

U. S. NUCLEAR REGULATORY COMMISSION  
REGION V

Report No. 70-734/90-03

Docket No. 70-734

License No. SNM-696

Priority 0                      Category UHFF                      Safeguards Group II

Licensee: General Atomics (GA)  
P. O. Box 85608  
San Diego, California 92138

Facility Name: Torrey Pines Mesa and Sorrento Valley Sites

Inspection at: San Diego, California

Inspection Conducted: July 16-20, 1990

Inspector:

Robert J. Pate, Inc  
C. A. Hooker, Fuel Facilities Inspector

8/15/90  
Date Signed

Approved by:

Robert J. Pate  
Robert J. Pate, Chief  
Nuclear Materials and  
Fuel Fabrication Branch

8/15/90  
Date Signed

Summary:

a. Areas Inspected:

This was a routine unannounced inspection of radiation protection, emergency preparedness, maintenance/surveillance testing, transportation of radioactive materials, waste generator requirements, and criticality safety. The inspection also included tours of the licensee's facilities. Inspection procedures 30703, 83822, 88050, 88025, 86740, 84850, and 88015 were addressed.

b. Results:

In the areas inspected, the licensee's programs appeared adequate to the accomplishment of their safety objectives. However, one violation was identified for failure to perform maintenance on a uranium/zirconium fines burn furnace in the TRIGA Fuel Fabrication Facility (TFFF) (Section 4), and one non-cited violation (NCV) was also identified involving the licensee's failure to report changes in their Radiological Contingency Plan to the NRC (Section 3).

## DETAILS

### 1. Persons Contacted

#### Licensee

- \*D. N. Rademacher, Vice President, Human Resources
- \*K. E. Asmussen, Manager, Licensing, Safety and Nuclear Compliance
- \*L. K. Quintana, Manager, Health Physics (HP)
- \*R. S. Rucker, Manager, Nuclear Safety (MNS)
- \*R. P. Vanek, Manager, Nuclear Waste Processing Facility
- \*P. J. Niccoli, Superintendent, Facilities Maintenance
- \*R. C. Noren, Director, Nuclear Fuel Fabrication
- \*R. K. Kruger, Manager, TRIGA Fuel Fabrication (MTFF)
- \*C. L. Wisham, Manager Nuclear Materials Accountability
- J. Pagliaro, Supervisor, HP
- J. M. Brock, Supervisor, Emergency Services and Hazardous Materials Waste Management (SES&HMWM)

#### Decontamination and Decommissioning (D&D) Contract Personnel (Bechtel National, Inc.)

- J. Mattson, Project Superintendent, D&D Operations
- K. Jackson, Deputy Project Manager

\*Denotes those attending the exit interview on July 20, 1990.

In addition to the individuals noted above, the inspector met and held discussions with other members of the licensee's and contractor's staffs.

### 2. Radiation Protection (83822)

The inspector examined the licensee's program for compliance with the requirements of 10 CFR Parts 19 and 20, License Conditions, licensee procedures and recommendations outlined in various industry standards.

This inspection was focused on activities conducted by the licensee since the previous inspection (70-734/90-02) and those associated with preparations for D&D of the High Temperature Gas Cooled (HTGR) fuel fabrication facility in Building No. 37 (SVA).

#### a. New Personnel

The inspector noted that the licensee had hired an additional five HP technicians (HPTs) and a degreed HP supervisor to augment their current staff for the D&D of SVA. The licensee had also planned to acquire one more HPT within the next month. The inspector reviewed the resumes of the new HP staff and noted that each individual appeared to be well qualified for their assigned position.

In regard to training, the inspector noted that the licensee had established a 16 hour D&D radiation safety training program for individuals involved with the D&D of SVA. A review of the lesson plans, selected personnel training records and tests, discussions with D&D staff members, and observations during facility tours disclosed that adequate radiation and nuclear safety training was being provided to personnel involved with D&D activities.

The inspector met several members of the Bechtel National, Inc. (BNI) D&D staff and toured the SVA with the BNI Deputy Project Manager (DPM). The inspector noted that the DPM appeared to be quite familiar with the facility and well qualified for his assigned responsibilities, which also included health and safety. During discussions with several other BNI representatives, the inspector noted that these individuals also appeared to be well qualified. The inspector also noted that BNI and GA appeared to have a good working relationship.

b. External Exposure Control

Quarterly exchanged thermoluminescent dosimeters processed by a contract vendor since the last inspection were reviewed. Radiation exposures continues to be minimal due to reduced licensed activities. The inspector verified that form NRC-5 or equivalent for each individual were maintained in accordance with NRC requirements. The inspector noted that no individual had exceeded the limits specified in 10 CFR 20.101(a).

c. Internal Exposure Control

Air sample data from samples collected since the last inspection reviewed. The data indicated that no workers were being exposed to intakes of radioactive material which would exceed the 40-hour control measure requiring an evaluation pursuant to 10 CFR 20.103(b)(2). The highest uranium air concentration was noted to be less than 2.0 percent of the maximum air concentration limits specified in 10 CFR 20, Appendix B, Table I, Column 1. The air sample data indicated that workers exposure from airborne activity was being maintained ALARA.

The review of invivo lung counts and urine sample measurements of individuals since the last inspection indicated that all bioassay measurement were less than the contractual detection limit.

d. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

During facility tours, the inspector observed that adequate personnel survey instruments were conveniently located at exits from contaminated areas. Workers were observed to be dressed in protective clothing as specified on work authorizations (WAs) or radiation work permits (RWPs). RWPs provided adequate worker instructions and were signed by the workers to acknowledge their understanding of the RWP requirements. Safety evaluations were also

performed on each RWP to ensure that the conditions of the RWP were being complied with. The inspector noted that radioactive materials and radiation areas were posted in accordance with the requirements delineated in 10 CFR Part 20.

Since the licensee's SVA Decommissioning Plan (DP) was still under review by the NRC, D&D activities in the SVA have been limited to those associated with the normal release and control of materials and equipment as conducted during normal facility operations. Based on review of survey records, the inspector noted that adequate records were being maintained for each item surveyed and released for unrestricted use, disposal to the local land fill, and those for potential future and/or current use in controlled areas. The inspector also noted that the licensee had purchased and had on hand a variety of additional survey instruments for the SVA D&D, which included portable hand held survey meters, floor monitors and area air monitors.

During facility tours, the inspector noted that the licensee was in the final stages of erecting a large dry waste shredder/compactor volume reduction system in the SVA north annex. Although the licensee's DP included the use of this system, the licensee had recently submitted a license amendment requesting the NRC's authorization to use it prior to the approval of their DP. Early approval would allow testing the reliability of the equipment prior commencing full scale D&D activities. The license amendment had not been approved as of this inspection.

The licensee's performance in this area appeared adequate. Their programs seemed capable of meeting their safety objectives. No violations or deviations were identified.

### 3. Emergency Preparedness (88050)

The licensee's program was examined to determine their compliance with License Conditions and the commitments outlined in their NRC approved RCP.

Inspection Report No. 70-734/90-02, Section 2, described the licensee's annual emergency drill conducted on October 25, 1989. The inspector was informed by cognizant licensee representatives that a similar drill was being planned for the last week in July, 1990. The scenario for this drill had not been developed as of this inspection.

The inspector verified that the licensee has continued to interface and maintain current agreements with the appropriate offsite emergency support agencies. The inspector noted that the licensee's interfacing also included site familiarization visits by the appropriate support agencies.

The inspector verified that the type of emergency response equipment was being inventoried and maintained in their HP van, as specified in the RCP and licensee procedures. The equipment appeared to be well maintained

and calibrated or tested as appropriate. During facility tours, the inspector observed that emergency exits and evacuation pathways were adequately identifiable.

On July 19, 1990, the inspector also observed a routine criticality evacuation drill from the Sorrento Valley facilities. No significant problems were observed by the inspector; however, the inspector noted that (1) a more positive attitude could have been taken by the licensee to account for persons who could be remaining in the area, and (2) the evacuation route of the security guard took from the SVA appeared not to be the safest route had an event occurred in the nearby Building 39. These observations were presented to the licensee during the inspection and at the exit interview and were acknowledged by the licensee.

The inspector observed that the licensee continued to conduct training as delineated in their RCP. In regard to fire fighting, the licensee continues to maintain a well equipped fire truck and emergency response vehicle. The licensee's fire brigade staff consisted of an emergency services supervisor and five well qualified emergency services technicians; which are (1) considered as professional fire fighters, (2) certified emergency medical technicians, and (3) trained as hazardous chemical technicians.

Regarding changes to the RCP, the inspector made the following observations:

- a. License Condition No. 23 requires, in part, that the licensee shall make no changes to the RCP that would decrease the response effectiveness of the Plan without prior Commission approval as evidenced by a license amendment. The licensee may make changes to the RCP without prior Commission approval if the changes do not decrease the response effectiveness of the Plan and that the licensee shall furnish the NRC a report containing a description of each change within six months after the change is made.

By letters dated March 9 and May 25, 1989, the licensee requested the NRC's approval of a significant number of proposed changes in their RCP, dated June 1988, which was not published until January 1989. The changes were to clarify, update and improve the Plan as a result of a comprehensive review by the licensee. As of July 20, 1990, the licensee had not received the NRC's approval of the proposed changes. The inspector also noted that several onsite conditions had changed since the licensee's May 25, 1989, submittal. The inspector noted that the following changes had taken place during the past year:

- (1) Section 4.1.5 "Emergency Coordinator" of the June 1988 RCP states that the Emergency Coordinator (EC) is the Manager of Security. However, as of August 1989, the SES&HM&M was assigned the responsibility of being the EC due to the retirement of the security manager. The SES&HM&M had previously been the alternate EC. The inspector also noted that there were several personnel changes that had occurred more than 6 months ago from those

depicted in Figure 4-1, "Emergency Response Organization," of the RCP, which also provides telephone numbers of emergency response personnel. The inspector also noted that no changes had been made to Figure 4-1, dated June 1989, posted in Security Station No.1, which is listed in the RCP as being the Emergency Support Center.

- (2) Section 3.4.1 "Procedures for Estimating Off-Site Radiological Consequences of an Accident," provides guidance for evaluating radiological consequences for potential accidents at various site locations. As of about August 1989, due to the shutdown of the HTGR fuel fabrication facility, an area in Building 41 became the primary storage location for special nuclear material (SNM) in the Sorrento Valley area. The inspector noted that Building 41 was not listed as one of the potential accident locations.
  - (3) Section 6.1 of the RCP states that the HP laboratory and certain listed HP equipment were located in Building 2. However, in November 1989, the HP laboratory and associated equipment relocated to Building 33-1.
- b. Although the licensee had not made changes to their RCP to reflect the above changes, the inspector noted that the onsite facility emergency procedures and the licensee's training programs had been updated to include current site physical changes. The inspector also noted that the EC was in the process of updating Figure 4-1 of the RCP.

The above observations were discussed with the licensee during the inspection and at the exit interview on July 20, 1990. The inspector's observations were acknowledged by the licensee. The licensee informed the inspector that top priority would be given to perform a comprehensive review of the RCP, and identified changes would be submitted to the NRC as soon as possible. The licensee acknowledged that they did not have a formal system for updating of the RCP; however, they would develop such a system to prevent recurrence of similar problems in the future.

Although the licensee had made changes in their training program and facility emergency procedures, failure to report such changes to the NRC within six months was identified as an apparent violation of License Condition No. 23. However, based on the safety significance of this problem it would appear as a Severity Level V matter since (1) it appeared to have no impact on the workers' or public's safety, (2) the licensee took immediate corrective actions to correct the problem and to prevent recurrence, and (3) there have been no recent similar violations. This violation is not being cited because the criteria in Section V. A. of the Enforcement Policy were satisfied (NCV 70-734/90-01-01).

License performance in this program area appeared adequate. Although one NCV was identified, the inspector had no doubts of the licensee's capability in responding to an onsite emergency.

#### 4. Maintenance and Surveillance Testing (88025)

This area was reviewed to determine that the general maintenance of equipment was evident, and surveillance tests were being performed in accordance with the License.

Section 2 of Inspection Report No. 70-734/90-02 also describes previous inspection efforts in this area.

The inspector noted that tags indicating recent quarterly air flow tests of operating hoods and/or equipment enclosure openings indicated that air flows were within the limits specified in the license. No excessive oil or other liquids were observed to be leaking from equipment or systems. Exhaust ventilation systems were observed to be operating in all of the areas toured as indicated by differential pressure and other similar gauges. Racks for storing SNM appeared well in tact and did not appear to be in need of maintenance. Fire protection systems were operable and routinely tested.

##### a. Other-Observations

During a tour of the TFFF on July 18, the inspector observed that a calibration tag on control panel of the oxidation furnace (uranium/zirconium fines burn furnace) indicated a calibration due date of September 13, 1989, and that the last calibration had been performed on March 13, 1989. The inspector also noted that the control panel contained an automatic scram protection system for the furnace. The inspector discussed the calibration requirements of the furnace controls system with the MTFE. The MTFE informed the inspector that according to his records, the control system for this furnace had not been calibrated since March 13, 1989, when modifications were completed on a new system. The MTFE also acknowledged that the operating procedure for the furnace required the control system to be calibrated every six months. The MTFE subsequently initiated a service request to perform a semiannual preventive maintenance on the furnace. The MTFE's subsequent investigation determined that the maintenance/calibration of the furnace had not been placed on GA's routine scheduling program and that the matter was an oversight. The MTFE informed the inspector that the arrangements would be made to ensure that the required maintenance/calibration would be performed at 6-month intervals. On July 19, 1990, the inspector noted that the electrical shop had initiated measures to perform the maintenance/calibration of the furnace.

Condition No. 9 of License No. SNM-696.9 authorizes, in part, the use of licensed materials in accordance with the statements, representations, and conditions contained in Part II, "License Specifications," dated July 24, 1981, and supplements dated..., and November 2, 1988.

Part II, Section 3.2.1, of the License Specifications requires that the manager of each facility shall ensure that the conduct of activities within the area is in compliance with all applicable

criteria, rules and practices as set forth in Work Authorizations (WAs). Section 3.4.1, "Procedure for Approval of Work Authorizations," requires that all procedures for radiological safety, criticality, material accountability and control, and physical protection requirements be met. Also, that other applicable safety related features of the work, such as structural integrity, potential of fire or explosion and the like, are adequately considered and suitable provisions have been incorporated.

WA No. 2826, for the TFFF, dated January 11, 1990, states, in part, that operations shall be conducted using procedures, Operations 6-15, 17, 19-22, and 24-26. Operating procedure No. 21, "Oxidation U/Zr Fines," describes that one of the safety functions provided by the scram system is a high temperature excursion that could be caused from the exothermic nature of zirconium metal fines. Section 6.1.1 under "Preventive Maintenance" of the procedure states that the preventative maintenance of the fines burn furnace will be performed at six month intervals. Section 6.2 of the procedure states, in part, that the over-temperature protection circuits are independent of the programmable controller and that each of these devices requires verification or calibration in accordance with the GA Quality Control Manual.

The inspector noted that the furnace log book indicated the unit had been used on January 18, 1990, and April 16, 1990, with no apparent problems. However, failure to perform preventive maintenance/calibration of the oxidation burn furnace at six month intervals was identified as an apparent violation of License Condition No. 9 (70-734/90-03-02).

The above observations were discussed during the inspection and at the exit interview. The inspector's findings were acknowledged by the licensee. The inspector also informed the licensee that there prompt actions to correct the problem and actions to prevent recurrence would be evaluated.

The licensee's performance in this area appeared adequate. Although one apparent violation was identified, the licensee's program appeared capable of meeting its safety objectives.

#### 5. Transportation of Radioactive Materials (86740)

The inspector reviewed the licensee's radioactive materials transportation program for compliance with the requirements of 10 CFR Parts 20, 30, 71, and 49 CFR parts 171 through 189.

The licensee's Quality Assurance (QA) Program, "GA-A13010A," adequately defined personnel responsibilities and authority. QA Audit Report No. 89010, "Audit of Packaging of Radioactive Materials for Shipment," conducted September 6-11, 1989, was reviewed. The audit was conducted to verify that the Licensing, Safety and Nuclear Compliance Department and support organizations package, identify, inspect, and protect radioactive materials in accordance with established QA requirements. The scope of



the audit was limited to the activities associated with radioactive packaging and shipping. No significant findings were identified during the audit; however, two minor deficiencies were identified and documented as observations. The inspector noted that the observations were administrative in nature and did not represent a safety problem. The 1990 annual exercise was to be conducted by the end of the year.

Records of several selected domestic and overseas shipments of SNM during the past year were reviewed. Based on the review shipping records, the inspector determined that the licensee maintained documentation to certify that recipients were authorized to receive the radioactive material shipped to them as required by 10 CFR 30.41(c); and the regulatory requirements for transporting radioactive materials contained in 10 CFR Part 71 and 49 CFR Parts 171 through 189 were being met. Copies of current shipping package certifications and transportation regulations were maintained.

The licensee had not experienced any transportation incidents that would require reporting or degradation of package safety during the shipment of radioactive materials since the last inspection in this area.

The licensee's performance in this area appeared adequate and their program seemed capable of accomplishing its safety objectives. No violations or deviations were identified.

6. Radioactive Waste Generator Requirements (84850)

The inspector reviewed the licensee's radioactive waste program for compliance with the requirements of 10 CFR Parts 20 and 61. The inspection also included a tour of the licensee's waste processing facility and selected site areas where waste was collected.

Solid radioactive waste generated at various site areas is packaged and transferred to the Nuclear Waste Processing Facility. Prior to each transfer, a Radioactive Material Transfer Request (RMTR) form was prepared and sent to the NWPFF for review and acceptance. The RMTR form delineated the radioactive content, chemical form, type of hazardous material, and certification of waste content being transferred. Once accepted, compactable waste was compacted into bales that were placed in appropriate strong tight containers for ultimate disposal. Non-compactable waste was either disposed of in its original container (drums) or repackaged into metal boxes for disposal. Non-aqueous liquids were appropriately absorbed or solidified prior to disposal. Each container was inspected by the Quality Control (QC) organization prior to and after sealing their lids.

The inspector noted that the licensee had only made one shipment of solid waste for commercial land burial since the last inspection in this area (70-734/89-04). Based on these reviews and observations made during facility tours, the inspector determined that the licensee classified waste pursuant to 10 CFR 61.55; that waste met the characteristics of 10 CFR 61.56; and that the prepared waste manifest and marking of packages were in accordance with 10 CFR 20.311. Inspections of waste handling and

packaging were conducted in accordance with 10 CFR 20.311(d)(3). The licensee also maintained a current copy of disposal site's License.

The licensee's performance in this area appeared adequate and their program seemed capable of meeting its safety objectives. No violations or deviations were identified.

7. Criticality Safety (88015)

Inspection Report No. 70-734/90-02 describes the previous inspection of this area. This inspection was primarily focused on observations made during facility tours and discussions with cognizant personnel.

There had been no operations that required a nuclear safety analysis since the last inspection. The inspector toured selected facilities to observe current operations and criticality controls. The inspector observed no problems with posting of criticality control limits or poor criticality safety practices in the areas toured. Criticality monitoring systems were noted to be functional in the areas where they were required.

No violations or deviations were identified.

8. Exit Interview

The inspector met with the licensee representatives, denoted in Section 1, at the conclusion of the inspection on July 20, 1990. The scope and findings of the inspection were summarized.

The observations described in the report were acknowledged by the licensee. The licensee was informed of the two apparent violations identified in the report, which included one NCV.