

**AUG 29 2018**

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

Louisiana Energy Services, LLC  
URENCO USA Facility  
NRC Docket No. 70-3103

Subject: Semi-Annual Radiological Effluent Release Report for January 1, 2018 through  
June 30, 2018

Pursuant to 10 CFR 70.59, Louisiana Energy Services, LLC, dba URENCO USA,  
herewith submits the subject report. Enclosure 1 specifies the quantities released of  
licensed principal radionuclides in liquid or gaseous form, to uncontrolled areas.

Should you have any questions regarding this request, please contact Wyatt Padgett,  
Licensing and Performance Assessment Manager, at 575.394.5257

Respectfully,



Stephen Cowne  
Chief Nuclear Officer and Compliance Manager

Enclosures:

1. Semi-Annual Radiological Effluent Release Report For January 1,  
2018 through June 30, 2018

IE48  
NMSS20  
NMSS

LES-18-111-NRC

**ENCLOSURE 1**

**Semi-Annual Radiological Effluent Release Report  
For January 1, 2018 through June 30, 2018**

## **URENCO USA: Report of Radioactivity in Effluents: Liquid & Air: January 2018 - June 2018**

There were no releases to the public during the reporting period that exceeded regulatory requirements, and detected isotopic uranium activities were comparable to pre-operational activities. No dose assessment was performed, because the maximum potential dose directly at the point of gaseous and liquid effluent discharge points were acceptable. The potential maximum doses directly at the discharge points for both liquid and gaseous effluent were shown to be less than 10% of the radionuclide concentration dose.

In liquid effluent, the concentrations of isotopic uranium was either below the Minimum Detectable Concentration (MDC) or less than 10% of values listed in 10 CFR 20, Appendix B, Table 3, "Releases to Sewers" (Table 1-1).

In gaseous effluent, the gross uranium activity was either below the Minimum Detectable Activity (MDA) or less than 10% of values listed in 10 CFR 20, Appendix B, Table 2, "Effluent Concentrations - Class D Air" for U234, U235, and U238.

The concentrations of isotopic uranium in gaseous effluent was either below the Minimum Detectable Concentration (MDC) or less than 10% of values listed in 10 CFR 20.1301, 10 CFR 20.1302, and 10 CFR 20.1101(d), as described in NRC Regulatory Guide 4.20 "Constraint on Releases of Airborne Radioactive Materials to the Environment for Licensees other than Power Reactors" dated December 1996.

### **LIST OF TABLES**

<b>Table No.</b>	<b>Title</b>
1-1	Lift Station 1 Wastewater Effluent - Radionuclides Quarters 1 & 2, 2018
1-2	Separations Building Module-1001 (SBM 1001) Pumped Extract Exhaust Gaseous Effluent Vent System, 1001-562-1MA1 & 1001-562-1MA2 - Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018
1-3	Separations Building Module-1003 (SBM 1003) Pumped Extract Exhaust Gaseous Effluent Vent System, 1003-562-1MA1 & 1003-562-1MA2 - Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018
1-4	Separations Building Module-1005 (SBM 1005) Pumped Extract Exhaust Gaseous Effluent Vent System, 1005-562-1MA1 & 1005-562-1MA2 - Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018
1-5	Cylinder Receipt and Dispatch Building-1100 (CRDB 1100) Local Extract Exhaust Gaseous Effluent Vent System, 1100-562-1MA1 & 1100-562-1MA2 - Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018
1-6	Cylinder Receipt and Dispatch Building-1100 (CRDB 1100) Fume Hood Exhaust Gaseous Effluent Vent System, 1100-562-2MA1 & 1100-562-2MA2 - Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018
1-7	Centrifuge Test and Post Mortem Facilities-1300 (CTPMF) Exhaust Filtration System Gaseous Effluent Vent System - 1300-562-1MA1 Gross Alpha & Gross Beta, and Radionuclides Quarters 1 & 2, 2018

**TABLE 1-1**

Lift Station 1 Wastewater Effluent – Radionuclides, Quarters 1 &amp; 2, 2018 URENCO USA Lea County, New Mexico

URENCO USA Lea County New Mexico								
Lift Station 1 WasteWater Effluent- Radionuclides								
Radionuclide	Sample Date (Date/Time)	Sample Period	Total Time (days)	Results ( $\mu\text{Ci/mL}$ )	Counting Uncertainty ( $\mu\text{Ci/mL}$ )	Total Flow* (gallons/day)	Quantity Released (Ci)	% of Table 3 of Appendix B to 10 CFR 20 Values- Monthly Average Release to Sewers
Lift Station 1 - January - June 2018								
Uranium - 233/234	4/11/2018 9:30	01/01/18 - 06/30/18	180	1.40E-10	2.00E-11	13,000	Result Below LLD	Result Below LLD
Uranium - 235/236				0.00E+00	0.00E+00	13,000	Result Below LLD	Result Below LLD
Uranium - 238				7.00E-11	2.00E-11	13,000	Result Below LLD	Result Below LLD
Lift Station 1 Duplicate - January - June 2018								
Uranium - 233/234	4/11/2018 9:25	01/01/18 - 06/30/18	180	2.30E-10	3.00E-11	13,000	Result Below LLD	Result Below LLD
Uranium - 235/236				0.00E+00	0.00E+00	13,000	Result Below LLD	Result Below LLD
Uranium - 238				8.00E-11	2.00E-11	13,000	Result Below LLD	Result Below LLD

**Notes:**

1.  $\mu\text{Ci/mL}$  = microCuries per milliliter.
2. Radionuclides analyzed using method EM ACS07 by Cardinal Laboratories of Hobbs, NM.
3. Quantity released is calculated if the radionuclide is detected.



TABLE 1-2

Separations Building Module-1001 (SBM 1001): Pumped Extract Exhaust Gaseous Effluent Vent System, 1001-562-1MA1 & 1001-562-1MA2 Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico.

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1001-562-1MA1										
10015621MA1 011218	02/01/18	1/12/18 - 2/1/18	Gross Alpha	3.49E-16	3.12E-16	1.08E-07	3.08E+05	1.08E-10	0.012%	
10015621MA1 020118	03/1/2018	2/1/18 - 3/1/18		0.00E+00	1.80E-16	0.00E+00	4.29E+05	<MDA	<MDA	
10015621MA1 030118	04/2/2018	3/1/18 - 4/2/18		1.10E-16	1.52E-16	1.08E-07	5.12E+05	<MDA	<MDA	
10015621MA1 040218	05/01/18	4/2/18 - 5/1/18		0.00E+00	1.70E-16	0.00E+00	5.01E+05	<MDA	<MDA	
10015621MA1 050118	06/01/18	5/1/18 - 6/1/18		0.00E+00	1.67E-13	0.00E+00	4.90E+05	<MDA	<MDA	
10015621MA1 060118	07/03/18	6/1/18 - 7/3/18		1.17E-16	1.56E-16	9.01E-08	4.87E+05	<MDA	<MDA	
10015621MA1 011218	02/01/18	1/12/18 - 2/1/18	Gross Beta	1.24E-14	6.47E-15	1.49E-06	3.08E+05	3.83E-09	0.414%	
10015621MA1 020118	03/1/2018	2/1/18 - 3/1/18		4.83E-15	3.72E-15	1.38E-06	4.29E+05	2.07E-09	0.161%	
10015621MA1 030118	04/2/2018	3/1/18 - 4/2/18		3.26E-15	3.15E-15	1.37E-06	5.12E+05	1.67E-09	0.109%	
10015621MA1 040218	05/01/18	4/2/18 - 5/1/18		5.08E-15	3.53E-15	1.36E-06	5.01E+05	2.54E-09	0.169%	
10015621MA1 050118	06/01/18	5/1/18 - 6/1/18		4.50E-15	3.47E-15	1.38E-06	4.90E+05	2.20E-09	0.150%	
10015621MA1 060118	07/03/18	6/1/18 - 7/3/18		3.89E-15	3.24E-15	1.29E-09	4.87E+05	1.90E-09	0.130%	
1001-562-1MA2										
10015621MA2 011218	02/01/18	1/12/18 - 2/1/18	Gross Alpha	6.71E-17	1.80E-16	6.31E-08	3.16E+05	<MDA	<MDA	
10015621MA2 020118	03/1/2018	2/1/18 - 3/1/18		0.00E+00	1.21E-16	0.00E+00	4.39E+05	<MDA	<MDA	
10015621MA2 030118	04/2/2018	3/1/18 - 4/2/18		6.33E-17	1.70E-16	6.31E-08	5.25E+05	<MDA	<MDA	
10015621MA2 040218	05/01/18	4/2/18 - 5/1/18		0.00E+00	1.94E-16	0.00E+00	5.25E+05	<MDA	<MDA	
10015621MA2 050118	06/01/18	5/1/18 - 6/1/18		1.95E-16	1.75E-16	1.08E-07	5.14E+05	1.01E-10	0.007%	
10015621MA2 011218	02/01/18	1/12/18 - 2/1/18	Gross Beta	4.16E-15	3.72E-15	1.33E-06	3.16E+05	1.31E-09	0.139%	
10015621MA2 020118	03/1/2018	2/1/18 - 3/1/18		2.55E-15	2.50E-15	1.24E-06	4.39E+05	1.12E-09	0.085%	
10015621MA2 030118	04/2/2018	3/1/18 - 4/2/18		5.69E-15	3.51E-15	1.41E-06	5.25E+05	2.99E-09	0.190%	
10015621MA2 040218	05/01/18	4/2/18 - 5/1/18		6.26E-15	4.01E-15	1.39E-06	5.25E+05	3.29E-09	0.209%	
10015621MA2 050118	06/01/18	5/1/18 - 6/1/18		5.86E-15	3.62E-15	1.41E-06	5.14E+05	3.02E-09	0.195%	
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1001-562-1MA1										
U-233/234	1 Qtr.	4/2/2018	1/12/18-4/2/18	5.54E-16	2.21E-16	2.25E-16	1.49E-16	0.00	0.02%	
U- 235/236				4.40E-17	8.54E-17	8.55E-17	1.60E-16	1.25E+06	<MDC	<MDC
U-238				3.04E-16	1.58E-16	1.59E-16	1.03E-16	0.00	0.01%	
U-233/234	2 Qtr.	7/3/2018	4/2/18-7/3/18	2.72E-16	1.01E-16	1.03E-16	6.15E-17	0.00	0.01%	
U- 235/236				5.86E-17	5.19E-17	5.20E-17	5.60E-17	0.00	0.00%	
U-238				1.41E-16	7.09E-17	7.16E-17	4.86E-17	0.00	0.00%	
1001-562-1MA2										
U-233/234	1 Qtr.	4/2/2018	1/12/18-4/2/18	2.11E-16	9.03E-17	9.15E-17	3.85E-17	0.00	0.01%	
U- 235/236				3.58E-17	4.56E-17	4.57E-17	6.81E-17	1.28E+06	<MDC	<MDC
U-238				2.65E-16	1.02E-16	1.04E-16	3.83E-17	0.00	0.01%	
U-233/234	2 Qtr	7/3/2018	4/2/18-7/3/18	4.39E-16	1.20E-16	1.24E-16	3.94E-17	0.00	0.01%	
U- 235/236				5.55E-17	4.82E-17	4.84E-17	5.55E-17	1.04E+06	0.00	0.00%
U-238				2.96E-16	9.63E-17	9.86E-17	3.57E-17	0.00	0.01%	



TABLE 1-3

Separations Building Module-1003 (SBM 1003): Pumped Extract Exhaust Gaseous Effluent Vent System, 1003-562-1MA1 & 1003-562-1MA2 Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20
1003-562-1MA1									
10035621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	0.00E+00	1.34E-16	0.00E+00	4.93E+05	<MDA	<MDA
10035621MA1 020118	3/1/2018	2/1/18 - 3/1/18		0.00E+00	1.36E-16	0.00E+00	4.71E+05	<MDA	<MDA
10035621MA1 030118	4/2/2018	3/1/18 - 4/2/18		4.54E-17	1.22E-16	6.31E-08	5.30E+05	<MDA	<MDA
10035621MA1 040218	05/01/18	4/2/18 - 5/1/18		0.00E+00	1.35E-16	0.00E+00	4.71E+05	<MDA	<MDA
10035621MA1 050118	07/03/18	5/1/18 - 7/3/18		2.33E-17	6.24E-17	6.31E-08	9.67E+05	<MDA	<MDA
10035621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	5.00E-15	2.78E-15	1.46E-06	4.93E+05	2.46E-09	0.167%
10035621MA1 020118	3/1/2018	2/1/18 - 3/1/18		4.74E-15	2.82E-15	1.42E-06	4.71E+05	2.24E-09	0.158%
10035621MA1 030118	4/2/2018	3/1/18 - 4/2/18		3.63E-15	2.52E-15	1.36E-06	5.30E+05	1.92E-09	0.121%
10035621MA1 040218	05/01/18	4/2/18 - 5/1/18		2.35E-15	2.80E-15	1.19E-06	4.71E+05	<MDA	<MDA
10035621MA1 050118	07/03/18	5/1/18 - 7/3/18		1.83E-15	1.29E-15	1.41E-06	9.67E+05	1.77E-09	0.061%
1003-562-1MA2									
10035621MA2 011218	02/01/18	1/12/18 - 2/1/18	Gross Alpha	1.54E-16	2.89E-16	9.01E-08	3.56E+05	<MDA	<MDA
10035621MA2 020118	3/1/2018	2/1/18 - 3/1/18		-4.89E-17	1.31E-16	2.08E-10	4.93E+05	<MDA	<MDA
10035621MA2 030118	4/2/2018	3/1/18 - 4/2/18		0.00E+00	1.18E-16	0.00E+00	5.44E+05	<MDA	<MDA
10035621MA2 040218	05/01/18	4/2/18 - 5/1/18		9.69E-17	1.30E-16	9.01E-08	4.93E+05	<MDA	<MDA
10035621MA2 050118	07/03/18	5/1/18 - 7/3/18		0.00E+00	6.12E-17	0.00E+00	1.03E+06	<MDA	<MDA
10035621MA2 011218	02/01/18	1/12/18 - 2/1/18	Gross Beta	6.10E-15	5.99E-15	1.35E-06	3.56E+05	2.17E-09	0.203%
10035621MA2 020118	3/1/2018	2/1/18 - 3/1/18		2.96E-15	2.71E-15	1.38E-06	4.93E+05	1.46E-09	0.099%
10035621MA2 030118	4/2/2018	3/1/18 - 4/2/18		3.08E-15	2.45E-15	1.31E-06	5.44E+05	1.68E-09	0.103%
10035621MA2 040218	05/01/18	4/2/18 - 5/1/18		3.07E-15	2.69E-15	1.27E-06	4.93E+05	1.51E-09	0.102%
10035621MA2 050118	07/03/18	5/1/18 - 7/3/18		2.05E-15	1.27E-15	1.41E-06	1.03E+06	2.12E-09	0.068%
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20
1003-562-1MA1									
U-233/234	1 Qtr.	4/2/2018	1/3/18- 4/2/18	1.90E-16	8.16E-17	8.27E-17	5.25E-17	0.00	0.01%
U- 235/236				2.61E-17	3.38E-17	3.39E-17	4.70E-17	<MDC	<MDC
U-238				1.24E-16	6.40E-17	6.46E-17	3.79E-17	0.00	0.00%
U-233/234	2 Qtr.	7/3/2018	4/2/18- 7/3/18	8.55E-17	3.64E-17	3.69E-17	2.48E-17	0.00	0.00%
U- 235/236				3.27E-17	2.51E-17	2.52E-17	2.52E-17	0.00	0.00%
U-238				9.84E-17	3.85E-17	3.91E-17	2.03E-17	0.00	0.00%
1003-562-1MA2									
U-233/234	1 Qtr.	4/2/2018	1/12/18- 4/2/18	2.17E-16	9.32E-17	9.45E-17	3.97E-17	0.00	0.01%
U- 235/236				2.35E-17	4.00E-17	4.00E-17	7.04E-17	<MDC	<MDC
U-238				2.73E-16	1.05E-16	1.07E-16	3.96E-17	0.00	0.01%
U-233/234	2 Qtr	7/3/2018	4/2/18- 7/3/18	1.04E-16	3.80E-17	3.87E-17	2.29E-17	0.00	0.00%
U- 235/236				6.59E-18	1.12E-17	1.12E-17	1.90E-17	<MDC	<MDC
U-238				1.45E-16	4.50E-17	4.62E-17	2.35E-17	0.00	0.00%



TABLE 1-4

Separations Building Module-1005 (SBM 1005): Pumped Extract Exhaust Gaseous Effluent Vent System, 1005-562-1MA1 & 1005-562-1MA2 Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1005-562-1MA1										
10055621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	2.46E-18	2.20E-18	1.08E-07	8.52E+05	2.10E-12	0.000%	
10055621MA1 020118	3/2/2018	2/1/18 - 3/2/18		8.06E-17	2.16E-16	6.31E-08	8.44E+05	<MDA	<MDA	
10055621MA1 030218	4/2/2018	3/1/18 - 4/2/18		1.83E-16	1.64E-16	1.08E-07	8.73E+05	1.60E-10	0.006%	
10055621MA1 040218	05/01/18	4/2/18 - 5/1/18		6.47E-17	1.73E-16	6.31E-08	8.22E+05	<MDA	<MDA	
10055621MA1 050118	06/01/18	5/1/18 - 6/1/18		6.01E-17	1.61E-16	6.31E-08	9.00E+05	<MDA	<MDA	
10055621MA1 060118	07/03/18	6/1/18 - 7/3/18		5.95E-17	1.59E-16	6.31E-08	9.16E+05	<MDA	<MDA	
10055621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	5.20E-17	4.56E-17	1.27E-06	8.52E+05	4.43E-11	0.002%	
10055621MA1 020118	3/2/2018	2/1/18 - 3/2/18		8.05E-15	4.47E-15	1.46E-06	8.44E+05	6.79E-09	0.268%	
10055621MA1 030218	4/2/2018	3/1/18 - 4/2/18		3.87E-15	3.40E-15	1.27E-06	8.73E+05	3.38E-09	0.129%	
10055621MA1 040218	05/01/18	4/2/18 - 5/1/18		4.52E-15	3.59E-15	1.31E-06	8.22E+05	3.72E-09	0.151%	
10055621MA1 050118	06/01/18	5/1/18 - 6/1/18		3.80E-15	3.33E-15	1.27E-06	9.00E+05	3.42E-09	0.127%	
10055621MA1 060118	07/03/18	6/1/18 - 7/3/18		4.48E-15	3.30E-15	1.40E-06	9.16E+05	4.11E-09	0.149%	
1005-562-1MA2										
10055621MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	0.00E+00	1.58E-16	0.00E+00	8.60E+05	<MDA	<MDA	
10055621MA2 020118	3/2/2018	2/1/18 - 3/2/18		1.22E-16	1.61E-16	9.01E-08	8.54E+05	<MDA	<MDA	
10055621MA2 030218	4/2/2018	3/2/18 - 4/2/18		1.49E-16	1.61E-16	1.08E-07	8.84E+05	<MDA	<MDA	
10055621MA2 040218	05/01/18	4/2/18 - 5/1/18		1.33E-16	1.79E-16	9.01E-08	8.41E+05	<MDA	<MDA	
10055621MA2 050118	06/01/18	5/1/18 - 6/1/18		0.00E+00	1.69E-16	0.00E+00	9.11E+05	<MDA	<MDA	
10055621MA2 060118	07/03/18	6/1/18 - 7/3/18		5.95E-17	1.59E-16	6.31E-08	9.29E+05	<MDA	<MDA	
10055621MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	5.30E-15	3.10E-15	1.41E-06	3.56E+05	1.89E-09	0.177%	
10055621MA2 020118	3/2/2018	2/1/18 - 3/2/18		3.87E-15	3.22E-15	1.27E-06	4.93E+05	1.91E-09	0.129%	
10055621MA2 030218	4/2/2018	3/2/18 - 4/2/18		4.88E-15	3.22E-15	1.46E-06	5.44E+05	2.66E-09	0.163%	
10055621MA2 040218	05/01/18	4/2/18 - 5/1/18		4.89E-15	3.70E-15	1.33E-06	4.93E+05	2.41E-09	0.163%	
10055621MA2 050118	06/01/18	5/1/18 - 6/1/18		7.35E-15	3.50E-15	1.53E-06	1.03E+06	7.60E-09	0.245%	
10055621MA2 060118	07/03/18	6/1/18 - 7/3/18		3.57E-15	3.30E-15	1.26E-06	0.00E+00	0.00E+00	0.119%	
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1005-562-1MA1										
U-233/234	1 Qtr.	4/02/18	1/3/18 - 4/2/18	8.57E-17	3.62E-17	3.67E-17	2.74E-17	2.57E+06	0.00	0.00%
U- 235/236				-1.48E-18	8.97E-18	8.97E-18	2.83E-17		<MDC	<MDC
U-238				1.16E-16	4.25E-17	4.33E-17	2.97E-17		0.00	0.00%
U-233/234	2 Qtr.	7/03/18	4/2/18 - 7/3/18	1.81E-16	6.03E-17	6.17E-17	3.08E-17	2.64E+06	4.78E-10	0.006%
U- 235/236				3.26E-17	2.79E-17	2.80E-17	2.75E-17		0.00	0.00%
U-238				1.65E-16	5.76E-17	5.88E-17	3.30E-17		4.35E-10	0.005%
1005-562-1MA2										
U-233/234	1 Qtr.	4/02/18	1/3/18 - 4/2/18	3.09E-16	1.06E-16	1.08E-16	3.50E-17	2.60E+06	0.00	0.01%
U- 235/236				3.10E-17	4.07E-17	4.07E-17	6.20E-17		<MDC	<MDC
U-238				2.40E-16	9.20E-17	9.36E-17	3.48E-17		0.00	0.01%
U-233/234	2 Qtr	7/03/18	4/2/18 - 7/3/18	1.62E-16	5.41E-17	5.54E-17	3.44E-17	2.68E+06	4.34E-10	0.005%
U- 235/236				2.93E-17	2.88E-17	2.89E-17	4.04E-17		<MDC	<MDC
U-238				1.23E-16	4.59E-17	4.67E-17	2.44E-17		3.30E-10	0.004%



TABLE 1-5

Container Receipt and Dispatch Building-1100 (SBM 1100): Local Extract Exhaust Gaseous Effluent Vent System, 1100-562-1MA1 & 1100-562-1MA2, Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1100-562-1MA1										
11005621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	0.00E+00	1.38E-16	0.00E+00	6.72E+05	<MDA	<MDA	
11005621MA1 020118	3/1/2018	2/1/18 - 3/1/18		1.07E-16	1.41E-16	9.01E-08	6.21E+05	<MDA	<MDA	
11005621MA1 030118	4/2/2018	3/1/18 - 4/2/18		9.26E-17	1.22E-16	9.01E-08	7.82E+05	<MDA	<MDA	
11005621MA1 040218	05/01/18	4/2/18 - 5/1/18		0.00E+00	1.40E-16	0.00E+00	7.10E+05	<MDA	<MDA	
11005621MA1 050118	06/01/18	5/1/18 - 6/1/18		0.00E+00	1.33E-16	0.00E+00	7.39E+05	<MDA	<MDA	
11005621MA1 060118	07/03/18	6/1/18 - 7/3/18		1.07E-16	1.43E-16	9.01E-08	7.55E+04	<MDA	<MDA	
11005621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	4.90E-15	2.77E-15	1.42E-06	6.72E+05	3.29E-09	0.163%	
11005621MA1 020118	3/1/2018	2/1/18 - 3/1/18		4.09E-15	2.81E-15	1.34E-06	6.21E+05	2.54E-09	0.136%	
11005621MA1 030118	4/2/2018	3/1/18 - 4/2/18		3.40E-15	2.44E-15	1.33E-06	7.82E+05	2.66E-09	0.113%	
11005621MA1 040218	05/01/18	4/2/18 - 5/1/18		4.51E-15	2.89E-15	1.39E-06	7.10E+05	3.20E-09	0.150%	
11005621MA1 050118	06/01/18	5/1/18 - 6/1/18		3.31E-15	2.76E-15	1.29E-06	7.39E+05	2.44E-09	0.110%	
11005621MA1 060118	07/03/18	6/1/18 - 7/3/18		5.87E-15	2.97E-15	1.50E-06	7.55E+07	4.44E-07	0.196%	
1100-562-1MA2										
11005621MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	1.28E-16	1.68E-16	9.01E-08	6.19E+05	<MDA	<MDA	
11005621MA2 020118	3/1/2018	2/1/18 - 3/1/18		4.01E-16	2.14E-16	1.40E-07	6.29E+03	2.53E-12	0.013%	
11005621MA2 030118	4/2/2018	3/1/18 - 4/2/18		5.84E-17	1.54E-16	6.31E-08	6.08E+05	<MDA	<MDA	
11005621MA2 040218	05/01/18	4/2/18 - 5/1/18		6.33E-17	1.70E-16	6.31E-08	6.21E+05	<MDA	<MDA	
11005621MA2 050118	06/01/18	5/1/18 - 6/1/18		5.95E-17	1.59E-16	6.31E-08	6.51E+05	<MDA	<MDA	
11005621MA2 060118	07/03/18	6/1/18 - 7/3/18		1.15E-16	1.54E-16	9.01E-08	6.59E+05	<MDA	<MDA	
11005621MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	4.68E-15	3.36E-15	1.33E-06	6.19E+05	2.89E-09	0.156%	
11005621MA2 020118	3/1/2018	2/1/18 - 3/1/18		5.96E-15	4.28E-15	1.33E-06	6.29E+03	3.75E-11	0.199%	
11005621MA2 030118	4/2/2018	3/1/18 - 4/2/18		4.28E-15	3.07E-15	1.33E-06	6.08E+05	2.60E-09	0.143%	
11005621MA2 040218	05/01/18	4/2/18 - 5/1/18		6.53E-15	3.51E-15	1.47E-06	6.21E+05	4.06E-09	0.218%	
11005621MA2 050118	06/01/18	5/1/18 - 6/1/18		4.48E-15	3.30E-15	1.40E-06	6.51E+05	2.92E-09	0.149%	
11005621MA2 060118	07/03/18	6/1/18 - 7/3/18		5.85E-15	3.18E-15	1.52E-06	6.59E+05	3.85E-09	0.195%	
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1100-562-1MA1										
U-233/234	1 Qtr.	4/02/18	1/3/18 - 4/2/18	1.54E-16	6.43E-17	6.52E-17	2.70E-17	2.08E+06	0.00	0.01%
U- 235/236				2.39E-17	3.14E-17	3.14E-17	4.78E-17		<MDC	<MDC
U-238				2.38E-16	8.19E-17	8.36E-17	3.86E-17		0.00	0.01%
U-233/234	2 Qtr.	7/3/18	4/2/18 - 7/3/18	2.49E-16	6.54E-17	6.78E-17	2.90E-17	1.52E+06	0.00	0.01%
U- 235/236				1.88E-17	2.11E-17	2.11E-17	2.97E-17		<MDC	<MDC
U-238				1.49E-16	4.98E-17	5.09E-17	2.88E-17		0.00	0.00%
1100-562-1MA2										
U-233/234	1 Qtr.	4/02/18	1/3/18 - 4/2/18	3.53E-16	1.25E-16	1.27E-17	6.00E-17	1.23E+06	0.00	0.01%
U- 235/236				3.08E-17	4.28E-17	4.28E-17	6.49E-17		<MDC	<MDC
U-238				2.00E-16	9.29E-17	9.40E-17	6.29E-17		0.00	0.01%
U-233/234	2 Qtr	7/3/18	4/2/18 - 7/3/18	1.27E-16	5.32E-17	5.40E-17	2.83E-17	1.93E+06	0.00	0.00%
U- 235/236				3.76E-17	3.23E-17	3.24E-17	3.18E-17		0.00	0.00%
U-238				1.39E-16	5.63E-17	5.71E-17	3.22E-17		0.00	0.00%



TABLE 1-6

Container Receipt and Dispatch Building-1100 (SBM 1100): Fume Hood Exhaust Gaseous Effluent Vent System, 1100-562-2MA1 & 1100-562-2MA2, Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1100-562-2MA1										
11005622MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	1.60E-16	1.41E-16	1.08E-07	2.95E+07	4.72E-09	0.005%	
11005622MA1 020118	3/1/2018	2/1/18 - 3/1/18		5.44E-17	1.43E-16	6.31E-08	2.92E+07	<MDA	<MDA	
11005622MA1 030118	4/2/2018	3/1/18 - 4/2/18		0.00E+00	1.31E-16	0.00E+00	3.29E+07	<MDA	<MDA	
11005622MA1 040218	05/01/18	4/2/18 - 5/1/18		1.67E-16	1.50E-16	1.08E-07	2.97E+07	4.97E-09	0.006%	
11005622MA1 050118	06/01/18	5/1/18 - 6/1/18		5.17E-17	1.39E-16	6.31E-08	3.11E+07	<MDA	<MDA	
11005622MA1 060118	07/03/18	6/1/18 - 7/3/18		1.94E-16	1.32E-16	1.26E-07	3.27E+07	6.33E-09	0.006%	
11005622MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	3.20E-15	2.81E-15	1.26E-06	2.95E+07	9.44E-08	0.107%	
11005622MA1 020118	3/1/2018	2/1/18 - 3/1/18		5.07E-15	2.86E-15	1.42E-06	2.92E+07	1.48E-07	0.169%	
11005622MA1 030118	4/2/2018	3/1/18 - 4/2/18		3.64E-15	2.61E-15	1.33E-06	3.29E+07	1.20E-07	0.121%	
11005622MA1 040218	05/01/18	4/2/18 - 5/1/18		4.27E-15	3.10E-15	1.34E-06	2.97E+07	1.27E-07	0.142%	
11005622MA1 050118	06/01/18	5/1/18 - 6/1/18		2.86E-15	2.87E-15	1.30E-06	3.11E+07	<MDA	<MDA	
11005622MA1 060118	07/03/18	6/1/18 - 7/3/18		4.59E-15	2.73E-15	1.42E-06	3.27E+07	1.50E-07	0.153%	
1100-562-2MA2										
11005622MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	1.02E-16	1.34E-16	9.01E-08	2.95E+07	<MDA	<MDA	
11005622MA2 020118	3/1/2018	2/1/18 - 3/1/18		1.47E-16	1.29E-16	1.08E-07	2.92E+07	4.28E-09	0.005%	
11005622MA2 030118	4/2/2018	3/1/18 - 4/2/18		9.13E-17	1.20E-16	9.01E-08	3.32E+07	<MDA	<MDA	
11005622MA2 040218	05/01/18	4/2/18 - 5/1/18		1.02E-16	1.36E-16	9.01E-08	3.00E+07	<MDA	<MDA	
11005622MA2 050118	06/01/18	5/1/18 - 6/1/18		3.73E-16	1.26E-16	1.76E-07	3.21E+07	1.20E-08	0.012%	
11005622MA2 060118	07/03/18	6/1/18 - 7/3/18		2.30E-16	1.25E-16	1.40E-07	3.40E+07	7.84E-09	0.008%	
11005622MA2 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	2.88E-15	2.68E-15	1.24E-06	2.95E+07	8.48E-08	0.096%	
11005622MA2 020118	3/1/2018	2/1/18 - 3/1/18		1.63E-15	2.57E-15	1.11E-06	2.92E+07	<MDA	<MDA	
11005622MA2 030118	4/2/2018	3/1/18 - 4/2/18		3.80E-15	2.41E-15	1.38E-06	3.32E+07	1.26E-07	0.127%	
11005622MA2 040218	05/01/18	4/2/18 - 5/1/18		4.57E-15	2.82E-15	1.41E-06	3.00E+07	1.37E-07	0.152%	
11005622MA2 050118	06/01/18	5/1/18 - 6/1/18		5.01E-15	2.61E-15	1.49E-06	3.21E+07	1.61E-07	0.167%	
11005622MA2 060118	07/03/18	6/1/18 - 7/3/18		2.64E-15	2.59E-15	1.24E-06	3.40E+07	9.00E-08	0.088%	
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1100-562-2MA1										
U-233/234	1 Qtr.	4/2/18	1/3/18 - 4/2/18	3.47E-16	1.00E-16	1.03E-16	3.84E-17	9.16E+07	3.18E-08	0.012%
U- 235/236				1.55E-17	3.24E-17	3.24E-17	6.16E-17		<MDC	<MDC
U-238				3.05E-16	9.34E-17	9.59E-17	4.20E-17		2.79E-08	0.010%
U-233/234	2 Qtr.	7/3/18	4/2/18 - 7/3/18	1.39E-16	5.31E-17	5.40E-17	3.49E-17	9.35E+07	0.00	0.005%
U- 235/236				1.13E-17	1.99E-17	1.99E-17	3.58E-17		<MDC	<MDC
U-238				2.14E-16	6.50E-17	6.68E-17	2.19E-17		0.00	0.007%
1100-562-2MA2										
U-233/234	1 Qtr.	4/2/18	1/3/18 - 4/2/18	3.04E-16	8.88E-17	9.14E-17	2.45E-17	9.19E+07	2.79E-08	0.010%
U- 235/236				1.20E-17	2.04E-17	2.04E-17	3.46E-17		<MDC	<MDC
U-238				2.41E-16	8.03E-17	8.22E-17	5.00E-17		2.21E-08	0.008%
U-233/234	2 Qtr	7/3/18	4/2/18 - 7/3/18	1.61E-16	4.62E-17	4.76E-17	1.49E-17	9.62E+07	0.00	0.005%
U- 235/236				1.34E-17	1.53E-17	1.53E-17	2.02E-17		<MDC	<MDC
U-238				1.86E-16	4.97E-17	5.15E-17	1.30E-17		0.00	0.006%



**TABLE 1-7**

Centrifuge Test and Post Mortem Facilities-1300 (CTPMF): Exhaust Filtration System Gaseous Effluent Vent System, 1300-562-1MA1, Gross Alpha & Beta, and Radionuclides: Quarters 1 & 2, 2018 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result μCi/ml	MDA / MDC μCi/ml	Inst. Unc. μCi/ml	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1300-562-1MA1										
13005621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Alpha	5.09E-17	1.34E-16	6.31E-08	2.97E+06	<MDA	<MDA	
13005621MA1 020118	3/1/2018	2/1/18 - 3/1/18		1.10E-16	1.44E-16	9.01E-08	1.32E+07	<MDA	<MDA	
13005621MA1 030118	4/5/2018	3/1/18 - 4/5/18		9.40E-17	1.24E-16	9.01E-08	1.49E+07	<MDA	<MDA	
13005621MA1 040518	05/02/18	4/5/18 - 5/2/18		1.83E-16	1.64E-16	1.08E-07	1.15E+07	2.11E-09	0.006%	
13005621MA1 050218	06/04/18	5/2/18 - 6/4/18		3.26E-16	1.77E-16	1.40E-07	1.37E+07	4.48E-09	0.011%	
13005621MA1 060418	07/05/18	6/4/18 - 7/5/18		0.00E+00	1.46E-16	0.00E+00	2.97E+06	<MDA	<MDA	
13005621MA1 010318	02/01/18	1/3/18 - 2/1/18	Gross Beta	5.08E-15	2.68E-15	1.46E-06	2.97E+06	1.51E-08	0.169%	
13005621MA1 020118	3/1/2018	2/1/18 - 3/1/18		5.11E-15	2.89E-15	1.42E-06	1.32E+07	6.75E-08	0.170%	
13005621MA1 030118	4/5/2018	3/1/18 - 4/5/18		4.54E-15	2.48E-15	1.44E-06	1.49E+07	6.76E-08	0.151%	
13005621MA1 040518	05/02/18	4/5/18 - 5/2/18		4.42E-15	3.40E-15	1.39E-06	1.15E+07	5.09E-08	0.147%	
13005621MA1 050218	06/04/18	5/2/18 - 6/4/18		3.97E-15	3.67E-15	1.26E-06	1.37E+07	5.45E-08	0.132%	
13005621MA1 060418	07/05/18	6/4/18 - 7/5/18		4.16E-15	3.02E-15	1.34E-06	2.97E+06	1.24E-08	0.139%	
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result μCi/ml	2σ TPU (μCi/ml)	1σ TPU μCi/ml	MDC (μCi/ml)	Total Flow m3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20	
1300-562-1MA1										
U-233/234	1 Qtr.	4/5/18	1/3/18 - 4/5/18	1.78E-16	7.16E-17	7.27E-17	4.78E-17	3.10E+07	0.00	0.01%
U- 235/236				5.21E-17	4.23E-17	4.24E-17	4.21E-17		0.00	0.00%
U-238				3.08E-16	9.50E-17	9.75E-17	4.60E-17		0.00	0.01%
U-233/234	2 Qtr	7/5/18	4/5/18 - 7/5/18	2.89E-16	7.09E-17	7.39E-17	2.76E-17	2.82E+07	0.00	0.01%
U- 235/236				4.55E-17	3.01E-17	3.03E-17	2.52E-17		0.00	0.00%
U-238				1.99E-16	5.73E-17	5.90E-17	2.18E-17		0.00	0.01%

**Notes:** No exceptions.

1. Ci = Curies
2.  $\mu\text{Ci/ml}$  = micro-Curies per milliliter.
3. CL = Confidence level.
4.  $\text{m}^3$  = cubic meters.
5. MDA = minimum detectable activity.
6. MDC= minimum detectable concentration.
7. Quantity released is calculated if the result Equals or Exceeds the MDA or MDC.
8. Radionuclides analyzed using Procedure EPA 908.0 Modified by Eberline Analytical Corp of Oak Ridge, TN.
9. Gross alpha and beta analyzed by UUSA per procedure EN-3-3030-01.