rooms with licensee representatives on various occasions. No unmarked radioactive material was noted. Radiation and Radioactive Material Storage Areas were posted as required.

c. Conclusions

The inspector determined that the Radiation Protection and ALARA Programs, as implemented by the licensee, was in accordance with regulatory requirements because: 1) surveys were completed and documented acceptably to permit evaluation of the radiation hazards present; 2) postings met regulatory requirements; 3) personnel dosimetry was being worn as required and recorded doses were within the NRC's regulatory limits; 4) radiation survey and monitoring equipment was being maintained and calibrated as required; and 5) the radiation protection training program was acceptable.

5. Environmental Protection

a. Inspection Scope (IP 69001)

To determine that the licensee was complying with the requirements of 10 CFR Part 20 and TS Section B, the inspector reviewed selected aspects of:

- U.S. Geological Survey TRIGA Reactor Annual Reports for 2002 and 2003
- environmental monitoring release records documented on the appropriate forms
- ROM GSTR Procedure No. 17, "Procedure for Determining Argon-41 Release," last review dated November 5, 2002
- ROM GSTR Procedure No. 20, "Procedure for Radiation Instrument Calibrations," last review dated November 5, 2002
- ROM GSTR Procedure No. 22, "Procedure for Analysis of Stack Gas Radionuclides," last review dated April 28, 2003
- calibration records for the Ar-41 monitor (stack), area monitors, and the Continuous Air Monitor (CAM) for the past two years

b. Observations and Findings

On-site and off-site gamma radiation monitoring was completed using the reactor facility stack effluent monitor and various environmental monitoring TLDs and area monitors in accordance with the applicable procedures. Data indicated that there were no measurable doses above any regulatory limits.

The inspector determined that gaseous releases continued to be monitored as required, were acceptably documented, and were within the annual 10 millirem dose constraints of 10 CFR 20.1101 (d), Appendix B concentrations, and TS limits. COMPLY code calculations indicated an effective dose equivalent to the public of 0.2 millirem for 2002 and 0.1 millirem for 2003. This was acceptably documented in the

licensee's Annual Reports. Observation of the facility by the inspector found no new potential release paths.

The program for the monitoring, storage, or transferring of radioactive liquid and solids was consistent with applicable regulatory requirements. No liquid discharges had been made during calendar year 2003. Radioactive material was monitored and released when below acceptable limits or was acceptably transferred to the licensee's Byproduct Materials license for disposition. The principles of ALARA were acceptably implemented to minimize radioactive releases. Monitoring equipment was acceptably maintained and calibrated. Records were current and acceptably maintained.

c. Conclusions

Effluent releases were within the specified regulatory and TS limits. The environmental protection program was in accordance with NRC requirements.

6. Transportation

a. Inspection Scope (IP 86740)

To verify compliance with regulatory and procedural requirements for the transfer or shipment of licensed radioactive material, the inspector reviewed the following:

- training records of staff members responsible for shipping licensed radioactive material
- ROM GSTR Procedure No. 18, "Instructions for Packaging Radioactive Materials," last review dated April 29, 2002
- ROM GSTR Procedure No. 23, "Procedure for Receipt of Radioactive Material Shipments," last review dated April 29, 2002
- GSTR HP Logbook #39
- selected US Geological Survey TRIGA Reactor forms, "Radioisotope Request and Receipt (RR&R) Form," for 2003 and 2004

b. Observations and Findings

Records showed that no radioactive material was shipped under the reactor license, R-113. All radioactive material was transferred to the licensee's Byproduct Materials license, No. 05-01399-08, expiration date September 30, 2004, for packaging, shipment, and/or disposal in accordance with licensee requirements. This was documented on the RR&R forms and in the HP Logbook as required.

The training of the staff members responsible for shipping the material was reviewed. Training had been completed during March 2003 and was renewed every two years.

c. Conclusions

Radioactive materials were transferred to the licensee's Byproduct Materials License for shipment and/or disposal.

7. Security

a. Inspection Scope (IPs 81401, 81402, 81403, and 81431)

To verify compliance with the licensee's NRC-approved Physical Security Plan (PSP) and to assure that changes, if any, to the plan had not reduced its overall effectiveness, the inspector reviewed:

- lock, key card, and key control
- intruder detection and physical barriers
- facility access controls and procedures
- security systems, equipment, and instruments
- security audits and responses
- GSTR facility and Denver Federal Center security organization
- GSTR Operations Logbooks #119-121
- US Geological Survey TRIGA Reactor Monthly Checklists for 2003 and 2004
- ROM Section 4, Subsection 4.3, "Access Control," dated January 1995

b. Observations and Findings

The Physical Security Plan (PSP), Revision X, dated December 2002, was the same as the latest revision approved by the NRC. The plan was being reviewed at least biennially as required. It was also noted that the licensee was properly controlling and protecting the PSP and other safeguards information as required by the regulations.

The inspector toured the facility and confirmed that the physical protection systems (barriers and alarms), equipment, and instrumentation were as required by the PSP. The inspector also confirmed that the security checks, tests, verifications, and periodic audits were performed and tracked as required by the PSP. Access control was implemented as required by the PSP and ROM Section 4. Response rosters were current and posted as required.

Through records review and interviews with licensee personnel, the inspector verified that there had been no safeguards events at the facility since the last inspection. Also, when new fuel recently was received by the licensee, proper provisions were established to maintain protection of the fuel and other SNM.

The inspector also conducted interviews with various Federal Protective Service (FPS), Department of Homeland Security (DHS) staff members, visited the FPS Denver Mega Center, and observed a security alarm check. Members of the FPS typically provided periodic patrols and initial response to incidents at the reactor. They were very knowledgeable of the reactor and of their responsibilities in case of an emergency at the GSTR. The inspector also noted an excellent working relationship between the GSTR and FPS staff members.

Acceptable security response and training of the staff were demonstrated through alarm response and drill participation in accordance with emergency procedures.

Initial facility familiarization training was being provided to the FPS personnel as required.

The licensee recently committed to conducting biennial security tabletop exercises or drills to evaluate the facility's and support organizations' response to potential threats. The licensee was informed that this issue will be identified as an Inspector Follow-up Item (IFI) and will be reviewed during a future inspection (50-274/2004-201-01).

c. Conclusions

The physical protection system of the GSTR facility, the related procedures, and the FPS support met the requirements of the PSP.

8. Material Control and Accounting

a. Inspection Scope (IP 85102)

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

- GSTR program for tracking the quantity, identity, and location of Special Nuclear Material (SNM)
- SNM storage locations and inventory results
- accountability forms, records, and reports documented in the GSTR Fuel Book
- Operations Logbooks #119-121

b. Observations and Findings

The inspector determined that possession and use of SNM was limited to those purposes authorized by the license. The inspector verified that the licensee maintained an amount of SNM that was equal to or less than that authorized by the license. Fuel burn-up and related measurements and calculations were found to be acceptable and properly documented. Fuel inventory and movement forms maintained in the GSTR Fuel Book were properly prepared. These transactions of material control and accountability were cross referenced in the appropriate Operations Logbooks. The records also showed that the licensee was maintaining control of SNM storage areas as required.

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) had been completed semiannually and submitted by the licensee to the appropriate regulatory agencies in a timely manner and as required by 10 CFR 74.13(1).

During the inspection, the inspector toured the facility, examined the SNM and fuel storage areas, and verified that the licensee was using and storing SNM in those areas designated for such use in the PSP. The inspector also observed an inventory and verified the serial numbers of two fuel elements that were maintained in storage in

the reactor pool. This demonstrated that the fuel and other SNM were in the locations specified and that records documenting the storage and transfers of SNM were accurate.

c. Conclusions

The licensee's program for controlling and tracking SNM as required by 10 CFR Part 70 was being implemented acceptably.

9. Exit Meeting Summary

The inspector reviewed the inspection results with members of licensee management at the conclusion of the inspection on March 25, 2004. The licensee acknowledged the findings presented and did not identify as proprietary any of the material provided to or reviewed by the inspector during the inspection except the Physical Security Plan.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

W. Day, Acting Reactor Administrator and Associate Regional Geologist for Science
T. DeBey, Manager, GSTR Supervisor and Reactor Supervisor
R. Hutchings, Reactor Operator Trainee
G. Lightner, Reactor Health Physicist Trainee, GSTR
D. Liles, U.S. Geological Survey RSO and Reactor Operator
R. Perryman, Senior Reactor Operator, GSTR

Other Personnel

J. Jackson, Program Manager, Denver Mega Center, FPS, DHS
D. Tyndell, WMD/HAZMAT Coordinator, FPS, DHS

INSPECTION PROCEDURES USED

IP 69001	Class II Research and Test Reactors
IP 81401	Plans, Procedures, and Reviews
IP 81402	Report of Safeguards Events
IP 81403	Receipt of New Fuel at Reactor Facilities
IP 81431	Fixed Site 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

50-274/2004-201-01 IFI Follow-up on the licensee's commitment to conduct biennial security tabletop exercises or drills to evaluate facility and support organization response to potential threats.

Closed

None.

LIST OF ACRONYMS USED

ALARA	As low as reasonably achievable
CFR	Code of Federal Regulations
DDE	Deep dose equivalent
DHS	Department of Homeland Security
FPS	Federal Protective Service
GSTR	Geological Survey TRIGA Reactor

HP	Health physics
IFI	Inspector Follow-up Item
IP	Inspection Procedure
mr	millirem
NRC	Nuclear Regulatory Commission
PSP	Physical Security Plan
RO	Reactor Operator
ROC	Reactor Operations Committee
ROM	Reactor Operations Manual
RR&R	Radioisotope Request and Receipt (form)
RSO	Radiation Safety Officer
SDE	Shallow dose equivalent
SNM	Special Nuclear Material
SRO	Senior Reactor Operator
TLD	Thermoluminescent dosimeter
TS	Technical Specifications
USGS	United States Geological Survey