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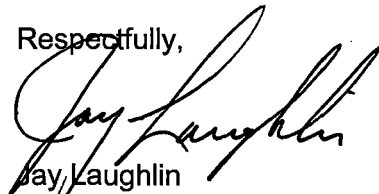
Louisiana Energy Services, LLC
NRC Docket No. 70-3103

Subject: Semi-Annual Radiological Effluent Release Report for July 1, 2016 through
December 31, 2016

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 there be any questions regarding this submittal, please contact Salem Thyne,
Licensing and Performance Assessment Manager, at 575-394-5252.

Respectfully,



Jay Laughlin
Chief Nuclear Officer and Head of Operations

Enclosures: 1) Semi-Annual Radiological Effluent Release Report for July 1, 2016
through December 31, 2016

IE48
NM5520

LES-17-00031-NRC

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LES-17-00031-NRC

ENCLOSURE 1

**Semi-Annual Radiological Effluent Release Report for
July 1, 2016 through December 31, 2016**

URENCO USA: Report of Radioactivity in Effluents: Liquid & Air: July 2016 - December 2016

There were no releases to the public during the reporting period that exceeded regulatory requirements. Detected isotopic uranium activities were comparable to pre-operational activities. A dose assessment was not performed because the maximum potential dose, directly at the point of gaseous and liquid effluent discharge points, was 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 concentrations.

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 the values listed in 10 CFR 20, Appendix B, Table 2, "Effluent Concentrations – Class D Air" for U234, U235, and U238 (Attachment 2, Tables 2-23, 2-24, 2-25, 2-26, 2-27).

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.

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TABLE 1-1

Lift Station 1 Wastewater Effluent – Radionuclides, Quarters 3 & 4, 2016 URENCO USA Lea County, New Mexico

Radionuclide	Sample Date	Sample Period	Total Time days	Results μCi/ml	Counting Unc. μCi/ml	Total Flow* gallons/day	Quantity Released Ci	% of Table 3 Appendix B 10 CFR 20
Lift Station 1 - July - December 2016								
Uranium - 233/234	10/04/2016	07/01/2016	183	1.00E-10	0.00E+00	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		12/31/2016		0.00E+00	0.00E+00	13,000	Result Below LLD	Result Below LLD
Lift Station 1 Duplicate - July - December 2016								
Uranium - 233/234	10/04/2016	07/01/2016	183	2.00E-10	0.00E+00	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		12/31/2016		9.00E-11	0.00E+00	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 3 & 4, 2016 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										
1001-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	9.47E-17	1.27E-16	6.77E-17	4.55E+05	<MDA	<MDA	
1001-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.24E-16	0.00E+00	4.53E+05	<MDA	<MDA	
1001-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	1.16E-16	0.00E+00	4.74E+05	<MDA	<MDA	
1001-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		9.92E-17	2.65E-16	9.92E-17	4.34E+05	<MDA	<MDA	
1001-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		0.00E+00	2.75E-16	0.00E+00	4.50E+05	<MDA	<MDA	
1001-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	1.75E-17	0.00E+00	4.39E+04	<MDA	<MDA	
1001-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	9.10E-16	1.73E-15	6.26E-16	4.55E+05	<MDA	<MDA	
1001-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		9.41E-16	1.69E-15	5.46E-16	4.53E+05	<MDA	<MDA	
1001-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		5.86E-16	1.58E-15	4.63E-16	4.74E+05	<MDA	<MDA	
1001-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		3.65E-16	5.46E-15	1.41E-15	4.34E+05	<MDA	<MDA	
1001-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		2.65E-15	5.69E-15	1.74E-15	4.50E+05	<MDA	<MDA	
1001-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		-2.42E-17	3.61E-16	8.70E-17	4.39E+04	<MDA	<MDA	
1001-562-1MA2										
1001-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	8.08E-17	1.08E-16	5.78E-17	4.79E+05	<MDA	<MDA	
1001-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.09E-16	0.00E+00	4.85E+05	<MDA	<MDA	
1001-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	1.05E-16	0.00E+00	5.01E+05	<MDA	<MDA	
1001-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	2.30E-16	0.00E+00	4.53E+05	<MDA	<MDA	
1001-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		0.00E+00	2.05E-16	0.00E+00	4.71E+05	<MDA	<MDA	
1001-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	2.21E-16	0.00E+00	4.87E+05	<MDA	<MDA	
1001-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	8.21E-16	1.47E-15	4.76E-16	4.79E+05	<MDA	<MDA	
1001-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		9.68E-16	1.48E-15	4.97E-16	4.85E+05	<MDA	<MDA	
1001-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		7.95E-16	1.43E-15	4.61E-16	5.01E+05	<MDA	<MDA	
1001-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		-9.52E-16	4.75E-15	1.05E-15	4.53E+05	<MDA	<MDA	
1001-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		2.54E-15	4.23E-15	1.35E-15	4.71E+05	<MDA	<MDA	
1001-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		-3.05E-16	4.57E-15	1.10E-15	4.87E+05	<MDA	<MDA	
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	3 Qtr.	10/3/16	7/1/16 - 10/03/16	4.11E-18	6.45E-18	3.29E-18	1.51E-17	1.38E+06	<MDC	<MDC
U- 235/236				1.97E-18	3.36E-18	1.71E-18	7.54E-18		<MDC	<MDC
U-238				-2.22E-18	5.60E-18	2.86E-18	1.70E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	1.94E-18	2.26E-18	1.16E-18	4.63E-18	9.28E+05	<MDC	<MDC
U- 235/236				2.08E-19	1.07E-18	5.47E-19	3.48E-18		<MDC	<MDC
U-238				9.82E-19	1.77E-18	9.04E-19	4.21E-18		<MDC	<MDC
1001-562-1MA2										
U-233/234	3 Qtr.	10/3/16	7/1/16 - 10/03/16	8.43E-19	5.08E-18	2.59E-18	1.36E-17	1.47E+6	<MDC	<MDC
U- 235/236				8.63E-19	2.40E-18	1.22E-18	6.61E-18		<MDC	<MDC
U-238				-1.19E-18	5.24E-18	2.67E-18	1.52E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	1.79E-17	1.38E-17	7.05E-18	2.17E-17	1.41E+06	<MDC	<MDC
U- 235/236				2.21E-18	5.93E-18	3.03E-18	1.62E-17		<MDC	<MDC
U-238				3.82E-18	1.02E-17	5.20E-18	2.63E-17		<MDC	<MDC

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 3 & 4, 2016 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										
1003-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	0.00E+00	1.32E-16	0.00E+00	3.91E+05	<MDA	<MDA	
1003-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.28E-16	0.00E+00	4.02E+05	<MDA	<MDA	
1003-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		4.54E-17	1.22E-16	4.54E-17	4.74E+05	<MDA	<MDA	
1003-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	2.30E-16	0.00E+00	3.70E+05	<MDA	<MDA	
1003-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		9.69E-17	2.58E-16	9.69E-17	3.86E+05	<MDA	<MDA	
1003-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	2.30E-16	0.00E+00	4.12E+05	<MDA	<MDA	
1003-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.00E-15	1.80E-15	5.80E-16	3.91E+05	<MDA	<MDA	
1003-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		1.14E-15	1.74E-15	5.83E-16	4.02E+05	<MDA	<MDA	
1003-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		9.21E-16	1.65E-15	5.35E-16	4.74E+05	<MDA	<MDA	
1003-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		-1.49E-15	4.75E-15	1.28E-15	3.70E+05	<MDA	<MDA	
1003-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		2.48E-15	5.34E-15	1.63E-15	3.86E+05	<MDA	<MDA	
1003-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		-9.52E-16	4.75E-15	1.05E-15	4.12E+05	<MDA	<MDA	
1003-562-1MA2										
1003-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	4.89E-17	1.31E-16	4.89E-17	4.07E+05	<MDA	<MDA	
1003-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.28E-16	0.00E+00	4.18E+05	<MDA	<MDA	
1003-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		4.44E-17	1.19E-16	4.44E-17	4.34E+05	<MDA	<MDA	
1003-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	2.35E-16	0.00E+00	3.86E+05	<MDA	<MDA	
1003-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		0.00E+00	2.49E-16	0.00E+00	4.02E+05	<MDA	<MDA	
1003-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	2.27E-16	0.00E+00	4.31E+05	<MDA	<MDA	
1003-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.50E-15	1.78E-15	6.43E-16	4.07E+05	<MDA	<MDA	
1003-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		8.11E-16	1.74E-15	5.39E-16	4.18E+05	<MDA	<MDA	
1003-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		4.06E-16	1.62E-15	5.36E-16	4.34E+05	<MDA	<MDA	
1003-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		-4.38E-16	4.85E-15	1.30E-15	3.86E+05	<MDA	<MDA	
1003-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		3.42E-15	5.14E-15	1.67E-15	4.02E+05	<MDA	<MDA	
1003-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		-9.39E-16	4.69E-15	1.03E-15	4.31E+05	<MDA	<MDA	
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	3 Qtr.	10/3/16	7/1/16 - 10/03/16	2.68E-19	5.62E-18	2.87E-18	1.57E-17	1.27E+6	<MDC	<MDC
U- 235/236				0.00E+00	2.05E-18	1.05E-18	8.02E-18		<MDC	<MDC
U-238				-3.01E-18	5.84E-18	2.98E-18	1.82E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	6.68E-18	1.02E-17	5.22E-18	2.31E-17	1.17E+06	<MDC	<MDC
U- 235/236				2.47E-18	7.88E-18	4.02E-18	2.20E-17		<MDC	<MDC
U-238				1.15E-17	1.15E-17	5.87E-18	2.10E-17		<MDC	<MDC
1003-562-1MA2										
U-233/234	3 Qtr.	10/3/16	7/1/16 - 10/03/16	1.25E-18	5.81E-18	2.96E-18	1.55E-17	1.26E+6	<MDC	<MDC
U- 235/236				2.10E-18	3.58E-18	1.83E-18	8.04E-18		<MDC	<MDC
U-238				5.51E-19	6.41E-18	3.27E-18	1.75E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	9.93E-18	9.45E-18	4.82E-18	1.83E-17	1.22E+06	<MDC	<MDC
U- 235/236				8.82E-18	8.30E-18	4.23E-18	1.31E-17		<MDC	<MDC
U-238				5.74E-18	7.96E-18	4.06E-18	1.77E-17		<MDC	<MDC

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 3 & 4, 2016 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										
1005-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	0.00E+00	2.07E-16	0.00E+00	8.89E+05	<MDA	<MDA	
1005-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		7.70E-17	2.06E-16	7.70E-17	8.79E+05	<MDA	<MDA	
1005-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	2.18E-17	0.00E+00	9.03E+05	<MDA	<MDA	
1005-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	4.54E-16	0.00E+00	8.20E+05	<MDA	<MDA	
1005-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		4.78E-16	4.30E-16	2.76E-16	8.52E+05	4.07E-10	0.016%	
1005-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	3.93E-16	0.00E+00	9.27E+05	<MDA	<MDA	
1005-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.84E-15	2.82E-15	9.45E-16	8.89E+05	<MDA	<MDA	
1005-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		2.88E-15	2.81E-15	1.08E-15	8.79E+05	2.53E-09	0.096%	
1005-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		1.10E-16	2.97E-16	8.72E-17	9.03E+05	<MDA	<MDA	
1005-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		-1.25E-15	9.38E-15	2.16E-15	8.20E+05	<MDA	<MDA	
1005-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		5.32E-15	8.87E-15	2.84E-15	8.52E+05	<MDA	<MDA	
1005-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		-2.70E-15	8.11E-15	1.62E-15	9.27E+05	<MDA	<MDA	
1005-562-1MA2										
1005-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	0.00E+00	1.50E-16	0.00E+00	9.00E+05	<MDA	<MDA	
1005-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.44E-16	0.00E+00	8.87E+05	<MDA	<MDA	
1005-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	1.50E-16	0.00E+00	9.08E+05	<MDA	<MDA	
1005-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	2.82E-16	0.00E+00	8.28E+05	<MDA	<MDA	
1005-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		4.47E-16	3.03E-16	2.23E-16	8.65E+05	3.87E-10	0.015%	
1005-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	2.75E-16	0.00E+00	9.37E+05	<MDA	<MDA	
1005-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.33E-15	2.04E-15	6.81E-16	4.07E+05	<MDA	<MDA	
1005-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		1.28E-15	1.97E-15	6.58E-16	4.18E+05	<MDA	<MDA	
1005-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		1.89E-15	2.04E-15	7.58E-16	4.34E+05	<MDA	<MDA	
1005-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		-1.17E-15	5.83E-15	1.29E-15	3.86E+05	<MDA	<MDA	
1005-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		2.50E-15	6.25E-15	1.86E-15	4.02E+05	<MDA	<MDA	
1005-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		-3.80E-16	5.69E-15	1.37E-15	4.31E+05	<MDA	<MDA	
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	3 Qtr.	10/3/16	7/1/16 - 10/03/16	-6.96E-19	2.12E-18	1.08E-18	6.43E-18	2.67E+06	<MDC	<MDC
U- 235/236				0.00E+00	7.63E-19	3.89E-19	2.98E-18		<MDC	<MDC
U-238				-7.19E-19	2.39E-18	1.22E-18	7.04E-18		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	4.45E-18	1.29E-17	6.59E-18	3.39E-17	2.60E+06	<MDC	<MDC
U- 235/236				7.44E-18	1.14E-17	5.81E-18	2.43E-17		<MDC	<MDC
U-238				1.35E-17	1.51E-17	7.69E-18	3.03E-17		<MDC	<MDC
1005-562-1MA2										
U-233/234	3 Qtr.	10/3/16	7/1/16 - 10/03/16	3.79E-18	7.86E-18	4.01E-18	1.93E-17	2.69E+06	<MDC	<MDC
U- 235/236				0.00E+00	2.59E-18	1.32E-18	1.01E-17		<MDC	<MDC
U-238				-2.39E-18	7.15E-18	3.65E-18	2.17E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	6.87E-18	1.06E-17	5.42E-18	2.44E-17	2.63E+06	<MDC	<MDC
U- 235/236				4.93E-18	8.71E-18	4.44E-18	2.04E-17		<MDC	<MDC
U-238				1.31E-17	1.16E-17	5.90E-18	2.04E-17		<MDC	<MDC

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 3 & 4, 2016 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										
1100-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	0.00E+00	1.29E-16	0.00E+00	6.75E+05	<MDA	<MDA	
1100-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		4.64E-17	1.24E-16	4.64E-17	7.23E+05	<MDA	<MDA	
1100-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		4.51E-17	1.21E-16	4.51E-17	7.45E+05	<MDA	<MDA	
1100-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	2.63E-16	0.00E+00	6.46E+05	<MDA	<MDA	
1100-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		0.00E+00	2.60E-16	0.00E+00	6.59E+05	<MDA	<MDA	
1100-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	4.35E-16	0.00E+00	7.74E+05	<MDA	<MDA	
1100-562-1MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	4.34E-16	1.76E-15	5.71E-16	6.75E+05	<MDA	<MDA	
1100-562-1MA1 080116	9/1/16	8/1/16 - 9/1/16		1.42E-15	1.69E-15	6.10E-16	7.23E+05	<MDA	<MDA	
1100-562-1MA1 090116	10/3/16	9/1/16 - 10/3/16		9.14E-16	1.64E-15	5.31E-16	7.45E+05	<MDA	<MDA	
1100-562-1MA1 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	5.42E-15	1.35E-15	6.46E+05	<MDA	<MDA	
1100-562-1MA1 110116	12/1/16	11/1/16 - 12/1/16		2.15E-15	5.38E-15	1.60E-15	6.59E+05	<MDA	<MDA	
1100-562-1MA1 120117	1/3/17	12/1/16 - 1/3/17		-2.39E-15	8.98E-15	1.89E-15	7.74E+05	<MDA	<MDA	
1100-562-1MA2										
1100-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	2.42E-17	1.50E-16	5.58E-17	6.54E+05	<MDA	<MDA	
1100-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	1.50E-16	0.00E+00	7.21E+05	<MDA	<MDA	
1100-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	1.41E-16	0.00E+00	7.47E+05	<MDA	<MDA	
1100-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		0.00E+00	3.08E-16	0.00E+00	6.51E+05	<MDA	<MDA	
1100-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		1.18E-16	3.14E-16	1.18E-16	4.93E+05	<MDA	<MDA	
1100-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	3.17E-16	0.00E+00	2.87E+05	<MDA	<MDA	
1100-562-1MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.32E-15	2.04E-15	8.29E-16	6.54E+05	<MDA	<MDA	
1100-562-1MA2 080116	9/1/16	8/1/16 - 9/1/16		1.51E-15	2.04E-15	7.10E-16	7.21E+05	<MDA	<MDA	
1100-562-1MA2 090116	10/3/16	9/1/16 - 10/3/16		1.18E-15	1.92E-15	7.17E-16	7.47E+05	<MDA	<MDA	
1100-562-1MA2 100316	11/1/16	10/3/16 - 11/1/16		-1.70E-15	6.37E-15	1.34E-15	6.51E+05	<MDA	<MDA	
1100-562-1MA2 110116	12/1/16	11/1/16 - 12/1/16		5.18E-15	6.49E-15	2.21E-15	4.93E+05	<MDA	<MDA	
1100-562-1MA2 120117	1/3/17	12/1/16 - 1/3/17		-1.75E-15	6.55E-15	1.38E-15	2.87E+05	<MDA	<MDA	
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	3 Qtr.	10/3/16	7/1/16 - 10/03/16	7.16E-18	7.59E-18	3.87E-18	1.60E-17	2.14E+06	<MDC	<MDC
U- 235/236				0.00E+00	3.14E-18	1.60E-18	1.09E-17		<MDC	<MDC
U-238				-8.05E-19	6.19E-18	3.16E-18	1.80E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	1.50E-17	1.53E-17	7.82E-18	2.95E-17	2.08E+06	<MDC	<MDC
U- 235/236				6.30E-18	1.01E-17	5.13E-18	2.15E-17		<MDC	<MDC
U-238				6.78E-18	1.15E-17	5.85E-18	2.67E-17		<MDC	<MDC
1100-562-1MA2										
U-233/234	3 Qtr.	10/3/16	7/1/16 - 10/03/16	3.82E-18	7.52E-18	3.83E-18	1.83E-17	2.12E+06	<MDC	<MDC
U- 235/236				0.00E+00	2.30E-18	1.17E-18	8.99E-18		<MDC	<MDC
U-238				-1.87E-18	7.03E-18	3.59E-18	2.07E-17		<MDC	<MDC
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	1.60E-17	1.19E-17	6.08E-18	2.14E-17	1.43E+06	<MDC	<MDC
U- 235/236				1.59E-18	6.38E-18	3.25E-18	1.81E-17		<MDC	<MDC
U-238				1.32E-17	1.06E-17	5.39E-18	1.89E-17		<MDC	<MDC

TABLE 1-6

Container Receipt and Dispatch Building-1100 (SBM 1100): Local Extract Exhaust Gaseous Effluent Vent System, 1100-562-2MA1 & 1100-562-2MA2, Gross Alpha & Beta, and Radionuclides: Quarters 3 & 4, 2016 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										
1100-562-2MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	0.00E+00	1.36E-16	0.00E+00	2.06E+07	<MDA	<MDA	
1100-562-2MA1 080116	9/1/16	8/1/16 - 9/1/16		0.00E+00	6.90E-17	0.00E+00	3.96E+07	<MDA	<MDA	
1100-562-2MA1 090116	10/3/16	9/1/16 - 10/3/16		0.00E+00	1.29E-16	0.00E+00	2.37E+07	<MDA	<MDA	
1100-562-2MA1 100316	11/1/16	10/3/16 - 11/1/16		1.06E-16	2.82E-16	1.06E-16	3.00E+07	<MDA	<MDA	
1100-562-2MA1 110116	12/1/16	11/1/16 - 12/1/16		1.07E-16	2.85E-16	1.07E-16	3.16E+07	<MDA	<MDA	
1100-562-2MA1 120117	1/3/17	12/1/16 - 1/3/17		0.00E+00	2.60E-16	0.00E+00	3.43E+07	<MDA	<MDA	
1100-562-2MA1 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.03E-15	1.85E-15	5.99E-16	2.06E+07	<MDA	<MDA	
1100-562-2MA1 080116	9/1/16	8/1/16 - 9/1/16		4.37E-16	9.39E-16	2.91E-16	3.96E+07	<MDA	<MDA	
1100-562-2MA1 090116	10/3/16	9/1/16 - 10/3/16		8.17E-16	1.76E-15	5.44E-16	2.37E+07	<MDA	<MDA	
1100-562-2MA1 100316	11/1/16	10/3/16 - 11/1/16		-7.76E-16	5.83E-15	1.34E-15	3.00E+07	<MDA	<MDA	
1100-562-2MA1 110116	12/1/16	11/1/16 - 12/1/16		2.35E-15	5.88E-15	1.75E-15	3.16E+07	<MDA	<MDA	
1100-562-2MA1 120117	1/3/17	12/1/16 - 1/3/17		3.60E-16	5.38E-15	1.39E-15	3.43E+07	<MDA	<MDA	
1100-562-2MA2										
1100-562-2MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Alpha	4.50E-16	1.35E-16	1.51E-16	2.16E+07	9.72E-09	0.015%	
1100-562-2MA2 080116	9/1/16	8/1/16 - 9/1/16		1.94E-16	1.30E-16	9.69E-17	2.12E+07	4.10E-09	0.006%	
1100-562-2MA2 090116	10/3/16	9/1/16 - 10/3/16		2.92E-16	1.32E-16	1.20E-16	2.58E+07	7.55E-09	0.010%	
1100-562-2MA2 100316	11/1/16	10/3/16 - 11/1/16		1.06E-16	2.82E-16	1.06E-16	7.29E+02	<MDA	<MDA	
1100-562-2MA2 110116	12/1/16	11/1/16 - 12/1/16		1.03E-16	2.75E-16	1.03E-16	3.13E+07	<MDA	<MDA	
1100-562-2MA2 120117	1/3/17	12/1/16 - 1/3/17		1.85E-16	2.51E-16	1.31E-16	3.46E+07	<MDA	<MDA	
1100-562-2MA2 070116	8/1/16	7/1/16 - 8/1/16	Gross Beta	1.89E-15	1.84E-15	7.06E-16	2.16E+07	4.08E-08	0.063%	
1100-562-2MA2 080116	9/1/16	8/1/16 - 9/1/16		1.82E-15	1.77E-15	6.79E-16	2.12E+07	3.84E-08	0.061%	
1100-562-2MA2 090116	10/3/16	9/1/16 - 10/3/16		1.17E-15	1.80E-15	6.02E-16	2.58E+07	<MDA	<MDA	
1100-562-2MA2 100316	11/1/16	10/3/16 - 11/1/16		-1.55E-15	5.83E-15	1.23E-15	7.29E+02	<MDA	<MDA	
1100-562-2MA2 110116	12/1/16	11/1/16 - 12/1/16		2.65E-15	5.69E-15	1.74E-15	3.13E+07	<MDA	<MDA	
1100-562-2MA2 120117	1/3/17	12/1/16 - 1/3/17		-1.72E-15	5.18E-15	1.04E-15	3.46E+07	<MDA	<MDA	
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	3 Qtr.	10/3/16	7/1/16 - 10/03/16	1.69E-16	3.54E-17	1.80E-17	1.25E-17	0.00	0.006%	
U- 235/236				4.44E-18	4.66E-18	2.38E-18	8.52E-18	8.39E+07	<MDC	<MDC
U-238				1.03E-16	2.44E-17	1.25E-17	1.45E-17		0.00	0.003%
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	1.05E-16	2.58E-17	1.31E-17	1.74E-17	0.00	0.004%	
U- 235/236				8.53E-18	7.47E-18	3.81E-18	1.33E-17	9.59E+07	<MDC	<MDC
U-238				3.00E-17	1.24E-17	6.31E-18	1.53E-17		0.00	0.001%
1100-562-2MA2										
U-233/234	3 Qtr.	10/3/16	7/1/16 - 10/03/16	1.67E-16	3.50E-17	1.79E-17	1.60E-17	0.00	0.006%	
U- 235/236				9.14E-18	6.45E-18	3.29E-18	7.78E-18	6.86E+07	0.00	0.000%
U-238				6.39E-17	1.85E-17	9.43E-18	1.80E-17		0.00	0.002%
U-233/234	4 Qtr.	1/3/17	10/3/16 - 1/03/17	7.49E-17	2.40E-17	1.22E-17	1.88E-17	0.00	0.002%	
U- 235/236				5.75E-18	7.01E-18	3.58E-18	1.36E-17	6.59E+07	<MDC	<MDC
U-238				3.49E-17	1.53E-17	7.80E-18	1.67E-17		0.00	0.001%

TABLE 1-7

Centrifuge Test and Post Mortem Facilities-1300 (CTPMF): Local Extract Exhaust Gaseous Effluent Vent System, 1300-562-1MA1, Gross Alpha & Beta, and Radionuclides: Quarters 3 & 4, 2016 URENCO USA Lea County, New Mexico

Sample ID	Sample Date	Sample Period	Analyte	Gross Result $\mu\text{Ci/ml}$	MDA / MDC $\mu\text{Ci/ml}$	Inst. Unc. $\mu\text{Ci/ml}$	Total Flow m^3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20
1300-562-1MA1									
1300-562-2MA2 070116	8/1/16	7/1/16 - 8/3/16	Gross Alpha	6.13E-16	1.27E-16	1.69E-16	1.40E+07	8.58E-09	0.020%
1300-562-2MA2 080316	9/1/16	8/3/16 - 9/2/16		4.23E-16	1.27E-16	1.42E-16	1.28E+07	5.41E-09	0.014%
1300-562-2MA2 090216	10/3/16	9/2/16 - 10/4/16		4.30E-16	1.29E-16	1.44E-16	1.36E+07	5.85E-09	0.014%
1300-562-2MA2 100416	11/1/16	10/4/16 - 11/1/16		0.00E+00	2.90E-16	0.00E+00	1.14E+07	<MDA	<MDA
1300-562-2MA2 110116	12/1/16	11/1/16 - 12/1/16		0.00E+00	2.73E-16	0.00E+00	1.28E+07	<MDA	<MDA
1300-562-2MA2 120117	1/3/17	12/1/16 - 1/4/17		8.87E-17	2.37E-16	8.87E-17	1.45E+07	<MDA	<MDA
1300-562-2MA2 070116	8/1/16	7/1/16 - 8/3/16	Gross Beta	4.51E-15	1.73E-15	9.40E-16	1.40E+07	6.32E-08	0.150%
1300-562-2MA2 080316	9/1/16	8/3/16 - 9/2/16		2.41E-15	1.73E-15	7.38E-16	1.28E+07	3.08E-08	0.080%
1300-562-2MA2 090216	10/3/16	9/2/16 - 10/4/16		1.80E-15	1.76E-15	6.74E-16	1.36E+07	2.45E-08	0.060%
1300-562-2MA2 100416	11/1/16	10/4/16 - 11/1/16		-7.97E-16	5.98E-15	1.38E-15	1.14E+07	<MDA	<MDA
1300-562-2MA2 110116	12/1/16	11/1/16 - 12/1/16		3.77E-16	5.64E-15	1.46E-15	1.28E+07	<MDA	<MDA
1300-562-2MA2 120117	1/3/17	12/1/16 - 1/4/17		-3.27E-16	4.89E-15	1.18E-15	1.45E+07	<MDA	<MDA
Radionuclide (Isotopic Uranium (U))	Sample Date	Sample Period	Result $\mu\text{Ci/ml}$	2 σ TPU ($\mu\text{Ci/ml}$)	1 σ TPU ($\mu\text{Ci/ml}$)	MDC ($\mu\text{Ci/ml}$)	Total Flow m^3	Quantity Released Ci	% of Table 2 Appendix B 10CFR 20
1300-562-1MA1									
U-233/234	3 Qtr.	10/4/16	7/1/16 - 10/04/16	2.28E-18	6.34E-18	3.24E-18	4.04E+07	<MDC	<MDC
U- 235/236				1.01E-18	2.79E-18	1.42E-18		<MDC	<MDC
U-238				-3.48E-18	6.40E-18	3.26E-18		<MDC	<MDC
U-233/234	4 Qtr.	1/4/17	10/3/16 - 1/04/17	1.33E-18	7.26E-18	3.70E-18	3.87E+07	<MDC	<MDC
U- 235/236				1.17E-18	4.49E-18	2.29E-18		<MDC	<MDC
U-238				3.54E-18	7.19E-18	3.67E-18		<MDC	<MDC

Notes: No exceptions.

1. Ci = Curies
2. $\mu\text{Ci/ml}$ = micro-Curies per milliliter.
3. CL = Confidence level.
4. 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 WL-1017 Revision 2 by WIPP Laboratories of Carlsbad, New Mexico.
9. Gross alpha and beta analyzed by UUSA per procedure EN-3-3030-01.