



March 03, 2003
38/67-3570

VIA OVERNIGHT DELIVERY SERVICE

Document Control Desk
ATTN: Mr. Alexander Adams, Jr., Senior Project Manager
Non-Power Reactors & Decommissioning Projects Directorate
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

**Subject: Docket No. 50-89, Facility License R-38, and
Docket No. 50-163, Facility License R-67;
Submittal of General Atomics' TRIGA® Mark I and Mark F Annual
Reports for Calendar Year 2002 (3 Copies each)**

Dear Mr. Adams:

Enclosed are the annual reports required by the applicable Technical Specifications of General Atomics' (GA's) Mark I (License R-38) and Mark F (License R-67) TRIGA® research reactors. These reports cover operations for the calendar year 2002. The sections of these reports are numbered consistent with the items of information referred to in Section 7.6d of the Technical Specifications for the Mark I TRIGA® reactor and in 8.6d of the Technical Specifications for the Mark F TRIGA reactor.

Should you desire additional information concerning the above, please contact me at (858) 455-2823, or Mr. John Greenwood at (858) 455-4526.

Very truly yours,

A handwritten signature in black ink that reads "Keith E. Asmussen".

Dr. Keith E. Asmussen, Director
Licensing, Safety and Nuclear Compliance

Enclosures: "TRIGA® Mark I Reactor / Annual Report / Calendar Year 2002," dated March 2003 (3 Copies), and
"TRIGA® Mark F Reactor / Annual Report / Calendar Year 2002," dated March 2003 (3 Copies)

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TRIGA[®] Mark I Reactor

ANNUAL REPORT

CALENDAR YEAR 2002

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

MARCH 2003

TRIGA REACTORS FACILITY
TRIGA Mark I Reactor
ANNUAL REPORT
Calendar Year 2002

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Introduction

This report documents operation of the General Atomics (GA) TRIGA[®] Mark I Non-Power Reactor for the period January 1, 2002 through December 31, 2002. The TRIGA Mark I Reactor, possessed by GA at its San Diego, California facilities, was not operated for the duration of the reporting period. The Reactor is possessed by GA under License No. R-38 (Amendment No. 36) granted by the U.S. Nuclear Regulatory Commission (Docket No. 50-89).

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 six parts, consistent with the information required by the applicable Technical Specifications.

TRIGA is a registered trademark of General Atomics

1. Summary of Facility Activities

1.1 Decommissioning Activities

During Calendar Year 2002, the TRIGA Mark I has been in Decommissioning status. Activities performed during this period were:

The 8000 gallon demineralized water storage tank was surveyed by Health Physics and declared clean. The tank was disposed of as clean waste.

1.2 Facility Status

- o All TRIGA Mark I fuel remains situated in the Fuel Storage Canal portion of the Mark F Reactor pool in Rm. 21/107.
- o Decommissioning of the contaminated soil around the pit of the Mark I reactor remains deferred until shipment of the fuel from the Mark F Reactor pool for safety reasons.
- o The Senior Reactor Operators (SROs) have all maintained their licensing requirements to keep their licenses current.
- o The Criticality and Radiation Safeguards Committee (CRSC) performed their annual inspection on November 6, 2002. No problems were noted.

1.3 Decommissioning Schedule

All major task items in the Decommissioning Plan schedule have been completed except for shipment of the fuel from the Mark F storage canal and the decommissioning of the soil around the pit. All packaged radioactive materials have been shipped.

1.4 Radioactive Material Shipments

Listed below are the radioactive waste shipments, associated with the TRIGA Mark I Reactor decommissioning activities, made from General Atomics, San Diego, CA, to the U.S. Department of Energy, Nevada Test Site (NTS), Mercury, NV, during the Calendar Year 2002 reporting period. Each Low-Specific Activity Radioactive Waste Box (LSA Box) mentioned below represents a radioactive waste disposal volume of 123.2 ft³. Each drum shipped was a 55 gallon container

- o Three (3) LSA boxes of contaminated soil were shipped on 4/16/02.

- o Four (4) LSA boxes of contaminated rubble and soil were shipped on 5/1/02.
- o Fifty two (52) drums of concrete made from radiologically contaminated water were shipped on 5/15/02.
- o Six (6) drums of concrete made from radiologically contaminated water and two (2) LSA boxes of contaminated rubble and soil were shipped on 5/22/02.
- o Twelve (12) LSA boxes of contaminated soil were shipped on 5/29/02.
- o Thirteen (13) LSA boxes of contaminated rubble and soil were shipped on 6/5/02.
- o Thirteen (13) LSA boxes of contaminated rubble and soil were shipped on 6/11/02.
- o Thirty four (34) drums of concrete made from radiologically contaminated water and three (3) drums containing contaminated sewer pipes were shipped on 6/26/02.
- o Nine (9) drums of concrete made from radiologically contaminated water were shipped on 7/22/02.

2. Maintenance Operations

All TRIGA Mark I maintenance activities, performed during the reporting period, generally fall into three categories: (i) routine preventive maintenance, (ii) routine calibration activities, and (iii) activities associated with replacement of older components and systems due to age. All maintenance activities are recorded in the TRIGA Reactors 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 were minor in nature. There were no major maintenance operations performed during the reporting period.

3. 10CFR50.59 Facility Modifications and Special Experiments

There were no applications for Facility Modifications to the TRIGA Mark I, under the provisions of 10CFR50.59, submitted during the Calendar Year 2002 reporting period.

There were no new Special Experiments submitted for approval for the R-38 facility during Calendar Year 2002.

4. Radioactive Effluents Released to the Environs

During Calendar Year 2002, 0.00 millicuries of Argon-41 were discharged from the TRIGA Mark I Reactor facility stack to the atmosphere.

5. Environmental Surveys

During Calendar Year 2002, 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:

- o Five (5) emergency air samplers, situated on the Facility roof and around the TRIGA Reactor Facility perimeter.
- o Ten (10) environmental air samplers, situated adjacent to, and near the GA site perimeter, in accordance with the GA Material License (SNM-696).
- o Daily liquid effluent monitoring from the GA Main Sewerage Outfall Pump House, for gross alpha and beta radioactivity concentrations.
- o Annual soil and water sampling at ten (10) stations on the GA site, including stations around the perimeter of the TRIGA Reactor Facility.
- o External radiation monitoring of the TRIGA Reactor Facility using five (5) passive area dosimeters, as well as radiation meter surveys conducted periodically.
- o A Continuous Air Monitor (CAM), situated in the Mark I Reactor Room (Rm. 21/102) to continuously sample room air for airborne radioactivity. CAM air filters are collected each week and analyzed for radioactivity.

6. Summary of Radiation Exposures and Radiological Surveys

The following data summarizes measured personnel occupational radiation exposures and radiological surveys of the TRIGA Reactor Facility during Calendar Year 2002. Personnel who are listed on the TRIGA Reactor Facility Work Authorization (WA #3227) and specific Radiation Work Permits (RWPs) were monitored for radiation exposure; these individuals included 11 General Atomics employees and 5 sub-contractor employees.

6.1 General Atomics Staff Whole Body Exposures¹

Number of individuals monitored:	11
High Exposure:	0.010 Rem
Low Exposure:	0.000 Rem
Average Exposure:	0.9 mRem

6.2 Non General Atomics Staff Whole Body Exposures²

Number of individuals monitored:	5
High Exposure:	0.000 Rem
Low Exposure:	0.000 Rem
Average Exposure:	0.000 Rem

6.3 Routine Wipe Surveys of Mark I Reactor Facility

High Wipe:	1.2 β dpm/100 cm ²
Low Wipe:	< 1.0 β dpm/100 cm ²
Average Wipe:	< 1.0 β dpm/100 cm ²

6.4 Routine Radiation Measurements of Mark I Reactor Facility

High Measurement:	<0.2 mRem/hr @ 1 foot
Low Measurement:	<0.2 mRem/hr @ 1 foot
Average Level:	<0.2 mRem/hr @ 1 foot

¹ 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.

² 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

TRIGA[®] Mark F Reactor

ANNUAL REPORT

CALENDAR YEAR 2002

prepared to satisfy the requirements of
U.S. Nuclear Regulatory Commission
Facility License R-67
Docket No. 50-163

MARCH 2003

**TRIGA REACTORS FACILITY
TRIGA Mark F Reactor
ANNUAL REPORT
Calendar Year 2002**

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Introduction

This report documents operation of the General Atomics (GA) TRIGA[®] Mark F Non-power Reactor for the period January 1, 2002 through December 31, 2002. The TRIGA Mark F Reactor, possessed by GA at its San Diego, California facilities, was not operated for the duration of the reporting period. The Reactor is possessed by GA under License No. R-67 (Amendment No. 45) granted by the U.S. Nuclear Regulatory Commission (Docket No. 50-163).

This report is being prepared and submitted to satisfy the requirements of Section 8.6(d) of the R-67 Technical Specifications, as amended. This report is presented in six parts, consistent with the information required by the applicable Technical Specifications.

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1. Summary of Facility Activities

1.1 Decommissioning Activities

During Calendar Year 2002, the TRIGA Mark F has been in Decommissioning status. There were no decommissioning activities performed during this reporting period:

1.2 Facility Status

- o The Senior Reactor Operators (SROs) have all maintained their licensing requirements to keep their licenses current.
- o All TRIGA Mark F fuel remains in the Fuel Storage Canal portion of the Mark F Reactor pool in Rm. 21/107.
- o Decommissioning of the remainder of the Mark F Reactor remains deferred until shipment of the fuel from the Mark F Reactor pool.
- o The Criticality and Radiation Safeguards Committee (CRSC) performed its annual inspection on November 6, 2002. No problems were noted.

1.3 Decommissioning Schedule

All decommissioning for the Mark F reactor has been completed up to the point where the fuel needs to be shipped. Any further decommissioning tasks may jeopardize the fuel and will only be conducted after the fuel is shipped. All packaged radioactive materials have been shipped.

1.4 Radioactive Material Shipments

Listed below are the radioactive waste shipments, associated with the TRIGA Mark F Reactor decommissioning activities, made from General Atomics, San Diego, CA, to the U.S. Department of Energy Nevada Test Site (NTS), Mercury, NV, during the Calendar Year 2002 reporting period. Each Low-Specific Activity Radioactive Waste Box (LSA Box) mentioned below represents a radioactive waste disposal volume of 123.2 ft³.

- o Five (5) LSA boxes of contaminated rubble were shipped on 4/16/02.
- o Nine (9) LSA boxes of contaminated rubble were shipped on 4/24/02
- o One (1) LSA box of contaminated rubble was shipped on 5/1/02.

- o One (1) LSA box of contaminated rubble was shipped on 5/22/02.

2. 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 associated with replacement of older components and systems due to age. All maintenance activities are recorded in the TRIGA Reactors 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 F were minor in nature. There were no major maintenance operations performed during the reporting period.

3. 10CFR50.59 Facility Modifications and Special Experiments

There were no applications for Facility Modifications to the TRIGA Mark F, under the provisions of 10CFR50.59 submitted during the Calendar Year 2002 reporting period.

There were no Special Experiments submitted for the R-67 facility during Calendar Year 2002.

4. Radioactive Effluents Released to the Environs

During Calendar Year 2002, 0.00 millicuries of Argon-41 were discharged from the TRIGA Mark F Reactor facility stack to the atmosphere.

5. Environmental Surveys

During Calendar Year 2002, 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:

- o Five (5) emergency air samplers, situated on the Facility roof and around the TRIGA Reactor Facility perimeter.
- o Ten (10) environmental air samplers, situated adjacent to, and near the GA site perimeter, in accordance with the GA Special Nuclear Material License (SNM-696).
- o Daily liquid effluent monitoring from the GA Main Sewerage Outfall Pump House, for gross alpha and beta radioactivity concentrations.
- o Annual soil and water sampling at ten (10) stations on the GA site, including stations around the perimeter of the TRIGA Reactors Facility.

- o External radiation monitoring of the TRIGA Reactor Facility using five (5) passive area dosimeters, as well as radiation meter surveys conducted periodically.
- o A Continuous Air Monitor (CAM), situated in the Mark F Reactor Room (Rm. 21/107), to continuously sample room air for airborne radioactivity. CAM air filters are collected each week and analyzed for radioactivity.

6. 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 Calendar Year 2002. Personnel who are listed on the TRIGA Reactors Facility Work Authorization (WA #3227) and specific Radiological Work Permits (RWPs) were monitored for radiation exposure; these individuals included 11 General Atomics employees and 5 sub-contractor employees.

6.1 General Atomics Staff Whole Body Exposures¹

Number of individuals monitored:	11
High Exposure:	0.010 Rem
Low Exposure:	0.000 Rem
Average Exposure:	0.9 mRem

6.2 Non General Atomics Staff Whole Body Exposures²

Number of individuals monitored:	5
High Exposure:	0.000 Rem
Low Exposure:	0.000 Rem
Average Exposure:	0.000 Rem

6.3 Routine Wipe Surveys of Mark F Reactor Facility

High Wipe:	9.4 β dpm/100 cm ²
Low Wipe:	< 1.0 β dpm/100 cm ²
Average Wipe:	< 1.0 β dpm/100 cm ²

¹ 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.

² Includes non-GA personnel who were granted periodic access to the 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.

6.4 Routine Radiation Measurements of Mark F Reactor Facility

High Measurement:	42.0 mRem/hr @ 1 foot
Low Measurement:	<0.2 mRem/hr @ 1 foot
Average Level:	0.9 mRem/hr @ 1 foot