

**TRIGA<sup>®</sup> Mark I Reactor**

**ANNUAL REPORT**

**CALENDAR YEAR 2013**

Prepared to satisfy the requirements of  
U.S. Nuclear Regulatory Commission  
Facility License R-38  
Docket No. 50-89

**MARCH 2014**



## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2</b>	<b>SUMMARY OF FACILITY ACTIVITIES.....</b>	<b>1</b>
2.1	Decommissioning Activities.....	1
2.2	Facility Status .....	1
2.3	Decommissioning Schedule.....	1
2.4	Radioactive Material Shipments.....	1
<b>3</b>	<b>MAINTENANCE OPERATIONS.....</b>	<b>1</b>
<b>4</b>	<b>10CFR50.59 FACILITY MODIFICATIONS AND SPECIAL EXPERIMENTS.....</b>	<b>2</b>
<b>5</b>	<b>RADIOACTIVE EFFLUENTS RELEASED TO THE ENVIRONS .....</b>	<b>2</b>
<b>6</b>	<b>ENVIRONMENTAL SURVEYS .....</b>	<b>2</b>
<b>7</b>	<b>SUMMARY OF RADIATION EXPOSURES AND RADIOLOGICAL SURVEYS.....</b>	<b>2</b>
7.1	General Atomics Staff Whole Body Exposures .....	3
7.2	Non-General Atomics Staff Whole Body Exposures .....	3
7.3	Routine Wipe Surveys of Mark I Reactor Facility .....	3
7.4	Routine Radiation Measurements of Mark I Reactor Facility .....	3

## **1 INTRODUCTION**

This report documents operation of the General Atomics (GA) TRIGA<sup>1</sup> Mark I Non-Power Reactor for the period January 1, 2013 through December 31, 2013. The TRIGA Mark I Reactor, possessed by GA at its San Diego, California facilities as authorized under License No. R-38 (Amendment No. 36) granted by the U.S. Nuclear Regulatory Commission (Docket No. 50-89), was not operated during the reporting period.

This report is being prepared and submitted to satisfy the requirements of Section 7.6(d) of the R-38 Technical Specifications, as amended. This report is presented in seven parts, consistent with the information required by the applicable Technical Specifications.

## **2 SUMMARY OF FACILITY ACTIVITIES**

### **2.1 Decommissioning Activities**

During Calendar Year (CY) 2013, the TRIGA Mark I Reactor was in Decommissioning Status. There were no decommissioning activities performed during this period specifically in the Mark I Reactor.

### **2.2 Facility Status**

2.2.1 On March 28, 2013, GA submitted the license-required TRIGA Mark I Annual report to the NRC.

2.2.2 On October 30, 2013, USNRC inspectors visited GA to inspect the TRIGA Reactor Facility (TRF) D&D Project and schedule. No problems were noted. The USNRC also reviewed the D&D Schedule. The inspection is documented in NRC's Inspection report NRC IR Oct 2013 12-02-2013.

### **2.3 Decommissioning Schedule**

Decommissioning of the Mark I Reactor will continue upon completion of the characterization of the Mark F Reactor liner, biological shield, and soil behind the shield. In this way, efforts between the two reactors can be coordinated to better utilize personnel, equipment, and material.

### **2.4 Radioactive Material Shipments**

No radioactive material shipments occurred from the TRIGA Mark I Reactor Facility during this reporting period.

## **3 MAINTENANCE OPERATIONS**

All maintenance activities, performed during the reporting period, generally fall into three categories: (i) routine preventive maintenance, (ii) routine calibration activities, and (iii) activities

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<sup>®1</sup> TRIGA is a registered trademark of General Atomics

associated with replacement of older components and systems due to age. All maintenance activities are recorded in the TRIGA Reactor Facility Decommissioning Logbook. Facility Maintenance Checklists are completed on a regular schedule, at weekly, quarterly, and annual frequencies. All maintenance operations performed on the TRIGA Mark I Reactor Facility were minor in nature. There were no major maintenance operations performed during the reporting period.

#### **4 10CFR50.59 FACILITY MODIFICATIONS AND SPECIAL EXPERIMENTS**

No applications for Facility Modification under the provisions of 10CFR50.59 were submitted for the R-38 facility during the CY2013 reporting period.

There were no Special Experiments submitted for the R-38 facility during CY2013.

#### **5 RADIOACTIVE EFFLUENTS RELEASED TO THE ENVIRONS**

During CY2013, 0.00 millicuries of Argon-41 were discharged from the TRIGA Mark I Reactor Facility ventilation stack to the atmosphere.

#### **6 ENVIRONMENTAL SURVEYS**

During CY2013, the Environmental Monitoring Program (EMP) for the TRIGA Reactors Facility remained essentially unchanged from the prior year. The applicable EMP includes the following monitoring equipment and actions:

- Five (5) emergency air samplers, situated on the Facility roof and around the TRIGA Reactor Facility perimeter.
- Six (6) environmental air samplers, situated adjacent to, and near the GA site perimeter, in accordance with the GA Special Nuclear Material License (SNM-696).
- Daily liquid effluent monitoring from the GA Main Sewerage Outfall Pump House, for gross alpha and beta radioactivity concentrations.
- External radiation monitoring of the TRIGA Reactor Facility using five (5) passive area dosimeters, as well as radiation meter surveys conducted periodically.
- Since there were no planned decommissioning activities in the Mark I facility, the use of the Continuous Air Monitor (CAM) was still discontinued. It will be placed in use any time in the future when there are aggressive decommissioning activities with a potential for generating airborne contamination.

#### **7 SUMMARY OF RADIATION EXPOSURES AND RADIOLOGICAL SURVEYS**

The following data summarizes measured personnel occupational radiation exposures and radiological surveys of the TRIGA Reactors Facility during CY 2013. Personnel who are listed on the TRIGA Reactors Facility Work Authorization (WA #3427 and, as of July 12, 2013 WA #600-13) and specific Radiological Work Permits (RWPs) were monitored for radiation exposure; these individuals included 25 General Atomics Staff and 15 Non-General Atomics

Staff employees. The following exposures were primarily as a result of the cleaning and sampling of the Mark F (R-67) Pit, loading of LLW into Y-4 Boxes, and subsequent shipment activities.

#### 7.1 General Atomics Staff Whole Body Exposures <sup>1</sup>

Number of individuals monitored:	25
High Exposure:	0.014 Rem
Low Exposure:	0.000 Rem
Average Exposure:	<0.001 Rem

#### 7.2 Non-General Atomics Staff Whole Body Exposures <sup>2</sup>

Number of individuals monitored:	15
High Exposure:	0.008 Rem
Low Exposure:	0.000 Rem
Average Exposure:	0.001 Rem

#### 7.3 Routine Wipe Surveys of Mark I Reactor Facility

High Wipe:	29.6	dpm/100 cm <sup>2</sup>
Low Wipe:	< 1.	dpm/100 cm <sup>2</sup>
Average Wipe:	3.3	dpm/100 cm <sup>2</sup>

#### 7.4 Routine Radiation Measurements of Mark I Reactor Facility

High Measurement:	1.8	mR/hr
Low Measurement:	< 0.2	mR/hr
Average Level:	0.15	mR/hr

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<sup>1</sup> Includes reactor facility staff and facility support staff authorized to work at the TRIGA Reactor Facility. These personnel may also work routinely at other GA radiation facilities; therefore, this dose represents *cumulative* exposure at all GA facilities.

<sup>2</sup> Includes non-GA sub-contractor personnel who were granted periodic access to the TRIGA Reactor Facility for the performance of work. These personnel may also work routinely at other GA radiation facilities; therefore, this dose represents *cumulative* exposure at all GA facilities.