

TABLE 1A - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT
SECOND HALF - 1988

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

A. FISSION AND ACTIVATION GASES	UNITS	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	6.51E+02	7.87E+02	2.15E+01
2. Average release rate for period	uCi/sec	8.28E+01	1.00E+02	
3. Percent of tech.spec.limit(1)	%	2.02E-02	2.33E-02	
4. Percent of tech.spec.limit(2)	%	7.60E-03	9.00E-03	
5. Percent of tech.spec.limit(3)	%	2.83E-01	3.27E-01	
6. Percent of tech.spec.limit(4)	%	1.41E-01	1.63E-01	
7. Percent of tech.spec.limit(5)	%	2.92E-01	3.54E-01	
8. Percent of tech.spec.limit(6)	%	1.46E-01	1.77E-01	
B. IODINES				
1. Total Iodine - 131	Ci	1.20E-02	9.34E-03	1.84E+01
2. Average release rate for period	uCi/sec	1.53E-03	1.19E-03	
3. Percent of tech.spec.limit(7)	%	1.65E-04	1.29E-04	
4. Percent of tech.spec.limit(8)	%	1.21E-01	9.40E-02	
5. Percent of tech.spec.limit(9)	%	6.05E-02	4.70E-02	
C. PARTICULATES				
1. Particulates with half lives greater than 8 days	Ci	3.68E-05	1.88E-05	1.84E+01
2. Average release rate for period	uCi/sec	4.68E-06	2.39E-06	
3. Percent of tech.spec.limit(7)	%	5.05E-07	2.58E-07	
4. Percent of tech.spec.limit(8)	%	3.70E-04	1.89E-04	
5. Percent of tech.spec.limit(9)	%	1.85E-04	9.45E-05	
6. Gross alpha radioactivity	Ci	<2.21E-05	<1.56E-04	

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GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

D. TRITIUM	UNITS	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	3.82E+00	2.49E+01	2.18E+01
2. Average release rate for period	uCi/sec	4.86E-01	3.17E+00	

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)

TABLE 1C -REG GUIDE 1.21 (Cont.)

CALVERT CLIFFS NUCLEAR POWER PLANT
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GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

3. PARTICULATES	UNITS	CONTINUOUS MODE		BATCH MODE	
		3RD QUARTER	4TH QUARTER	3RD QUARTER	4TH QUARTER
Manganese -54	Ci	(2)	(2)	(1)	(1)
Cobalt -58	Ci	(2)	(2)	(1)	(1)
Iron -59	Ci	(2)	(2)	(1)	(1)
Cobalt -60	Ci	2.80E-06	(2)	(1)	(1)
Zinc -65	Ci	(2)	(2)	(1)	(1)
Strontium -89	Ci	(2)	(2)	(1)	(1)
Strontium -90	Ci	(2)	(2)	(1)	(1)
Molybdenum -99	Ci	(2)	(2)	(1)	(1)
Cesium -134	Ci	(2)	(2)	(1)	(1)
Cesium -137	Ci	3.40E-05	1.88E-05	(1)	(1)
Cerium -141	Ci	(2)	(2)	(1)	(1)
Cerium -144	Ci	(2)	(2)	(1)	(1)
Total For Period	Ci	3.68E-05	1.88E-05	(1)	(1)

- (1) Iodines and particulates in batch releases are accounted for with the main vent continuous samplers when the release is made through the plant main vent.
- (2) Less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.2.1.2.

TABLE 2A - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
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LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

A. FISSION AND ACTIVATION PRODUCTS	UNITS	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
1. Total Release (not including tritium, gases, alpha)	Ci	8.62E-01	8.98E-02	2.16E+01
2. Average diluted concentration during period	uCi/ml	1.45E-09	1.51E-10	
3. Percent of tech.spec.limit(1)	%	6.24E-01	2.27E-01	
4. Percent of tech.spec.limit(2)	%	3.12E-01	1.13E-01	
5. Percent of tech.spec.limit(3)	%	8.13E-01	8.73E-02	
6. Percent of tech.spec.limit(4)	%	4.06E-01	4.36E-02	
B. TRITIUM				
1. Total Release	Ci	1.64E+02	2.50E+02	1.81E+01
2. Average diluted concentration during period	uCi/ml	2.76E-07	4.20E-07	
3. Percent of applicable limit(5)	%	9.20E-03	1.40E-02	
C. DISSOLVED AND ENTRAINED GASES				
1. Total Release	Ci	7.20E-02	5.92E-02	2.00E+01
2. Average diluted concentration during period	uCi/ml	1.21E-10	9.95E-11	

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LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

D. GROSS ALPHA RADIOACTIVITY	UNITS	3RD QUARTER	4TH QUARTER	EST. TOTAL ERROR, %
1. Total Release	Ci	<2.46E-04	<9.76E-04	3.00E+00
E. VOLUME OF WASTE RELEASES (prior to dilution)	liters	4.38E+06	6.66E+06	3.00E+00
F. VOLUME OF DILUTION WATER USED DURING PERIOD	liters	5.95E+11	5.95E+11	1.40E+01

NOTES TO TABLE 2A

- (1) Percent of I.C.3 Quarterly Organ Dose Limit (10 mrem)
- (2) Percent of I.C.3 Yearly Organ Dose Limit (20 mrem)
- (3) Percent of I.C.3 Quarterly Whole Body Dose Limit (3 mrem)
- (4) Percent of I.C.3 Yearly Whole Body Dose Limit (6 mrem)
- (5) Limit used is 3×10^{-3} uCi/ml

TABLE 2b - REG GUIDE 1.21

CALVERT CLIFFS NUCLEAR POWER PLANT
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LIQUID EFFLUENTS

NUCLIDES RELEASED		UNITS	CONTINUOUS 3RD QUARTER	MODE 4TH QUARTER	BATCH 3RD QUARTER	MODE 4TH QUARTER
Sodium	-24	Ci	(1)	(1)	1.69E-04	1.02E-05
Chromium	-51	Ci	(1)	(1)	4.36E-03	(2)
Manganese	-54	Ci	(1)	(1)	1.23E-03	5.25E-04
Cobalt	-58	Ci	(1)	(1)	4.57E-02	7.18E-03
Iron	-59	Ci	(1)	(1)	(2)	(2)
Cobalt	-60	Ci	(1)	(1)	7.85E-03	3.07E-03
Zinc	-65	Ci	(1)	(1)	(2)	(2)
Strontium	-89	Ci	(1)	(1)	1.80E-03	7.99E-04
Strontium	-90	Ci	(1)	(1)	<1.31E-04	<1.07E-04
Zirconium	-95	Ci	(1)	(1)	1.71E-03	2.55E-03
Niobium	-95	Ci	(1)	(1)	5.02E-03	2.66E-03
Niobium	-97	Ci	(1)	(1)	1.15E-02	1.23E-04
Technicium	-99m	Ci	(1)	(1)	1.02E-03	4.22E-05
Ruthenium	-103	Ci	(1)	(1)	(2)	1.50E-04
Cadmium	-109	Ci	(1)	(1)	(2)	1.97E-04
Silver	-110m	Ci	(1)	(1)	1.36E-02	1.74E-03
Tin	-113	Ci	(1)	(1)	9.00E-04	7.78E-04
Antimony	-124	Ci	(1)	(1)	1.35E-03	2.92E-03
Antimony	-125	Ci	(1)	(1)	2.73E-02	1.53E-02
Iodine	-131	Ci	(1)	(1)	3.78E-02	9.00E-03
Iodine	-132	Ci	(1)	(1)	7.74E-06	(2)

TABLE 2B - REG GUIDE 1.21 (Cont.)

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LIQUID EFFLUENTS

NUCLIDES RELEASED		UNITS	CONTINUOUS MODE 3RD QUARTER	4TH QUARTER	BATCH MODE 3RD QUARTER	4TH QUARTER
Iodine	-133	Ci	(1)	(1)	1.06E-02	1.68E-03
Iodine	-135	Ci	(1)	(1)	2.67E-04	(2)
Cesium	-134	Ci	(1)	(1)	1.97E-01	9.27E-03
Cesium	-136	Ci	(1)	(1)	5.58E-04	(2)
Cesium	-137	Ci	(1)	(1)	4.92E-01	2.78E-02
Barium	-140	Ci	(1)	(1)	(2)	1.72E-05
Cerium	-141	Ci	(1)	(1)	(2)	(2)
Cerium	-144	Ci	(1)	(1)	2.74E-05	2.18E-03
Lanthanum	-142	Ci	(1)	(1)	(2)	1.66E-03
Mercury	-203	Ci	(1)	(1)	(2)	5.28E-05
Total For Period		Ci	(1)	(1)	8.62E-01	8.98E-02

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LIQUID EFFLUENTS

NUCLIDES RELEASED		UNITS	CONTINUOUS 3RD QUARTER	MODE 4TH QUARTER	BATCH 3RD QUARTER	MODE 4TH QUARTER
Krypton	-85m	Ci	(1)	(1)	(2)	1.47E-05
Krypton	-88	Ci	(1)	(1)	6.70E-04	(2)
Xenon	-131m	Ci	(1)	(1)	(2)	5.39E-04
Xenon	-133	Ci	(1)	(1)	7.00E-02	5.80E-02
Xenon	-133m	Ci	(1)	(1)	6.87E-05	2.89E-04
Xenon	-135	Ci	(1)	(1)	1.31E-03	3.50E-04
Total For Period		Ci	(1)	(1)	7.20E-02	5.92E-02

- (1) There were no continuous liquid releases during the 3rd and 4th quarters.
- (2) Less than minimum detectable activity which meets the LLD requirements of Technical Specification Surveillance Requirement 4.11.1.1.1.