



RECEIVED

SEP 19 2008

DNMS September 17, 2008  
696/CAL-4229

Mr. Leonard Wert, Jr., Director  
Division of Nuclear Material Safety  
U.S. Nuclear Regulatory Commission - Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

Subject: **Transmittal of Semiannual Effluent Report (2 copies)**  
Docket Nos. 50-89, 50-163 and 70-734; License Nos. R-38, R-67 and  
SNM-696, Respectively

and

Dr. Ron Rogus  
State of California  
Department of Health Services  
Radiological Health Branch, M/S 7610  
1500 Capital Avenue  
Sacramento, CA 95814-5006

Subject: **Transmittal of Semiannual Effluent Report (2 copies);** License 0145-37

Dear Mr. Wert and Dr. Rogus:

In accordance with 10 CFR 70.59, General Atomics (GA) herewith transmits the required semiannual effluent report for the period January 1, 2008 through June 30, 2008. By copy of this letter, one copy of this report is being forwarded to the Director, Office of Nuclear Material Safety and Safeguards, U. S. Nuclear Regulatory Commission. Additional copies are being sent to the State of California, Department of Health Services.

Table 1 of the report lists data on the radiological gaseous and particulate effluent released to unrestricted areas from our facilities handling radioactive material. The release point descriptions are keyed to the facility names whose relative locations are shown on Figure 1 in the report, a plan view of GA's Main Site and Sorrento Valley sites. Attachment A provides detailed information concerning airborne effluent stack sample results over this reporting period. All airborne releases were well within the allowable State of California and NRC (10CFR20) limits. Table 2 provides the liquid effluent released into the sanitary sewerage system during this report period.

We trust the information provided is satisfactory to meet the requirements for this submission. If you should have any questions regarding this information, please contact Mr. Paul Pater at (858) 455-2758, or me at (858) 455-2823.

Very truly yours,

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

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

**Mr. Leonard Wert and Dr. Ron Rogus**  
**696/CAL-4229**

**September 17, 2008**  
**Page 2 of 2**

Enclosure: Semiannual Effluent Report for the period January 1, 2008 through June 30, 2008

cc:

Director, Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20006

Mr. Jackie Whitten  
Chief, Fuel Cycle/Decommissioning Branch  
U.S. NRC Region 1V  
611 Ryan Plaza Suite 400  
Arlington, TX 76011-4005

Mr. Steven Hsu  
Radiologic Assessment Unit  
Department of Health Services  
State of California  
P. O. Box 942732  
Sacramento, CA 94234-7320

Ms. Barbara Hamrick  
Radiologic Health Branch  
Department of Health Services  
State of California  
1800 East Lambert Road #125  
Brea, CA 92821

Mr. Jeff Wong  
State of California  
Department of Health Services  
Radiologic Health Branch  
1625 Shattuck Avenue  
Berkeley, CA 94709

Ron Yonimitsu  
Radiological Health Program  
Hazardous Materials Division-DEH  
P.O. Box 12961  
San Diego, CA 92112-9261

**General Atomics' Semiannual Effluent Report**

**For the Period**

**January 1, 2008 through June 30, 2008**

**Prepared By Edward Rudgers**

**August 20, 2008**

## **Semiannual Effluent Report Summary**

In accordance with 10 CFR 70.59, GA has prepared the semiannual effluent report for the period January 1, 2008 through June 30, 2008.

Table 1 lists data on the radiological gaseous and particulate effluent released to unrestricted areas from our facilities handling radioactive material. Attachment A of the report provides detailed information concerning airborne effluent stack sample results over this reporting period. All airborne releases were well within the allowable State of California and NRC 10CFR20 limits.

Table 2 provides the radiological liquid effluent which was released into a 100 million gallon/day regional sewerage treatment plant. *Note: There were no releases into the GA Main Site Sewerage System.*

**Table 1**  
**Gas and Particulate Effluents – January 1, 2008 through July 30, 2008**

Release Point (ID)	Effluent	Flow Rate (ft/min)	Stack Area (ft <sup>2</sup> )	m <sup>3</sup> /min <sup>(4)</sup>	Average pCi/m <sup>3</sup>	Total Ci Released <sup>(3)</sup>
<b>TRIGA Reactor Facility (Building 21)</b>						
TM1	MFP	1389	1.46	57.4	0.008 <sup>(1)</sup>	1.20e-07
TMF	MFP	583	1.5	24.7	0.006 <sup>(1)</sup>	3.88e-08
					Total	1.59e-07
TMF	Iodines	583	1.5	24.7	0.006 <sup>(1)</sup>	3.88e-08
<b>Other Facilities</b>						
Bldg 10 Hp lab	Radionuclides Z 3-83	2030	1.1	63.2	0.007 <sup>(1)</sup>	1.16e-07
<i>Fusion (Bldg 34)</i>	H-3					0.101 <sup>(5)</sup>
<i>General atomics Electronic systems Inc.</i>	Kr-85 Xe-133	2300	1.5	97.6	No release	<sup>(2)</sup> No release
Building 21	H-3					0.24 Estimated

<sup>(1)</sup> Measured - Airborne effluents from selected facilities are monitored. The samples are collected weekly and analyzed using low-level alpha/beta counting systems. The average concentration (pCi/m<sup>3</sup>) over the six month period is obtained for each release point (alpha and beta concentrations are added). See Attachment A

<sup>(2)</sup> There were no releases during this report period.

<sup>(3)</sup> Ci Released = (182 operating days) (24 hr/day)(60 min/hr) (1e-6 μCi/pCi) (1e-6 Ci/μCi) (# m<sup>3</sup>/min)(average pCi/m<sup>3</sup>) Note: Operating days may be different based on dates the ventilation system was shut down.

<sup>(4)</sup> Flow rate x stack area (Note: 0.0283 m<sup>3</sup> = 1 ft<sup>3</sup>).

<sup>(5)</sup> Calculated based on operating time of the fusion device.

**Table 2**

**Liquid Effluents  
January 1, 2008 through June 30, 2008**

**No releases into GA's Main Site Sewerage System**

Attachment A

attachment a

Running Average Report  
Detail By Sampling Site  
Units = pCi/m3

page 1 of 7

Site Code: TMF Group I.D. 12

Month	Year	Highest Value		Weighted Average			Lowest Value		
		Alpha	** Beta	Alpha	** Beta	Alpha	** Beta		
JAN	2008	0.001	0.007	0.000	0.004	0.000	0.001		
FEB	2008	0.001	0.005	0.000	0.003	0.000	0.001		
MAR	2008	0.004	0.024	0.001	0.010	0.000	0.004		
APR	2008	0.001	0.010	0.001	0.007	0.000	0.002		
MAY	2008	0.002	0.004	0.001	0.003	0.000	0.002		
JUN	2008	0.005	0.010	0.002	0.005	0.000	0.002		

Site Average:  
Average Of  
Site Data For:

6 Months	0.002	0.010	0.001	0.005	0.000	0.002
Last 3 Months Only	0.003	0.008	0.001	0.005	0.000	0.002

\*\* Printed data values are monthly calculated values.

Attachment A

attachment a  
page 2 of 7

Running Average Report  
Detail By Sampling Site  
Units = pCi/m<sup>3</sup>

Site Code: TM1 Group I.D. 12

Month	Year	Highest Value		Weighted Average		Lowest Value	
		Alpha	Beta	Alpha	Beta	Alpha	Beta
JAN	2008	0.001	0.005	0.000	0.003	0.000	0.002
FEB	2008	0.001	0.005	0.000	0.003	0.000	0.002
MAR	2008	0.004	0.023	0.002	0.011	0.000	0.002
APR	2008	0.002	0.012	0.001	0.011	0.000	0.003
MAY	2008	0.002	0.011	0.001	0.006	0.000	0.003
JUN	2008	0.005	0.012	0.002	0.007	0.000	0.004

Site Average:  
Average Of  
Site Data For:

6 Months	0.003	0.011	0.001	0.007	0.000	0.003
Last 3 Months Only	0.003	0.012	0.001	0.008	0.000	0.003

\*\* Printed data values are monthly calculated values.

Attachment A

attachment a  
page 3 of 7

Running Average Report  
Summary By Group  
Units = pCi/m3

Group I.D. 12

Site Code	Begin Mo	Begin Yr	End Mo	End Yr	# Mo	Average Highest Value			Average Weighted Average			Average Lowest Value		
						Alpha	**	Beta	Alpha	**	Beta	Alpha	**	Beta
TM1	01	**	06	**	6	0.003		0.011	0.001		0.007	0.000		0.003
TMF	01	**	06	**	6	0.002		0.010	0.001		0.005	0.000		0.002

Group Average:  
Average Of Site  
Averages For:

6 Months                      0.002      0.011      0.001      0.006      0.000      0.002

Last 3 Months  
Only                            0.003      0.010      0.001      0.007      0.000      0.003

\*\* Printed data values are averages of data processed.

Attachment A

attachment a  
page 4 of 7

Running Average Report  
Summary By Group  
Units = pCi/m3

Group I.D. 23

Site Code	Begin Mo	Begin Yr	End Mo	End Yr	# Mo	Average Highest Value		Average Weighted Average			Average Lowest Value	
						Alpha	Beta	Alpha	Beta	Alpha	Beta	
HLAB	01	**	06	**	6	0.002	0.010	0.001	0.006	0.000	0.002	
Group Average: Average Of Site Averages For:												
6 Months						0.002	0.010	0.001	0.006	0.000	0.002	
Last 3 Months Only						0.002	0.007	0.001	0.006	0.000	0.002	

\*\* Printed data values are averages of data processed.

Attachment A

attachment a  
page 5 of 7

Running Average Report  
Detail By Sampling Site  
Units - pCi/m3

Site Code: HLAB Group I.D. 23

Month	Year	Highest Value		Weighted Average			Lowest Value	
		Alpha	Beta	Alpha	Beta	Alpha	Beta	
JAN	2008	0.001	0.005	0.000	0.002	0.000	0.001	
FEB	2008	0.001	0.005	0.000	0.004	0.000	0.001	
MAR	2008	0.003	0.026	0.001	0.011	0.001	0.003	
APP	2008	0.002	0.012	0.001	0.010	0.000	0.002	
MAY	2008	0.002	0.003	0.001	0.003	0.000	0.002	
JUN	2008	0.001	0.007	0.001	0.005	0.000	0.003	

Site Average:  
Average Of  
Site Data For:

6 Months	0.002	0.010	0.001	0.006	0.000	0.002
Last 3 Months Only	0.002	0.007	0.001	0.006	0.000	0.002

\*\* Printed data values are monthly calculated values.

Attachment A

attachment a  
page 6 of 7

Running Average Report  
Detail By Sampling Site  
Units = pCi/m3

Site Code: TMFI Group I.D. 22

iodines		Highest Value		Weighted Average		Lowest Value	
Month	Year	**	Gamma	**	Gamma	**	Gamma
-----	-----	-----	-----	-----	-----	-----	-----
JAN	2008		0.047		0.033		0.013
FEB	2008		0.044		0.020		0.000
MAR	2008		0.043		0.036		0.029
APR	2008		0.043		0.028		0.020
MAY	2008		0.047		0.039		0.032
JUN	2008		0.042		0.038		0.037
-----	-----	-----	-----	-----	-----	-----	-----

Site Average:  
Average Of  
Site Data For:

6 Months	0.044	0.032	0.022
Last 3 Months Only	0.044	0.035	0.030

\*\* Printed data values are monthly calculated values.

Attachment A

attachment a  
page 7 of 7

Running Average Report  
Summary By Group  
Units = pCi/m3

Group I.D. 22

Site Code	Begin Mo	Begin Yr	End Mo	End Yr	#	Average Highest Value ** Gamma	Average Weighted Average ** Gamma	Average Lowest Value ** Gamma
TMFI	01	**	06	**	6	0.044	0.032	0.022
Group Average: Average Of Site Averages For:								
6 Months						0.044	0.032	0.022
Last 3 Months Only						0.044	0.035	0.030

\*\* Printed data values are averages of data processed.