framatome

February 28, 2018
YRS:18:003

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk (03-H8)
Director, Office of Nuclear Material
Safety and Safeguards
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

License SNM-1227
Docket 70-1257

Subject: Required Reporting of Effluents per 10 CFR 70.59

As required by 10 CFR 70.59, Framatome is reporting discharges of radioactive materials in the effluents from its nuclear fuels fabrication plant on Horn Rapids Road in Richland, Washington for the period from July 1 through December 31, 2017.

If there are any questions, please contact me at (509) 375-8355.

Very truly yours,

Y. R. Sakach
Radiation Protection
Attachments

cc: L. D. Wert, U.S. Nuclear Regulatory Commission, Region II
P. J. Martell, State of Washington Department of Health
C. A. Rivera, U.S. Nuclear Regulatory Commission, Region II
D.B. Jansen, Director, Office of Radiation Protection (WDOH)

IE48
NMSS

Framatome Inc.
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Richland, WA 99354
Tel: (509) 375-8100

www.framatome.com

Gaseous Effluent July 1 – December 31, 2017				
Stack	**Average Concentration (μCi/ml)**	**Estimated Average MDC (μCi/ml)***	**Quantity (μCi alpha)**	**Flow (m^3)**
Low Enriched Uranium based on alpha				
K03	3.66E-16	2.69E-17	0.10	2.68E+08
K06	3.89E-16	7.13E-17	0.04	1.01E+08
K21	8.34E-16	1.24E-16	0.05	5.80E+07
K25	4.44E-16	3.26E-16	0.01	2.22E+07
K31	3.59E-16	1.25E-16**	0.08	2.31E+08
K37	3.54E-16	7.02E-17	0.04	1.03E+08
K42	4.49E-16	2.16E-16	0.02	3.35E+07
K46	3.10E-16	7.21E-17	0.03	1.00E+08
K47	3.57E-15	4.09E-16	0.06	1.76E+07
K49	5.73E-16	1.10E-16	0.04	6.54E+07
K50	0.00E+00***	0.00E+00	0.00	0.00E+00
K52	5.02E-16	1.64E-16	0.02	4.40E+07
K55	0.00E+00***	0.00E+00	0.00	0.00E+00
K56	3.86E-16	1.69E-15	0.00	4.27E+06
K58	1.38E-16	6.91E-17	0.01	1.04E+08
K60	8.75E-16	6.54E-17	0.10	1.10E+08
K62	4.21E-16	1.97E-17	0.15	3.67E+08
K65	3.30E-16	5.01E-16	0.00	1.44E+07
K67	5.38E-16	1.02E-15	0.00	7.11E+06
K69	8.88E-16	2.54E-16	0.03	2.84E+07
K72	1.09E-15	3.67E-17	0.21	1.96E+08
K75	4.08E-16	9.71E-16	0.00	7.43E+06
TOTAL			**1.00**	

* Estimated average minimum detectable concentrations for 7-day sampling.
** There are several sampled effluent streams discharged via this stack, MDC listed is the highest of any sampled effluent stream
*** Stack did not operate during second half of 2017.

Gaseous Effluent July 1 – December 31, 2017				
Stack	**Average Concentration (μCi/ml)**	**Average MDC (μCi/ml)***	**Quantity (μCi beta)****	**Flow (m^3)**
Mixed Fission and Activation Corrosion Products- Based upon Gross Beta results				
K52	4.81E-15	5.11E-16	0.21	4.40E+07
TOTAL			**0.21**	

* Estimated average minimum detectable concentration for 7-day sampling.
Principal isotopes (by activity) are estimated to be Co-60 (~66%), Mn-54 (~20%), and Sb-125 (~9%).

Stack	Average Concentration (μCi/ml)*	Average MDC (μCi/ml)*	Quantity (μCi)	Flow (m^3)
Radionuclide: Rn-220				
K03	1.26E-09	---	3.38E+05	2.68E+08
K31	1.18E-09	---	2.72E+05	2.31E+08
K37	0.00E+00	---	0.00E+00	1.03E+08
K50	0.00E+00	---	0.00E+00	0.00E+00**
K56	0.00E+00	---	0.00E+00	4.27E+06
K72	0.00E+00	---	0.00E+00	1.96E+08
K75	0.00E+00	---	0.00E+00	7.43E+06
TOTAL			6.10E+05	

* Radon concentrations are determined by e-perms, which rely on changes in voltage; not counting instruments.
** Stack did not operate during second half of 2017.

Liquid Effluent* July 1 – December 31, 2017				
Constituent	**Concentration (μCi/ml)**	**LLD (μCi/ml)**	**Quantity (Ci)**	**Liquid Volume (m^3)**
Soluble U	1.02E-07	***	0.0029	2.84E+04
Insoluble U**	1.40E-07	***	0.004	
Tc-99	2.61E-07	***	0.0074	
Total Ci			0.0143	

* Combined liquid effluent released to City of Richland sewer system.

** The average concentration of insoluble uranium for the 6-month period was less than 50 ppb.

*** These constituents are analyzed chemically via Inductively Coupled Plasma/Mass Spectroscopy (ICP/MS) as opposed to radiation counting. Laboratory detection limits for uranium and Tc-99 are generally 1 ppb and 5 ppt, respectively