



**Global Nuclear Fuel**

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Attn: Document Control Desk  
Director, Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Subject: GNF-A Semi-Annual Effluent Monitoring Report

References: 1) NRC License SNM-1097, Docket 70-1113  
2) NRC Regulation 10 CFR 70.59

Dear Sir or Madam:

With respect to activities authorized by NRC License SNM-1097, the Global Nuclear Fuel-Americas, L.L.C. (GNF-A) facility in Wilmington, North Carolina hereby submits the semi-annual effluent monitoring report required by 10 CFR 70.59 for the period of July through December 2021.

If you have any questions regarding this report, please contact me at (910) 819-5950.

Sincerely,



Scott Murray, Manager  
Facility Licensing

Attachment: 1) Semi-Annual Effluent Monitoring Report (July- December 2021)

cc: NRC Region II Administrator, Atlanta, GA  
J. Rowley, USNRC, NMSS  
J. Rivera Ortiz, USNRC, RII  
J. Hall, NCDHHS  
D. Crowley, NCDHHS  
S. Breitmaier, ANI  
SPM 22-012

## SEMI-ANNUAL EFFLUENT REPORT

Global Nuclear Fuel - Americas, LLC  
Wilmington, North Carolina

July 2021 - December 2021

NRC License SNM 1097, Docket # 70-1113

Fiscal Weeks 27-52

### I. GASEOUS EFFLUENT-PARTICULATE

NUCLIDES	QUANTITY (Ci)	CONCENTRATION (uCi/cc)	<sup>1</sup> APPENDIX B LIMIT (uCi/cc)	% of LIMIT	CEDE mrem	CDE (Lung) mrem
U234	7.86E-08	4.37E-15	5 E-12	0.09%	2.19E-02	1.84E-01
U235	3.35E-07	1.86E-16	6 E-12	0.00%	7.82E-04	6.52E-03
U236	8.09E-09	4.51E-18	6 E-12	0.00%	1.89E-05	1.58E-04
U238	1.14E-06	6.34E-16	6 E-12	0.01%	2.66E-03	2.22E-02
<b>TOTAL</b>	<b>9.34E-08</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>2.53E-02</b>	<b>2.13E-01</b>

EXHAUST VOLUME = 1.80E+15 (cc)

<sup>2</sup> Nuclide	QUANTITY (Ci)	CONCENTRATION (uCi/cc)	<sup>1</sup> APPENDIX B Limit (uCi/cc)	% of LIMIT	CEDE (mrem)
H-3	3.38E-03	4.51E-11	1E-05	0.00%	1.13E-04

EXHAUST VOLUME = 7.50E+13 (cc)

### II. LIQUID EFFLUENT

NUCLIDES	QUANTITY (Ci)	CONCENTRATION (uCi/cc)	<sup>1</sup> APPENDIX B LIMIT (uCi/cc)	% of LIMIT	CEDE (mrem)	CDE (Lung) (mrem)	CDE (Bone Surface) (mrem)
U234	5.94E-03	2.77E-08	3 E-07	9.24%	2.02E-06	1.28E-06	2.94E-05
U235	2.53E-04	1.18E-09	3 E-07	0.39%	1.23E-07	7.79E-08	1.78E-06
U236	6.11E-06	2.86E-11	3 E-07	0.01%	1.97E-09	1.26E-09	2.86E-08
U238	8.60E-04	4.02E-09	3 E-07	1.34%	2.65E-07	1.69E-07	3.84E-06
<b>TOTAL U</b>	<b>7.05E-03</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>2.41E-06</b>	<b>1.52E-06</b>	<b>3.50E-05</b>

TOTAL VOLUME OF LIQUID EFFLUENT = 2.14E+08 (liters)

### III. ABNORMAL RELEASES

	Air	Water	Total
# Releases	0	0	0
Activity Released (Ci)	0	0	0

### IV. SUMMARY

	<sup>3</sup> Max Release (uCi/cc)	CEDE, total (mrem)	CDE (Lung), total (mrem)
Value	2.77E-08	2.55E-02	2.13E-01
Limit	3.00E-07	25	25
% of Limit	9.24%	0.10%	0.85%

<sup>1</sup> Limit from 10 CFR 20 Appendix B, Table 2, Columns 1 and 2. Air limit adjusted to reflect NRC License SNM-1097, Section 1.3.9.

<sup>2</sup> This nuclide is included due to the the neutron generator licensed by the State of North Carolina.

<sup>3</sup> From nuclide with release that is the largest percentage of its release limit.

**Notes:**

Air sampling is continuous. H-3 gaseous effluent is calculated. Water samples analyzed are representative, continuous composite samples of the process effluent stream.

Reported effluent concentration values are representative of the effluent concentration at the point of release and do not consider