UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

September 19, 2005

Mr. James Randall Walti
Vice President and General Counsel
General Atomics
P.O. Box 85608
San Diego, California 92186-9784

SUBJECT: NRC INSPECTION REPORT 070-00734/05-002

Dear Mr. Walti:

This refers to the inspection conducted on August 29-September 2, 2005, at the General Atomics facility in San Diego, California. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. A preliminary exit briefing was held with your staff at the conclusion of the onsite inspection, and a final telephonic exit briefing was held with Ms. Laura Gonzales on September 15, 2005, following receipt of swipe sample results on the same day. No violations were identified; therefore, no response to this letter is required.

The inspection consisted of a confirmatory survey in Service Corridor A of the Laboratory Building 2. The survey included measurement of ambient gamma exposure rates, measurement of fixed (total) contamination on indoor surfaces, and collection of swipe samples for removable contamination. All survey results were below the NRC-approved release criteria suggesting that the area had been effectively remediated.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact Mr. Robert Evans, Senior Health Physicist, at (817) 860-8234 or the undersigned at (817) 860-8191.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch

Docket No.: 70-734
License No.: SNM-696

Enclosure:
NRC Inspection Report
070-00734/05-002

cc w/Enclosure:
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SISP Review Completed: RJE

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	070-00734
License No.:	SNM-696
Report No.:	070-00734/05-002
Licensee:	General Atomics
Location:	3550 General Atomics Court San Diego, California 92121
Dates:	August 29 - September 2, 2005
Inspectors:	Robert Evans, P.E., C.H.P., Senior Health Physicist Fuel Cycle & Decommissioning Branch Beth A. Schapper, Health Physicist Fuel Cycle & Decommissioning Branch
Accompanied By:	Matthew A. Bartlett, Health Physicist Fuel Cycle Facilities Branch Division of Fuel Cycle Safety and Safeguards Office of Nuclear Materials Safety and Safeguards
Approved by:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

General Atomics
NRC Inspection Report 070-00734/05-002

This non-routine, announced inspection consisted of a closeout inspection and survey of portions of the General Atomics site. Overall, the licensee was determined to have conducted decommissioning activities in accordance with the conditions of the license and the Site Decommissioning Plan.

Closeout Inspection and Survey

- The inspectors conducted a confirmatory survey of Service Corridor A in Laboratory Building 2. The confirmatory survey results were below the NRC-approved release criteria for fixed (total) and removable surface contamination. The results of the survey suggest that the licensee had effectively remediated Service Corridor A (Section 1).

Report Details

Summary of Plant Status

At the time of the inspection, most areas of the site had been remediated and final surveyed. Limited decommissioning and decontamination activities were still in progress in the vicinity of the former research reactor facility. The licensee continued to possess special nuclear material (SNM) in the form of two irradiated fuel elements, research and development historical samples, a disk standard, and a calibration source. The licensee plans to transfer these materials to its State of California or NRC research reactor licenses in the near future. The licensee continued to possess additional SNM under its NRC research reactor licenses R-38 and R-67.

1 Closeout Inspection and Survey (83890)

1.1 Inspection Scope

The purpose of the inspection was to verify if the site had been decontaminated to acceptable radiological levels for unrestricted use, and to ensure that the final survey had been performed as stated in the Site Decommissioning Plan.

1.2 Observations and Findings

A confirmatory survey was conducted in the interior of Service Corridor A in Laboratory Building 2 at the main General Atomics site. Building 2 is divided into three sections and has three service corridors. The service corridors contain the utilities and heating, ventilation and air conditioning needed to support the building laboratories.

Decommissioning activities were conducted between 1994-2003. Equipment and areas that were decontaminated or disposed included the ventilation systems, floor drains, and concrete walls. Contaminated equipment was disposed at an authorized low level radioactive waste disposal site in Nevada.

Service Corridor A was approximately 8-feet wide and 385-feet long. The corridor consisted of three levels, two readily accessible floor levels and an upper level crawl space. The majority of the upper level was occupied by piping, ventilation ducts, and electrical cables. In addition to the main corridor, there were a number of side rooms connected to the service corridor. The side rooms contained electrical distribution and air conditioning equipment, a maintenance workshop, elevator machinery, and space for spare parts storage. The total floor space for the service corridor was estimated to be 11,380 ft^2.

As part of the final survey process, the service corridor was divided into three radiological classifications: unaffected, non-suspect affected, and suspect affected. According to information provided in the licensee's draft final status survey report, the floor space of the unaffected areas was about 5,169 ft^2, the non-suspect affected areas wall (up to six feet) and floor space was about 11,079 ft^2, and the suspect affected area walls (up to six feet) and floor space was about 3,274 ft^2. Most sections of Service

Corridor A were confirmatory surveyed with the exception of portions of the upper level and upper walls of the lower levels that were inaccessible.

The inspectors conducted detailed confirmatory surveys in the areas designated as suspect affected. There were eight suspect affected areas in the lower level, two in the middle level, and two in the upper level. The survey included ambient gamma radiation measurements, surface scans, fixed point measurements, and swipe sampling. The NRC-approved release criteria for surfaces is provided in Table 6-1, "Acceptable Surface Contamination Levels," of the Site Decommissioning Plan.

Ambient gamma radiation exposure rates were measured using a Ludlum Model 19 microRoentgen meter (NRC No. 015544, calibration due date of 11/16/05). The inspectors conducted surface surveys for beta and alpha particle contamination on concrete and metal surfaces using two Eberline E600 survey meters (NRC No. 063473, calibration due date of 07/20/06, and NRC No. 079977, calibration due date of 05/31/06) with SHP380AB alpha-beta probes. The surface surveys included both scan and fixed point surveys. Scan surveys were conducted to locate areas of potential contamination, and fixed point measurements were collected for comparison to the release criteria limits. Swipe surveys were also collected at select locations for measurement of removable contamination, if present.

The survey meters were calibration checked by the licensee in the presence of the inspectors before and after the performance of the confirmatory survey. Prior to conducting the confirmatory survey, the inspectors collected background measurements in Building 13 service corridor, an area that was unimpacted by previous operations using radioactive material. Background measurements were collected on cinder block, concrete, sheet metal, and floor grating surfaces. Depending on the surface, the ambient gamma exposure background measurements ranged from 15-20 µR/hr for the Model 19 microRoentgen meter. The background alpha and beta contamination ranged from 1-13 cpm alpha and 194-435 cpm beta for the Eberline E600 survey meters.

During the confirmatory survey, the inspectors conducted 60 ambient gamma exposure rate measurements for comparison to the licensee's final status survey release criteria limit of 10 µR/hr above background for indoor areas. [The licensee did not propose an indoor exposure rate in its Site Decommissioning Plan; therefore, the NRC did not approve an indoor exposure rate.] The gross exposure rate measurements in Service Corridor A ranged from 6-28 µR/hr. No location was measured with exposure rates greater than the licensee's indoor release criteria limit of 10 µR/hr above background.

The inspectors conducted scan and fixed point measurements of floor and wall surfaces using the Eberline E600 survey meters. A total of 274 1-minute gross alpha and beta measurements were collected on wall and floor surfaces. The highest alpha measurement, 86 cpm (489 dpm/100 cm^2), was measured in Section A12-A13 of the upper level of the service corridor. The highest beta measurement, 555 cpm (2,015 dpm/ 100 cm^2), was measured in Section A12-A13 in the lowest level.

The inspectors compared the fixed point sample results to the release criteria provided in Table 6-1, "Acceptable Surface Contamination Levels," of the Site Decommissioning Plan. Based on isotopic studies conducted by the licensee in 1999, the radionuclides of

concern were uranium-235, uranium-238, and cesium-137. [The radionuclide cesium-137 is regulated by the State of California.] The applicable average surface contamination release limit for uranium-235 and uranium-238 is 5,000 dpm/100 cm^2 alpha, while the average surface contamination release limit for cesium-137 is 5,000 dpm/100 cm^2 beta-gamma. Neither the highest alpha sample result (489 dpm/100 cm^2) nor the highest beta contamination sample result (2,015 dpm/100 cm^2) exceeded the applicable limit.

During the confirmatory survey, 27 swipe samples were collected for measurement of gross alpha and beta contamination levels. The areas swiped were approximately 12-inches in length, an area equivalent to 100 cm^2. The swipe samples were submitted to Oak Ridge Institute for Science and Education (ORISE) for analysis. All sample results were less than the instrument minimum detectable concentration of 8.9 disintegrations per minute per filter for alpha contamination and 15 disintegrations per minute per filter for beta contamination with one exception. One alpha particle sample result obtained from area A12-13 upper level measured 12.6 ± 2.7 disintegrations per minute, a statistically positive result. The removable contamination limit for both alpha and beta contamination is 1,000 dpm/100 cm^2. None of the gross alpha or gross beta sample results exceeded the contamination limit.

Regulation 10 CFR 70.38(j)(2) states that as the final step in decommissioning, the licensee shall conduct a radiation survey of the premises where licensed activities were carried out and to submit a report of the results of this survey to the NRC. The licensee was in the process of preparing the final status survey report. The licensee collected 416 fixed pointed surveys for beta contamination, 382 fixed point surveys for alpha contamination, 228 swipe samples, and 508 exposure rate measurements in Service Corridor A.

The highest beta contamination measurement obtained during the final status survey by the licensee was 1,345 dpm/100 cm^2, while the highest alpha contamination measurement was 355 dpm/100 cm^2. These sample results were obtained in Areas A11-A13 of the upper level, an area that is not easily accessible to site personnel. The highest ambient gamma radiation measurement was 29 µR/hr. The swipe sample results were below the minimum detectable activity level of the counting equipment. In summary, no sample result obtained during the final status survey exceeded the applicable release limit.

As a quality control check, the licensee conducted a confirmatory survey that was independent of the final status survey. No confirmatory sample result exceeded the maximum results identified during the final status survey, with one exception. The confirmatory survey identified a location with alpha contamination at 994 dpm/100 cm^2. This sample result was still less than the applicable limit of 5,000 dpm/100 cm^2. The licensee plans to submit the final status survey report to the NRC in the near future for review and approval.

1.3 Conclusions

The inspectors conducted a confirmatory survey of Service Corridor A in Laboratory Building 2. The confirmatory survey results were below the NRC-approved release

criteria for fixed (total) and removable surface contamination. The results of the survey suggest that the licensee had effectively remediated Service Corridor A.

2 Exit Meeting Summary

The inspectors presented the inspection results to the licensee at the exit meeting on September 2, 2005. A final exit briefing was conducted with a representative of the licensee on September 15, 2005. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

K. Asmussen, Director, Licensing Safety and Nuclear Compliance
L. Gonzales, Radiation Safety Officer/Health Physics Manager
J. Greenwood, Decommissioning Project Manager
W. LaBonte, Lead Health Physicist, Hot Cell Facility
M. Monreal, Calibration Laboratory Coordinator
R. Stowell, Senior Health Physicist, Bartlett

INSPECTION PROCEDURES USED

IP 83890 Closeout Inspection and Survey

ITEMS OPENED, CLOSED, AND DISCUSSED

Open

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
cpm	counts per minute
dpm/100 cm^2	disintegrations per minute per 100 square centimeters
ft^2	square feet
µR/hr	microRoentgens per hour
ORISE	Oak Ridge Institute for Science and Education
PDR	Public Document Room
SNM	Special Nuclear Material