

SEMI-ANNUAL EFFLUENT REPORT

July - December

1978

Public Service Company

Fort St. Vrain

Nuclear Generating Station

August 1979

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7908130432

1.0 Summary

This report summarizes the radiological and non-radiological effluent released from the Fort St. Vrain Nuclear Generating Station for the period January through June, 1979. In addition, table 4.1 furnishes a general summary of the primary plant systems under radiological surveillance and table 5.1 summarizes the solid waste removed from the site during the aforementioned time period. These data are reported pursuant to the requirements of 10 CFR 50.36(a) and the Technical Specifications of Fort St. Vrain Appendix B AC NR 1.1.

Tritium is the radionuclide of principal interest released via the liquid pathway during the first half of 1979. A total of 44.33 curies of tritium were released to the cooling tower blowdown. Samples taken along the effluent pathway indicate that the tritium concentration is well below the MPC as specified in 10 CFR 20 Appendix B. The total tritium released indicates the batch releases and the continuous releases via the turbine building sump and the reactor building sump.

Tritium, xenon, and krypton in small amounts were released via the reactor building stack during the first quarter of 1979 and tritium was the primary radionuclide released during the second quarter of 1979. No particulate or halogens have been detected in the gaseous waste or by analyzing the filters from the reactor building exhaust sampling system. Considerable difficulty was encountered with the meteorological instrumentation during the first half of the year. On several occasions the meteorological data was lost due to problems with the data collection system and the meteorological instrumentation. Meteorological data is currently being collected manually while the data collection equipment is being repaired.

TABLE 1.2 - RADIOACTIVE LIQUID EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH LIQUID RELEASES

Release No.	279	280	281 ⁽¹⁾	282	283
Date	1/2/79	1/5/79	1/15/79	1/17/79	1/20/79
Total Time of Hours Release	3.8	5.0	4.0	6.8	5.4
% of Tech. Spec. Limit Based on Gross β γ	2.68E+00	4.01E+00	3.74E+01	2.26E+01	2.26E+01
% of MPC Limit for Tritium	91E+01	2.93E+01	1.29E+02	5.28E+01	3.16E+01
Total Volume Released (liters)	6985	8567	7777	8106	8897

Release No.	284	285	286	287	288
Date	1/24/79	1/30/79	2/1/79	2/9/79	2/15/79
Total Time of Hours Release	4.8	5.4	4.8	5.4	8.6
% of Tech. Spec. Limit Based on Gross β γ	3.54E+00	3.34E+00	5.79E+00	0	2.99E+00
% of MPC Limit for Tritium	1.07E+01	3.03E+00	3.04E+01	5.14E-03	7.57E+01
Total Volume Released (liters)	8435	8435	8435	8238	8238

Release No.	289	290	291	292	293
Date	2/16/79	2/21/79	2/25/79	3/2/79	3/3/79
Total Time of Hours Release	10.4	5.1	4.4	3.8	6.4
% of Tech. Spec. Limit Based on Gross β γ	4.96E+00	1.64E+01	9.77E+00	5.12E+0	4.91E+0
% of MPC Limit for Tritium	6.15E+01	2.71E+01	0	6.97E+0	4.45E+0
Total Volume Released (liters)	8501	8567	8962	7249	8831

(1) % of MPC indicated as 129 was a calculational value, analysis of effluent in the release path indicated a ^3H concentration of $1.38\text{E}-03 \mu\text{Ci/ml}$. This is 46% of MPC.

TABLE 1.2 - RADIOACTIVE LIQUID EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH LIQUID RELEASES

Release No.	294	295	296	297	298
Date	3/5/79	3/7/79	3/9/79	3/19/79	3/12/79
Total Time of Hours Release	4.2	3.9	5.8	4.1	4.5
% of Tech. Spec. Limit Based on Gross β γ	3.47E+0	8.32E+0	3.62E+0	6.05E+0	3.30E+0
% of MPC Limit for Tritium	1.73E+0	5.73E+0	1.48E+0	4.10E-01	2.60E-01
Total Volume Released (liters)	7447	8369	9028	7710	8369

Release No.	299	300	301	302	303
Date	3/12/79	3/15/79	3/17/79	3/20/79	3/22/79
Total Time of Hours Release	3.8	5.1	3.9	3.9	3.6
% of Tech. Spec. Limit Based on Gross β γ	8.35E+0	3.32E+0	2.24E+0	1.27E+0	3.54E+0
% of MPC Limit for Tritium	2.30E-01	1.40E-01	1.90E-01	1.80E-01	3.20E-01
Total Volume Released (liters)	8303	8040	7974	8480	7710

Release No.	304	305	306	307	
Date	3/24/79	3/27/79	3/29/79	3/30/79	
Total Time of Hours Release	4.2	4.6	4.2	5.3	
% of Tech. Spec. Limit Based on Gross β γ	1.59E+0	1.66E+0	2.06E+0	1.26E+0	
% of MPC Limit for Tritium	3.10E-01	3.00E-01	2.40E-01	1.70E-01	
Total Volume Released (liters)	8897	8699	8962	8567	

TABLE 1.2 - RADIOACTIVE LIQUID EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH LIQUID RELEASES

Release No.	308	309	310	311	312
Date	4/3/79	4/4/79	4/5/79	4/9/79	4/13/79
Total Time of Hours Release	5.3	6.0	4.3	3.6	3.3
% of Tech. Spec. Limit Based on Gross β γ	5.50E-01	1.28E+0	1.70E+01	0.00	0.00
% of MPC Limit for Tritium	1.40E-01	9.00E-02	4.73E+0	9.60E-01	5.20E-01
Total Volume Released (liters)	9028	7974	8699	8303	6920

Release No.	313	314	315	316	317
Date	4/19/79	4/23/79	4/30/79	5/2/79	5/7/79
Total Time of Hours Release	3.6	4.3	3.9	4.4	4.1
% of Tech. Spec. Limit Based on Gross β γ	2.00E+0	2.26E+0	1.54E+0	1.65E+0	1.87E+0
% of MPC Limit for Tritium	1.54E+0	5.10E-01	3.00E-01	1.40E-01	1.70E-01
Total Volume Released (liters)	7513	8963	8237	8699	7777

Release No.	318	319	320	321	322
Date	5/9/79	5/12/79	5/18/79	5/23/79	5/25/79
Total Time of Hours Release	5.7	4.4	3.5	4.3	3.4
% of Tech. Spec. Limit Based on Gross β γ	1.23E+0	3.22E+0	1.28E+01	8.96E+0	4.00E+0
% of MPC Limit for Tritium	7.00E-02	1.30E-01	1.33E-01	7.56E+0	9.51E+0
Total Volume Released (liters)	8831	7513	7117	8369	7776

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TABLE 1.2 - RADIOACTIVE LIQUID EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH LIQUID RELEASES

Release No.	323	324	325	326	
Date	5/31/79	6/6/79	6/12/79	6/19/79	
Total Time of Hours Release	4.1	4.0	4.3	7.1	
% of Tech. Spec. Limit Based on Gross β γ	4.46E+01	4.79E+0	2.37E+0	1.56E+0	
% of MPC Limit for Tritium	5.20E+01	3.70E+01	9.53E+0	6.69E+01	
Total Volume Released (liters)	8962	6854	8369	6985	

Release No.					
Date					
Total Time of Hours Release					
% of Tech. Spec. Limit Based on Gross β γ					
% of MPC Limit for Tritium					
Total Volume Released (liters)					

Release No.					
Date					
Total Time of Hours Release					
% of Tech. Spec. Limit Based on Gross β γ					
% of MPC Limit for Tritium					
Total Volume Released (liters)					

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TABLE 1.3: LIQUID EFFLUENT RELEASED VIA THE TURBINE BUILDING SUMP
AND THE REACTOR BUILDING SUMP (CONTINUOUS RELEASE)

Turbine Building Sump

	January	February	March	Quarterly Totals
Volume ℓ	7.34E+06	2.76E+06	8.81E+06	1.89E+07 liters
H ³ pCi/l	9.15E+04	2.56E+04	8.13E+02	7.48E-01 curies
Gross 8 γ pCi/l	1.07E+01	1.06E+01	1.50E+01	2.40E-04 curies
Gross α pCi/l	8.96E+00	5.35E+00	1.26E+01	1.91E-04 curies

Reactor Building Sump

	January	February	March	Quarterly Totals
Volume ℓ	5.00E+05 ⁽¹⁾	4.77E+05	4.86E+05	1.46E+06 liters
H ³ pCi/l	3.69E+05	8.98E+04	5.67E+03	2.29E-01 curies
Gross 8 γ pCi/l	1.19E+01	1.88E+01	1.12E+01	2.03E-05 curies
Gross α pCi/l	3.90E+00	6.64E+00	4.69E+00	7.39E-06 curies

- (1) Estimated value on volume released during the last quarter of 1978. This was required as the reactor building flow instrumentation was out of service during January 1979.

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TABLE 1.3: LIQUID EFFLUENT RELEASED VIA THE TURBINE BUILDING SUMP
AND THE REACTOR BUILDING SUMP (CONTINUOUS RELEASE)

Turbine Building Sump

	April	May	June	Quarterly Totals
Volume ℓ	5.24E+06	3.65E+06	2.25E+06	1.11+07 liters
H ³ pCi/l	2.04E+04	2.91E+04	3.85E+03	2.22E-01 curies
Gross 3 γ pCi/l	1.39E+01	1.07E+01	9.07E+00	1.32E-04 curies
Gross α pCi/l	2.30E+01	1.75E+01	1.13E+01	2.10E-04 curies

Reactor Building Sump

	April	May	June	Quarterly Totals
Volume ℓ	3.49E+05	2.96E+05	8.88E+05	1.53E+06 liters
H ³ pCi/l	1.28E+05	1.20E+05	4.95E+04	4.40E-02 curies
Gross 3 γ pCi/l	8.62E+00	9.30E+00	7.08E+00	1.20E-05 curies
Gross α pCi/l	3.83E+00	2.69E+00	3.53E+00	5.27E-06 curies

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TABLE 2.1 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

		UNITS	JANUARY	FEBRUARY	MARCH	QUARTERLY TOTAL
1a. Total Noble Gases		Curies	3.09E+00	1.17E+01	7.18E-01	1.55E+01
1b. Total Tritium		Curies	2.40E-01	2.05E-01	6.71E-02	5.12E-01
1c. Total Halogens		Curies	NSA	NSA	NSA	NSA
1d. Total Particulate Gross (Bq) Activity RT-7325		Curies	6.71E-12	3.54E-12	2.97E-11	4.00E-11
1e. Total Particulate Gross Alpha Activity RT-7325		Curies	2.11E-12	1.71E-12	1.53E-12	5.35E-12
2. Maximum Hourly Release Rate for Any One Hour Period		Ci/hr	5.02E-02	4.63E-01	3.85E-02	4.63E-01
3. Estimated Total Radioactivity Released by Nuclide (MPCa)						
Particulates	MPCa	Curies				
Halogens	MPCa	Curies				
Gases	MPCa	Curies				
Tritium	2E-7		2.40E-01	2.05E-01	6.71E-02	5.12E-01
¹³³ Xe	3E-7		3.06E+00	1.15E+01	6.71E-01	1.52E+01
^{85m} Kr	1E-7		6.89E-03	--	--	6.89E-03
⁸⁸ Kr	2E-8		1.04E-02	--	--	1.04E-02
¹³⁵ Xe	1E-7		1.49E-02	6.04E-04	--	1.55E-02
⁸⁷ Kr	2E-8		5.44E-03	--	--	5.44E-03
^{131m} Xe	4E-7			2.13E-01	4.65E-02	2.60E-01
^{133m} Xe	3E-7			2.24E-02	--	2.24E-02

$4.7E-05 = 4.7 \times 10^{-5}$
 $5.2E+03 = 5.2 \times 10^3$

NSA means no significant activity.

TABLE 2.1 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

	UNITS	APRIL	MAY	JUNE	QUARTERLY TOTAL	
1a. Total Noble Gases	Curies	NSA	NSA	NSA	NSA	
1b. Total Tritium	Curies	4.85E-02	6.82E-02	3.64E-02	1.53E-01	
1c. Total Halogens	Curies	NSA	NSA	NSA	NSA	
1d. Total Particulate Gross (B,y) Activity RT-7325	Curies	3.68E-12	4.87E-12	3.53E-12	---	
1e. Total Particulate Gross Alpha Activity RT-7325	Curies	1.39E-12	1.63E-12	1.02E-12	---	
2. Maximum Hourly Release Rate for Any One Hour Period	CI/hr	5.12E-04	7.52E-04	5.69E-04	7.52E-04	
3. Estimated Total Radioactivity Released by Nuclide (MPCa)						
Particulates	MPCa	Curies	---			
Halogens	MPCa	Curies	---			
Gases	MPCa	Curies				
Tritium	2.00E-07		4.85E-02	6.82E-02	3.64E-02	1.53E-01

$4.7E-05 = 4.7 \times 10^{-5}$
 $5.2E+03 = 5.2 \times 10^3$

NSA means no significant activity.

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TABLE 2.2 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH GASEOUS RELEASES

Release No.	299	300	301	302	303
Date	1/5/79	1/9/79	1/11/79	1/15/79	1/17/79
Total Time of Hours Release	22.0	20.4	15.8	14.9	19.3
Percent of Technical Specification Limit	3.69E-02	9.53E-02	1.82E-02	1.76E-02	1.48E-01
Average Rate of Release (μ Ci/sec)	3.17E+00	4.14E+00	1.47E+00	1.41E+00	1.29E+01

Release No.	304	305	306	307	308
Date	1/23/79	1/30/79	2/2/79	2/7/79	2/9/79
Total Time of Hours Release	19.3	21.2	21.6	19.8	19.5
Percent of Technical Specification Limit	1.56E-01	1.13E-01	1.23E-02	1.43E+00	4.23E-02
Average Rate of Release (μ Ci/sec)	1.39E+01	9.86E+00	1.00E+00	2.71E+00	3.66E+00

Release No.	309	310	311	312	313
Date	2/13/79	2/16/79	2/21/79	2/25/79	3/1/79
Total Time of Hours Release	19.3	22.0	20.4	23.1	18.7
Percent of Technical Specification Limit	1.43E+00	1.82E-02	3.48E-01	9.03E-03	1.18E-01
Average Rate of Release (μ Ci/sec)	1.29E+02	1.57E+00	3.13E+01	7.49E-01	1.07E+01

TABLE 2.2 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH GASEOUS RELEASES

Release No.	314	315	316	317	318
Date	3/5/79	3/9/79	3/15/79	3/20/79	3/24/79
Total Time of Release	30.9	21.7	22.5	22.2	20.3
Percent of Technical Specification Limit	2.26E-03	6.75E-04	2.05E-03	1.46E-03	1.56E-03
Average Rate of Release (μ Ci/sec)	1.64E-01	4.75E-02	1.23E-01	8.78E-02	9.31E-02

Release No.	319	320	321	322	323
Date	3/27/79	3/30/79	4/2/79	4/7/79	4/12/79
Total Time of Release	20.9	18.2	19.9	20.8	20.8
Percent of Technical Specification Limit	2.35E-03	2.39E-03	1.13E-03	1.93E-03	1.72E-03
Average Rate of Release (μ Ci/sec)	1.41E-01	1.44E-01	6.80E-02	1.16E-01	1.03E-01

Release No.	323	325	326	327	328
Date	4/17/79	4/23/79	4/26/79	4/30/79	5/4/79
Total Time of Release	21.5	20.9	37.4	36.8	21.8
Percent of Technical Specification Limit	1.55E-03	2.36E-03	4.71E-04	6.88E-04	7.43E-04
Average Rate of Release (μ Ci/sec)	9.32E-02	1.42E-01	2.82E-02	4.16E-02	4.47E-02

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TABLE 2.2 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH GASEOUS RELEASES

Release No.	329	330	331	332	333
Date	5/10/79	5/16/79	5/18/79	5/21/79	5/23/79
Total Time of Release	21.4	24.9	21.0	17.6	14.9
Percent of Technical Specification Limit	1.55E-03	1.64E-03	2.49E-03	3.04E-03	2.76E-03
Average Rate of Release (μ Ci/sec)	9.28E-02	9.81E-02	1.49E-01	1.81E-01	1.60E-01

Release No.	334	335	336	337	338
Date	5/25/79	5/29/79	6/1/79	6/3/79	6/5/79
Total Time of Release	15.9	16.5	21.5	14.7	16.9
Percent of Technical Specification Limit	1.35E-03	3.48E-03	1.15E-04	1.16E-04	1.21E-03
Average Rate of Release (μ Ci/sec)	8.11E-02	2.09E-01	6.87E-03	6.99E-03	7.26E-02

Release No.	339	340	341	342	343
Date	6/7/79	6/9/79	6/11/79	6/14/79	6/18/79
Total Time of Release	15.2	14.98	13.7	17.0	16.7
Percent of Technical Specification Limit	7.33E-04	2.64E-03	4.79E-04	1.89E-03	6.16E-04
Average Rate of Release (μ Ci/sec)	4.40E-02	1.58E-01	2.88E-02	1.14E-01	3.69E-02

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TABLE 2.2 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

SYNOPSIS OF BATCH GASEOUS RELEASES

Release No.	344	345	346		
Date	6/22/79	6/26/79	6/29/79		
Total Time of Release	19.5	17.2	18.6		
Percent of Technical Specification Limit	1.09E-03	2.83E-04	9.65E-04		
Average Rate of Release (μ Ci/sec)	6.54E-02	1.70E-02	2.09E-04		

Release No.					
Date					
Total Time of Release					
Percent of Technical Specification Limit					
Average Rate of Release (μ Ci/sec)					

Release No.					
Date					
Total Time of Release					
Percent of Technical Specification Limit					
Average Rate of Release (μ Ci/sec)					

5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 299 DATE 1/5/79 STABILITY CONDITION C RELEASE DURATION 220 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.7	4.0	6.4	8.6	5.2	5.5	5.2	4.5	7.0	4.6	5.2	5.5	5.0	3.6	3.9	1.4	
% of Time Wind was From the Direction	0.1	0.6	14.0	13.7	2.5	3.3	3.0	3.5	4.7	2.1	13.6	11.5	2.0	1.3	0.7	0.1	23.0

RELEASE NO. 300 DATE 1/9/79 STABILITY CONDITION B RELEASE DURATION 20.4 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	6.0	10.0	10.7	7.3	5.5	4.4	5.0	4.8	5.9	7.3	7.0	6.8	5.7	4.1	4.4	4.2	
% of Time Wind was From the Direction	2.3	15.4	15.4	13.2	7.0	2.7	3.5	5.4	6.3	6.6	6.6	3.5	0.6	0.2	0.3	0.2	10.5

RELEASE NO. 301 DATE 1/11/79 STABILITY CONDITION D RELEASE DURATION 15.8 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	5.5	7.5	4.2	3.8	2.9	2.2	3.2	5.8	6.8	6.0	8.1	8.0	5.9	4.6	2.6	2.7	
% of Time Wind was From the Direction	4.3	28.4	2.6	1.7	0.9	0.4	0.8	1.5	0.9	3.2	12.0	15.1	7.1	3.3	1.1	0.9	15.5

RELEASE NO. 302 DATE 1/15/79 STABILITY CONDITION D RELEASE DURATION 14.9 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	5.9	6.3	5.5	4.9	4.6	5.0	9.4	8.9	8.0	12.1	8.9	7.2	2.6	3.5	3.1	2.6	
% of Time Wind was From the Direction	2.8	8.3	12.9	6.3	3.4	2.8	10.4	5.9	4.3	3.3	5.9	3.7	2.9	0.5	0.9	0.7	24.5

5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 303 DATE 1/17/79 STABILITY CONDITION D RELEASE DURATION 19.3 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	4.5	6.8	6.8	7.1	5.3	2.8	6.2	5.9	7.3	7.1	6.9	4.9	4.3	5.4	6.1	3.5	
% of Time Wind was From the Direction	1.0	3.5	2.5	0.6	0.7	0.5	3.4	5.8	5.7	9.5	21.4	15.5	6.8	3.3	0.7	0.7	18.1

RELEASE NO. 304 DATE 1/23/79 STABILITY CONDITION D RELEASE DURATION 19.3 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	3.5	6.0	4.1	3.2	3.2	5.1	9.0	9.5	8.3	6.5	4.8	4.2	3.1	5.2	5.5	2.6	
% of Time Wind was From the Direction	1.3	7.0	4.4	2.4	1.0	0.4	2.5	11.5	8.4	6.2	7.8	10.7	4.2	3.8	2.7	0.5	24.5

* RELEASE NO. 305 DATE 1/30/79 STABILITY CONDITION D RELEASE DURATION 21.2 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

* RELEASE NO. 306 DATE 2/2/79 STABILITY CONDITION C RELEASE DURATION 21.6 hrs.
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

* Meteorological data not available.

5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

*RELEASE NO. 307 DATE 2/7/79 STABILITY CONDITION C RELEASE DURATION 19.8 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

RELEASE NO. 308 DATE 2/9/79 STABILITY CONDITION C RELEASE DURATION 19.5 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	4.8	4.7	3.3	4.9	4.3	3.9	4.7	4.4	6.3	4.8	6.4	4.7	4.1	3.8	4.8	4.3	
% of Time Wind was From the Direction	3.1	9.5	5.1	2.4	1.3	0.6	2.9	7.1	8.3	8.1	14.5	3.4	0.7	1.0	1.2	0.9	29.6

RELEASE NO. 309 DATE 2/13/79 STABILITY CONDITION B RELEASE DURATION 19.3 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	7.8	8.6	9.6	8.6	8.0	7.9	7.9	6.2	6.4	7.7	9.0	8.4	6.4	5.2	4.1	5.3	
% of Time Wind was From the Direction	2.2	11.5	18.0	15.6	6.0	5.5	6.3	3.6	3.6	4.6	8.2	6.7	2.8	0.7	0.3	0.1	4.1

RELEASE NO. 310 DATE 2/16/79 STABILITY CONDITION B RELEASE DURATION 22.0 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	8.3	4.5	4.8	5.2	4.0	6.6	2.9	2.2	2.2	4.8	4.5	4.8	3.7	4.0	4.7	7.4	
% of Time Wind was From the Direction	22.2	13.6	12.0	8.5	0.9	0.6	0.6	1.0	0.4	2.3	3.1	2.9	1.0	0.5	0.9	8.1	21.1

*Meteorological data not available

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 311 DATE 2/21/79 STABILITY CONDITION B RELEASE DURATION 20.4 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	7.1	5.0	7.9	9.3	8.6	6.9	5.3	8.7	8.8	10.3	12.4	10.2	9.2	7.7	5.8	10.9	
% of Time Wind was From the Direction	3.7	4.5	7.8	8.2	3.0	1.8	0.8	0.6	4.6	5.6	16.2	11.4	8.1	4.0	4.1	12.4	2.9

* RELEASE NO. 312 DATE 2/25/79 STABILITY CONDITION D RELEASE DURATION 23.1 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

*RELEASE NO. 313 DATE 3/1/79 STABILITY CONDITION D RELEASE DURATION 18.7 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

*RELEASE NO. 314 DATE 3/5/79 STABILITY CONDITION D RELEASE DURATION 30.9 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)																	
% of Time Wind was From the Direction																	

*Meteorological data not available

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 315 DATE 3/9/79 STABILITY CONDITION D RELEASE DURATION 21.7 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)							10.0	8.0	9.3	3.4	4.5				8.5		
% of Time Wind was From the Direction							14.3	9.5	19.0	38.1	9.5				9.5		

RELEASE NO. 316 DATE 3/15/79 STABILITY CONDITION D RELEASE DURATION 22.5 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	13.0		4.0				5.3		6.0		7.0		5.6		3.3		
% of Time Wind was From the Direction	13.0		4.3				13.0		4.3		8.7		30.4		17.4		8.7

RELEASE NO. 317 DATE 3/20/79 STABILITY CONDITION D RELEASE DURATION 22.2 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	3.0		3.0								3.5		7.1	10.0	6.8		
% of Time Wind was From the Direction	4.3		4.3								8.7		43.5	4.3	26.1		8.7

RELEASE NO. 318 DATE 3/24/79 STABILITY CONDITION C RELEASE DURATION 20.3 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)			4.5		8.8		2.5		10.3	11.5	8.3		7.0				
% of Time Wind was From the Direction			9.5		19.0		9.5		19.0	9.5	14.3		4.8				14.3

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 319 DATE 3/27/79 STABILITY CONDITION B RELEASE DURATION 20.9 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	7.0	8.0	8.0		10.0			4.7	8.5	26.0	18.0	4.0	4.0				
% of Time Wind was From the Direction	27.3	4.5	4.5		4.5			13.6	18.2	4.5	4.5	4.5	9.1				4.5

RELEASE NO. 320 DATE 3/30/79 STABILITY CONDITION D RELEASE DURATION 18.2 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)			11.0	10.0	5.5								6.3		4.6	10.0	
% of Time Wind was From the Direction			15.8	5.3	21.1								21.1		26.3	5.3	5.3

RELEASE NO. 321 DATE 4/2/79 STABILITY CONDITION D RELEASE DURATION 19.9 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	6.7		4.3		6.7	12.0							3.0	5.0	3.8		
% of Time Wind was From the Direction	15.0		20.0		15.0	5.0							10.0	5.0	30.0		

RELEASE NO. 322 DATE 4/7/79 STABILITY CONDITION C RELEASE DURATION 20.8 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)					2.0		7.3	4.0	7.3		4.0		19.5		11.0	8.0	
% of Time Wind was From the Direction					4.8		14.3	4.8	28.6		19.0		9.5		14.3	4.8	

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 323 DATE 4/12/79 STABILITY CONDITION B RELEASE DURATION 20.8 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0	3.0	2.0						1.7		2.0		3.7	3.3	2.0		
% of Time Wind was From the Direction	4.2	4.2	4.2						12.5		8.3		12.5	16.7	8.3		20.8

RELEASE NO. 324 DATE 4/17/79 STABILITY CONDITION A RELEASE DURATION 21.5 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	5.0				8.0		3.0		3.5		4.0		4.8				
% of Time Wind was From the Direction	4.5				9.1		18.2		27.3		4.5		27.3				9.1

RELEASE NO. 325 DATE 4/23/79 STABILITY CONDITION C RELEASE DURATION 20.9 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0		2.0	2.0	3.3		4.0	3.0	3.7		4.3		2.5				
% of Time Wind was From the Direction	9.1		4.5	4.5	13.6		9.1	4.5	31.8		13.6		9.1				

RELEASE NO. 326 DATE 4/26/79 STABILITY CONDITION A RELEASE DURATION 37.4 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	6.0			6.0	5.0	3.3	2.7			3.0			2.8	3.5	5.0	6.9	
% of Time Wind was From the Direction	6.7			6.7	13.3	10.0	10.0			3.3			16.6	6.7	3.3	23.3	

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 327 DATE 4/30/79 STABILITY CONDITION B RELEASE DURATION 36.8 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0		2.0		6.7		2.8		3.0	6.0	1.5		3.1		3.4		
% of Time Wind was From the Direction	2.7		2.7		8.1		10.8		10.8	5.4	10.8		24.3		13.5		10.8

RELEASE NO. 328 DATE 5/4/79 STABILITY CONDITION B RELEASE DURATION 21.8
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)			2.0		2.0		3.0	6.8	8.0				7.0	4.0	8.5	4.0	
% of Time Wind was From the Direction			4.8		4.8		14.3	19.0	19.0				9.5	9.5	9.5	4.8	4.8

RELEASE NO. 329 DATE 5/10/79 STABILITY CONDITION B RELEASE DURATION 21.4
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	4.0	4.0	1.0		3.0		1.0							5.3	5.3	3.5	
% of Time Wind was From the Direction	30.4	4.3	4.3		13.0		4.3							13.0	13.0	17.4	

RELEASE NO. 330 DATE 5/16/79 STABILITY CONDITION C RELEASE DURATION 24.9
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	5.5				3.3		5.0	4.4	5.4		3.7		10.0				
% of Time Wind was From the Direction	15.4				11.5		7.7	19.2	19.2		11.5		3.8				11.5

TABLE 2.3 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

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5. The following is a tabulation of meterological conditions during periods of gaseous effluent release:

RELEASE NO. 331 DATE 5/18/79 STABILITY CONDITION A RELEASE DURATION 21.0
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)					2.0		3.5		4.2		2.0		2.0		2.5		
% of Time Wind was From the Direction					4.3		17.4		26.1		4.3		13.0		8.7		26.1

RELEASE NO. 332 DATE 5/21/79 STABILITY CONDITION C RELEASE DURATION 17.6
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0	2.0	2.0	2.5			4.0	4.0	4.0					3.5	2.0	4.0	
% of Time Wind was From the Direction	5.0	10.0	5.0	10.0			5.0	5.0	25.0					10.0	10.0	5.0	10.0

RELEASE NO. 333 DATE 5/23/79 STABILITY CONDITION A RELEASE DURATION 14.9
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	1.0				2.0	3.0		1.0					3.7				
% of Time Wind was From the Direction	6.3				12.5	31.3		12.5					37.5				

RELEASE NO. 334 DATE 5/25/79 STABILITY CONDITION B RELEASE DURATION 15.9
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)			2.0	1.5	7.0			1.0		3.0	4.0		2.0		2.0		
% of Time Wind was From the Direction			5.9	11.8	35.3			5.9		11.8	5.9		5.9		5.9		11.8

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 335 DATE 5/29/79 STABILITY CONDITION D RELEASE DURATION 16.5
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	3.6						6.0		4.8		6.0		2.0				
% of Time Wind was From the Direction	42.1						5.3		31.6		10.5		5.3				5.3

RELEASE NO. 336 DATE 6/1/79 STABILITY CONDITION D RELEASE DURATION 21.5 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.3		1.0				1.5		3.0		3.0		3.4	6.5	6.0		
% of Time Wind was From the Direction	13.6		9.0				9.0		4.5		4.5		22.7	9.0	22.7		4.5

RELEASE NO. 337 DATE 6/3/79 STABILITY CONDITION C RELEASE DURATION 14.7 hrs
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0		3.0						2.5		1.0				1.3		
% of Time Wind was From the Direction	31.3		6.2						12.5		6.2				18.8		25.0

RELEASE NO. 338 DATE 6/5/79 STABILITY CONDITION D RELEASE DURATION 16.9
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	4.0	2.0				2.3							3.2			3.6	
% of Time Wind was From the Direction	16.7	5.6				22.2							27.8			27.8	

5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 339 DATE 6/7/79 STABILITY CONDITION D RELEASE DURATION 15.2
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	2.0		1.5	2.0		2.0			3.0	3.0			4.0	3.3	6.0	3.0	
% of Time Wind was From the Direction	12.5		12.5	6.2		6.2			6.2	12.5			6.2	18.8	6.2	12.5	

RELEASE NO. 340 DATE 6/9/79 STABILITY CONDITION D RELEASE DURATION 14.98
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	1.0					2.0	3.5	5.0	3.6	6.0			1.0	6.0			
% of Time Wind was From the Direction	6.2					6.2	25.0	12.5	31.3	6.2			6.2	6.2			

RELEASE NO. 341 DATE 6/11/79 STABILITY CONDITION D RELEASE DURATION 13.7
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	3.0											2.0	3.0	2.3		3.8	
% of Time Wind was From the Direction	6.7											6.7	6.7	20.0		60.0	

RELEASE NO. 342 DATE 6/14/79 STABILITY CONDITION C RELEASE DURATION 17.0
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	3.5						2.0		7.0						5.4		
% of Time Wind was From the Direction	11.1						5.6		50.0						27.8		5.6

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5. The following is a tabulation of meteorological conditions during periods of gaseous effluent release:

RELEASE NO. 343 DATE 6/18/79 STABILITY CONDITION D RELEASE DURATION 16.7
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)				5.5		4.0			1.0			12.0	10.7	9.0			
% of Time Wind was From the Direction				11.1		5.6			5.6			11.1	55.6	11.1			

RELEASE NO. 344 DATE 6/22/79 STABILITY CONDITION C RELEASE DURATION 19.5
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)				4.0	3.0	4.0		7.0	2.0	4.0		1.0	1.5				
% of Time Wind was From the Direction				4.8	19.0	28.6		9.5	4.8	9.5		4.8	19.0				

RELEASE NO. 345 DATE 6/26/79 STABILITY CONDITION A RELEASE DURATION 17.2
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	11.2	8.5	5.7	5.7	5.1	8.8	8.2	6.9	7.6	6.0	6.4	4.1	5.7	10.5	8.8	8.4	
% of Time Wind was From the Direction	24.2	15.9	4.7	5.4	2.9	3.3	1.8	1.4	2.3	2.3	2.1	1.7	3.4	7.7	4.6	11.2	4.8

RELEASE NO. 346 DATE 6/29/79 STABILITY CONDITION D RELEASE DURATION 18.6
AT START OF RELEASE

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	ZERO WIND VEL.
Avg. Wind Velocity (MPH)	13.9	9.7	7.1	6.6	7.3	4.1	3.9	4.4	4.6	6.9	5.7	4.5	4.1	1.9	9.5	10.6	
% of Time Wind was From the Direction	11.6	10.4	11.9	11.9	7.3	3.7	3.9	4.3	2.1	5.4	6.6	6.0	4.0	0.3	1.8	3.0	5.5

TABLE 2.3 - RADIOACTIVE GASEOUS EFFLUENT RELEASES FOR 1979

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TABLE 3.1 - NON-RADIOLOGICAL EFFLUENT FOR 1979

MONTH			JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
A) SR NR 1.1 S			(5)	(5)	(4)	(5)	(4)	(4)
Total) Million Gallons			95.05	57.86	83.31	56.88	67.57	59.4
Non-radioactive liquid Effluent Released to the River.	(Average)	ppm Fe	.777	.283	.369	.446	.276	.846
		ppm Cu	.025	.010	.036	.047	.017	.046
		ppm Zn	.613	.198	.234	5.684	.538	.288
		ppm Cr ⁺⁶	.016	.010	.002	.004	.002	0
		ppm P	9.03	6.37	3.46	2.14	.091	1.78
		ppm pH	8.25	7.86	8.00	8.2	8.15	7.84
		ppm TDS	1505	894	708	857	738	950
	(Maximum)	ppm Fe	2.09	.576	.582	1.45	.594	2.039
		ppm Cu	.036	.017	.058	.085	.040	.062
		ppm Zn	2.45	.588	.510	33.1	1.451	.853
		ppm Cr ⁺⁶	.026	.026	.004	.005	.003	0.0
		ppm P	15.40	9.4	6.52	4.6	1.55	2.15
		Max pH	9.0	8.6	8.8	8.7	8.6	8.35
		Min pH	7.7	7.4	7.65	7.4	7.7	7.49
		ppm TDS	1968	1741	1096	1305	1011	950
		ppm 321	0	None added	0	None added	.015	0
		ppm 71-D5	4.72	None added	0	.78	1.52	0
		ppm Cl ₂	.50	.5	.5	.4	.5	0
B) SR NR 1.2 S			(5)	(5)	(4)	(2)	(4)	(4)
Farm Pond Effluent To Lake-Temp.	°F Max	38	47	50	54	60	71	
	°F Avg	36	38	45	52	57	67.5	
C) SR NR 1.3 M (1) Note			(14)	(12)	(13)	(12)	(14)	(13)
(Total) (Gal)		1,940,806	728,477	2,333,074	1,358,162	965,072	600,661	
Turbine Bldg. Sump Effluent	(Average)	ppm Fe	.193	.451	2.344	2.431	1.188	.731
		ppm Cu	.030	.034	1.790	.311	.111	.091
		ppm Zn	3.508	.946	10.215	16.350	6.454	.533
		ppm Cr ⁺⁶	.002	.001	.004	.005	.004	.003
		ppm P	.447	3.32	3.812	1.467	1.22	1.571
		ppm TDS	791	368	547	847	799	411
		pH	7.01	6.62	6.79	7.257	7.58	7.7

NOTE 1: Value in parenthesis indicates the number of measurements made.

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TABLE 4.1

RADIOCHEMISTRY SUMMARY FROM 10179. TO 13179.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	2. 23E-08	1. 81E-08	5. 86E-05	MAXIMUM
	8. 38E-09	4. 76E-09	1. 03E-05	MINIMUM
	1. 32E-08(5)	9. 90E-09(5)	2. 79E-05(5)	AVERAGE
COOLING TOWER BLOWDOWN				
	3. 96E-08	2. 98E-08	1. 36E-03	MAXIMUM
	8. 45E-09	5. 00E-09	5. 68E-07	MINIMUM
	2. 11E-08(19)	1. 47E-08(19)	2. 26E-04(19)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	4. 23E-08	1. 69E-08	4. 98E-04	MAXIMUM
	5. 92E-09	2. 38E-09	2. 92E-04	MINIMUM
	1. 19E-08(15)	3. 90E-09(15)	3. 69E-04(15)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	2. 59E-08	2. 41E-08	1. 38E-04	MAXIMUM
	6. 06E-09	2. 71E-09	5. 44E-05	MINIMUM
	1. 07E-08(14)	8. 96E-09(14)	9. 15E-05(14)	AVERAGE
SYSTEM 21				
	7. 81E-09	3. 70E-09	2. 13E-04	MAXIMUM
	6. 52E-09	2. 38E-09	1. 36E-04	MINIMUM
	7. 31E-09(10)	2. 71E-09(10)	1. 71E-04(10)	AVERAGE
SYSTEM 31				
	7. 59E-09	3. 67E-09	2. 06E-04	MAXIMUM
	5. 94E-09	2. 37E-09	1. 37E-04	MINIMUM
	6. 65E-09(5)	2. 74E-09(5)	1. 73E-04(5)	AVERAGE
SYSTEM 41				
	4. 04E-08	1. 46E-08	5. 51E-07	MAXIMUM
	1. 42E-08	5. 89E-09	5. 45E-07	MINIMUM
	2. 73E-08(2)	1. 02E-08(2)	5. 48E-07(2)	AVERAGE
SYSTEM 42				
	3. 25E-08	5. 66E-08	5. 51E-07	MAXIMUM
	2. 09E-08	2. 38E-08	5. 45E-07	MINIMUM
	2. 67E-08(2)	4. 02E-08(2)	5. 48E-07(2)	AVERAGE
SYSTEM 46				
	3. 00E-08	3. 89E-09	9. 78E-05	MAXIMUM
	7. 04E-09	2. 38E-09	3. 92E-05	MINIMUM
	1. 30E-08(10)	2. 74E-09(10)	6. 85E-05(10)	AVERAGE
SYSTEM 47				
	7. 81E-09	3. 71E-09	2. 49E-04	MAXIMUM
	6. 51E-09	2. 39E-09	1. 73E-04	MINIMUM
	7. 29E-09(11)	2. 69E-09(11)	2. 05E-04(11)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE AVERAGE VALUE.

TABLE 4.1

RADIOCHEMISTRY SUMMARY FROM 20179. TO 22879.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	1. 03E-08	1. 51E-08	1. 15E-04	MAXIMUM
	7. 61E-09	7. 71E-09	1. 41E-06	MINIMUM
	8. 94E-09(4)	1. 02E-08(4)	3. 96E-05(4)	AVERAGE
COOLING TOWER BLOWDOWN				
	4. 67E-08	1. 52E-08	2. 05E-03	MAXIMUM
	6. 73E-09	3. 54E-09	5. 90E-07	MINIMUM
	1. 76E-08(16)	7. 43E-09(16)	2. 81E-04(16)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	8. 38E-08	6. 69E-08	3. 67E-04	MAXIMUM
	5. 97E-09	2. 44E-09	5. 61E-06	MINIMUM
	1. 88E-08(23)	6. 64E-09(23)	8. 98E-05(23)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	2. 02E-08	1. 17E-08	1. 07E-04	MAXIMUM
	6. 51E-09	2. 88E-09	2. 05E-06	MINIMUM
	1. 06E-08(12)	5. 35E-09(12)	2. 56E-05(12)	AVERAGE
SYSTEM 21				
	2. 85E-08	3. 50E-09	3. 75E-05	MAXIMUM
	6. 33E-09	2. 44E-09	1. 52E-05	MINIMUM
	1. 27E-08(4)	2. 77E-09(4)	2. 91E-05(4)	AVERAGE
SYSTEM 31				
	9. 45E-09	3. 52E-09	9. 59E-05	MAXIMUM
	5. 97E-09	2. 49E-09	3. 55E-06	MINIMUM
	7. 25E-09(4)	2. 79E-09(4)	3. 09E-05(4)	AVERAGE
SYSTEM 41				
	8. 81E-09	3. 84E-09	5. 42E-07	MAXIMUM
	8. 81E-09	3. 84E-09	5. 42E-07	MINIMUM
	8. 81E-09(1)	3. 84E-09(1)	5. 42E-07(1)	AVERAGE
SYSTEM 42				
	1. 71E-08	7. 98E-09	7. 27E-07	MAXIMUM
	1. 71E-08	7. 98E-09	7. 27E-07	MINIMUM
	1. 71E-08(1)	7. 98E-09(1)	7. 27E-07(1)	AVERAGE
SYSTEM 46				
	1. 46E-08	3. 51E-09	1. 14E-04	MAXIMUM
	6. 04E-09	2. 44E-09	4. 05E-05	MINIMUM
	8. 30E-09(6)	2. 83E-09(6)	8. 15E-05(6)	AVERAGE
SYSTEM 47				
	6. 30E-08	4. 98E-09	2. 04E-04	MAXIMUM
	5. 53E-09	2. 44E-09	1. 89E-04	MINIMUM
	1. 42E-08(11)	2. 94E-09(11)	1. 96E-04(11)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE AVERAGE VALUE.

TABLE 4. 1

RADIOCHEMISTRY SUMMARY FROM 30179. TO 33179.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	9. 91E-09	9. 25E-09	1. 38E-05	MAXIMUM
	7. 52E-09	3. 55E-09	7. 44E-07	MINIMUM
	8. 59E-09(4)	5. 91E-09(4)	4. 87E-06(4)	AVERAGE
COOLING TOWER BLOWDOWN				
	2. 35E-08	2. 07E-08	6. 36E-05	MAXIMUM
	7. 21E-09	3. 49E-09	4. 38E-07	MINIMUM
	1. 08E-08(36)	8. 26E-09(36)	5. 89E-06(36)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	1. 98E-08	1. 09E-08	1. 27E-05	MAXIMUM
	6. 74E-09	2. 43E-09	1. 96E-06	MINIMUM
	1. 12E-08(20)	4. 69E-09(20)	5. 67E-06(20)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	6. 33E-08	4. 26E-08	1. 81E-06	MAXIMUM
	7. 64E-09	2. 74E-09	4. 44E-07	MINIMUM
	1. 50E-08(13)	1. 26E-08(13)	8. 13E-07(13)	AVERAGE
SYSTEM 21				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 31				
	9. 02E-09	3. 75E-09	1. 43E-06	MAXIMUM
	6. 73E-09	2. 40E-09	4. 40E-07	MINIMUM
	7. 78E-09(4)	3. 01E-09(4)	9. 00E-07(4)	AVERAGE
SYSTEM 41				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 42				
	2. 85E-08	4. 20E-08	5. 82E-07	MAXIMUM
	2. 85E-08	4. 20E-08	5. 82E-07	MINIMUM
	2. 85E-08(1)	4. 20E-08(1)	5. 82E-07(1)	AVERAGE
SYSTEM 46				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 47				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE AVERAGE VALUE.

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TABLE 4.1

RADIOCHEMISTRY SUMMARY FROM 40179. TO 43079.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	1. 13E-08	1. 93E-08	2. 61E-06	MAXIMUM
	7. 31E-09	5. 02E-09	5. 80E-07	MINIMUM
	8. 68E-09(5)	1. 17E-08(5)	1. 51E-06(5)	AVERAGE
COOLING TOWER BLOWDOWN				
	1. 57E-07	1. 21E-07	9. 12E-06	MAXIMUM
	7. 46E-09	3. 50E-09	6. 78E-07	MINIMUM
	1. 72E-08(20)	1. 30E-08(20)	2. 93E-06(20)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	1. 54E-08	9. 32E-09	2. 33E-04	MAXIMUM
	6. 87E-09	2. 36E-09	4. 27E-06	MINIMUM
	8. 62E-09(13)	3. 83E-09(13)	1. 28E-04(13)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	3. 13E-08	7. 39E-08	4. 05E-05	MAXIMUM
	7. 94E-09	8. 85E-09	5. 87E-07	MINIMUM
	1. 39E-08(12)	2. 87E-08(12)	2. 04E-05(12)	AVERAGE
SYSTEM 21				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 31				
	1. 52E-08	4. 85E-09	1. 25E-04	MAXIMUM
	6. 55E-09	2. 35E-09	1. 03E-05	MINIMUM
	9. 19E-09(4)	3. 45E-09(4)	5. 68E-05(4)	AVERAGE
SYSTEM 41				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 42				
	1. 42E-08	3. 69E-08	6. 00E-07	MAXIMUM
	1. 42E-08	3. 69E-08	6. 00E-07	MINIMUM
	1. 42E-08(1)	3. 69E-08(1)	6. 00E-07(1)	AVERAGE
SYSTEM 46				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 47				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE AVG.

TABLE 4.1

RADIOCHEMISTRY SUMMARY FROM 50179. TO 53179.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	1. 90E-08	8. 51E-09	3. 72E-06	MAXIMUM
	1. 14E-08	5. 84E-09	5. 89E-07	MINIMUM
	1. 43E-08(3)	6. 98E-09(3)	2. 34E-06(3)	AVERAGE
COOLING TOWER BLOWDOWN				
	1. 44E-08	1. 80E-08	3. 22E-05	MAXIMUM
	6. 13E-09	3. 39E-09	5. 78E-07	MINIMUM
	8. 16E-09(21)	9. 38E-09(21)	3. 11E-06(21)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	2. 12E-08	4. 20E-09	4. 39E-04	MAXIMUM
	6. 27E-09	2. 37E-09	1. 78E-05	MINIMUM
	9. 30E-09(13)	2. 64E-09(13)	1. 20E-04(13)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	2. 05E-08	2. 91E-08	7. 27E-05	MAXIMUM
	6. 53E-09	2. 68E-09	4. 42E-06	MINIMUM
	1. 07E-08(14)	1. 75E-08(14)	2. 91E-05(14)	AVERAGE
SYSTEM 21				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 31				
	6. 80E-09	2. 43E-09	1. 68E-04	MAXIMUM
	6. 27E-09	2. 37E-09	1. 05E-05	MINIMUM
	6. 46E-09(4)	2. 40E-09(4)	5. 87E-05(4)	AVERAGE
SYSTEM 41				
	1. 41E-08	5. 92E-09	5. 86E-07	MAXIMUM
	1. 41E-08	5. 92E-09	5. 86E-07	MINIMUM
	1. 41E-08(1)	5. 92E-09(1)	5. 86E-07(1)	AVERAGE
SYSTEM 42				
	1. 42E-08	2. 74E-08	5. 95E-07	MAXIMUM
	1. 42E-08	2. 74E-08	5. 95E-07	MINIMUM
	1. 42E-08(1)	2. 74E-08(1)	5. 95E-07(1)	AVERAGE
SYSTEM 46				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE
SYSTEM 47				
	0. 00E-01	0. 00E-01	0. 00E-01	MAXIMUM
	0. 00E-01	0. 00E-01	0. 00E-01	MINIMUM
	0. 00E-01(0)	0. 00E-01(0)	0. 00E-01(0)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE AVERAGE VALUE.

TABLE 4.1

RADIOCHEMISTRY SUMMARY FROM 60179 TO 63079.

SYSTEM	BETA/GAMMA	ALPHA	TRITIUM	

FARM POND (EFFLUENT)				
	8.53E-09	1.52E-08	4.55E-05	MAXIMUM
	6.92E-09	5.02E-09	9.68E-07	MINIMUM
	8.09E-09(4)	9.75E-09(4)	1.42E-05(4)	AVERAGE
COOLING TOWER BLOWDOWN				
	2.35E-08	1.49E-08	2.88E-05	MAXIMUM
	6.54E-09	4.58E-09	5.35E-07	MINIMUM
	1.04E-08(10)	7.49E-09(10)	3.64E-06(10)	AVERAGE
REACTOR BUILDING SUMP (EFFLUENT)				
	1.18E-08	7.66E-09	9.34E-05	MAXIMUM
	6.22E-09	2.52E-09	1.42E-05	MINIMUM
	7.08E-09(14)	3.53E-09(14)	4.59E-05(14)	AVERAGE
TURBINE BUILDING SUMP (EFFLUENT)				
	1.32E-08	1.72E-08	1.17E-05	MAXIMUM
	6.60E-09	6.54E-09	6.58E-07	MINIMUM
	9.07E-09(13)	1.13E-08(13)	3.85E-06(13)	AVERAGE
SYSTEM 21				
	1.44E-08	3.65E-09	1.13E-04	MAXIMUM
	6.69E-09	2.51E-09	5.29E-06	MINIMUM
	7.81E-09(8)	2.88E-09(8)	2.31E-05(8)	AVERAGE
SYSTEM 31				
	6.90E-09	4.50E-09	1.53E-05	MAXIMUM
	5.72E-09	2.63E-09	3.44E-06	MINIMUM
	6.40E-09(4)	3.37E-09(4)	7.24E-06(4)	AVERAGE
SYSTEM 41				
	1.15E-08	1.16E-08	1.09E-06	MAXIMUM
	1.15E-08	1.16E-08	1.09E-06	MINIMUM
	1.15E-08(1)	1.16E-08(1)	1.09E-06(1)	AVERAGE
SYSTEM 42				
	2.08E-08	1.81E-08	8.99E-07	MAXIMUM
	2.08E-08	1.81E-08	8.99E-07	MINIMUM
	2.08E-08(1)	1.81E-08(1)	8.99E-07(1)	AVERAGE
SYSTEM 46				
	1.07E-08	3.68E-09	3.52E-05	MAXIMUM
	6.90E-09	2.51E-09	2.05E-05	MINIMUM
	8.38E-09(8)	2.87E-09(8)	3.02E-05(8)	AVERAGE
SYSTEM 47				
	7.08E-09	4.13E-09	2.05E-04	MAXIMUM
	6.69E-09	2.51E-09	1.71E-04	MINIMUM
	6.85E-09(8)	3.21E-09(8)	1.93E-04(8)	AVERAGE

NOTES:

1. ALL ACTIVITIES EXPRESSED IN UNITS OF UCI/ML.
2. () REPRESENTS THE THE NUMBER OF SAMPLES REPRESENTED BY THE A

TABLE 5.1 - SOLID WASTE (LOW LEVEL) FOR 1979

		UNITS	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Total Volume of Titanium From Hydrogen Getter								
1. Shipped		ft ³	0	0	0	0	0	0
Curies of Tritium								
2. Table 4.4, Item 1		Ci	0	0	0	0	0	0
Total Volume of Wastes (Not Getters) Shipped								
3. For Offsite Disposal		ft ³	0	0	0	0	0	0
Curies Involved in								
4. Table 4.4, Item 3		Ci	0	0	0	0	0	0
5. Description	Shipping Date	Ci	0	0	0	0	0	0
Total Curies Involved in 6. Offsite Shipments		Ci	0	0	0	0	0	0

Note: 1.5E+09 means $1.5 \times 10^{+9}$; Similarly, 2.7E-07 means 2.7×10^{-7}