

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

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License Nos: R-38, R-67

Report Nos: 50-89/99-201 and 50-163/99-201

Licensee: General Atomics

Facility: TRIGA Reactors Facility

Location: 3550 General Atomics Court, Building 21  
San Diego, CA

Dates: October 12-14, 1999

Inspector: Craig Bassett, Senior Non-Power Reactor Inspector

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

General Atomics TRIGA Mark I and Mark F Research Reactors  
Report No: 50-89/99-201 and 50-163/99-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects of the licensee's Class III non-power reactor activities including: organization and staffing, review and audit functions, radiation protection, safeguards and security, operator training and requalification, and surveillances. A tour of the site and the TRIGA Reactors Facility was also conducted.

### Changes, Organization, and Staffing

- The licensee's organization and staffing are in compliance with the requirements specified in the Technical Specifications and statements contained in the Decommissioning Plan.

### Review and Audit Functions

- Audits were being conducted as required by the Technical Specifications.
- Audit findings and corrective actions appeared to be acceptable.
- The Criticality Safety Committee, which previously reviewed and audited the operating TRIGA reactors, was disbanded and a new subcommittee, the TRIGA Reactor Safety Committee, was created to review and audit decommissioning activities.

### Radiation Protection Program

- Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards that were present.
- 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.
- The Work Authorization for decommissioning the TRIGA Reactors Facility was being revised to reflect the new organizational responsibilities and recent revisions to the facility procedures.
- Radiation worker training and refresher training was being completed as stipulated by licensee procedure.

Physical Security

- Security activities and systems satisfied Physical Security Plan requirements.

Requalification Training Program

- The licensee had acceptably conducted a requalification training program and was maintaining training records as required.

Surveillances

- The licensee was acceptably completing the surveillances reviewed by the inspector.

## REPORT DETAILS

### **Summary of Plant Status**

The NRC issued license amendments on August 12, 1999, authorizing the licensee to begin decommissioning the two non-power reactors on site. During the inspection, the licensee continued efforts to decommission the reactors as stipulated in the applicable Technical Specifications and outlined in the Decommissioning Plan.

#### **1. Changes, Organization, and Staffing (40755)**

##### **a. Inspection Scope**

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Technical Specification (TS) Section 7.1 (for the TRIGA Mark I) and TS Section 8.1 (for the TRIGA Mark F), and statements contained in Section 2.4 of the Decommissioning Plan (DP) were being met:

- the organizational structure
- management responsibilities
- staffing requirements for safe decommissioning of the TRIGA Reactors Facility

##### **b. Observations and Findings**

As noted in a previous inspection report, the TRIGA Reactors Facility had been under the direct supervision of a Physicist-in-Charge who reported to the Vice President responsible for research and development. After being granted a "Possession Only" amendment, and subsequently a decommissioning amendment to the license for each reactor, the licensee changed the responsibility for management of the facility. This responsibility, as stipulated in the TS and DP, has now been shifted to the Manager of Decommissioning Projects who reports to the Vice President Research and Development. The Physicist-in-Charge supervises the daily operations/ decommissioning of the TRIGA Reactors Facility and reports to the Manager of Decommissioning Projects.

Through review of records and through discussions with licensee personnel, the inspector determined that the staffing at the facility was acceptable to support the ongoing activities. The staffing met the requirements of the TS and the DP.

##### **c. Conclusions**

The licensee's organization and staffing are in compliance with the requirements specified in the TS and statements contained in the DP.

## 2. Review and Audit Functions (40755)

### a. Inspection Scope

The inspector reviewed the following to ensure that the audits and reviews stipulated in the requirements of TS Section 7.2 (for the TRIGA Mark I) and TS Section 8.2 (for the TRIGA Mark F), and outlined in statements in Section 1.2 of the DP were being completed and to ensure that the safety committee was meeting as required:

- Criticality and Radiation Safety Committee (CRSC) charter
- Criticality and Radiation Safety Committee meeting minutes
- General Atomics administrative procedures
- TS duties specified for the CRSC including the committee's review and audit functions

### b. Observations and Findings

The inspector reviewed the CRSC's meeting minutes from 1998 through the present. The meeting minutes showed that the committee met as required by the TS with a quorum being present. The inspector also noted that the CRSC had considered the types of topics stipulated in the TS.

It was noted that a subcommittee, or a designated representative, completed audits of the general aspects of the TRIGA Reactors Facility operations and programs. The audits and the resulting findings, as well as the licensee's responses and corrective actions, appeared to be acceptable.

The inspector also noted that, because of changes in the TS for the reactors and other changes on the site, the CRSC had dissolved the subcommittee formerly charged with reviewing the safety of the operating reactors, namely the Criticality Safeguards Committee (CSC). In its place the CRSC had created a new subcommittee to oversee and audit the functions of the TRIGA Reactors Facility. The new subcommittee was named the TRIGA Reactors Safety Committee (TRSC). The TRSC was charged with reviewing and auditing the activities in progress during the decommissioning of the reactors and reviewing and approving any changes or modifications that might be needed concerning the DP.

The inspector reviewed the organization of the TRSC and the committee membership. The committee members were well qualified to serve on the TRSC.

### c. Conclusions

Audits were being conducted by the CRSC as required by the TS. Audit findings and corrective actions appeared to be acceptable. The CSC was disbanded and a new subcommittee, the TRSC was created to review and audit the decommissioning activities.

**3. Radiation Protection Program (40755)****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
- Work Authorization records related to the decommissioning of the TRIGA Reactors Facility
- radiation worker training

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**

Weekly, monthly, and other periodic and special contamination and radiation surveys, air samples, and air flow checks were completed by Health Physics (HP) technicians as required by TS and licensee procedures. Results were evaluated and corrective actions were taken when readings or results exceeded set action levels prior to exceeding regulatory limits.

**(2) Postings and Notices**

Postings at the entrances to the controlled areas 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 thermoluminescent dosimetry. An 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 licensee action levels. Most of the records showed no exposure above background. Dosimetry was acceptably used by facility personnel.

(4) **Work Authorization Records**

The Work Authorization and associated amendments and records pertaining to the decommissioning were reviewed. The inspector noted that the records were being maintained as required by procedure. The Work Authorization had been revised to reflect revised decommissioning requirements, the new organization that is in charge of the operation, and revisions to the TRIGA Reactors Facility procedures. The Work Authorization and applicable procedures appeared to be acceptable.

(5) **Radiation Worker Training**

The inspector determined that the training and/or refresher training had been conducted as required or was being completed within the time frame allowed by procedure. The inspector also verified that other types of training mentioned in the DP was being completed in a timely manner as needed.

c. **Conclusions**

Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards that were present. 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. The Work Authorization for decommissioning the TRIGA Reactors Facility was being revised to reflect the new organizational responsibilities and recent revisions to the TRIGA Reactors Facility procedures. Radiation worker training and refresher training was being completed as stipulated by licensee procedure.

4. **Physical Security (40755)**

a. **Inspection Scope**

The inspector reviewed selected aspects of:

- the Physical Security Plan
- security systems, equipment, and instrumentation
- implementation of the Physical Security Plan

b. **Observations and Findings**

The Physical Security Plan (PSP) was the same as the latest revision approved by the NRC. Physical protection systems (barriers and alarms), equipment and instrumentation were as required by the PSP. Access control was as required. Implementing procedures were consistent with the PSP. Acceptable security response and training was demonstrated through alarm response and drill response in accordance with procedures.

c. Conclusions

Security activities and systems satisfied Physical Security Plan requirements.

5. **Operator Requalification Program (40755)**

a. Inspection Scope

The inspector reviewed the licensee's limited reactor operator requalification training program and reactor operations logs to determine compliance with the requirements.

b. Observations and Findings

The inspector verified that the operators, who had received a limited qualification to handle and move the TRIGA reactor fuel, were qualified and maintaining their qualifications through quarterly fuel handling operations.

c. Conclusion

The licensee had acceptably conducted a requalification training program and was maintaining training records as required.

6. **Surveillances (40755)**

a. Inspection Scope

The inspector reviewed documentation of selected surveillance tests to determine compliance with the requirements in TS Sections 3-6.

b. Observations and Findings

The inspector reviewed documentation regarding various activities required in the TS such as sampling pool water conductivity, calibrating the area radiation monitoring system, and maintaining fuel elements in the proper storage location. The inspector determined that the licensee was completing the surveillances as required.

c. Conclusion

The licensee was acceptably completing the surveillances reviewed.

7. **Follow-up on Previously Identified Items**

a. Inspection Scope

The inspector reviewed the licensee's actions taken in response to three previously identified Violations (VIOs).



b. Observation and Findings

- (1) (Closed) VIO 50-89/98-202-01 - Failure to conduct a semiannual drill in accordance with the Radiological Contingency Plan.

During an NRC inspection conducted May 4-7, 1998, the inspector noted that the licensee had failed to conduct a semiannual drill in accordance with the requirements outlined in the site Radiological Contingency Plan.

During this inspection, the inspector reviewed the corrective actions that were stated in the licensee's response to the violation. The response was dated July 10, 1998. The actions taken were determined to be acceptable. This item is considered closed.

- (2) (Closed) VIO 50-89/98-202-02 - Failure to change the key locks annually as stipulated in the Physical Security Plan.

During the aforementioned NRC inspection conducted May 4-7, 1998, the inspector noted that the licensee had failed to change the key locks annually at the TRIGA Reactors Facility as required by the site Physical Security Plan.

During this inspection, the inspector reviewed the corrective actions taken by the licensee in response to the violation. The actions taken were determined to be acceptable. This item is considered closed.

- (3) (Closed) VIO 50-89/98-202-03 - The TRIGA Mark I reactor was operated on various occasions during 1996 and 1997 by two individuals whose licenses had expired.

During the NRC inspection conducted in May 1998, the inspector also noted that the TRIGA Mark I reactor had been operated on occasion by individuals whose licenses had expired.

During this inspection, the inspector reviewed the corrective actions that were stipulated in the licensee's response to the violation. The response was dated July 10, 1998. The actions taken were determined to be acceptable. This item is considered closed.

c. Conclusion

The licensee had taken appropriate actions regarding previously identified open items. These items are considered closed.

8. Exit Interview

The inspection scope and results were summarized on October 14, 1999, with members of licensee management. The inspector described the areas inspected and discussed the inspection findings. Although proprietary documents and material were occasionally reviewed during the inspection, proprietary information is not included in this report. No dissenting comments were received from the licensee.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

K. Asmussen, Director, Licensing, Safety, and Nuclear Compliance  
G. Bramblett, Manager, Decommissioning Project  
E. Drees, Chair, TRIGA Reactors Safety Committee  
L. Gonzales, Manager, Health Physics  
J. Greenwood, Physicist-in Charge and Manager, TRIGA Reactors Facility  
H. Kleinsorge, Security Administrator  
P. Maschka, Health Physicist Supervisor  
W. Stout, Senior Reactor Operator, TRIGA Reactors Facility

## INSPECTION PROCEDURE USED

IP 40755      Class III Non-Power Reactors

### ITEMS OPENED, CLOSED, AND DISCUSSED

#### Opened

None

#### Closed

50-89/98-202-01	VIO	Failure to conduct a semiannual drill in accordance with the Radiological Contingency Plan.
50-89/98-202-02	VIO	Failure to change the key locks annually as stipulated in the Physical Security Plan.
50-89/98-202-03	VIO	The TRIGA Mark I reactor was operated on various occasions during 1996 and 1997 by two individuals whose licenses had expired.

## LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
CSC	Criticality Safeguards Committee
CRSC	Criticality and Radiation Safety Committee
HP	Health physics
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
PSP	Physical Security Plan
TRIGA	Training, Research, Isotopes, General Atomics
TRSC	TRIGA Reactors Safety Committee
TS	Technical Specification
VIO	Violation