

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-734/90-05

Docket No. 70-734

License No. SNM-696

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

Facility Name: Torrey Pines Mesa and Sorrento Valley Sites

Inspection at: San Diego, California

Inspection Conducted: December 17-21, 1990

Inspectors:

C. A. Hooker  
C. A. Hooker, Fuel Facilities Inspector

1/11/91  
Date Signed

K. M. Prendergast  
K. M. Prendergast, Radiation Specialist

1/11/91  
Date Signed

Approved by:

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

1/23/91  
Date Signed

Summary:

a. Areas Inspected:

This was a routine unannounced inspection of licensee management and organization, radiation protection, criticality safety, training, radioactive waste management, environmental protection and followup on NRC Information Notices. The inspection also included tours of the licensee's facilities. Inspection procedures 30703, 88005, 83822, 88010, 88015, 88035, 88045 and 92701 were addressed.

b. Results:

In the areas inspected, the licensee's programs appeared adequate to accomplish their safety objectives. Strengths were noted in management controls (Section 2), training (Section 3) and the radiation safety program for ongoing decommissioning activities (Section 4). No violations or deviations were identified.

## DETAILS

### 1. Persons Contacted:

#### General Atomics (GA)

- \*K. E. Asmussen, Manager, Licensing, Safety and Nuclear Compliance
- \*R. C. Noren, Director, Nuclear Fuel Fabrication
- P. L. Warner, Manager, Operations
- \*R. A. Rucker, Manager, Nuclear Safety (MNS)
- \*R. Vanek, Manager, Nuclear Waste Processing Facility
- \*S. P. Massey, Quality Assurance (QA) Project Engineer
- \*S. E. Perelman, Health Physics Technician

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

J. Mattson, Project Superintendent, D&D Operations

#### Valley Pines Association Consultant

H. A. Gantz, P. E.

\*Denotes those attending the exit interview on December 21, 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. Management Organization and Controls (88005, 88015 and 83822)

This area was reviewed to determine the licensee's compliance with the requirements of the License and licensee procedures.

There were no changes in the licensee's organizational structure or management personnel since the last inspection of this area. The organizational structure of Bechtel National Inc. (BNI) personnel were consistent with that depicted in GA's Building No. 37 (SVA) Decommissioning Plan.

Management controls of the SVA D&D project were established via a comprehensive "Project Control Manual" containing six volumes of procedures comprized of project control procedures, administrative instructions, engineering procedures, field operations and training procedures, industrial safety and health physics procedures.

Selected radiation protection and work control procedures for SVA D&D activities were reviewed. Procedure HP-202, "Work Authorizations/Radiological Work Permits and Unit Work Instructions for the SVA Decommissioning Project," adequately described the use of Work Authorizations (WAs), Radiological Work Permits (RWPs) and Unit Work Instructions (UWIs). Required reviews and responsibilities were adequately defined.

WAs were used to authorize work involving the use of radioactive materials. RWPs were used to implement the WA or authorize work of limited scope and duration not addressed by a WA. Safety effectiveness evaluations were performed at the completion of each RWP. UWIs were BNI documents used to initiate and control performance of tasks. UWIs also provided step by step detailed instructions for the work to be performed, including detailed instructions involving criticality controls. Each UWI was walked down by the BNI field superintendent, project engineer, and health and safety manager or designee prior to its approval. UWIs were reviewed and approved by the BNI Health Physicist, BNI QA Engineer and the BNI Project Engineer or their designees. Each UWI listed materials, safety equipment and precautions for each task. Individuals signed RWPs and UWIs to acknowledge their understanding of the respective requirements.

BNI procedure OPS-4.29 "Criticality Control and Accountability Practices," was developed to provide training, instructions and guidance for personnel involved in SVA decommissioning activities. Criticality control guidelines consisted of six nuclear safety categories. The categories were based on (1) estimates of the quantity of special nuclear material (SNM) involved with each UWI, (2) equipment being removed, (3) and wet or dry operations. Adequate nuclear safety restrictions were clearly defined in the procedure and incorporated into each UWI.

The inspectors noted that BNI management personnel appeared to be actively involved in observing on going SVA D&D activities in the field. QA involvement in D&D activities was evident. GA had assigned a QA project engineer to the project to ensure that the QA program outlined in Section 7.2 of the SVA Decommissioning Plan was being implemented. Based on a review of selected procedures and other D&D records, the inspectors noted that the QA project engineer was actively involved in procedure review, audits and surveillances to verify conformance to all commitments detailed in the Plan.

Quarterly radiation safety inspections, performed during the third quarter of 1990 were reviewed. The inspections were conducted at all facilities where radioactive materials were used and/or stored. Appropriate corrective actions had been taken for deficiencies identified during the inspections. No concerns were identified by the inspectors.

The licensee's performance in this area appeared fully satisfactory and their program appeared to fully capable of accomplishing its safety objectives. The SVA D&D project appeared to be well coordinated and activities well documented. Management involvement and oversight was evident. No violations or deviations were identified.

### 3. Training/Retraining (88010)

This area was reviewed to determine the licensee's compliance with the requirements of the License, 10 CFR Part 19, licensee procedures and commitments delineated in the SVA D&D Plan.

The inspectors discussed the licensee's training programs with cognizant licensee representatives and reviewed selected licensee procedures, training lesson plans, and employee training records.

The inspectors noted that new employees received new employee indoctrination training which included the basics of radiation safety, criticality safety, industrial safety, emergencies, and security and safeguards. Personnel assigned to work with radioactive and fissile materials received specific additional formal training prior to working without an escort. Workers received annual refresher training according to their assigned work areas. Formal classroom training consisted of classroom lectures and videos. Upon completion of the formal classroom training, each individual was tested as to their knowledge of the material presented.

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, industrial and nuclear safety training was being provided to personnel involved with D&D activities.

During facility tours, the inspectors observed work in progress and held discussions with several workers. The inspector did not identify any cause to suspect individuals were not qualified to perform the task they were performing. The inspectors also noted that the majority of the labor force involved with the SVA D&D project had previous radiation work experience (San Onofre Nuclear Generation Station refueling outages).

The licensee's performance in this area appeared satisfactory and their program appeared adequate to accomplish its safety objectives. No violations or deviations were identified.

#### 4. Radiation Protection (83822)

The inspectors 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 (70-734/90-03), and primarily those associated with the SVA D&D project.

##### a. External Exposure Control

Quarterly exchanged thermoluminescent dosimeters vendor reports were reviewed. Radiation exposures continues to be minimal due to reduced licensed activities. The inspectors verified that form NRC-5 or equivalent for each individual were maintained in accordance with NRC requirements. The highest single exposure for D&D personnel was less than 100 millirem per quarter. The inspectors noted that no individual had exceeded the limits specified in 10 CFR 20.101(a). Letters documenting exposures pursuant to 10 CFR 19.13

had been expeditiously prepared and sent to individuals that had terminated.

b. Internal Exposure Control

Air sample data for all facilities using SNM since the last inspection were reviewed. There were no indications of workers being exposed to intakes of radioactive material which would exceed the 40-MPC-hour control measure requiring an evaluation pursuant to 10 CFR 20.103(b)(2). Data from routine air samples indicated that average air concentrations were nominally  $1.0E-13$  microcuries/milliliter (uCi/ml) or less. The air sample data indicated that workers exposure from airborne activity was being maintained ALARA.

The inspectors reviewed in vivo lung counts (U-235) and urine sample measurements of individuals since the last inspection. The review indicated that all lung counts were well below the licensee's investigation level of 100 micrograms U-235, and urine sample measurements were less than the contractor's detection limit of about 0.9 picocuries uranium per liter.

During facility tours the inspectors observed that air sampling stations appeared be sufficient in number, and reasonably representative of the work area being sampled. Engineering controls to contain loose radioactive material were evident.

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

During facility tours, the inspectors observed that adequate personnel survey instruments were conveniently located at exits from contaminated areas. All survey instruments in use were observed to be within their calibration period. Regarding calibration of alpha survey instruments, the licensee was evaluating the difference in instrument efficiency from the use of Th-230 calibration standards as opposed to current P-239 standards. The Th-230 standards provide alpha energies nearer to that of U-235 compared to the higher energies observed from Pu-239.

Workers were observed to be dressed in protective clothing as specified in WAs or 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.

Routine and non-routine contamination surveys of controlled areas were examined. Based on review of survey records, the inspectors verified that the licensee' radiation and contamination survey program was consistent with Section 4.0 of the License, commitments delineated in the SVA D&D Plan and the requirements specified in 10 CFR 20.201. The inspectors noted that the removable alpha contamination levels on the floors of controlled areas, including

those in SVA, were typically maintained at less than 100 disintegrations per minute per 100 square centimeters. No personnel contaminations had been detected by the licensee.

The survey and release of equipment from the SVA D&D project for unrestricted use appeared to be limited. Materials being released for disposal to the local public landfill consisted of electrical wiring, conduit and similar items from known clean areas. The licensee found it to be more cost effective to shred and compact most materials for ultimate radioactive waste disposal rather than decontaminate and release them as clean waste.

The inspectors noted that the licensee had not made any radioactive waste shipments from the SVA D&D project. Negotiations were still in progress with the Department of Energy for accepting the SVA D&D project. Regarding control of radioactive waste, the inspectors noted that the licensee had established an area in the SVA West Vault for assaying the SNM content of certain materials and equipment prior to shredding and compaction for waste disposal. The primary materials being assayed at this time was contaminated exhaust ducting.

Regarding mixed waste, the licensee was noted to be physically separating chemically hazardous materials from radioactive waste. The licensee had established segregated areas in the SVA West Vault for holding chemically hazardous materials until they could be disposed of.

The inspectors reviewed an event that occurred on November 17, 1990, that resulted in about three gallons of liquid containing small amounts of depleted uranium (State controlled material) being sprayed on the asphalt, dirt, concrete and equipment at the South end of Building No. 39 (SVB) where liquid waste is collected. The incident occurred during the testing of a contaminated sink pump on a newly installed system. Although the spill did not appear to involve NRC licensed material, the inspectors noted that the licensee adequately investigated the event for cause and had implemented corrective actions to prevent recurrence. About 200 square feet (sq. ft.) of asphalt and 18 sq. ft. of top soil had been contaminated and subsequently removed. The inspectors also noted that the event did not result in any personnel contamination.

During facility tours, the inspectors made independent radiation measurements using an NRC Xetex 305B, S/N 8166, portable dose rate meter due for calibration on February 1, 1991; and conducted contamination surveys of selected areas using an NRC Eberline E-520, S/N 2776, count rate meter equipped with a thin window pancake probe due for calibration on January 5, 1991. The inspectors noted that radioactive materials and radiation areas were posted in accordance with the requirements delineated in 10 CFR Part 20. The inspectors also performed a survey of clean trash inside of a sea van being used for the collection of clean waste from SVA. As noted above, the clean waste consisted primarily of electrical wiring, conduit

and similar items from known clean areas. No contaminated items were detected in the clean waste.

d. Respiratory Protection

Respiratory protection at SVA prior to the D&D project consisted of the use of air hoods only. During this inspection the inspectors noted that the licensee had instituted a program for the use of full face air purifying and air supplied respirators.

The inspectors noted that prior to training and individual fit-testing, D&D workers were medically evaluated and certified by a physician as being qualified to wear respiratory protective equipment. Training was being conducted in accordance with a new training manual developed for the SVA D&D project. The training program adequately described the reason for use, type of respirators used, safety precautions during use, fit testing maintenance and storage. Quantitative fit tests were performed using a vendor supplied Portacount fit testing unit. Issuance and maintenance of respirators were tracked by an attached S/N on each device.

The licensee had installed a new service air system for the SVA D&D project, which was also capable of supplying grade D breathing air. Breathing air was provided from a vendor supplied portable filtering and CO monitoring panel connected to the new air system. The breathing air panel was also equipped with an audible and visual CO alarm. Based on discussions with cognizant personnel, GA and BNI were aware of the safety controls for utilizing breathing air for workers from a service air system.

The licensee's program was noted to be consistent with the requirements delineated in 10 CFR 20.103(c)(2).

The licensee's performance in this area appeared fully satisfactory and their program appeared fully capable to of accomplishing its safety objectives. Contamination control and housekeeping practices associated with the SVA D&D project appeared excellent. No violations or deviations were identified.

5. Radioactive Waste Management (88035)

The inspectors reviewed the licensee's program for compliance with 10 CFR Part 20, license requirements and recommendations outlined in various industry standards.

There had been no significant changes in the license's program since the last inspection of this area (70-734/90-02). The licensee continues to solidify high level radioactive liquid waste on an as needed basis. There had been no low level radioactive liquid discharges to the sewer system since May 1990.

Records of weekly stack gaseous effluent sampling data since the previous inspection were reviewed. The inspectors noted that releases of

radioactive material were well below the limits specified in 10 CFR Part 20, Appendix B, Table II.

The licensee's process for assuring the quality of counting equipment had not changed since the previous inspection. Records of routine testing for performance, reproducibility and resolution were reviewed. The records documented the equipment was being operated within the specifications stated in the licensee's procedures. The lower limit of detection of samples being counted appeared to be well below the concentration limits specified in 10 CFR Part 20, Appendix B, Tables I and II.

The licensee's semiannual effluent report for the period of January 1 through June 30, 1990, dated August 29, 1990, and correction to the report dated September 4, 1990, were reviewed. These reports were submitted in accordance with 10 CFR 70.59 and provided a summary of the radioactive gaseous and liquid effluents released from the facility. The effluent releases were noted to be less than the limits specified in 10 CFR Part 20, Appendix B, Table II. No errors or anomalies were identified.

The licensee's program appeared adequate to accomplish their safety objectives. No violations or deviations were identified.

6. Environmental Protection (88045)

The inspectors reviewed the licensee's program for compliance with 10 CFR Part 20, license requirements and recommendations outlined in various industry standards.

The inspectors noted that the licensee's procedures continue to be consistent with the requirements delineated in Part II, Section 6 of the license for (1) the required type of samples to be collected (e.g., air, water, sewage, soil, vegetation and external gamma radiation), (2) the minimum detection sensitivity required for sample analysis, (3) the number of sampling sites, and (4) the non-radiological monitoring program. In addition to the observations made in Section 5 above, the inspectors reviewed the environmental measurement data since the previous inspection of this area. The inspectors noted that the data indicated that releases of radioactive materials to unrestricted areas were well below the regulatory limits. Selected environmental air monitoring sampling stations were visited and checked for equipment operability. The location of these stations were consistent with the licensee's procedures and the equipment appeared to be adequately maintained.

The licensee's program in this area appeared adequate to accomplish its safety objectives. No violations or deviations were identified.

7. Followup on NRC Information Notices (92701)

The inspectors verified that the licensee had received and reviewed NRC Information Notices Nos. 90-63 and 90-70.



8. Exit Interview

The inspectors met with the licensee representatives, denoted in Section 1, at the conclusion of the inspection on December 21, 1990. The scope and findings of the inspection were summarized.

The licensee was informed that no violations or deviations were identified.