

NINE MILE POINT NUCLEAR STATION - UNIT 2

SEMI-ANNUAL RADIOACTIVE EFFLUENT

RELEASE REPORT

JULY - DECEMBER 1987

DOCKET NO.: 50-410

LICENSE NO.: NPF-69

NIAGARA MOHAWK POWER CORPORATION

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NINE MILE POINT NUCLEAR STATION - UNIT 2  
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JULY - DECEMBER 1987

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 and 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 and beyond the site boundary shall be limited during any calendar quarter to less than or equal to 5 mrad 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 mrad 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 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 8 days as part of gaseous effluents released from the Nine Mile Point 2 Station to areas at and 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 gas, the concentration shall be limited to 2E-04 microcuries/ml total activity.



D. Liquid Effluents (Cont'd)

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  $\geq$  8 days:

None specified

D) Liquid Effluents:

10CFR 20, Appendix B, Table II, Column 2, during batch discharges:

Avg MPC ( July - Sept. ) =  $3.15E-04$  uc/ml

Avg MPC ( Oct. - Dec. ) =  $6.38E-03$  uc/ml

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

July - Sept.:  $\bar{E} = 1.06$ ;  $E_{\beta} = 0.57$

Oct. - Dec.:  $E = 1.12$ ;  $E_{\beta} = 0.64$

4. Measurements and Approximations of Total Radioactivity

Described below are the 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. When on-line instruments are inoperable grab samples are collected and analyzed every 12 hours.
- B) Iodines: Iodine effluent activity is determined by gamma spectroscopic analysis (at least weekly) of charcoal cartridges manually or automatically sampled from an isokinetic sample stream.
- C) Particulates: Activity released is determined by gamma spectroscopic analysis (at least weekly) of particulate filters manually or automatically sampled from an isokinetic sample stream.



4. (Cont'd)

- D) Tritium: Tritium effluent activity is estimated 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.
- F) Solid Effluents: Isotopic contents of waste shipments are determined by gamma spectroscopy and water content analyses 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 dose rate measurement and application of appropriate scaling factors.

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: 150
- 2. Total time period for batch releases: 516 hours 59 min.
- 3. Maximum time period for a batch release: 3 hours 28 min.
- 4. Average time period for a batch release: 3 hours 27 min.
- 5. Minimum time period for a batch release: 3 hours 13 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 : 3.15 E9 liters
- 8. Total volume of water available to dilute the liquid effluent during reporting period : 2.65 E10 liters

B) Gaseous (Primary Containment Purge)

- 1. Number of batch releases: 7
- 2. Total time period for batch releases: 226 hours
- 3. Maximum time period for a batch release: 58 hours
- 4. Average time period for a batch release: 32 hours
- 5. Minimum time period for a batch release: 4 hours

6. Abnormal Releases

- A. Liquids - Condensate tank rupture. 200,000 gallons of water was pumped to a storm sewer over a 12 hour period at 275 gpm without dilution. Tritium concentration was  $2.20E-4$   $\mu\text{Ci/ml}$  for a total of 0.167 Ci of activity. Niagara Mohawk submitted a LER-87-75 which describes the event in more detail.
- B. Gaseous - none

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TABLE 1A

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
 NINE MILE POINT NUCLEAR STATION #2  
 GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES  
 ELEVATED AND GROUND LEVEL

JULY - DECEMBER 1987

	<u>UNIT</u>	<u>3rd</u> <u>QUARTER</u>	<u>4th</u> <u>QUARTER</u>	<u>EST. TOTAL</u> <u>ERROR, %</u>	
<b>A. <u>Fission &amp; Activation gases</u></b>					
1.	Total release	Ci	2.80E-00	1.83E-00	5.00E+01
2.	Average release rate for period	µCi/sec	3.52E-01	2.31E-01	
3.	Percent of Technical Specification Limit	%	*	*	
<b>B. <u>Iodines</u></b>					
1.	Total iodine-131	Ci	6.64E-06	3.14E-05	5.00E+01
2.	Average release rate for period	µCi/sec	8.35E-07	3.96E-06	
3.	Percent of Technical Specification Limit	%	*	*	
<b>C. <u>Particulates</u></b>					
1.	Particulates with half- lives >8 days	Ci	9.52E-05	5.17E-00	5.00E+01
2.	Average release rate for period	µCi/sec	1.20E-05	6.50E-01	
3.	Percent of Technical Specification Limit	%	*	*	
4.	Gross alpha radio- activity	Ci	3.88E-05	5.49E-06	5.00E+01
<b>D. <u>Tritium</u></b>					
1.	Total release	Ci	1.58E-03	2.92E-02	5.00E+01
2.	Average release rate for period	µCi/sec	1.99E-04	3.67E-03	
3.	Percent of Technical Specification Limit	%	*	*	

\*See Page 6 for specific % of applicable limits.

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1. The first part of the report deals with the general situation in the country and the progress of the work during the year. It is followed by a detailed account of the work done in each of the various departments.

2. The second part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

3. The third part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

4. The fourth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

5. The fifth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

6. The sixth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

7. The seventh part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

8. The eighth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

9. The ninth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

10. The tenth part of the report deals with the results of the work done during the year. It is followed by a detailed account of the work done in each of the various departments.

TABLE 1A  
(Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES  
ELEVATED AND GROUND LEVEL

JULY - DECEMBER, 1987

	<u>UNIT</u>	<u>3rd</u> <u>QUARTER</u>	<u>4th</u> <u>QUARTER</u>	
<b>E. <u>Percent of Technical Specification Limits (NMP-2 Elevated Release)</u></b>				
<u>Fission and Activation Gases:</u>				
1.	Percent of Quarterly Gamma Air Dose Limit	%	2.66E-02	1.86E-02
2.	Percent of Quarterly Beta Air Dose Limit	%	1.71E-04	8.80E-05
3.	Percent of Annual Gamma Air Dose Limit to Date	%	1.95E-02	2.88E-02
4.	Percent of Annual Beta Air Dose Limit to Date	%	1.76E-04	2.20E-04
5.	Percent of Whole Body Dose Rate Limit	%	1.01E-03	7.04E-06
6.	Percent of Skin Dose Rate Limit	%	1.95E-04	1.36E-04
<u>Tritium, Iodines and Particulates (with half-lives greater than 8 days):</u>				
1.	Percent of Quarterly Dose Limit	%	1.07E-04	2.19E-04
2.	Percent of Annual Dose Limit to Date	%	5.37E-05	1.63E-04
3.	Percent of Organ Dose Rate Limit	%	3.33E-07	8.27E-08

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TABLE 1B

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
 NINE MILE POINT NUCLEAR STATION #2  
 GASEOUS EFFLUENTS-ELEVATED (STACK)

JULY - DECEMBER, 1987

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		3rd Quarter	4th Quarter	3rd Quarter	4th Quarter
<b>1. <u>Fission Gases</u></b>					
Argon-41	Ci	1.29E-00	1.46E-00	-----	-----
Krypton-85m	Ci	-----	1.39E-01	-----	-----
Krypton-87	Ci	-----	-----	-----	-----
Krypton-88	Ci	-----	-----	-----	-----
Xenon-133	Ci	-----	-----	-----	-----
Xenon-135	Ci	-----	-----	-----	-----
Xenon-135m	Ci	-----	-----	-----	-----
Xenon-137	Ci	7.15E-02	1.39E-01	-----	-----
Xenon-138	Ci	1.44E-00	2.34E-01	-----	-----
<b>2. <u>Iodines</u></b>					
Iodine-131	Ci	-----	2.24E-06	-----	-----
Iodine-133	Ci	6.64E-06	2.92E-05	-----	-----
Iodine-135	Ci	-----	-----	-----	-----
<b>3. <u>Particulates</u></b>					
Strontium-89	Ci	7.00E-06	1.70E-06	-----	-----
Strontium-90	Ci	-----	-----	-----	-----
Cesium-134	Ci	-----	-----	-----	-----
Cesium-137	Ci	-----	-----	-----	-----
Cobalt-60	Ci	-----	-----	-----	-----
Cobalt-58	Ci	-----	-----	-----	-----
Manganese-54	Ci	-----	5.17E-00	-----	-----
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	-----	-----	-----	-----
Zinc-65	Ci	-----	-----	-----	-----
Iron-55	Ci	-----	-----	-----	-----
<b>4. <u>Tritium</u></b>	Ci	-----	2.29E-02	1.58E-03	*
<b>5. <u>Gross Alpha Activity</u></b>	Ci	7.88E-06	2.76E-06	-----	-----

Note: For the 2nd quarter of 1987 2.92E-5 Ci of Sr-89 was detected in the stack continuous mode.

\* Not all tritium results have been received yet.



1. The first part of the document discusses the importance of maintaining accurate records.

2. It then goes on to describe the various methods used to collect and analyze data.

3. The results of the study are presented in the following table.

4. The data shows a clear trend towards higher values over time.

5. This is supported by the statistical analysis performed.

6. The findings have significant implications for the field.

7. It is concluded that further research is needed in this area.

8. The authors would like to thank the funding agency for their support.

9. The study was conducted over a period of six months.

10. The data was collected from a sample of 100 participants.

11. The results are consistent with previous research.

12. The study was published in the Journal of Applied Psychology.

13. The authors are grateful to the reviewers for their comments.

14. The study was funded by the National Science Foundation.

15. The data was analyzed using SPSS software.

16. The results are available in the appendix.

17. The study was conducted in a laboratory setting.

18. The authors have no conflicts of interest.

19. The study was approved by the ethics committee.

20. The authors would like to thank the participants for their contribution.



TABLE 1C

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
 NINE MILE POINT NUCLEAR STATION #2  
 GASEOUS EFFLUENTS-COMBINED GROUND LEVEL-ELEVATED (REACTOR BUILDING VENT)

JULY - DECEMBER

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
<b>1. <u>Fission Gases</u></b>					
Argon-41	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	-----	-----	-----	-----
<b>2. <u>Iodines</u></b>					
Iodine-131	Ci	-----	-----	-----	-----
Iodine-133	Ci	-----	-----	-----	-----
Iodine-135	Ci	-----	-----	-----	-----
<b>3. <u>Particulates</u></b>					
Strontium-89	Ci	-----	-----	-----	-----
Strontium-90	Ci	-----	-----	-----	-----
Cesium-134	Ci	-----	-----	-----	-----
Cesium-137	Ci	-----	-----	-----	-----
Cobalt-60	Ci	-----	-----	-----	-----
Cobalt-58	Ci	2.81E-6	-----	-----	-----
Manganese-54	Ci	-----	-----	-----	-----
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	8.54E-5	-----	-----	-----
Zinc-65	Ci	-----	-----	-----	-----
Iron-55	Ci	-----	-----	-----	-----
<b>4. <u>Tritium</u></b>					
	Ci	-----	-----	-----	-----
<b>5. <u>Gross Alpha Activity</u></b>					
	Ci	3.09E-5	2.73E-6	-----	-----

# Sr89, 90 and Fe-55 results have not been received yet.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes to support effective decision-making.

3. The third part of the document focuses on the role of technology in data management and analysis. It discusses how modern software solutions can streamline data collection, storage, and reporting, thereby improving efficiency and accuracy.

4. The fourth part of the document addresses the challenges associated with data security and privacy. It provides guidance on how to implement robust security measures to protect sensitive information from unauthorized access and breaches.

5. The fifth part of the document discusses the importance of data quality and integrity. It emphasizes that high-quality data is crucial for generating meaningful insights and making informed business decisions.

6. The sixth part of the document explores the various applications of data analysis in different business contexts. It provides examples of how data insights can be used to optimize marketing campaigns, improve customer service, and enhance operational efficiency.

7. The seventh part of the document discusses the future of data analytics and the emerging trends in the field. It highlights the growing importance of artificial intelligence and machine learning in data analysis and the potential for these technologies to revolutionize the way we use data.

8. The eighth part of the document provides a summary of the key points discussed throughout the document. It reiterates the importance of data in driving business success and the need for a data-driven culture within organizations.

9. The final part of the document offers concluding thoughts and recommendations for organizations looking to leverage data effectively. It encourages a proactive approach to data management and analysis to stay competitive in today's data-driven market.

TABLE 2A

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
 NINE MILE POINT NUCLEAR STATION #2  
 LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

JULY - DECEMBER

	<u>Unit</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>Est. Total Error, %</u>
<b>A. <u>Fission and activation products</u></b>				
1. Total release (not including tritium, gases, alpha)	Ci	1.53E-01	1.14E-00	5.00E+1
2. Average diluted concentration during reporting period	µCi/ml	7.39E-08	9.94E-07	
3. Percent of applicable limit	%	2.72E-02	6.28E-01	
<b>B. <u>Tritium</u></b>				
1. Total release	Ci	2.65E-01	1.98E-01	5.00E+1
2. Average diluted concentration during reporting period	µCi/ml	1.28E-07	2.87E-07	
3. Percent of applicable limit	%	4.27E-03	9.71E-03	
<b>C. <u>Dissolved and entrained gases</u></b>				
1. Total release	Ci	-----	-----	-----
2. Average diluted concentration during reporting period	µCi/ml	-----	-----	
3. Percent of applicable limit	%	-----	-----	
<b>D. <u>Gross alpha radioactivity</u></b>				
1. Total release	Ci	-----	-----	-----
<b>E. <u>Volumes</u></b>				
1. Prior to dilution	liters	8.37E+06	5.72E+06	5.00E+1
2. Volume of dilution water used during release period	liters	1.99E+09	1.16E+09	5.00E+1
3. Volume of dilution water used during reporting period	liters	1.43E+10	1.22E+10	5.00E+1

THE UNITED STATES OF AMERICA  
DEPARTMENT OF JUSTICE  
FEDERAL BUREAU OF INVESTIGATION

MEMORANDUM FOR THE DIRECTOR

<p>1. On 10/10/54, [redacted] advised that [redacted] had been contacted by [redacted] who stated that [redacted] was planning to travel to [redacted] on 10/11/54.</p>	<p>2. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>3. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>4. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>5. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>6. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>7. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>8. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>9. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>	<p>10. [redacted] advised that [redacted] was a [redacted] and was currently residing at [redacted].</p>
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TABLE 2A  
(Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES

JULY - DECEMBER

	<u>Unit</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
<b>F. <u>Percent of Technical Specification Limits</u></b>			
1.	Percent of Quarterly Whole Body Dose Limit %	3.34E-03	1.10E-02
2.	Percent of Quarterly Organ Dose Limit (GI-LLI) %	2.09E-01	3.76E-02
3.	Percent of Annual Whole Body Dose Limit to Date %	5.86E-03	1.09E-02
4.	Percent of Annual Organ Dose Limit to Date (GI-LLI) %	1.06E-01	1.10E-11
5.	Percent of 10CFR20 Concentration Limit %	3.15E-02	6.38E-01
6.	Percent of Dissolved or Entrained Noble Gas Limit %	-----	-----

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TABLE 2B

RADIOACTIVE EFFLUENT RELEASE SEMI-ANNUAL REPORT (1987)  
 NINE MILE POINT NUCLEAR STATION #2  
 LIQUID EFFLUENTS RELEASED  
 JULY - DECEMBER

Nuclides Released	Unit	CONTINUOUS MODE		BATCH MODE	
		<u>3rd Quarter</u>	<u>4th Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Strontium-89	Ci	-----	-----	-----	-----
Strontium-90	Ci	-----	-----	-----	-----
Cesium-134	Ci	-----	-----	-----	-----
Cesium-137	Ci	-----	-----	-----	-----
Iodine-131	Ci	-----	-----	-----	-----
Cobalt-58	Ci	-----	-----	1.62E-02	2.45E-01
Cobalt-60	Ci	-----	-----	9.91E-04	4.58E-02
Iron-59	Ci	-----	-----	1.81E-04	5.76E-02
Zinc 65	Ci	-----	-----	-----	-----
Manganese-54	Ci	-----	-----	1.08E-03	7.09E-02
Chromium-51	Ci	-----	-----	1.10E-01	7.25E-01
Zirconium-niobium-95	Ci	-----	-----	4.95E-05	8.41E-05
Molybdenum-99	Ci	-----	-----	2.10E-04	-----
Technetium-99m	Ci	-----	-----	3.14E-04	-----
Barium-lanthanum-140	Ci	-----	-----	-----	-----
Cerium-141	Ci	-----	-----	-----	-----
Tungsten-187	Ci	-----	-----	2.88E-03	-----
Zirconium-97	Ci	-----	-----	1.40E-04	-----
Copper-64	Ci	-----	-----	5.72E-03	-----
Neptunium-239	Ci	-----	-----	1.90E-04	-----
Hydrogen-3	Ci	-----	-----	-----	-----
Manganese-56	Ci	-----	-----	1.30E-02	6.61E-05
Sodium-24	Ci	-----	-----	1.73E-03	1.25E-04
Total for period (above)	Ci	-----	-----	-----	-----
Xenon-133	Ci	-----	-----	-----	-----
Xenon-135	Ci	-----	-----	-----	-----



1. The first part of the document discusses the importance of maintaining accurate records of all transactions.

2. It is essential to ensure that all data is entered correctly and consistently.

3. The following table provides a summary of the key findings from the study.

4. The results indicate that there is a significant correlation between the variables studied.

5. The data shows that the majority of respondents are satisfied with the current system.

6. However, there are still several areas that need to be improved.

7. The study also identified some common challenges faced by users.

8. These challenges include a lack of training and support for new users.

9. It is recommended that the organization invest in training programs.

10. This will help to reduce the number of errors and improve overall efficiency.

11. The study concludes that the current system is generally effective.

12. However, ongoing monitoring and updates are necessary to keep it relevant.

13. The authors thank the participants for their time and contribution to the study.

14. For more information, please contact the research team at the end of the document.

TABLE 3A

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

	<u>Unit</u>	<u>July-Dec.</u>	<u>Est. Total Error, %</u>
<b>1. <u>Type of Waste</u></b>			
a. Spent resins, filter sludges, evaporator bottoms, etc.	m <sup>3</sup> Ci	9.89E+1 1.14E+1	5.00E+01 5.00E+01
b. Dry compressible waste, contaminated equipment, etc.	m <sup>3</sup> Ci	0.00E-00 0.00E-00	----- -----
c. Irradiated components, control rods, etc.	m <sup>3</sup> Ci	0.00E-00 0.00E-00	----- -----
d. Other (describe)	m <sup>3</sup> Ci	0.00E-00 0.00E-00	----- -----
<b>2. <u>Estimate of major nuclide composition (by type of waste)</u></b>			
a. Spent resins, filter sludges, evaporator bottoms, etc.	Chromium-51 Cobalt-58 Manganese-54 Iron-59 Cobalt-60 Nickel-65 Iron-55 Zirconium-95 Zinc-65 Niobium-95 Others	% % % % % % % % % % %	8.73E+01 8.52E-00 1.09E-00 7.07E-01 6.90E-01 5.00E-01 2.20E-01 1.60E-01 1.40E-01 1.30E-01 5.00E-01
b. Dry compressible waste, contaminated equipment, etc.		-----	-----
c. Irradiated components, control rods, etc.		-----	-----
d. Others (describe)		-----	-----
<b>3. <u>Solid Waste Disposition</u></b>			
	<u>Number of Shipments</u>	<u>Mode</u>	<u>Destination</u>
	11	Truck	Barnwell, S.C.

(all were cement solidified in strong tight containers as Class A waste)



The following information was obtained from the records of the  
 Department of the Interior, Bureau of Land Management, on  
 the date indicated below:

Date	Section	Range	County	State
1964	10	10	10	10
1965	11	11	11	11
1966	12	12	12	12
1967	13	13	13	13
1968	14	14	14	14
1969	15	15	15	15
1970	16	16	16	16
1971	17	17	17	17
1972	18	18	18	18
1973	19	19	19	19
1974	20	20	20	20
1975	21	21	21	21
1976	22	22	22	22
1977	23	23	23	23
1978	24	24	24	24
1979	25	25	25	25
1980	26	26	26	26
1981	27	27	27	27
1982	28	28	28	28
1983	29	29	29	29
1984	30	30	30	30
1985	31	31	31	31
1986	32	32	32	32
1987	33	33	33	33
1988	34	34	34	34
1989	35	35	35	35
1990	36	36	36	36
1991	37	37	37	37
1992	38	38	38	38
1993	39	39	39	39
1994	40	40	40	40
1995	41	41	41	41
1996	42	42	42	42
1997	43	43	43	43
1998	44	44	44	44
1999	45	45	45	45
2000	46	46	46	46
2001	47	47	47	47
2002	48	48	48	48
2003	49	49	49	49
2004	50	50	50	50
2005	51	51	51	51
2006	52	52	52	52
2007	53	53	53	53
2008	54	54	54	54
2009	55	55	55	55
2010	56	56	56	56
2011	57	57	57	57
2012	58	58	58	58
2013	59	59	59	59
2014	60	60	60	60
2015	61	61	61	61
2016	62	62	62	62
2017	63	63	63	63
2018	64	64	64	64
2019	65	65	65	65
2020	66	66	66	66
2021	67	67	67	67
2022	68	68	68	68
2023	69	69	69	69
2024	70	70	70	70
2025	71	71	71	71
2026	72	72	72	72
2027	73	73	73	73
2028	74	74	74	74
2029	75	75	75	75
2030	76	76	76	76
2031	77	77	77	77
2032	78	78	78	78
2033	79	79	79	79
2034	80	80	80	80
2035	81	81	81	81
2036	82	82	82	82
2037	83	83	83	83
2038	84	84	84	84
2039	85	85	85	85
2040	86	86	86	86
2041	87	87	87	87
2042	88	88	88	88
2043	89	89	89	89
2044	90	90	90	90
2045	91	91	91	91
2046	92	92	92	92
2047	93	93	93	93
2048	94	94	94	94
2049	95	95	95	95
2050	96	96	96	96
2051	97	97	97	97
2052	98	98	98	98
2053	99	99	99	99
2054	100	100	100	100

TABLE 3A  
(Continued)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

B. Irradiated Fuel Shipments (Disposition)

<u>Number of Shipments</u>	<u>Mode</u>	<u>Destination</u>
None	-	-

SECRET

1. The information in this report is classified "Secret" because it contains information the disclosure of which would be injurious to the national defense.

2. This report is classified "Secret" because it contains information the disclosure of which would be injurious to the national defense.

3. This report is classified "Secret" because it contains information the disclosure of which would be injurious to the national defense.

TABLE 4

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION # 2  
HOURS AT EACH WIND SPEED AND DIRECTION

JULY - DECEMBER

This information is available upon request.

1950

1. The first part of the report is devoted to a general survey of the situation in the country. It is followed by a detailed analysis of the economic and social conditions. The third part of the report is devoted to a study of the political situation and the role of the government. The fourth part of the report is devoted to a study of the cultural and educational situation. The fifth part of the report is devoted to a study of the foreign relations of the country. The sixth part of the report is devoted to a study of the military situation. The seventh part of the report is devoted to a study of the international relations of the country. The eighth part of the report is devoted to a study of the international relations of the country. The ninth part of the report is devoted to a study of the international relations of the country. The tenth part of the report is devoted to a study of the international relations of the country.

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TABLE 5

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL

JULY - DECEMBER

In accordance with the Nine Mile Point 2 Technical Specifications, this Table (a) describes and provides justification for recent changes to the Off-Site Dose Calculation Manual and (b) explains why these changes will not adversely affect the accuracy or reliability of off-site dose calculations or monitor alarm setpoint determinations.

Attachment 1 to this document provides a copy of the Off-Site Dose Calculation Manual (which shows recent changes made). All revisions to the Off-Site Dose Calculation Manual were reviewed and accepted by authorized station personnel in accordance with applicable administrative procedures and of the Technical Specifications. Review and approval documentation is affixed to the front side of Attachment 1.



TABLE 5  
(Last Page)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL

JULY - DECEMBER

CHG. NO.	ODCM SECTION CHANGED	DESCRIPTION OF CHANGE (JUSTIFICATION)	AFFECT ON ACCURACY/ RELIABILITY OF DOSE CALCULATIONS/ALARM SETPOINT DETERMINATIONS
1.	3.1.3.3	Offgas system flow alarm setpoints were not originally provided. They are now included.	None

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TABLE 6

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

JULY - DECEMBER

Nine Mile Point Nuclear Station Site Administrative Procedure AP 3.7.1, which describes the Nine Mile Point Unit 2 Process Control Program (PCP) was implemented during the past reporting period. In accordance with the Nine Mile Point 2 Technical Specifications, this Table: (a) describes the rationale for changes in the PCP and (b) explains why these changes will not adversely affect the overall conformance of the solidified waste product to existing criteria for solid wastes.

There were no changes to the Process Control Program.



TABLE 6  
(Last Page)

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2  
SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

JULY - DECEMBER

CHG. NO.	AP-3.7.1 SECTION CHANGED	RATIONALE FOR CHANGE	AFFECT ON CONFORMANCE OF WASTE PRODUCT TO EXISTING CRITERIA
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There were no changes to the Process Control Program.

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TABLE 7

SEMI-ANNUAL RADIOACTIVE RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2

EXPLANATION OF INSTRUMENTATION INOPERABILITY

<u>INSTRUMENT</u>	<u>DATE OUT OF SERVICE</u>	<u>DATE RETURNED TO SERVICE</u>	<u>EXPLANATION</u>
Stack Noble Gas	7-13-87 10:30	7-16-87 11:46	Difficulty in diagnosing the problem and replacing M.C.A
Stack Noble Gas	7-22-87 10:30	7-25-87 21:55	Maintenance work being performed on electrical supply system took longer than anticipated to complete.
Stack Noble Gas	8-14-87 18:45	8-17-87 19:37	Computer hardware failure took time for diagnosis and repair.
Stack Noble Gas	8-19-87 11:50	9-17-87 11:10	Problem in diagnosis of problem with electrical supply battery backup system.
Stack Noble Gas	9-23-87 23:00	-----	Design deficiency with alarm annunciation reflash. Anticipated completion 3-31-88.
Stack Particulate & Iodine Sampler	11-17-87 01:00	11-17-87 07:00	Auxiliary pump failed. Discovered at 0500.
Vent Noble Gas	7-10-87 16:32	7-19-87 16:40	Unacceptable detector performance. Reconditioning detector takes time.
Vent Noble Gas	8-14-87 18:45	8-17-87 19:37	Computer hardware failure took time for diagnosis and repair.
Vent Noble Gas	8-19-87 11:50	8-22-87 11:40	Problem with electrical supply battery backup system.
Vent Noble Gas	9-9-87 14:30	9-14-87 14:45	Computer hardware failure took time for diagnosis and repair.
Vent Noble Gas	9-23-87 23:00	-----	Design deficiency with alarm annunciation reflash. Anticipated completion 3-31-88.
Stack System Flow	1-87	-----	Difficulty, due to location of completing calibration and disagreement as to resolution.



TABLE 7  
(Last Page)

SEMI-ANNUAL RADIOACTIVE RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION #2

EXPLANATION OF INSTRUMENTATION INOPERABILITY

<u>INSTRUMENT</u>	<u>DATE OUT OF SERVICE</u>	<u>DATE RETURNED TO SERVICE</u>	<u>EXPLANATION</u>
Reactor - Radwaste Vent System Flow	2-87	-----	Difficulty due to location of completing calibration and disagreement as to resolution.
Offgas System Flow	8-87	-----	Original Monitor has an inappropriate location. Modification will be worked on after commercial operation.
Offgas Hydrogen Monitors	8-87	-----	Original design is inappropriate. Is sensitive to moisture. Expected return to service 3-88.
Service Water A Radiation	7-10-87 7-13-87 8-11-87 8-27-87	7-12-87 7-15-87 8-17-87 8-31-87	Problem with pump motor cooling and qualification of replacements.
Service Water B Radiation	7-10-87	7-15-87	Problem with Pump Motor Cooling and qualification of replacements.
Cooling Tower Blowdown	7-1-87 8-28-87	7-9-87 8-30-87	Loss of suction due to pump location and blowdown flowrate.

SECRET

1. The following information was obtained from a source who has provided reliable information in the past.

2. The source has provided information regarding the activities of the following individuals:

3. The source has provided information regarding the activities of the following individuals:

4. The source has provided information regarding the activities of the following individuals:

5. The source has provided information regarding the activities of the following individuals:

6. The source has provided information regarding the activities of the following individuals:

7. The source has provided information regarding the activities of the following individuals:

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11. The source has provided information regarding the activities of the following individuals:

12. The source has provided information regarding the activities of the following individuals:

13. The source has provided information regarding the activities of the following individuals:

14. The source has provided information regarding the activities of the following individuals:

15. The source has provided information regarding the activities of the following individuals:

ATTACHMENT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (1987)  
NINE MILE POINT NUCLEAR STATION # 2

OFFSITE DOSE CALCULATIONS MANUAL

Attached is a copy of the Offsite Dose Calculation Manual Revision 3 for Nine Mile Point Nuclear Station Unit 2. Description of changes made to the manual are provided in Table 5 of this report.

1952

1. The first part of the report is devoted to a general survey of the situation in the country.

2. The second part deals with the economic situation.

3. The third part is devoted to the social situation.

4. The fourth part deals with the political situation.