Niagara Mohawk®

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February 28, 2001
NMP1L 1570

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Subject: ***July - December 2000 Semi-Annual Radioactive Effluent Release Report***

Gentlemen:

In conformance with the Nine Mile Point Unit 1 (NMP1) Technical Specifications, enclosed is the Semi-Annual Radioactive Effluent Release Report for the reporting period July - December 2000. Included in this report is a summary of gaseous, liquid, and solid effluents released from the station during the reporting period (Attachments 1 - 6), a summary of revisions to the Offsite Dose Calculation Manual and the Process Control Program during the reporting period (Attachments 7 and 8), and an explanation as to the cause and corrective actions regarding the inoperability of any station liquid and/or gaseous effluent monitoring instrumentation (Attachment 9). Attachments 10 and 11 provide a summary and assessment of radiation doses to members of the public within and outside the site boundary, respectively, from liquid and gaseous effluents as well as direct radiation in accordance with 40 CFR 190.

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 NMP1 Offsite Dose Calculation Manual. Distribution is in accordance with 10 CFR 50.4(b)(1) and the Technical Specifications.

Attachment 12 to this report is an update of actual data for the second quarter 2000 used in the January - June 2000 Semi-Annual Radioactive Effluent Release Report.

During the reporting period from July - December 2000, NMP1 did not exceed any 10 CFR 20, 10 CFR 50, or Technical Specification limits for gaseous or liquid effluents.

If you have any questions concerning the attached report, please contact Mr. Anthony M. Salvagno, (315) 349-1456, Engineering Services, Nine Mile Point.

Very truly yours,

Richard B. Abbott
Vice President Nuclear Engineering

RBA/CLW/cld
Attachments

IE48

xc: Mr. H. J. Miller, Regional Administrator, Region I
Ms. M. K. Gamberoni, Section Chief PD-I, Section 1, NRR
Mr. G. K. Hunegs, NRC Senior Resident Inspector, Region I
Mr. P. S. Tam, Senior Project Manager, NRR
Records Management

NINE MILE POINT NUCLEAR STATION - UNIT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

July – December 2000

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR STATION - UNIT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JULY - DECEMBER 2000

SUPPLEMENTAL INFORMATION

Facility: Nine Mile Point Unit #1 **Licensee:** Niagara Mohawk Power Corporation

1. TECHNICAL SPECIFICATION LIMITS

A) FISSION AND ACTIVATION GASES

1. The dose rate limit of noble gases released in gaseous effluents from the site to areas at and beyond the site boundary shall be less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin.

2. The air dose due to noble gases released in gaseous effluents from Nine Mile Point Unit 1 to areas at and beyond the site boundary shall be limited during any calendar quarter to less than or equal to 5 milliroentgen 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 milliroentgen 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 and 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 in gaseous effluents released from Nine Mile Point Unit 1 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 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 1 to unrestricted areas shall be limited during any calendar quarter to less than or equal to 1.5 mrem to the total 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 total body and to less than or equal to 10 mrem to any organ.

2. 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) or gross activity monitoring (calibrated against gamma isotopic analysis of a 4.0L Marinelli grab sample) of an isokinetic stack sample stream.

B) IODINES

Iodine effluent activity is determined by gamma spectroscopic analysis (at least weekly) of charcoal cartridges sampled from an isokinetic stack sample stream.

C) PARTICULATES

Activity released from the main stack is determined by gamma spectroscopic analysis (at least weekly) of particulate filters sampled from an isokinetic sample stream and composite analysis of the filters for non-gamma emitters.

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) EMERGENCY CONDENSER VENT EFFLUENTS

The effluent curie quantities are estimated based on the isotopic distribution in the Condensate Storage Tank water and the Emergency Condenser shell water. Actual isotopic concentrations are found via gamma spectroscopy. Initial release rates of Sr-89, Sr-90 and Fe-55 are estimated by applying scaling factors to release rates of gamma emitters and actual release rates are determined from post offsite analysis results. The activity of fission and activation gases released due to tube leaks is based on reactor steam leak rates using offgas isotopic analyses.

F) LIQUID EFFLUENTS

Isotopic contents of liquid effluents are determined by isotopic analysis of a representative sample of each batch and composite analysis of non-gamma emitters.

G) SOLID EFFLUENTS

Isotopic contents of waste shipments are determined by gamma spectroscopy analysis 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.

ATTACHMENT 1

Summary Data

Unit 1 X Unit 2 __ Reporting Period July – December 2000

Liquid Effluents:

10CFR20, Appendix B, Table II, Column 2

Average MPC - uCi/ml (Qtr. 3) = N/A
Average MPC - uCi/ml (Qtr. 4) = N/A

Average Energy (Fission and Activation gases – Mev):

Qtr. 3 :	$\bar{E}\gamma$ = 2.40E-01	$\bar{E}\beta$ = 3.12E-01
Qtr. 4 :	$\bar{E}\gamma$ = 1.75E-01	$\bar{E}\beta$ = 2.52E-01

Liquid:

Number of batch releases	:	0	
Total time period for batch releases (hrs)	:	N/A	
Maximum time period for a batch release (hrs)	:	N/A	
Average time period for a batch release (hrs)	:	N/A	
Minimum time period for a batch release (hrs)	:	N/A	
Total volume of water used to dilute the liquid effluent during release period (L)	:	3rd N/A	4th N/A
Total volume of water used to dilute the liquid effluent during reporting period (L)	:	3rd 1.33E+11	4th 1.32E+11

Gaseous (Instrument Calibration, there were no releases from the operation of the Emergency Condenser Vent):

Number of batch releases	:	1
Total time period for batch releases (hrs)	:	2.78E-04
Maximum time period for a batch release (hrs)	:	2.78E-04
Average time period for a batch release (hrs)	:	2.78E-04
Minimum time period for a batch release (hrs)	:	2.78E-04

Gaseous (Primary Containment Purge):

Number of batch releases	:	1
Total time period for batch releases (hrs)	:	9.53E+00
Maximum time period for a batch release (hrs)	:	9.53E+00
Average time period for a batch release (hrs)	:	9.53E+00
Minimum time period for a batch release (hrs)	:	9.53E+00

ATTACHMENT 1

Summary Data

Unit 1 X Unit 2 __ Reporting Period July – December 2000

Abnormal Releases: There were no abnormal releases during this report period.

A. Liquids:

Number of releases 0

Total activity released N/A Ci

B. Gaseous:

Number of releases 0

Total activity released N/A Ci

ATTACHMENT 2

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

GASEOUS EFFLUENTS – SUMMATION OF ALL RELEASES, ELEVATED AND GROUND LEVEL

			3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A.	Fission & Activation gases				
	1. Total release	Ci	7.15E-01	3.78E-03	5.00E+01
	2. Average release rate	μCi/sec	8.99E-02	4.75E-04	
B.	Iodines				
	1. Total Iodine-131	Ci	2.55E-04	6.73E-04	3.00E+01
	2. Average release rate for period	μCi/sec	3.21E-05	8.56E-05	
C.	Particulates[1]				
	1. Particulates with half-lives >8 days	Ci	7.94E-02	1.22E-02	3.00E+01
	2. Average release rate for period	μCi/sec	9.99E-03	1.55E-03	
	3. Gross alpha radioactivity	Ci	6.11E-05	3.53E-05	2.50E+01
D.	Tritium[1]				
	1. Total release	Ci	4.27E+01	1.06E+02	5.00E+01
	2. Average release rate for period	μCi/sec	5.38E+00	1.35E+01	
E.	Percent of Tech. Spec. Limits				
	Fission and Activation Gases				
	Percent of Quarterly Gamma Air Dose Limit (5 mR)	%	3.18E-03	1.60E-04	
	Percent of Quarterly Beta Air Dose Limit (10 mrad)	%	1.33E-03	1.34E-04	
	Percent of Annual Gamma Air Dose Limit to Date (10 mR)	%	1.60E-03	1.61E-04	
	Percent of Annual Beta Air Dose Limit to Date (20 mrad)	%	6.70E-04	1.35E-04	
	Percent of Whole Body Dose Rate Limit (500 mrem/yr)	%	8.32E-05	8.32E-05	
	Percent of Skin Dose Rate Limit (3000 mrem/yr)	%	2.97E-05	2.98E-05	
	Tritium, Iodines, and Particulates[1] (with half-lives greater than 8 days)				
	Percent of Quarterly Dose Limit (7.5 mrem)	%	5.56E+00	2.23E+00	
	Percent of Annual Dose Limit (15 mrem)	%	2.97E+00	4.01E+00	
	Percent of Organ Dose Rate Limit (1500 mrem/yr)	%	1.10E-01	4.49E-02	

[1] Tritium, Iron-55, and Strontium results for the fourth quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be provided in the next Semi-Annual Report.

ATTACHMENT 3

Unit 1 X Unit 2 _ Reporting Period **July – December 2000**

GASEOUS EFFLUENTS – ELEVATED RELEASE

Nuclides Released		CONTINUOUS MODE[3]		BATCH MODE	
		3rd QUARTER	4th QUARTER	3rd QUARTER	4th QUARTER
1. Fission Gases[1]					
Argon-41	Ci	**	**	**	No Releases
Krypton-85	Ci	**	**	1.28E-03	No Releases
Krypton-85m	Ci	5.03E-02	**	**	No Releases
Krypton-87	Ci	**	**	**	No Releases
Krypton-88	Ci	**	**	**	No Releases
Xenon-127	Ci	**	**	**	No Releases
Xenon-131m	Ci	**	**	**	No Releases
Xenon-133	Ci	**	**	4.00E-06	No Releases
Xenon-133m	Ci	**	**	7.30E-10	No Releases
Xenon-135	Ci	6.61E-01	**	**	No Releases
Xenon-135m	Ci	**	**	**	No Releases
Xenon-137	Ci	**	**	**	No Releases
Xenon-138	Ci	**	**	**	No Releases
2. Iodines[1]					
Iodine-131	Ci	2.55E-04	6.73E-04	**	No Releases
Iodine-133	Ci	2.05E-03	6.18E-03	**	No Releases
Iodine-135	Ci	**	**	**	No Releases
3. Particulates[1,2]					
Strontium-89	Ci	**	5.46E-04	**	No Releases
Strontium-90	Ci	**	6.84E-05	**	No Releases
Cesium-134	Ci	**	**	**	No Releases
Cesium-136	Ci	**	**	**	No Releases
Cesium-137	Ci	1.28E-04	3.82E-06	**	No Releases
Cobalt-58	Ci	8.16E-04	4.38E-04	**	No Releases
Cobalt-60	Ci	1.14E-02	3.85E-03	**	No Releases
Manganese-54	Ci	7.05E-03	2.28E-03	**	No Releases
Barium-Lanthanum-140	Ci	**	**	**	No Releases
Antimony-125	Ci	**	**	**	No Releases
Niobium-95	Ci	**	**	**	No Releases
Cerium-141	Ci	**	**	**	No Releases
Cerium-144	Ci	**	**	**	No Releases
Iron-55	Ci	5.71E-02	3.85E-03	**	No Releases
Iron-59	Ci	1.46E-03	5.59E-04	**	No Releases
Chromium-51	Ci	1.43E-03	6.12E-04	**	No Releases
Zinc-65	Ci	**	**	**	No Releases
Molybdenum-99	Ci	**	**	**	No Releases
4. Tritium[1,2]	Ci	9.82E+00	3.15E+01	**	No Releases

[1] Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04 μCi/ml for required noble gases, 1.00E-11 μCi/ml for required particulates, 1.00E-12 μCi/ml for required Iodines, and 1.00E-06 μCi/ml for Tritium, as required by Technical Specifications, has been verified.

[2] Tritium, Iron-55, and Strontium results for the fourth quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be provided in the next Semi-Annual Report.

[3] Contributions from purges are included.

ATTACHMENT 4

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

GASEOUS EFFLUENTS – GROUND LEVEL RELEASES

Ground level releases are determined in accordance with the Off-Site Dose Calculation Manual and Chemistry procedures.

			CONTINUOUS MODE		BATCH MODE	
					There were no batch releases during the reporting period.	
	Nuclides Released		**3rd QUARTER**	**4th QUARTER**	**3rd QUARTER**	**4th QUARTER**
1.	Fission Gases[1]					
	Argon-41	Ci	**	**		
	Krypton-85	Ci	**	**		
	Krypton-85m	Ci	**	**		
	Krypton-87	Ci	**	**		
	Krypton-88	Ci	**	**		
	Xenon-127	Ci	**	**		
	Xenon-131m	Ci	**	**		
	Xenon-133	Ci	**	**1.35E-03**		
	Xenon-133m	Ci	**	**		
	Xenon-135	Ci	**1.98E-03**	**2.43E-03**		
	Xenon-135m	Ci	**	**		
	Xenon-137	Ci	**	**		
	Xenon-138	Ci	**	**		
2.	Iodines[1]					
	Iodine-131	Ci	**	**		
	Iodine-133	Ci	**	**		
	Iodine-135	Ci	**	**		
3.	Particulates[1,2]					
	Strontium-89	Ci	**	**3.50E-07**		
	Strontium-90	Ci	**	**4.38E-08**		
	Cesium-134	Ci	**	**		
	Cesium-136	Ci	**	**		
	Cesium-137	Ci	**	**		
	Cobalt-58	Ci	**	**4.08E-08**		
	Cobalt-60	Ci	**7.71E-07**	**7.06E-07**		
	Manganese-54	Ci	**6.14E-09**	**1.73E-07**		
	Cerium-141	Ci	**	**		
	Cerium-144	Ci	**	**		
	Iron-55	Ci	**	**7.06E-07**		
	Iron-59	Ci	**	**1.45E-07**		
	Chromium-51	Ci	**	**1.42E-07**		
	Zinc-65	Ci	**	**		
	Antimony-125	Ci	**	**		
	Niobium-95	Ci	**	**		
	Barium-Lanthanum-140	Ci	**	**		
	Molybdenum-99	Ci	**	**		
4.	Tritium[2]	Ci	**3.29E+01**	**7.47E+01**		

[1] Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk. A lower limit of detection of 1.00E-04 μCi/ml for required noble gases, 1.00E-11 μCi/ml for required particulates, 1.00E-12 μCi/ml for required Iodines, and 1.00E-06 μCi/ml for Tritium, as required by Technical Specifications, has been verified.

[2] Tritium, Iron-55, and Strontium results for the fourth quarter were not received from the off-site vendor at the time of this report. These values include estimates, and actual values will be provided in the next Semi-Annual Report.

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

			3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A.	Fission & Activation Products				
1.	Total release (not including Tritium, gases, alpha)	Ci	**No Releases**	**No Releases**	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	**No Releases**	**No Releases**	
B.	Tritium				
1.	Total release	Ci	**No Releases**	**No Releases**	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	**No Releases**	**No Releases**	
C.	Dissolved and Entrained Gases				
1.	Total release	Ci	**No Releases**	**No Releases**	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	**No Releases**	**No Releases**	
D.	Gross Alpha Radioactivity				
1.	Total release	Ci	**No Releases**	**No Releases**	5.00E+01
E.	Volumes				
1.	Prior to dilution	Liters	**No Releases**	**No Releases**	5.00E+01
2.	Volume of dilution water used during release period	Liters	**No Releases**	**No Releases**	5.00E+01
3.	Volume of dilution water available during reporting period:	Liters	**1.33E+11**	**1.32E+11**	5.00E+01
F.	Percent of Technical Specification Limits				
	Percent of Quarterly Whole Body Dose Limit (1.5 mrem)	%	**No Releases**	**No Releases**	
	Percent of Quarterly Organ Dose Limit (5 mrem)	%	**No Releases**	**No Releases**	
	Percent of Annual Whole Body Dose Limit to Date (3 mrem)	%	**No Releases**	**No Releases**	
	Percent of Annual Organ Dose Limit to Date (10 mrem)	%	**No Releases**	**No Releases**	
	Percent of 10CFR20 Concentration Limit	%	**No Releases**	**No Releases**	
	Percent of Dissolved or Entrained Noble Gas Limit (2.00E-04 μCi/ml)	%	**No Releases**	**No Releases**	

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

LIQUID EFFLUENTS RELEASED

Nuclides Released		BATCH MODE[1] 3rd QUARTER	4th QUARTER
Strontium-89	Ci	No Releases	No Releases
Strontium-90	Ci	No Releases	No Releases
Cesium-134	Ci	No Releases	No Releases
Cesium-136	Ci	No Releases	No Releases
Cesium-137	Ci	No Releases	No Releases
Sodium-24	Ci	No Releases	No Releases
Cobalt-58	Ci	No Releases	No Releases
Cobalt-60	Ci	No Releases	No Releases
Iron-55	Ci	No Releases	No Releases
Iron-59	Ci	No Releases	No Releases
Copper-64	Ci	No Releases	No Releases
Zinc-65	Ci	No Releases	No Releases
Nickel-65	Ci	No Releases	No Releases
Manganese-54	Ci	No Releases	No Releases
Manganese-56	Ci	No Releases	No Releases
Chromium-51	Ci	No Releases	No Releases
Zirconium-Niobium-95	Ci	No Releases	No Releases
Molybdenum-99	Ci	No Releases	No Releases
Barium-Lanthanum-140	Ci	No Releases	No Releases
Cerium-141	Ci	No Releases	No Releases
Cerium-144	Ci	No Releases	No Releases
Iodine-131	Ci	No Releases	No Releases
Iodine-132	Ci	No Releases	No Releases
Iodine-133	Ci	No Releases	No Releases
Dissolved or Entrained Gases	Ci	No Releases	No Releases
Tritium	Ci	No Releases	No Releases

[1] No continuous mode release occurred during the report period.

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.1 TYPE	Volume (m^3) Class			Activity[1] (Ci) Class		
	A	B	C	A	B	C
1. Spent Resins (Dewatered)	**4.56E+01**	**0**	**0**	**7.56E+01**	**0**	**0**
2. Dry Compressible Waste	**7.25E+01**	**0**	**0**	**6.55E-02**	**0**	**0**
3. Dry Non-Compressible Waste (Contaminated Equipment)	**7.25E+01**	**0**	**0**	**1.28E-02**	**0**	**0**
4. Irradiated Components, Control Rods, etc.	**0**	**0**	**0**	**0**	**0**	**0**

[1] The estimated total error is 5.00E+01%.

Unit 1 X Unit 2 _ Reporting Period **July – December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.1 TYPE	Container	Package	Solidification Agent
1. Spent Resins (Dewatered)	**Poly HIC** **Poly HIC**	**STP** **Type B**	**None** **None**
2. Dry Compressible Waste	**Metal Box**	**STP**	**None**
3. Dry Non-Compressible Waste (Contaminated Equipment)	**Metal Box**	**STP**	**None**
4. Irradiated Components, Control Rods, etc. There were no shipments.	**N/A**	**N/A**	**N/A**

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)

a. Spent Resins (Dewatered)

Nuclide (Resins)	Percent (Resins)
(1) Co-60	5.74E+01
(2) Mn-54	2.67E+01
(3) Co-58	8.07E+00
(4) Cr-51	1.83E+00
(4) Cs-137	1.42E+00
(5) Ni-63	1.34E+00
(6) Other	3.24E+00

b. Dry Compressible Waste, Dry Non-Compressible Waste (Contaminated Equipment)

Nuclide	Percent
(1) Co-60	5.99E+01
(2) Mn-54	1.28E+01
(3) Cr-51	1.19E+01
(4) Cs-137	8.68E+00
(5) Fe-59	2.89E+00
(6) Fe-55	1.58E+00
(7) Co-58	1.45E+00
(8) Other	8.00E-01

c. Irradiated Components, Control Rods, etc. There were no shipments.

Nuclide	Percent

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.3. SOLID WASTE DISPOSITION:

Number of Shipments	Mode of Transportation	Destination
4	**Truck**	**ATG Catalytics, TN**
4	**Truck**	**Barnwell Facility, SC**
3	**Truck**	**GTS Duratek, TN**
1	**Truck**	**CNSI Consolidation Facility, SC**

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION): There were no shipments.

Number of Shipments	Mode of Transportation	Destination
0	**0**	**0**

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

C. SOLID WASTE SHIPPED OFF-SITE TO VENDORS FOR PROCESSING AND SUBSEQUENT BURIAL

Below is a summary of NMP-1 radwaste buried by vendor facilities during **July – December 2000**. These totals were reported separately from "10CFR61 Solid Waste Shipped for Burial" since (a) waste classification and burial was performed by the vendors, and (b) Technical Specification 6.9.1 requires reporting of "information for each class of solid waste (as defined by 10CFR61) shipped off-site during the reporting period." The following data represents the actual shipments made from the off-site vendors of our radwaste (e.g., compacted and non-compacted DAW, spent resins, and incinerator ash) that was processed and commingled prior to burial.

C.1 TYPE OF WASTE – Compacted and noncompacted DAW, spent resins, and incinerator ash processed by vendor facilities prior to burial.

Burial Volume (m^3)	Activity (Ci)	Est. Total Error, %
2.61E+01	**5.52E+00**	**5.00E+01**

C.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION

Nuclide	Percent
(1) Co-60	6.38E+01
(2) Mn-54	1.60E+01
(3) C-14	1.22E+01
(4) Cs-137	4.07E+00
(5) Ce-144	1.49E+00
(6) Fe-55	1.49E+00
(7) Other	9.50E-01

C.3 SOLID WASTE DISPOSITION

Number of Shipments	Mode of Transportation	Destination
14	**Truck**	**Clive, UT**
6	**Truck**	**Barnwell, SC**

Unit 1 X Unit 2 ___ Reporting Period **July - December 2000**

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

D. SEWAGE WASTES SHIPPED TO A TREATMENT FACILITY FOR PROCESSING AND BURIAL
Below is a summary of the sewage sludge, which was removed from the site sanitary treatment facility and transferred to a municipal sewage treatment facility, for subsequent drying and disposal to a landfill. This is a site release and therefore includes the results from both Unit 1 and Unit 2 activities.

D. 1 TYPE OF WASTE –	Burial Volume (m^3)	Activity (Ci)	Est. Total Error, %
Sewage Sludge	**1.81E+02**	**7.00E-04**	**5.00E+01**

D. 2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION

Nuclide	Percent
(1) Ni-63	**9.35E+01**
(2) Co-60	**5.19E+00**
(3) Other	**1.31E+00**

D. 3 SOLID WASTE DISPOSITION

Number of Shipments	Mode of Transportation	Destination
5	**Truck**	**Landfill**

ATTACHMENT 7

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL (ODCM)

There were no changes to the Unit 1 ODCM during the reporting period.

ATTACHMENT 8

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM (PCP)

There were no changes to the Unit 1 PCP during the reporting period.

ATTACHMENT 9

Unit 1 X Unit 2 __ Reporting Period **July – December 2000**

SUMMARY OF INOPERABLE MONITORS

There were no inoperable monitors for a period greater than 30 days during the reporting period.

ATTACHMENT 10

Doses to Members of the Public Due To Their Activities Inside the Site Boundary

ATTACHMENT 10

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (2000)
NINE MILE POINT NUCLEAR STATION UNIT 1
DOSES TO MEMBERS OF THE PUBLIC DUE TO THEIR ACTIVITIES INSIDE THE SITE BOUNDARY

JANUARY – DECEMBER 2000

Doses to members of the public (as defined by the Technical Specifications) from the operation of the Nine Mile Point Unit 1 (NMP1) facility as a result of activity inside the site boundary are based on activities at the Energy Center located approximately one quarter mile west of NMP1. This facility is open to the public and offers educational information, summer picnicking activities and fishing. Any possible doses received by a member of the public by utilizing the private road that transverses the east and west site boundaries are not considered here since it takes a matter of minutes to travel the distance.

The activity at the Energy Center that is used for the dose analysis is fishing near the shoreline adjacent to the NMP site. Dose pathways considered for this activity include direct radiation, inhalation and external ground (shoreline sediment or soil) doses. Other pathways, such as ingestion pathways, are not considered because they are either not applicable, insignificant, or are considered as part of the evaluation of the total dose to a member of the public located off-site. In addition, only releases from the NMP1 stack and vent were evaluated for the inhalation pathway.

The direct radiation pathway is evaluated in accordance with the methodology found in the Off-Site Dose Calculation Manual (ODCM). This pathway considers four components: direct radiation from the generating facilities, direct radiation from any possible overhead plume, direct radiation from ground deposition and direct radiation plume submersion. The direct radiation pathway is evaluated by the use of high sensitivity environmental Thermoluminescent Dosimeters (TLDs). Since any significant fishing activity near the Energy Center occurs between April through December, environmental TLD data for the approximate period of April 1 – December 31, 2000 were considered. Data from environmental TLDs from the approximate area where the fishing occurs were compared to control environmental TLD locations for the same time period. The average fishing area TLD dose rate was 8.1E-03 mRem per hour for the period. The average control TLD dose rate was 6.6E-03 mRem per hour for the period (approximate second, third and fourth calendar quarters of the year). The average increase in dose as a result of fishing in this area at a conservative frequency of eight hours per week for thirty-nine weeks is 4.8E-01 mRem from direct radiation for the period in question. The majority of the dose from this pathway is from the NMP1 facility because of its proximity to the fishing area. A small portion may be due to the Nine Mile Point Unit 2 (NMP2) facility.

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The inhalation dose pathway is evaluated by utilizing the inhalation equation in the ODCM, as adapted from Regulatory Guide 1.109. The equation basically gives a total inhalation dose in mRem for the time period in question (April – December). The total dose equals the sum, for all applicable radionuclides, of the NMP1 stack and vent release concentrations, times the average NMP1 stack and vent flow rate, times the applicable five-year average calculated X/Q, times the inhalation dose factors from Regulatory Guide 1.109, Table E-7, times the Regulatory Guide 1.109 annual air intake, times the fractional portion of the year in question. In order to be slightly conservative, no radiological decay is assumed.

The 2000 calculation utilized the following information:

NMP1 Stack:

- Unit 1 average stack flowrate = 1.15E+02 m^3/sec
- X/Q value = 8.9E-06 (annual NWN sector, historical average)
- Inhalation dose factor = Table E-7 of Regulatory Guide 1.109
- Annual air intake = 8000 m^3 per year (adult)
- Fractional portion of the year = 0.0356 (312 hours)
- H-3 = 1.73E+04 pCi/m^3
- Cr-51 = 7.41E-01 pCi/m^3
- Mn-54 = 3.51E+00 pCi/m^3
- Fe-55 = 2.21E+01 pCi/m^3
- Fe-59 = 7.32E-01 pCi/m^3
- Co-58 = 4.69E-01 pCi/m^3
- Co-60 = 5.75E+00 pCi/m^3
- Sr-89 = 2.08E-01 pCi/m^3
- Sr-90 = 2.52E-02 pCi/m^3
- Cs-137 = 4.75E-02 pCi/m^3
- Ce-141 = 1.01E-03 pCi/m^3
- I-131 = 3.66E-01 pCi/m^3
- I-133 = 3.16E+00 pCi/m^3

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Emergency Condenser Vent:

- Average vent flowrate = 4.29E-04 m^3 /sec
- X/Q value = 6.63E-06 (conservative ground level value)
- Inhalation dose factor = Table E-7 of Regulatory Guide 1.109
- Annual Air intake = 8000 m^3 per year (adult)
- Fractional portion of the year = 0.0356 (312 hours)
- H-3 = 1.32E+10 pCi/m^3
- Cr-51 = 1.35E+01 pCi/m^3
- Mn-54 = 1.70E+01 pCi/m^3
- Fe-55 = 6.70E+01 pCi/m^3
- Fe-59 = 1.38E+01 pCi/m^3
- Co-58 = 3.87E+00 pCi/m^3
- Co-60 = 2.11E+02 pCi/m^3
- Sr-89 = 3.32E+01 pCi/m^3
- Sr-90 = 4.16E+00 pCi/m^3

The inhalation dose to a member of the public from NMP1 as a result of activities inside the site boundary is 4.0E-03 mRem to the lung (maximum organ dose) and 2.5E-03 mRem to the whole body.

The dose from standing on the shoreline while fishing is based on the methodology in the ODCM, as adapted from Regulatory Guide 1.109. During 2000, it was noted that fishing was performed from the shoreline on many occasions although waders were also utilized. In order to be conservative, it is assumed that the maximum exposed individual fished from the shoreline at all times.

The ODCM equation gives the total dose to the whole body and skin from the sum of all plant-related radionuclides detected in shoreline sediment samples. The plant-related radionuclide concentration is adjusted for background sample results, as applicable. The equation, therefore, yields the whole body and skin dose by multiplying the radionuclide concentration adjusted for any background data (as applicable), times a usage factor, times the sediment or soil density in grams per square meter (to a depth of one centimeter), times the applicable shore width factor, times the regulatory guide dose factor, times the fractional portion of the year over which the dose is applicable. In order to be conservative and to simplify the equation, no radiological decay is assumed since the applicable radionuclides are usually long lived.

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The calculation utilized the following information:

- Usage factor = 312 hours
- Density in grams per square meter = 40,000
- Shore width factor = 0.3
- Whole body and skin dose factor for each radionuclide = Regulatory Guide 1.109, Table E-6
- Fractional portion of the year = 1 (used average radionuclide concentration over total time period)
- Average Cs-137 concentration = 0.25 pCi/g

The total whole body and skin dose from standing on the shoreline to fish is 4.0E-03 mRem whole body and 4.7E-03 mRem skin dose for the period.

Doses to members of the public relative to activities inside the site boundary from aquatic pathways other than ground dose from shoreline sediment/soil are not applicable.

In summary, the total dose to a member of the public as a result of activities inside the site boundary from the direct radiation, inhalation and shoreline dose pathways is 4.8E-01 mRem to the whole body and 4.0E-03 mRem to the maximum exposed internal organ (lung). The dose to the skin of an adult is 4.7E-03 mRem. These doses are generally a result of the operation of NMP1. However, a portion of these doses for the direct radiation pathway may be attributable to the NMP2 facility.

ATTACHMENT 11

Doses to Members of the Public Due To Their Activities Outside the Site Boundary

ATTACHMENT 11

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (2000)
NINE MILE POINT NUCLEAR STATION UNIT 1
DOSES TO MEMBERS OF THE PUBLIC DUE TO THEIR ACTIVITIES OUTSIDE THE SITE BOUNDARY

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Radiation doses to the likely most exposed member of the public outside of the site boundary are evaluated relative to 40 CFR 190 requirements. The dose limits of 40 CFR 190 are 25 mRem (whole body or organ) per calendar year and 75 mRem (thyroid) per calendar year. The intent of 40 CFR 190 also requires that the effluents of Nine Mile Point Unit 1 (NMP1) , as well as other nearby uranium fuel cycle facilities, be considered. In this case, the effluents of NMP1, Nine Mile Point Unit 2 (NMP2) and the James A. FitzPatrick (JAF) facilities must be considered.

Doses to the likely most exposed member of the public as a result of effluents from the site can be evaluated by using calculated dose modeling based on the accepted methodologies of the facilities' Off-Site Dose Calculation Manuals (ODCMs) or may, in some cases, be calculated from the analysis results of actual environmental samples. Acceptable methods of calculating doses from environmental samples are also found in the facilities' ODCMs. These methods are based on Regulatory Guide 1.109 methodology.

Dose calculations from actual environmental samples are, at times, difficult to perform for some pathways. Some pathway doses should be estimated using calculational dose modeling. These pathways include noble gas air dose, inhalation dose, etc. Other pathway doses may be calculated directly from environmental sample concentrations using Regulatory Guide 1.109 methodology

Since the effluents from the generating facilities are low, the resultant gaseous and liquid effluent doses are anticipated to be low. In view of this, doses can be based on calculated data. Doses are not based on actual environmental data for 2000 with the exception of doses from direct radiation, fish consumption and shoreline sediment. In addition, in order to be conservative and for the sake of simplicity, it is assumed in the dose calculations that the likely most exposed member of the public is positioned in the maximum receptor location for each pathway at the same time. This approach is utilized because the doses are very low and the computations are greatly simplified.

The following pathways are considered:

1. The inhalation dose is calculated at the critical residence because of the high occupancy factor. In order to be conservative, the maximum whole body and organ dose assumes no correction for residing inside a residence.

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2. The milk ingestion dose is calculated utilizing the maximum milk cow location. As noted previously, in order to be conservative and for the sake of simplicity, the likely most exposed member of the public is assumed to be at all critical receptors at one time. In this case, the member of the public at the critical residence is assumed to consume milk from the critical milk location.

3. The maximum dose from the milk ingestion pathway as a result of consuming goat's milk is based on the same criteria established for item "2" above (ingestion of cow's milk).

4. The maximum dose associated from consuming meat is based on the critical meat animal. The likely most exposed member at the critical residence is assumed to consume meat from the critical meat animal location.

5. The maximum site dose associated with the consumption of vegetables is calculated from the critical vegetable garden location. As noted previously, the likely most exposed member of the public is assumed to be located at the critical residence and is assumed to consume vegetables from the critical garden location.

6. The dose, as a result of direct gamma radiation from the site, encompasses doses from direct "shine" from the generating facilities, direct radiation from any overhead gaseous plumes, plume submersion and from ground deposition. This total dose is measured by environmental TLDs. The critical location is based on the closest year-round residence from the generating facilities as well as the closest residence in the critical downwind sector in order to evaluate both direct radiation from the generating facilities and gaseous plumes as determined by the local meteorology. During 2000, the closest residence and the critical downwind residence are at the same location.

   The measured average dose for 2000 at the critical residence was 14.1 mRem/qtr. The average control dose was 14.4 mRem/qtr. The dose at the critical residence can be considered representative of the background dose since the control location dose was higher. Therefore, no dose was calculated and was assumed to be zero for this pathway.

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7. The dose, as a result of fish consumption, is considered as part of the aquatic pathway. The dose for 2000 is calculated from actual results of the analysis of environmental fish samples. For the sake of being conservative, the average plant-related radionuclide concentrations were utilized from fish samples taken near the site discharge points. The only plant-related radionuclide detected in fish samples was Cs-137. This nuclide was detected in one sample from the control location only and not detected in any fish sampled from the site discharge location. Therefore, no dose was calculated and was assumed to be zero for this pathway.

8. The shoreline sediment pathway is considered relative to recreational activities. The dose due to recreational activities from shoreline sediment is based on the methodology in the ODCM, as adapted from Regulatory Guide 1.109. The ODCM gives the total dose to the whole body and skin from the sum of plant-related radionuclides detected in actual shoreline sediment samples. The plant-related radionuclide concentration is adjusted for background sample results, as applicable. The total whole body and skin dose from shoreline recreational activities are 2.3 E-4 mRem whole body and 2.7E-4 mRem skin dose for the period.

In summary, the maximum dose to the likely most exposed member of the public is 6.1E-1 mRem to the Thyroid (maximum organ dose) and 5.9E-1 mRem to the whole body. It should be noted that the maximum organ dose and maximum whole body doses are based on the sum of the maximum doses observed for all three facilities regardless of age group. This results in some conservatism. The maximum organ and whole body doses were a result of gaseous effluents. Doses as a result of liquid effluents are secondary. The total whole body and skin dose from shoreline recreational activities are 2.3E-4 mRem whole body and 2.7E-4 mRem skin dose for the period. The direct radiation dose to the critical residence from the generating facilities was insignificant or zero. The dose to an individual as a result of fish consumption was also zero. These maximum total doses are a result of operations at the NMP1, NMP2 and the JAF facilities. The maximum organ dose and whole body dose are below the 40 CFR 190 criteria of 25 mRem per calendar year to the maximum exposed organ or the whole body, and below 75 mRem per calendar year to the thyroid.

ATTACHMENT 12

Update of Actual Data for the Second Quarter 2000

Unit 1 X Unit 2 __ Reporting Period **January – June 2000**

UPDATE OF RELEASE AND DOSE DATA FOR GASEOUS (ELEVATED AND GROUND LEVEL) AND LIQUID EFFLUENTS

Update of data using actual results from the off-site vendors for Strontium, Tritium, and Iron-55 for the second quarter 2000.

Nuclide[1]	GASEOUS 2nd QUARTER 2000 Activity (Ci)	LIQUID 2nd QUARTER 2000 Activity (Ci)
Sr-89	**1.80E-05**	**No Releases**
Sr-90	**	**No Releases**
H-3	**3.38E+01**	**No Releases**
Fe-55	**2.59E-04**	**No Releases**

			GASEOUS	LIQUID
Particulates	1. Particulates with half-lives >8 days	Ci	**1.26E-03**	**No Releases**
	2. Average release rate for period	µCi/sec (gaseous) µCi/ml (liquid)	**1.62E-04**	**No Releases**
Tritium	1. Total release	Ci	**3.38E+01**	**No Releases**
	2. Average release rate for period (gaseous) or diluted concentration (liquids) for the reporting period	µCi/sec (gaseous) µCi/ml (liquid)	**4.33E+00**	**No Releases**

Tritium, Iodines, and Particulates (with half-lives greater than 8 days)		GASEOUS	LIQUID
1.	Percent of Quarterly[2] Dose Limit (Gaseous – 7.5 mrem, Liquid – 1.5 mrem) %	**3.98E-01** (Quarterly)	**No Releases** (Quarterly)
2.	Percent of Annual[2] Dose Limit to Date (Gaseous – 15 mrem, Liquid – 3 mrem) %	**3.02E-01** (Annual)	**No Releases** (Annual)
3.	Percent of Organ - Dose Rate Limit (Gaseous – 1500 mrem/yr), Dose Limit (Liquid – 5 mrem Quarter, 10 mrem Annual) %	**8.04E-03** (Quarterly)	**No Releases** (Quarterly) **No Releases** (Annual)
4.	Percent of 10CFR20[3] Concentration Limit (Liquid) %		**No Releases**
5.	Percent of Dissolved or Entrained Noble Gas (Liquid – 2.00E-04 µCi/ml) %		**No Releases**

[1] Concentrations less than the lower limit of detection, as required by Technical Specifications or station procedures are indicated with a double asterisk.

[2] The dose is to the whole body for liquid effluents and to the maximally exposed organ for gaseous effluents.

[3] The percent of the 10CFR20 concentration limit is based on the average concentration during the quarter.