

TABLE 1A - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991

GASEOUS EI

NTS - SUMMATION OF ALL RELEASES (11)

A. FISSION AND ACTIVATION GASES	UNITS	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	6.97E+02	6.90E+02	$\pm 6.20E+00$
2. Average release rate for period	uCi/sec	9.07E+01	8.77E+01	
3. Percent of Tech. Spec. limit(1)	%	1.41E-02	1.26E-02	
4. Percent of Tech. Spec. limit(2)	%	2.28E-02	2.21E-02	
5. Percent of Tech. Spec. limit(3)	%	2.02E-01	1.86E-01	
6. Percent of Tech. Spec. limit(4)	%	1.01E-01	9.29E-02	
7. Percent of Tech. Spec. limit(5)	%	2.70E-01	2.61E-01	
8. Percent of Tech. Spec. limit(6)	%	1.35E-01	1.31E-01	
B. IODINES				
1. Total Iodine - 131	Ci	1.38E-03	3.26E-03	$\pm 6.50E+00$
2. Average release rate for period	uCi/sec	1.79E-04	4.15E-04	
3. Percent of Tech. Spec. limit(7)	%	4.26E-04	9.85E-04	
4. Percent of Tech. Spec. limit(8)	%	2.64E-01	6.24E-01	
5. Percent of Tech. Spec. limit(9)	%	1.32E-01	3.12E-01	
C. PARTICULATES				
1. Particulates with half lives greater than 8 days	Ci	4.97E-07	2.83E-07	$\pm 2.80E+01$
2. Average release rate for period	uCi/sec	6.39E-08	3.60E-08	
3. Percent of Tech. Spec. limit(7)	%	1.01E-06	5.70E-07	
4. Percent of Tech. Spec. limit(8)	%	1.11E-05	6.30E-06	
5. Percent of Tech. Spec. limit(9)	%	5.53E-06	3.15E-06	
6. Gross alpha radioactivity	Ci	(10)	(10)	$\pm 6.54E+01$

TABLE 1A - REG GUIDE 1.21 (Cont.)

**CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991**

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

D. TRITIUM	UNITS	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	5.96E+00	2.86E-01	$\pm 1.32E+01$
2. Average release rate for period	uCi/sec	7.58E-01	3.64E-02	

NOTES TO TABLE 1A

- (1) Percent of I.A.1 whole body dose rate limit (500 mrem/year)
- (2) Percent of I.A.1 skin dose rate limit (3000 mrem/year)
- (3) Percent of I.A.3 gamma quarterly dose limit (10 mrad)
- (4) Percent of I.A.3 gamma yearly dose limit (20 mrad)
- (5) Percent of I.A.3 beta quarterly dose limit (20 mrad)
- (6) Percent of I.A.3 beta yearly dose limit (40 mrad)
- (7) Percent of I.B.1 organ dose limit (1500 mrem/year)
- (8) Percent of I.B.3 quarterly dose limit (15 mrem)
- (9) Percent of I.B.3 yearly dose limit (30 mrem)
- (10) Less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.2.1.2.
- (11) The results appearing in Table 1A are based on the activities of the individual radionuclides listed in Table 1C. Where intermediate calculations have been performed, the results of these intermediate calculation were not rounded to three significant figures. In this way, numerical rounding was applied only to the final value which appears in Table 1A.

TABLE 1C - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

		CONTINUOUS MODE		BATCH MODE	
1. FISSION AND ACTIVATION GASES	UNITS	1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER
Argon -41	Ci	(2)	(2)	(2)	1.49E-03
Krypton -85	Ci	(2)	(2)	2.10E+00	2.64E+00
Krypton -85m	Ci	1.98E+00	9.30E-01	(2)	1.68E-04
Krypton -87	Ci	(2)	(2)	(2)	(2)
Krypton -88	Ci	(2)	(2)	(2)	(2)
Xenon -131m	Ci	6.56E+00	(2)	9.95E-01	3.30E+00
Xenon -133	Ci	4.79E+02	1.55E+02	1.80E+02	5.12E+02
Xenon -133m	Ci	(2)	(2)	4.95E-02	9.02E-01
Xenon -135	Ci	2.72E-01	1.50E+01	4.72E-01	5.46E-02
Xenon -138	Ci	(2)	(2)	(2)	(2)
Total for Period	Ci	5.14E+02	1.71E+02	1.84E+02	5.19E+02
2. HALOGENS					
Iodine -131	Ci	1.38E-03	3.26E-03	5.95E-09	(1)
Iodine -133	Ci	3.40E-03	1.42E-02	(1)	(1)
Total For Period	Ci	4.78E-03	1.75E-02	5.95E-09	(1)

TABLE 2A - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES (7)

A. FISSION AND ACTIVATION PRODUCTS	UNITS	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR, %
1. Total Release (not including tritium, gases, alpha)	Ci	5.29E-01	3.08E-01	$\pm 1.03E+01$
2. Average diluted concentration during period	uCi/ml	3.70E-09	1.51E-09	
3. Percent of Tech. Spec. limit(1)	%	1.27E+00	3.90E-01	
4. Percent of Tech. Spec. limit(2)	%	6.35E-01	1.95E-01	
5. Percent of Tech. Spec. limit(3)	%	3.00E-01	1.66E-01	
6. Percent of Tech. Spec. limit(4)	%	1.50E-01	8.30E-02	
B. TRITIUM				
1. Total Release	Ci	5.24E+01	7.94E+01	$\pm 1.04E+01$
2. Average diluted concentration during period	uCi/ml	3.66E-07	3.89E-07	
3. Percent of applicable limit(5)	%	1.22E-02	1.30E-02	
C. DISSOLVED AND ENTRAINED GASES				
1. Total Release	Ci	2.44E-01	1.71E+01	$\pm 4.80E+00$
2. Average diluted concentration during period	uCi/ml	1.71E-09	8.38E-08	

TABLE 2A - REG GUIDE 1.21 (Cont.)

**CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991**

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

D. GROSS ALPHA RADIOACTIVITY	UNITS	1ST QUARTER	2ND QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	(6)	3.20E-05	$\pm 3.34E+01$
E. VOLUME OF WASTE RELEASED (prior to dilution)	liters	3.36E+06	3.41E+06	$\pm 1.30E+00$
F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	1.43E+11	2.04E+11	$\pm 1.64E+01$

NOTES TO TABLE 2A

- (1) Percent of LC3 Quarterly Organ Dose Limit (10 mrem) to maximum exposed organ
- (2) Percent of LC3 Yearly Organ Dose Limit (20 mrem) to maximum exposed organ
- (3) Percent of LC3 Quarterly Whole Body Dose Limit (3 mrem)
- (4) Percent of LC3 Yearly Whole Body Dose Limit (6 mrem)
- (5) Limit used is 3×10^{-3} uCi/ml
- (6) Less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.1.1.1.
- (7) The results appearing in Table 2A are based on the activities of the individual radionuclides listed in Table 2B. Where intermediate calculations have been performed, the results of these intermediate calculation were not rounded to three significant figures. In this way, numerical rounding was applied only to the final value which appears in Table 2A.

TABLE 2B - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED (2)	UNITS	1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER
Sodium -24	Ci	(1)	(1)	1.25E-04	(1)
Chromium -51	Ci	(1)	(1)	1.60E-02	(1)
Manganese -54	Ci	(1)	(1)	1.64E-03	2.11E-03
Cobalt -58	Ci	5.72E-04	(1)	3.08E-02	2.57E-02
Cobalt -60	Ci	(1)	(1)	1.26E-02	7.07E-03
Strontium -89	Ci	(1)	(1)	(1)	3.20E-03
Strontium -90	Ci	(1)	(1)	3.95E-04	4.29E-04
Niobium -95	Ci	(1)	(1)	2.66E-03	4.30E-04
Niobium -97	Ci	(1)	(1)	3.46E-03	6.51E-03
Zirconium -95	Ci	(1)	(1)	2.46E-03	(1)
Technetium -99m	Ci	(1)	(1)	4.87E-04	1.63E-04
Ruthenium -103	Ci	(1)	(1)	3.19E-04	(1)
Ruthenium -106	Ci	(1)	(1)	1.22E-04	8.77E-05
Silver -110m	Ci	3.73E-03	(1)	4.71E-02	1.48E-02
Tin -113	Ci	(1)	(1)	1.17E-04	(1)
Antimony -122	Ci	(1)	(1)	2.80E-04	2.71E-05
Antimony -125	Ci	(1)	(1)	1.33E-01	5.14E-02
Tellurium -132	Ci	(1)	(1)	2.85E-06	(1)
Iodine -131	Ci	(1)	(1)	2.43E-02	4.22E-02
Iodine -133	Ci	(1)	(1)	8.44E-03	2.58E-03

TABLE 2B - REG GUIDE 1.21 (Cont.)

**CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
FIRST HALF - 1991**

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED (2)	UNITS	1ST QUARTER	2ND QUARTER	1ST QUARTER	2ND QUARTER
Cesium -134	Ci	2.12E-03	(1)	4.20E-02	2.49E-02
Cesium -136	Ci	(1)	(1)	6.55E-05	7.17E-04
Cesium -137	Ci	8.09E-03	(1)	1.82E-01	1.18E-01
Barium -139	Ci	(1)	(1)	4.48E-06	(1)
Barium -140	Ci	(1)	(1)	(1)	1.76E-03
Cerium -139	Ci	(1)	(1)	7.27E-07	(1)
Lanthanum -140	Ci	(1)	(1)	1.44E-04	5.66E-03
Cerium -144	Ci	(1)	(1)	5.71E-03	4.16E-05
Tungsten -187	Ci	(1)	(1)	5.85E-04	(1)
Total For Period	Ci	1.45E-02	(1)	5.15E-01	3.08E-01

Xenon -133	Ci	4.60E-03	(1)	2.33E-01	1.71E+01
Xenon -133m	Ci	(1)	(1)	3.76E-03	2.01E-03
Xenon -135	Ci	(1)	(1)	2.24E-03	3.35E-04
Total For Period	Ci	4.60E-03	(1)	2.39E-01	1.71E+01

NOTES TO TABLE 2B

- (1) Less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.1.1.1.
- (2) The analysis results for Co-57, Fe-59, Zn-65, Sr-92, Mo-99, I-135, Xe-131m, Xe-135m, and Ce-141 were less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.1.1.1.