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SUBJECT: Forwards "Nine Mile Point Nuclear Station-Unit 2 Semiannual Radioactive Effluent Release Rept, Jan-June 1991" & Revs 4 & 5 to Administrative Procedure AP-3.7.1, "Unit 2 Radwaste Process Control Program."

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NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

August 29, 1991
NMP2L 1313

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Re: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Gentlemen:

SUBJECT: JANUARY - JUNE 1991 SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

In conformance with the Nine Mile Point Nuclear Station Unit 2 (NMP2) Technical Specifications, we are enclosing the Semi-Annual Radioactive Effluent Release Report for the period January 1, 1991 through June 30, 1991. Included in this report is a summary of liquid, gaseous and solid effluents released from the station during the reporting period (Tables 1-3) and an explanation as to the cause and corrective actions regarding the inoperability of any station liquid and gaseous effluent monitoring instrumentation (Attachment 1). During the reporting period there were no revisions to the Offsite Dose Calculation Manual (Attachment 2) or the Process Control Program Procedure (Attachment 3).

The format used for the effluent data is outlined in Appendix B of Regulatory Guide 1.21, Revision 1. Dose assessments were made in accordance with the NMP2 Offsite Dose Calculation Manual. Distribution is in accordance with Regulatory Guide 10.1, 10 CFR 50.4 (b) (1) and the Technical Specifications.

If you have any questions concerning the attached report, please contact Beth Thomas, Chemistry and Radiation Protection Support, Syracuse Corporate Office, Salina Meadows (315) 428-7188.

Very truly yours,

C. D. Terry
Vice President - Nuclear Engineering

EDT/sek
001371LL

Enclosure

xc: Regional Administrator, Region I
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Mr. D. S. Brinkman, Senior Project Manager, NRR
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Mr. D. S. Haverkamp, Chief, Reactor Projects Section No. 1B
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NINE MILE POINT NUCLEAR STATION - UNIT 2

SEMI-ANNUAL RADIOACTIVE EFFLUENT

RELEASE REPORT

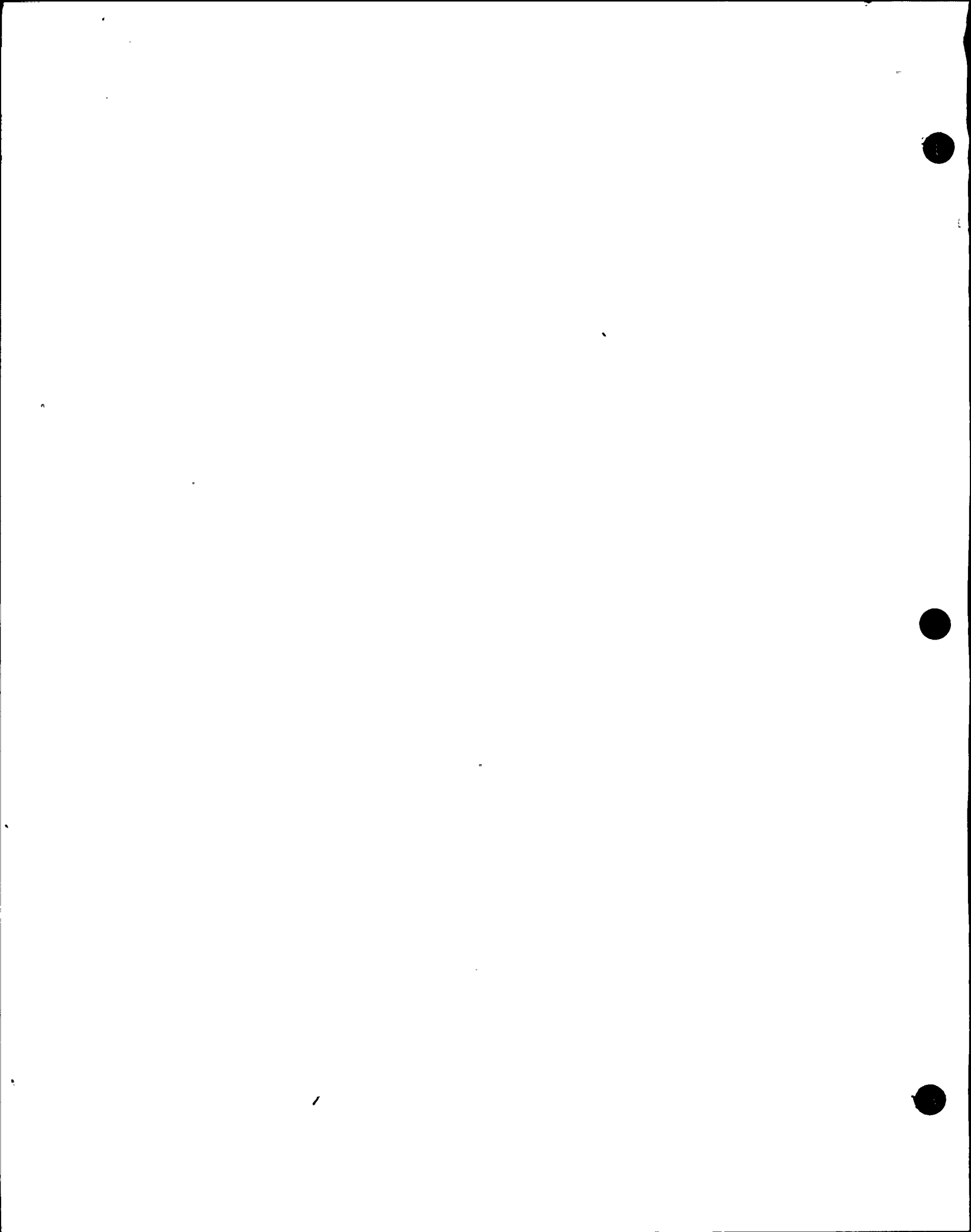
JANUARY - JUNE 1991

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NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR STATION - UNIT 2
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY - JUNE 1991

Facility: Nine Mile Point Unit 2

Licensee: Niagara Mohawk Power Corporation

1. Technical Specification Limits:

A) Fission and activation gases:

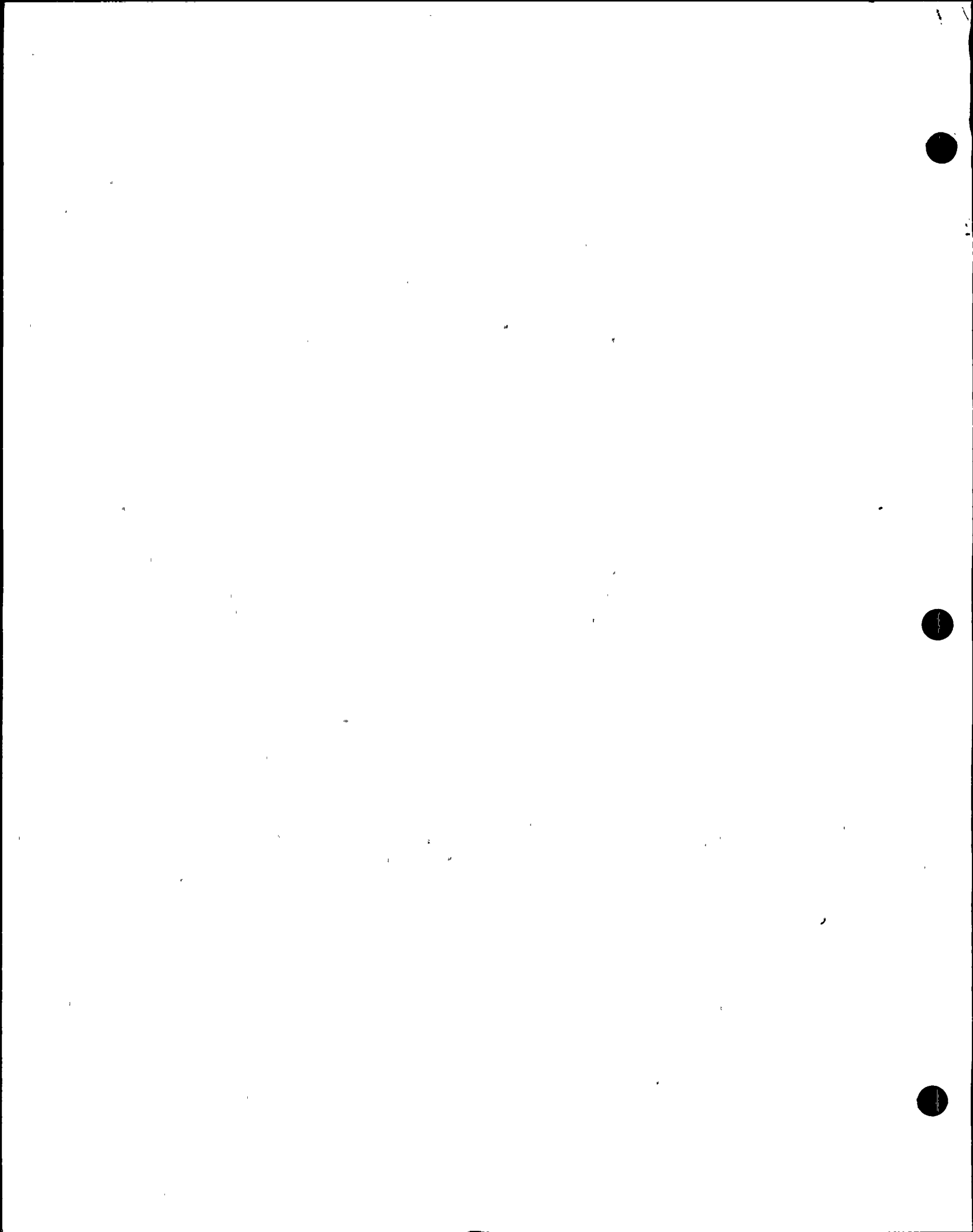
1. The dose rate limit of noble gases from the site to areas at or beyond the site boundary shall be less than or equal to 500 mrem/year to the whole body and less than or equal to 3000 mrem/year to the skin.
2. The air dose from noble gases released in gaseous effluents from the Nine Mile Point 2 Station to areas at or beyond the site boundary shall be limited during any calendar quarter to less than or equal to 5 mr for gamma radiation and less than or equal to 10 mrad for beta radiation and, during any calendar year to less than or equal to 10 mr for gamma radiation and less than or equal to 20 mrad for beta radiation.

B&C) Tritium, Iodines and Particulates, half lives > 8 days:

1. The dose rate limit of Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half-lives greater than eight days, released in gaseous effluents from the site to areas at or beyond the site boundary, shall be less than or equal to 1500 mrem/year to any organ.
2. The dose to a member of the public from Iodine-131, Iodine-133, Tritium and all radionuclides in particulate form with half lives greater than eight days as part of gaseous effluents released from the Nine Mile Point 2 Station to areas at or beyond the site boundary shall be limited during any calendar quarter to less than or equal to 7.5 mrem to any organ and, during any calendar year to less than or equal to 15 mrem to any organ.

D) Liquid Effluents:

1. The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2E-04 microcuries/ml total activity.



2. The dose or dose commitment to a member of the public from radioactive materials in liquid effluents released from Nine Mile Point Unit 2 to unrestricted areas shall be limited during any calendar quarter to less than or equal to 1.5 mrem to the whole body and to less than or equal to 5 mrem to any organ, and during any calendar year to less than or equal to 3 mrem to the whole body and to less than or equal to 10 mrem to any organ.

2. Maximum Permissible Concentrations:

A) Fission and activation gases:

None specified

B&C) Iodines and particulates, half lives > 8 days:

None specified

D) Liquid Effluents:

10CFR 20, Appendix B, Table II, Column 2.
Avg MPC (Jan. - March) = 1.27E-03 uCi/ml
Avg MPC (April - June) = 1.87E-03 uCi/ml

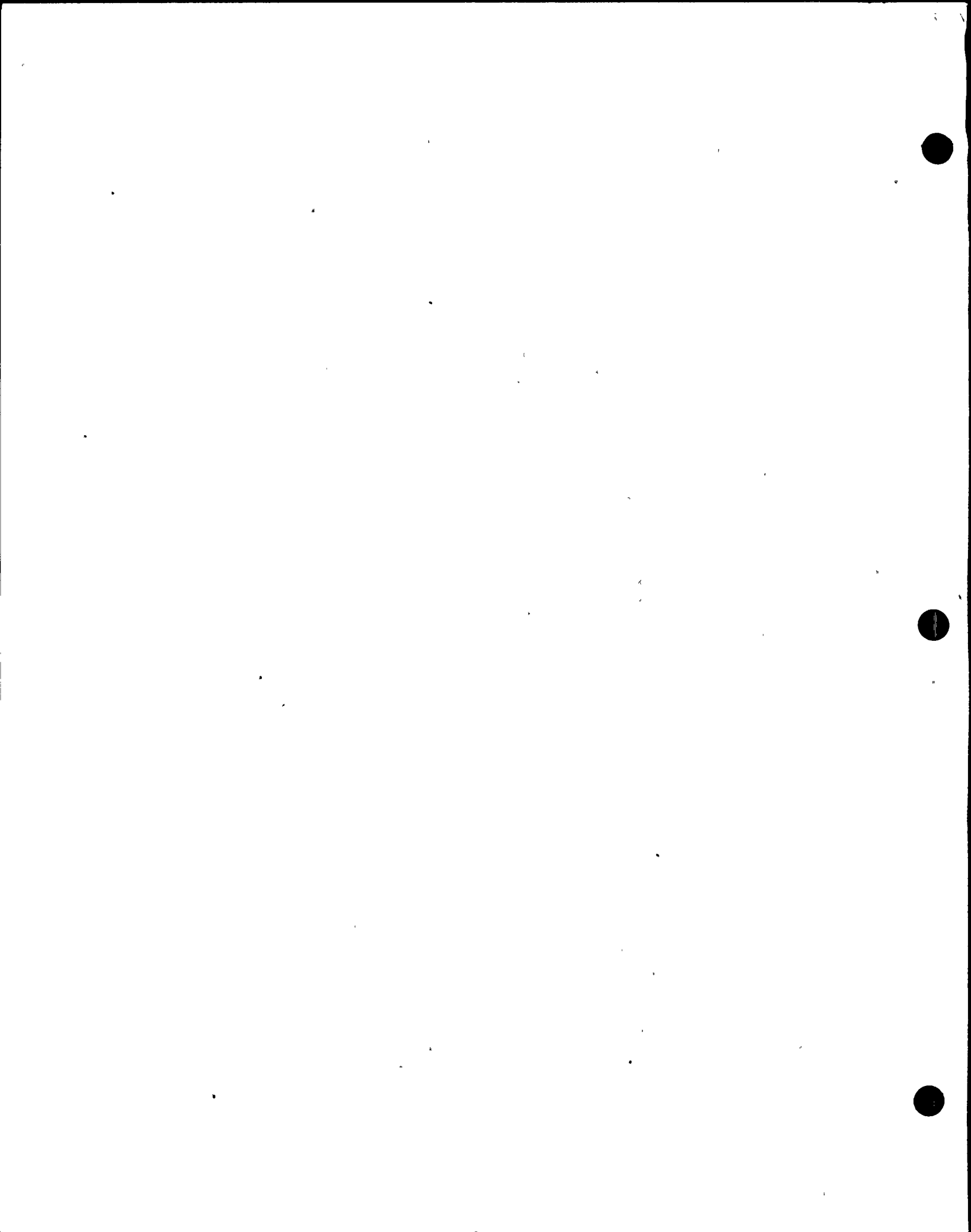
3. Average Energy (Fission and Activation gases - Mev):

Jan. - March: $\bar{E}_\gamma = 1.26$; $\bar{E}_\beta = 4.69E-01$
Apr. - June: $\bar{E}_\gamma = 1.44$; $\bar{E}_\beta = 5.96E-01$

4. Measurements and Approximations of Total Radioactivity:

Described below are the normal methods used to measure or approximate the total radioactivity and radionuclide composition in effluents.

- A) Fission and Activation Gases: Noble gas effluent activity is determined by on-line gamma spectroscopic monitoring (intrinsic germanium crystal) of an isokinetic sample stream.
- B) Iodines: Iodine effluent activity is determined by gamma spectroscopic analysis of charcoal cartridges sampled from an isokinetic sample stream.
- C) Particulates: Activity released is determined by gamma spectroscopic analysis of particulate filters sampled from an isokinetic sample stream.
- D) Tritium: Tritium effluent activity is measured by liquid scintillation or gas proportional counting of monthly samples taken with an air sparging/water trap apparatus.
- E) Liquid Effluents: Isotopic Analysis of a representative sample of each batch.



4. Measurements and Approximations of Total Radioactivity: (Continued)

F) Solid Effluents: Isotopic contents of waste shipments are determined by gamma spectroscopy analyses and water content estimates of a representative sample of each batch. Scaling factors established from primary composite sample analyses conducted off-site are applied, where appropriate, to find estimated concentration of non-gamma emitters. For low activity trash shipments, curie content is estimated by plant smears.

5. Batch Releases:

The following information relates to batch releases of radioactive materials in liquid and gaseous effluents.

A) Liquid:

1. Number of batch releases: 51
2. Total time period for batch releases: 168 hours 16.8 min.
3. Maximum time period for a batch release: 3 hours 28.3 min.
4. Average time period for a batch release: 3 hours 18 min.
5. Minimum time period for a batch release: 3 hours 17 min.
6. Average stream flow during period of release of effluent into a flowing stream: Not Applicable
7. Total volume of water used to dilute the liquid effluent during release periods: 1.12 E+09 liters
8. Total volume of water available to dilute the liquid effluent during reporting period: 2.80 E+10 liters

B) Gaseous (Primary Containment Purge):

1. Number of batch releases: 6
2. Total time period for batch releases¹: 74 hours 35 min.
3. Maximum time period for a batch release: 13 hours 5 min.
4. Average time period for a batch release: 12 hours 26 min.
5. Minimum time period for a batch release: 11 hours 59 min.

6. Abnormal Releases:

- A. Liquids - none
- B. Gaseous - none

¹ Actual purge times are less than shown. The times presented are the sampling times, and represent a conservative approximation to actual purge times, (approximately 12 hours per purge).

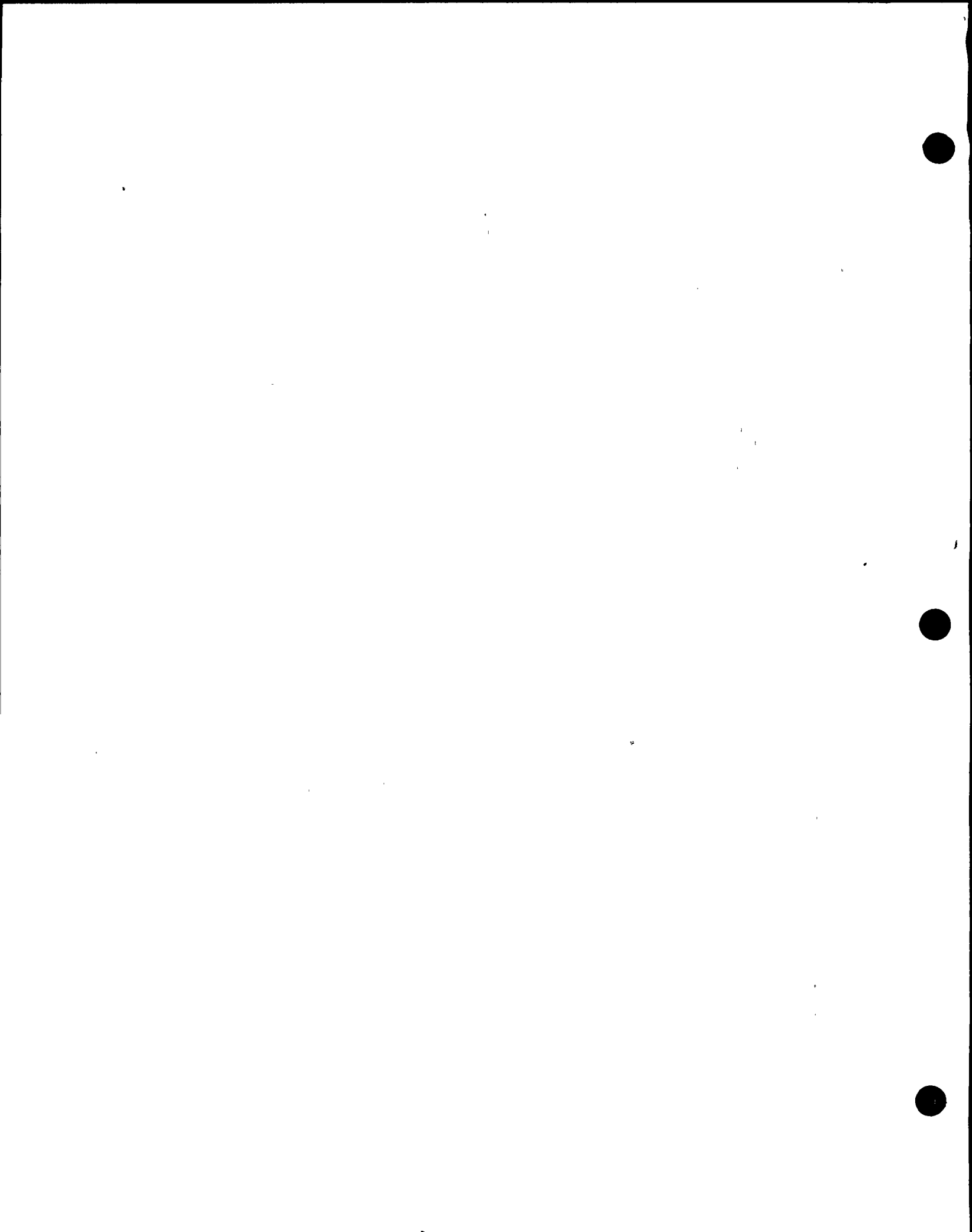


TABLE 1A

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
 ELEVATED AND GROUND LEVEL

JANUARY - JUNE 1991

	<u>UNIT</u>	<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>EST.TOTAL</u> <u>ERROR, %</u>
A. <u>Fission & Activation gases</u>				
1. Total release	Ci	1.57E+01	2.90E+01	5.0E+01
2. Average release rate for period	uCi/sec	2.00E+00	3.69E+00	
3. Percent of Technical ¹ Specification Limit	%			
B. <u>Iodines</u>				
1. Total iodine	Ci	2.70E-03	3.43E-03	5.0E+01
2. Average release rate for period	uCi/sec	3.47E-04	4.36E-04	
3. Percent of Technical ¹ Specification Limit	%			
C. <u>Particulates</u> ^{2,3}				
1. Particulates with half- lives > 8 days	Ci	1.29E-03	7.80E-03	5.0E+01
2. Average release rate for period	uCi/sec	1.66E-04	9.92E-04	
3. Percent of Technical ¹ Specification Limit	%			
4. Gross alpha radio- activity	Ci	7.47E-06	1.84E-05	5.0E+01
D. <u>Tritium</u> ³				
1. Total release	Ci	3.42E+00	3.14E+00	5.0E+01
2. Average release rate for period	uCi/sec	4.40E-01	3.99E-01	
3. Percent of Technical ¹ Specification Limit	%			

¹ Refer to Section E on next page.

² Includes Mo-99 if applicable.

³ Tritium, Iron-55, and Strontium results for the second quarter were not received from the offsite vendor as of August 15, 1991. Actual numbers will be provided in the next Semi-Annual Report.

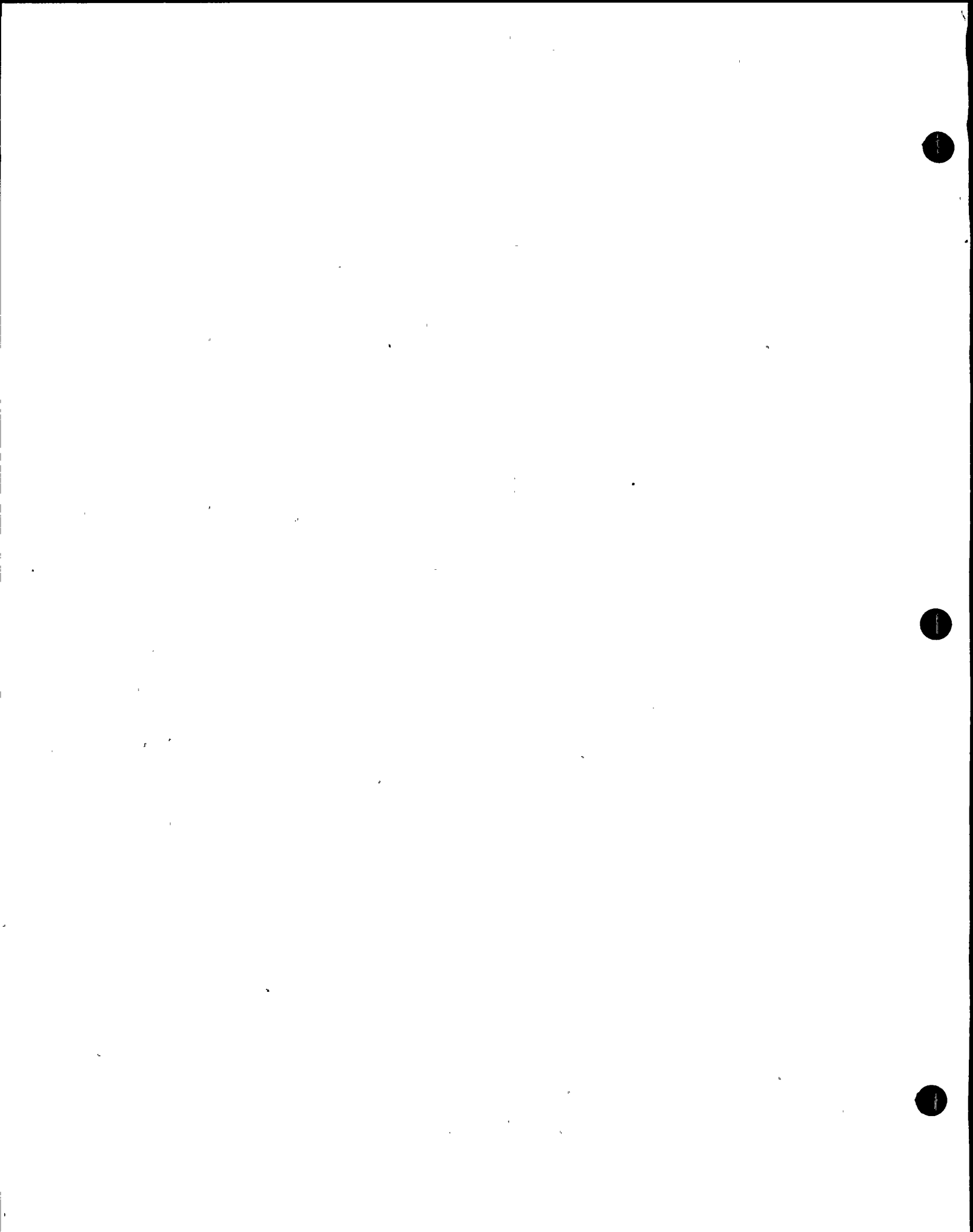


TABLE 1A (Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES
 ELEVATED AND GROUND LEVEL

JANUARY - JUNE 1991

	<u>UNIT</u>	<u>1st QUARTER</u>	<u>2nd QUARTER</u>
E. <u>Percent of Technical Specification Limits</u>			
<u>Fission and Activation Gases:</u>			
1. Percent of Quarterly Gamma Air Dose Limit (5 mrem)	%	1.50E-01	2.98E-01
2. Percent of Quarterly Beta Air Dose Limit (10 mrem)	%	8.52E-04	1.88E-03
3. Percent of Annual Gamma Air Dose Limit to Date (10 mrem)	%	7.51E-02	2.24E-01
4. Percent of Annual Beta Air Dose Limit to Date (20 mrem)	%	4.26E-04	1.37E-03
5. Percent of Whole Body Dose Rate Limit (500 mrem/yr)	%	5.87E-03	1.13E-02
6. Percent of Skin Dose Rate Limit (3000 mrem/yr)	%	1.13E-03	2.20E-03
<u>Tritium, Iodines and Particulates (with half-lives greater than 8 days):</u>			
1. Percent of Quarterly Dose Limit (7.5 mrem)	%	2.00E-02	1.85E-02
2. Percent of Annual Dose Limit to Date (15 mrem)	%	1.00E-02	1.92E-02
3. Percent of Organ Dose Rate Limit (1500 mrem/yr)	%	7.86E-04	7.50E-04

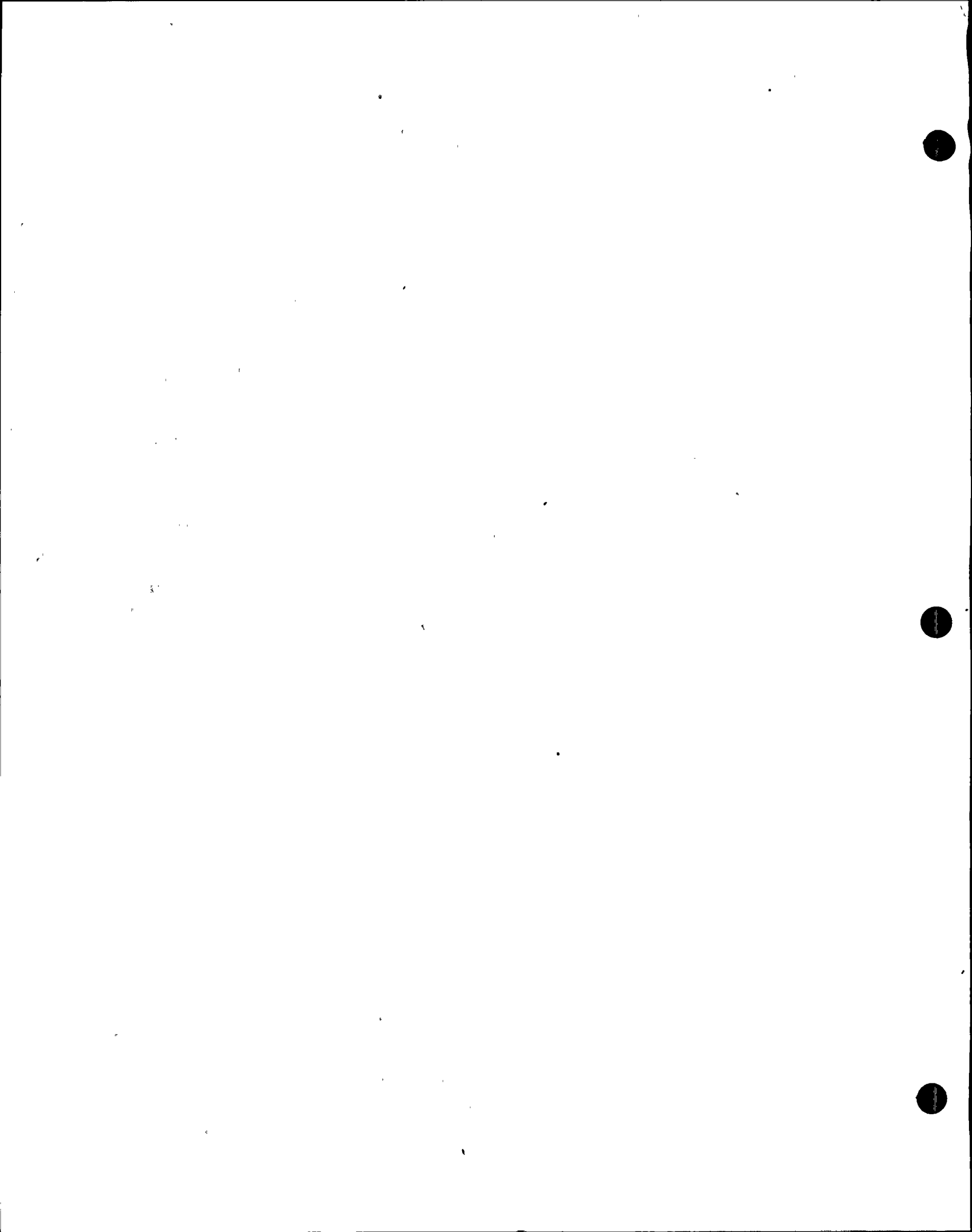


TABLE 1B

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NINE MILE POINT NUCLEAR STATION 2
GASEOUS EFFLUENTS-ELEVATED (STACK)

JANUARY - JUNE 1991

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
1. <u>Fission Gases</u> ¹					
Argon-41	Ci	3.19E+00	6.29E+00	**	**
Krypton-85m	Ci	**	8.55E-02	**	**
Krypton-87	Ci	5.32E-01	4.06E-01	**	**
Krypton-88	Ci	3.30E+00	1.44E+01	**	**
Xenon-133	Ci	4.70E-02	**	**	**
Xenon-135	Ci	2.52E-01	**	**	**
Xenon-135m	Ci	1.62E+00	4.75E-01	**	**
Xenon-137	Ci	**	3.75E+00	**	**
Xenon-138	Ci	6.78E+00	3.55E+00	**	**
2. <u>Iodines</u> ¹					
Iodine-131	Ci	2.23E-04	1.82E-04	**	**
Iodine-133	Ci	2.48E-03	3.08E-03	**	**
Iodine-135	Ci	**	**	**	**
3. <u>Particulates</u> ^{1,2}					
Strontium-89	Ci	5.31E-05	#	**	**
Strontium-90	Ci	**	#	**	**
Strontium-91	Ci	**	**	**	**
Cesium-134	Ci	**	**	**	**
Cesium-137	Ci	**	**	**	**
Cobalt-60	Ci	9.85E-06	1.01E-04	**	**
Cobalt-58	Ci	**	9.06E-05	**	**
Manganese-54	Ci	**	4.95E-06	**	**
Barium-Lanthanum-140	Ci	**	**	**	**
Antimony-125	Ci	**	**	**	**
Niobium-95	Ci	**	**	**	**
Cerium-141	Ci	**	**	**	**
Cerium-144	Ci	**	**	**	**
Iron-59	Ci	**	**	**	**
Cesium-136	Ci	**	**	**	**
Chromium-51	Ci	9.13E-05	3.69E-03	**	**
Zinc-65	Ci	1.44E-05	4.00E-04	**	**
Iron-55	Ci	**	#	**	**
Molybdenum-99	Ci	9.14E-05	3.93E-04	**	**
4. <u>Tritium</u>					
	Ci	1.12E+00	1.88E+00	1.72E-02	3.62E-02

¹ Concentrations less than the lower limit of detection of 1.00E-04 uCi/ml for noble gases, 1.00E-11 uCi/ml for particulates, 1.00E-12 uCi/ml for iodines and 1.00E-06 uCi/ml for tritium as required by Technical Specifications are indicated with a double asterisk.

² Iron-55 and Strontium results (indicated with a pound sign) for the second quarter were not received from the offsite vendor as of August 15, 1991. Actual numbers will be provided in the next Semi-Annual Report.

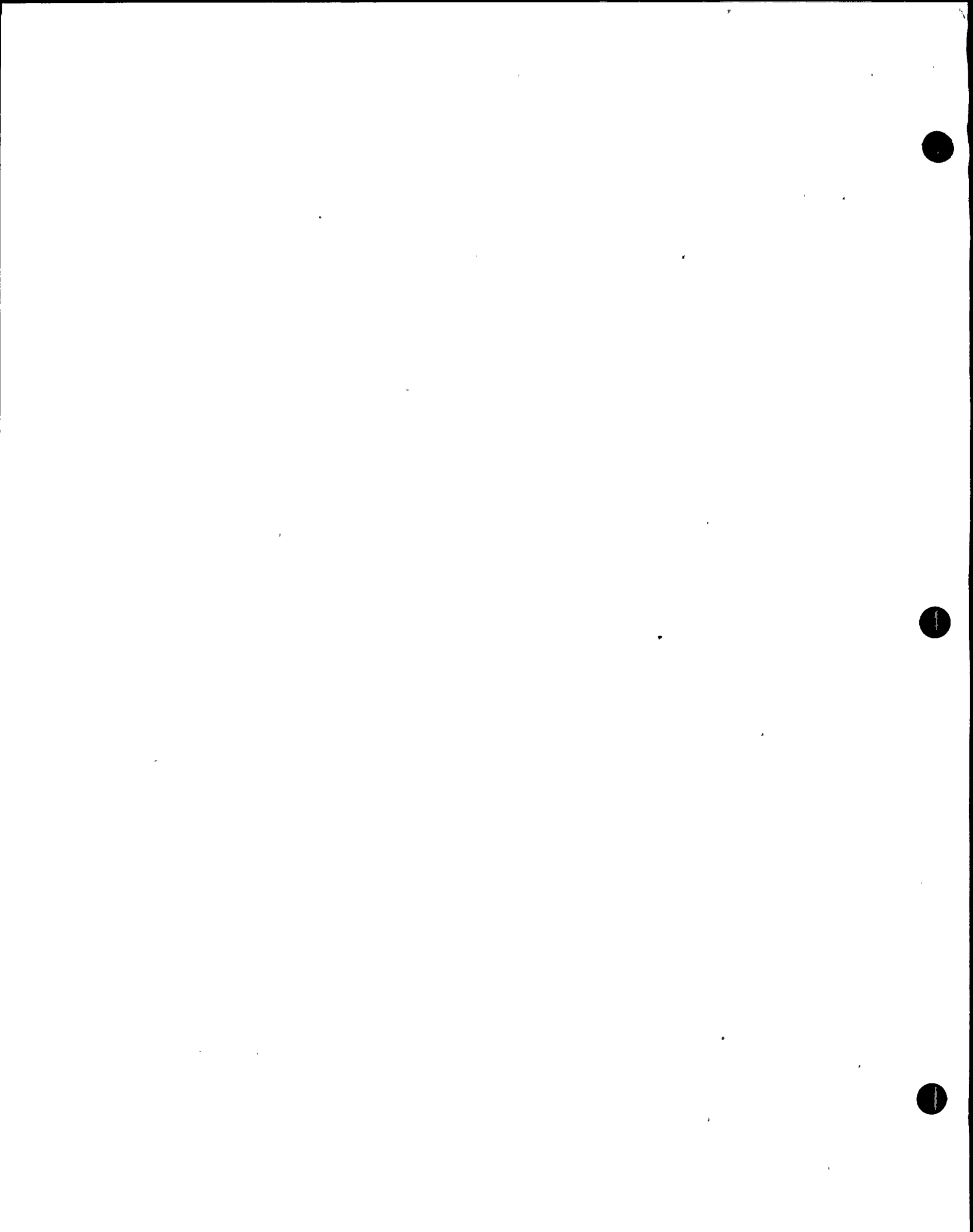


TABLE 1C

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 GASEOUS EFFLUENTS-COMBINED GROUND LEVEL-ELEVATED (REACTOR BUILDING/RADWASTE VENT)
 JANUARY - JUNE 1991

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
1. <u>Fission Gases</u> ¹					
Argon-41	Ci	**	**		
Krypton-85	Ci	**	**		
Krypton-85m	Ci	**	**		
Krypton-87	Ci	**	**		
Krypton-88	Ci	**	**		
Xenon-133	Ci	**	**		
Xenon-135	Ci	**	**		
Xenon-135m	Ci	**	**		
Xenon-137	Ci	**	**		
Xenon-138	Ci	**	**		
2. <u>Iodines</u> ¹					
Iodine-131	Ci	**	1.02E-05		
Iodine-133	Ci	1.53E-06	1.53E-04		
Iodine-135	Ci	**	**		
3. <u>Particulates</u> ¹					
No batch releases					
Strontium-89	Ci	**	**		
Strontium-90	Ci	**	**		
Cesium-134	Ci	**	**		
Cesium-137	Ci	**	**		
Cobalt-60	Ci	1.05E-04	7.11E-05		
Cobalt-58	Ci	9.90E-07	1.68E-05		
Manganese-54	Ci	4.64E-05	4.42E-06		
Barium-Lanthanum-140	Ci	**	**		
Antimony-125	Ci	**	**		
Niobium-95	Ci	**	**		
Cerium-141	Ci	**	**		
Cerium-144	Ci	**	**		
Iron-59	Ci	**	**		
Cesium-136	Ci	**	**		
Chromium-51	Ci	1.48E-04	1.85E-03		
Zinc-65	Ci	5.04E-04	5.90E-04		
Iron-55	Ci	**	**		
Molybdenum-99	Ci	2.28E-04	5.88E-04		
4. <u>Tritium</u>					
	Ci	2.28E+00	1.23E+00		

¹ Concentrations less than the lower limit of detection of 1.00E-04 uCi/ml for noble gases, 1.00E-11 uCi/ml for particulates, 1.00E-12 uCi/ml for iodines, and 1.00E-06 uCi/ml for tritium as required by Technical Specifications are indicated with a double asterisk.

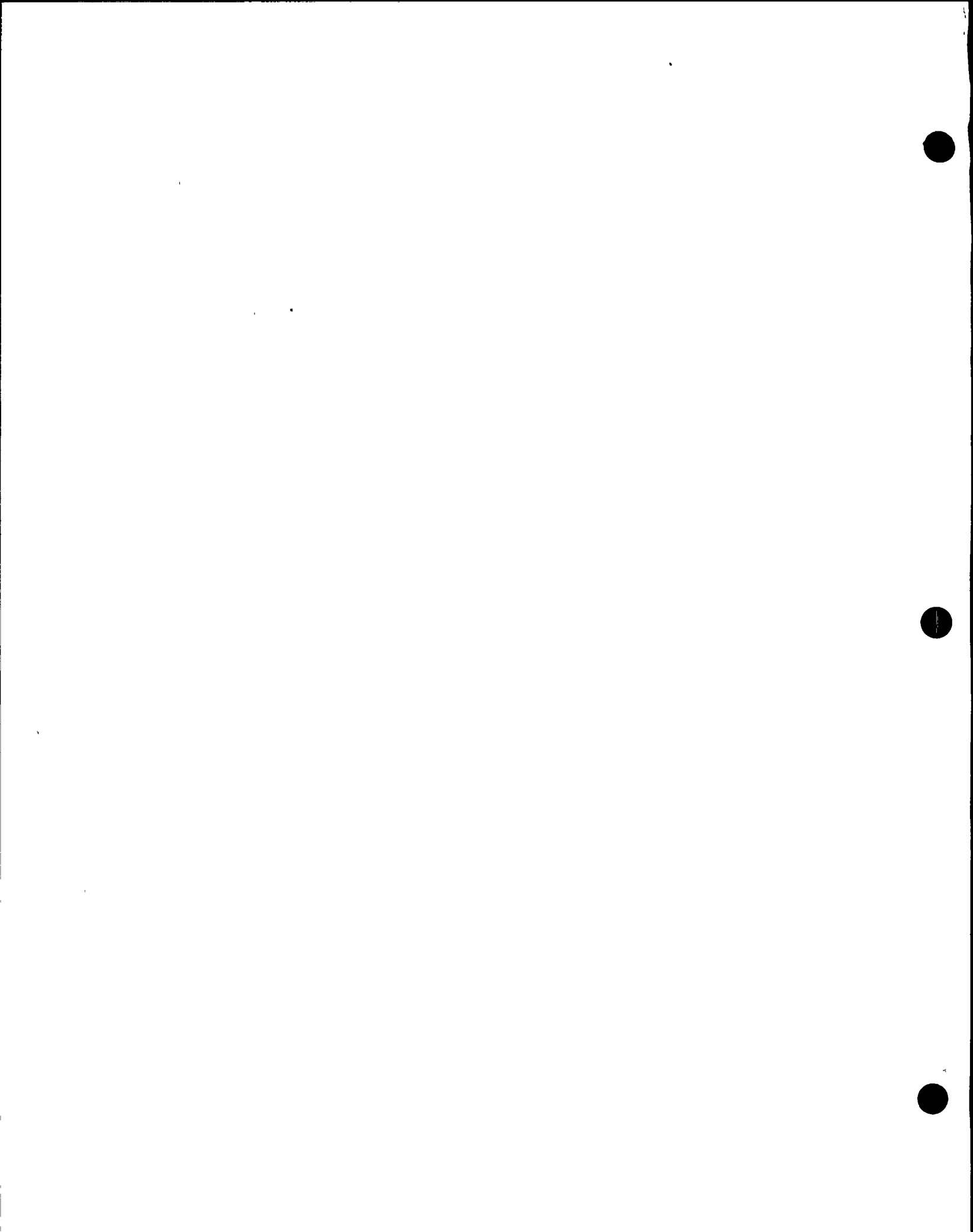


TABLE 2A
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NINE MILE POINT NUCLEAR STATION 2
LIQUID EFFLUENTS--SUMMATION OF ALL RELEASES
JANUARY - JUNE 1991

	<u>Unit</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>Est. Total Error, %</u>
A. <u>Fission and activation products</u>^{2,3}				
1. Total release (not including tritium, gases, alpha)	Ci	5.03E-02	2.79E-02	2.50E+1
2. Average diluted concentration during reporting period	uCi/ml	3.37E-09	1.92E-09	
3. Percent of applicable ¹ limit	%			
B. <u>Tritium</u>^{2,3}				
1. Total release	Ci	1.44E+00	1.84E+00	2.50E+1
2. Average diluted concentration during reporting period	uCi/ml	9.93E-08	1.36E-07	
3. Percent of applicable limit	%	3.31E-03	4.54E-03	
C. <u>Dissolved and entrained gases</u>¹				
1. Total release	Ci	**	1.44E-04	5.00E+1
2. Average diluted concentration during reporting period	uCi/ml	**	9.91E-12	
3. Percent of applicable limit	%	**	4.96E-04	
D. <u>Gross alpha radioactivity</u>²				
1. Total release	Ci	**	**	-----
E. <u>Volumes</u>				
1. Prior to dilution	liters	2.52E+06	2.07E+06	2.50E+1
2. Volume of dilution water used during release period	liters	6.24E+08	4.99E+08	2.50E+1
3. Volume of dilution water available during reporting period	liters	1.45E+10	1.35E+10	2.50E+1

¹ Refer to F on next page

² Concentrations less than the lower limit of detection of 5.00E-07 uCi/ml for gamma emitting nuclides, 1.00E-05 uCi/ml for dissolved and entrained noble gases and tritium, 5.00E-08 uCi/ml for Sr89/90, 1.00E-06 uCi/ml for Fe55 and 1.00E-07 uCi/ml for gross alpha radioactivity as required by Technical Specifications are indicated with a double asterisk.

³ For batch and continuous mode, the Iron-55 and Strontium results for the second quarter, and Tritium results for May and June were not received from the offsite vendor as of August 15, 1991. Actual numbers will be provided in the next Semi-Annual Report. The numbers provided represent conservative estimates.

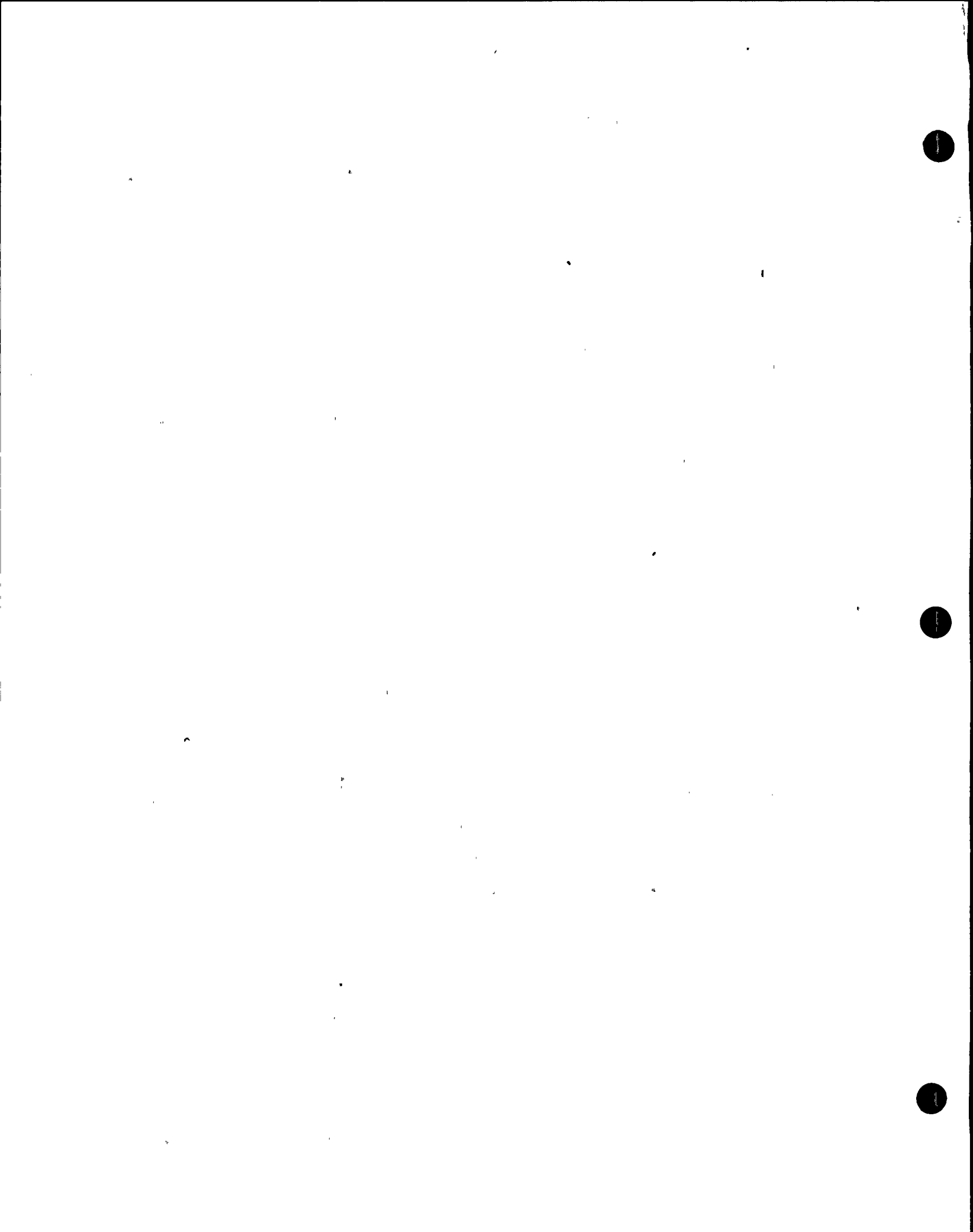


TABLE 2A (Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

JANUARY - JUNE 1991

	<u>Unit</u>	<u>1st Quarter</u>	<u>2nd Quarter</u>
F. <u>Percent of Technical Specification Limits</u>			
1. Percent of Quarterly Whole Body Dose Limit (1.5 mrem)	%	2.11E+00	2.90E-01
2. Percent of Quarterly Organ Dose Limit (5 mrem)	%	1.40E+00	1.87E-01
3. Percent of Annual Whole Body Dose Limit to Date (3 mrem)	%	1.05E+00	1.20E+00
4. Percent of Annual Organ Dose Limit to Date (10 mrem)	%	7.00E-01	7.95E-01
5. Percent of 10CFR20 Concentration Limit	%	8.07E-03	7.42E-03
6. Percent of Dissolved or Entrained Noble Gas Limit (1.00E-5 uCi/ml)	%	**	4.96E-06

¹ Concentrations less than the lower limit of detection of 2E-4 uCi/ml as required by Technical Specifications are indicated with a double asterisk.



TABLE 2B

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 LIQUID EFFLUENTS RELEASED

JANUARY - JUNE 1991

Nuclides Released ¹	Unit	CONTINUOUS MODE ^{2,3}		BATCH MODE ³	
		1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
Strontium-89	Ci	**	#	**	4.53E-04
Strontium-90	Ci	**	#	**	3.62E-05
Cesium-134	Ci	**	**	**	**
Cesium-137	Ci	**	**	**	**
Iodine-131	Ci	**	**	**	**
Cobalt-58	Ci	**	**	1.47E-04	**
Cobalt-60	Ci	**	**	8.38E-03	1.45E-03
Iron-59	Ci	**	**	5.83E-05	**
Zinc-65	CI	**	**	3.73E-02	4.95E-03
Manganese-54	Ci	**	**	3.50E-03	5.92E-04
Chromium-51	Ci	**	**	8.44E-04	1.60E-02
Zirconium-niobium-95	Ci	**	**	**	**
Molybdenum-99	Ci	**	**	**	**
Technetium-99m	Ci	**	**	**	**
Barium-lanthanum-140	Ci	**	**	**	**
Cerium-141	Ci	**	**	**	**
Hydrogen-3	Ci	**	**	1.44E+00	1.84E+00
Sodium-24	Ci	**	**	**	**
Iron-55	Ci	**	#	**	4.42E-03
Manganese-56	Ci	**	**	**	**
Nickel-65	Ci	**	**	**	**
Arsenic-76	Ci	**	**	**	**
Iodine-133	Ci	**	**	**	**
Tungsten-187	Ci	**	**	**	**
Xenon-133	Ci	**	**	**	1.31E-04
Xenon-135	Ci	**	**	**	1.24E-05

¹ Concentrations less than the lower limit of detection of 5.00E-07 uCi/ml for gamma emitting nuclides, 1.00E-05 uCi/ml for dissolved and entrained noble gases and tritium, 5.00E-08 uCi/ml for Sr89/90 and 1.00E-06 uCi/ml for Fe55 as required by Technical Specifications are indicated with a double asterisk.

² No activities greater than their LLD for Sr-89/90 and Fe-55 are anticipated for the continuous mode as indicated with a # sign.

³ For batch and continuous mode Iron-55 and Strontium results for the second quarter, and Tritium results for May and June were not received from the offsite vendor as of August 15, 1991. Actual numbers will be provided in the next Semi-Annual Report. The numbers provided represent conservative estimates.



TABLE 3A

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NINE MILE POINT NUCLEAR STATION 2
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

JANUARY - JUNE 1991

A. Solid Waste Shipped Off-Site for Burial or Disposal (Not irradiated fuel)

1.	<u>Type of Waste</u>	<u>UNIT</u>	<u>6-MONTH PERIOD</u>	<u>EST. TOTAL ERROR, %</u>
a.	Spent resins, filter sludge bottoms, etc. ¹	m ³	9.05E+01	
		Ci	1.00E+03	2.50E+01
b.	Dry compressible waste, contaminated equip., etc.	m ³	6.12E+01	
		Ci	1.36E+00	5.00E+01
c.	Irradiated components, control rods, etc.	m ³	None	-----
		Ci	None	-----
d.	Other	m ³	None	
		Ci	None	

¹ All were solidified in cement as Class A waste in strong, tight containers. All were shipped as radioactive LSA.



TABLE 3A (Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

JANUARY - JUNE 1991

2. Estimate of Major Nuclide Composition (by Type of Waste)

a. Spent Resins, filter sludges, evaporator bottoms, etc.

	<u>Percent</u>
Zinc-65	6.59E+01
Cobalt-60	1.08E+01
Iron-55	9.63E+00
Chromium-51	8.38E+00
Manganese-54	3.43E+00
Others	1.82E+00

b. Dry Compressible Waste, Contaminated Equipments, etc.

	<u>Percent</u>
Chromium-51	4.61E+01
Zinc-65	2.63E+01
Iron-55	1.14E+01
Cobalt-60	8.10E+00
Manganese-54	2.64E+00
Hydrogen-3 (Tritium)	1.97E+00
Nickel-63	1.60E+00
Iron-59	1.10E+00
Others	7.90E-01

c. Irradiated components, control rods, etc.

NONE



TABLE 3A (Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
 JANUARY - JUNE 1991

3. Solid Waste Disposition

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
19	Truck	Burial in Barnwell SC

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

<u>Number of Shipment</u>	<u>Mode of Transportation</u>	<u>Destination</u>
None	-	-

C. SOLID WASTE SHIPPED OFFSITE TO VENDORS FOR PROCESSING AND SUBSEQUENT BURIAL

Below is a summary of Dry Activated Waste that was shipped offsite for processing and burial by vendor facilities (i.e., ALARON, QUADREX and/or SCIENTIFIC ECOLOGY GROUP) during January - June 1991. These totals were reported separately from "10CFR61 Solid Waste Shipped for Burial" (i.e., Section A of Table 3A) since (a) waste classification and burial was performed by the vendors and (b) NMP-2 Technical Specification 6.9.1 requires reporting of "information for each class of solid waste (as defined by 10CFR61) shipped offsite during the reporting period." The information provided in this section, therefore, is in addition to that required by the NMP-2 Technical Specifications. The following data represents the actual shipments made from Quadrex of our non-compacted commingled trash. This trash was shipped to Oakridge, TN for processing prior to burial.

1. <u>Type of Waste</u> - noncompacted commingled trash shipped to Oakridge, TN for processing prior to burial at Barnwell, SC	<u>Unit</u>	<u>Burial Volume</u>	<u>Est. Total Error, %</u>
	m ³	4.74E+00	
	Ci	6.84E-02	5.00E+01

2. Estimate of Major Nuclide Composition

	<u>Percent</u>
Cobalt-58	3.25E+01
Cobalt-60	2.96E+01
Zinc-65	2.28E+01
Manganese-54	8.28E+00
Cesium-137	4.62E+00
Iron-55	2.20E+00

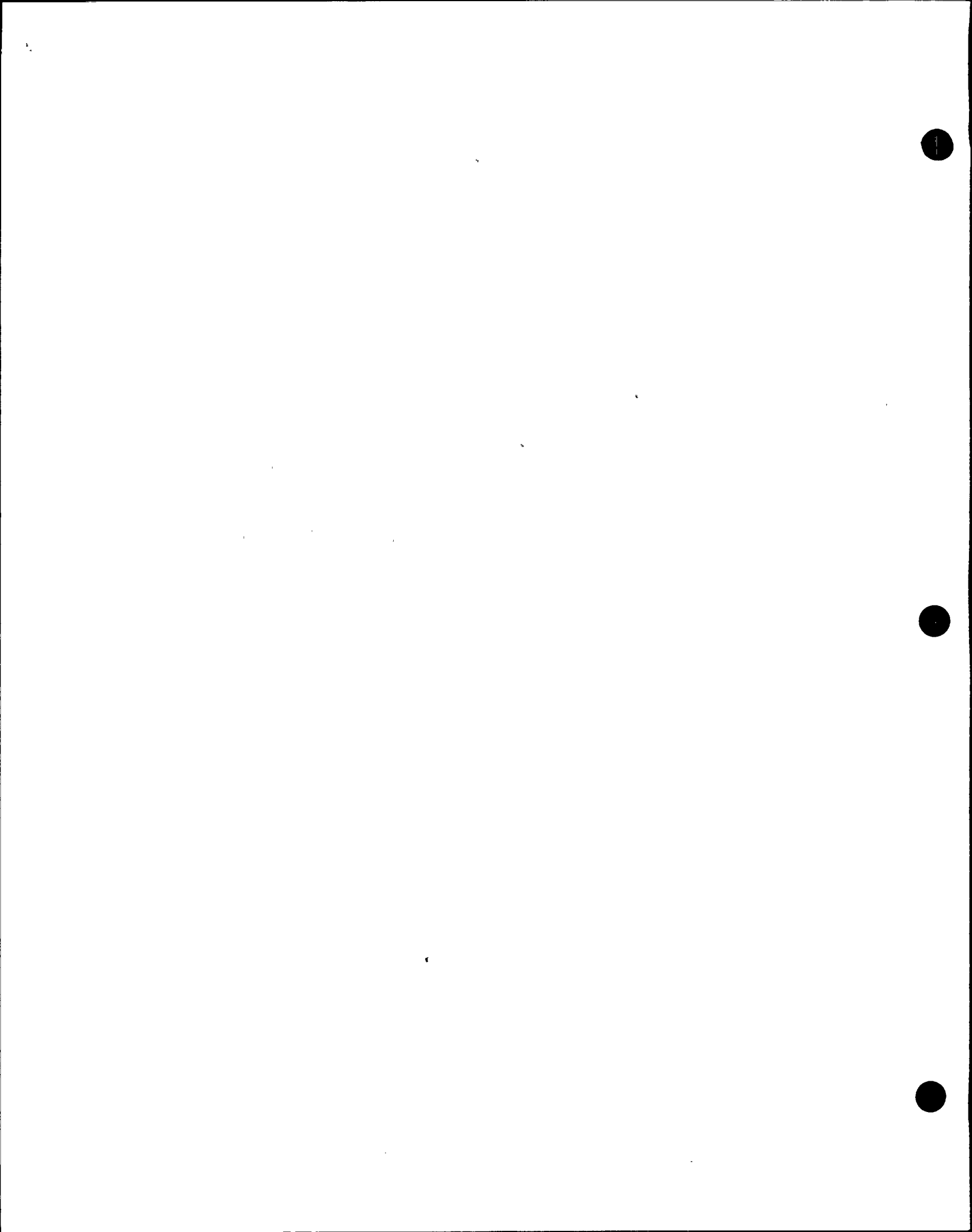


TABLE 3A (Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

JANUARY - JUNE 1991

3. Solid Waste Disposition¹

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
6	Truck	-Processing in Oakridge, TN -Burial in Barnwell, SC.

¹ The number of shipments reported here represents the total number that Quadrex ships from Tennessee to South Carolina. This does not represent the number of shipments Niagara Mohawk sent to Quadrex, which was 2 in total.



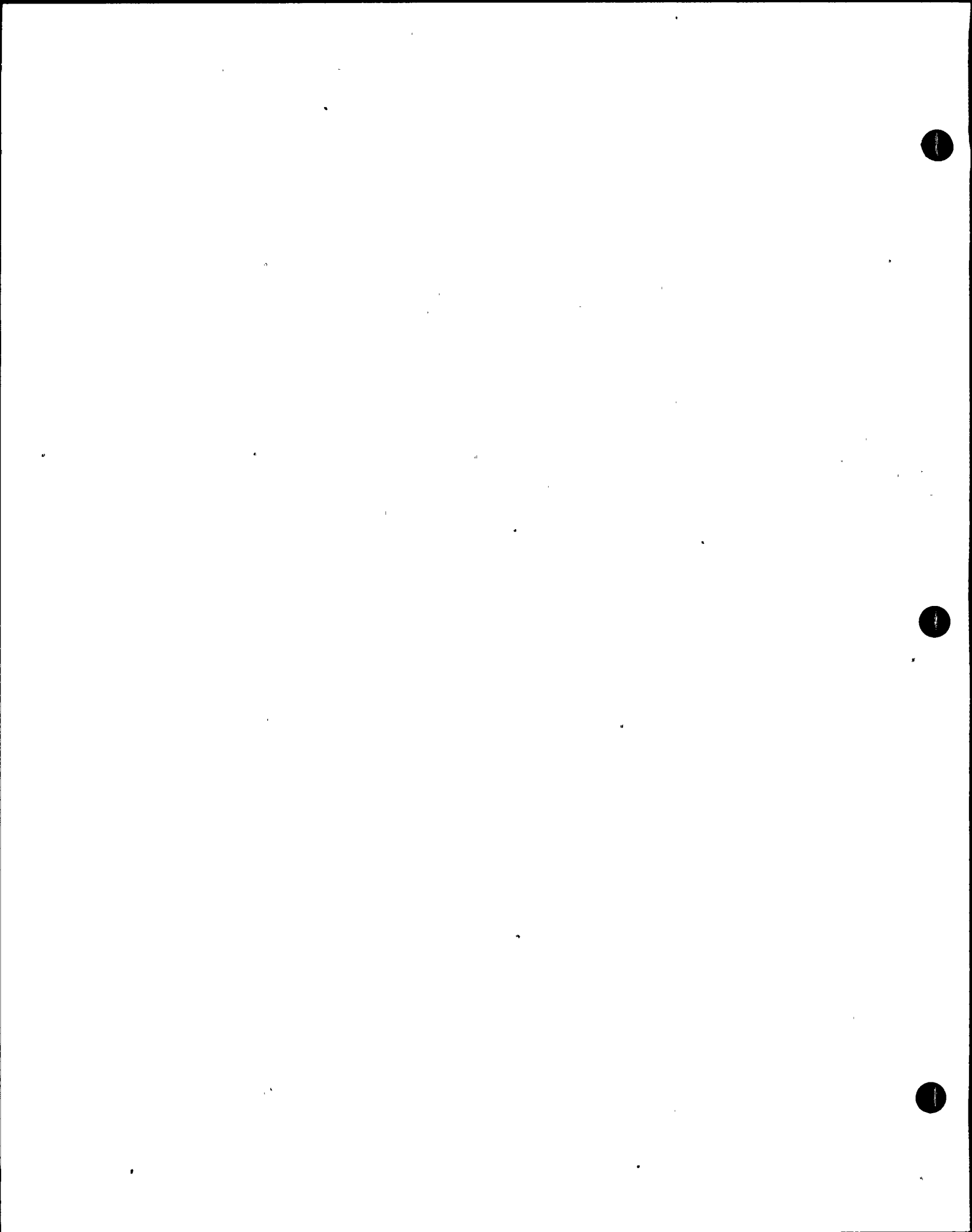
ATTACHMENT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
 NINE MILE POINT NUCLEAR STATION 2
 EXPLANATION OF INSTRUMENTATION INOPERABILITY

JANUARY - JUNE 1991

In accordance with NMP Unit 2 Technical Specifications, Radioactive Effluent Instrumentation which is inoperable for 30 consecutive days within the reporting period must be reported in the Semi-Annual Radioactive Effluent Release Report. Below is a listing of monitors which fall into this category during the January - June 1991 reporting period along with a description of causes for the inoperability and, as appropriate, corrective actions taken to resolve the problems.

<u>Instrument</u>	<u>Date of Instrument Inoperability</u>	<u>Date Returned to Service</u>	<u>Cause of Inoperability/ Corrective Actions</u>
Service Water A Radiation Monitor	March 5, 1991 - April 23, 1991	April 23, 1991	Sample pump tripped due to flow switch problems from silt build-up. In addition, corrosion build-up created low flow condition. The flow switch problem is being investigated by design engineering.
Service Water B Radiation Monitor	Oct. 1, 1990 - Feb. 4, 1991	Feb. 4, 1991	Inoperable period was due to an unreliable sample pump. Pumps were recently upgraded by plant modification.



ATTACHMENT 2

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NINE MILE POINT NUCLEAR STATION 2
RECENT CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL

JANUARY - JUNE 1991

During the January-June 1991 reporting period, there were no changes to the Offsite Dose Calculation Manual (ODCM), (Rev. 5).



ATTACHMENT 3

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NINE MILE POINT NUCLEAR STATION 2
CHANGES TO THE PROCESS CONTROL PROGRAM

JANUARY - JUNE 1991

During the reporting period of January thru June 1991 there were changes to the PCP or Process Control Program to reflect personnel re-organization of titles and responsibilities. The old revision along with the new revision are included with the report.

