NINE MILE POINT NUCLEAR STATION - UNIT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT

RELEASE REPORT

JULY - DECEMBER 1992

NIAGARA MOHAWK POWER CORPORATION

003536LL

NINE MILE POINT NUCLEAR STATION - UNIT 1

SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

JULY - DECEMBER 1992

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 from the site to areas at and beyond the site boundary shall be less than or equal to 500 mrems/year to the total body and less than or equal to 3000 mrems/year to the skin.

2. The air dose due to noble gases released in gaseous effluents from the Nine Mile Point 1 Station 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 mrads 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 mrads 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 to the environs as part of the gaseous wastes from the site, shall be less than or equal to 1500 mrems/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 1 Station to areas at and beyond the site boundary shall be limited during any calendar quarter to less than or equal to 7.5 mrems to any organ and, during any calendar year to less than or equal to 15 mrems 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 1 to unrestricted areas shall be limited during any calendar quarter to less than or equal to 1.5 mrems to the total body and to less than or equal to 5 mrems to any organ, and during any calendar year to less than or equal to 3 mrems to the total body and to less than or equal to 10 mrems 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 main stack is determined by gamma spectroscopic analysis (at least weekly) of particulate filters sampled from an isokinetic sample stream.

For emergency condenser vent batch releases, effluent curie quantities are estimated by subtracting activity remaining in the shell side of the emergency condenser after batch release from activity delivered to the shell from Make-Up sources. Actual isotopic concentrations are found via gamma spectroscopy. Batch release activities of Sr-89, Sr-90 and Fe-55 are estimated by applying scaling factors to activity concentrations of gamma emitters. The activity of tritium released during normal operation or during batch releases is conservatively estimated by multiplying recent condensate storage tank H-3 activity by assumed steaming rates out the vents.

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 and composite analysis of non-gamma emitters.

2. Measurements and Approximations of Total Radioactivity (Cont'd):

F) Solid Effluents:

Isotopic contents of waste shipments are determined by gamma spectroscopy, gross alpha 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.

ATTACHMENT 1
Summary Data

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

Liquid Effluents: THERE WERE NO LIQUID RELEASES DURING JULY-DECEMBER 1992

10CFR20, Appendix B, Table II, Column 2

Average MPC (Qtr. 3rd) = N/A
Average MPC (Qtr. 4th) = N/A

Average Energy (Fission and Activation gases - Mev):

Qtr. 3rd : $\bar{E}\gamma$ = 5.38E-02 $E\beta$ = 1.44E-01
Qtr. 4th : $\bar{E}\gamma$ = 7.12E-02 $E\beta$ = 1.62E-01

Liquid: THERE WERE NO LIQUID RELEASES DURING JULY-DECEMBER 1992

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	: N/A
Total volume of dilution water released during reporting period (L)	: 1.68E+10

UNIT 1 (ONLY)

Gaseous (Emergency Condenser Vent): THERE WERE NO EMERGENCY CONDENSER VENT RELEASES DURING JULY-DECEMBER 1992

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

Gaseous (Primary Containment Purge): THERE WERE NO PURGES DURING JULY-DECEMBER 1992

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

ATTACHMENT 1
Summary Data

Unit 1 X Unit 2 ___	Reporting Period July-December, 1992
Abnormal Releases:	THERE WERE NO ABNORMAL RELEASES DURING JULY-DECEMBER 1992
A. Liquids	
Number of releases	N/A Ci
Total activity released	N/A Ci
B. Gaseous	
Number of releases	N/A
Total activity released	N/A Ci

ATTACHMENT 2

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES ELEVATED AND GROUND LEVEL

			3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A.	Fission & Activation gases[1]				
	1. Total release	Ci	3.33E+01	3.08E+02	5.00E+01
	2. Average release rate	µCi/sec.	4.19E+00	3.89E+01	
B.	Iodines[1]				
	1. Total Iodine	Ci	4.56E-03	2.90E-03	3.00E+01
	2. Average release rate for period	µCi/sec.	5.80E-04	3.68E-04	
C.	Particulates[2]				
	1. Particulates with half-lives >8 days	Ci	2.19E-04	1.36E-03	3.00E+01
	2. Average release rate for period	µCi/sec.	2.79E-05	1.73E-04	
	4. Gross alpha radioactivity	Ci	8.40E-05	3.54E-05	2.50E+01
D.	Tritium[1]				
	1. Total release	Ci	4.94E+00	1.91E+01	5.00E+01
	2. Average release rate for period	µCi/sec.	6.28E-01	2.43E+00	
E.	Percent of Tech. Spec. Limits Fission and Activation Gases[1]				
	Percent of Quarterly Gamma Air Dose Limit (5 mrem)	%	8.22E-03	5.02E-02	
	Percent of Quarterly Beta Air Dose Limit (10 mrem)	%	2.84E-02	2.01E-01	
	Percent of Annual Gamma Air Dose Limit to Date (10 mrem)	%	5.98E-03	3.12E-02	
	Percent of Annual Beta Air Dose Limit to Date (20 mrem)	%	1.63E-02	1.17E-01	
	Percent of Whole Body Dose Rate Limit (500 mrem/yr)	%	2.92E-04	1.75E-03	
	Percent of Skin Dose Rate Limit (3000 mrem/yr)	%	1.92E-04	1.21E-03	
	Tritium, Iodines, and Particulates (with half-lives greater than 8 days)				
	Percent of Quarterly Dose Limit (7.5 mrem)	%	4.44E-01	4.55E-01	
	Percent of Annual Dose Limit (15 mrem)	%	3.66E-01	6.61E-01	
	Percent of Organ Dose Rate Limit (1500 mrem/yr)	%	8.93E-03	9.14E-03	

[1] Concentrations less than the lower limit of detection of 1.00E-04 µCi/ml for Noble Gases, 1.00E-11 µCi/ml for particulates, 1.00E-12 µCi/ml for Iodines, and 1.00E-06 µCi/ml for Tritium as required by Technical Specifications are indicated with a double asterisk.

[2] Tritium, Iron-55, and Strontium results for June 1992 were not received from the off-site vendor at the time of this report. These numbers include estimates and actual numbers will be provided in the next Semi-Annual Report.

ATTACHMENT 3

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

GASEOUS EFFLUENTS - ELEVATED RELEASE

	Nuclides Released		CONTINUOUS MODE[3] 3rd QUARTER	CONTINUOUS MODE[3] 4th QUARTER
1.	Fission Gases[1]			
	Argon-41	Ci	**	**
	Krypton-85	Ci	**	**
	Krypton-85m	Ci	2.47E+00	6.95E+01
	Krypton-87	Ci	**	**
	Krypton-88	Ci	**	**
	Xenon-127	Ci	**	**
	Xenon-133	Ci	3.08E+01	2.38E+02
	Xenon-133m	Ci	**	**
	Xenon-135	Ci	**	1.55E-01
	Xenon-135m	Ci	**	**
	Xenon-137	Ci	**	**
	Xenon-138	Ci	**	**
2.	Iodines[1]			
	Iodine-131	Ci	2.86E-04	5.26E-04
	Iodine-133	Ci	4.27E-03	2.37E-03
	Iodine-135	Ci	6.91E-03	1.52E-02
3.	Particulates[1,2]			
	Strontium-89	Ci	1.93E-05	3.39E-04
	Strontium-90	Ci	**	3.39E-05
	Cesium-134	Ci	**	**
	Cesium-137	Ci	**	**
	Cobalt-60	Ci	1.61E-04	5.14E-04
	Cobalt-58	Ci	**	**
	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	**	**
	Zinc-65	Ci	**	**
	Iron-55	Ci	3.90E-05	4.75E-04
	Molybdenum-99	Ci	**	**
4.	Tritium	Ci	7.16E-01	1.28E+01

[1] Concentrations less than the lower limit of detection of 1.00E-04 μCi/ml for Noble Gases, 1.00E-11 μCi/ml for particulates, 1.00E-12 μCi/ml for Iodines, and 1.00E-06 μCi/ml for Tritium as required by Technical Specifications are indicated with a double asterisk.

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

[3] No batch mode release occurred during the reporting period.

ATTACHMENT 4

THERE WERE NO GROUND LEVEL RELEASES DURING THE JULY-DECEMBER 1992 REPORTING PERIOD

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

Nuclides Released		CONTINUOUS MODE 3rd QUARTER	CONTINUOUS MODE 4th QUARTER	BATCH MODE 3rd QUARTER	BATCH MODE 4th QUARTER
1. Fission Gases[1]					
Argon-41	Ci	**	**	THERE WERE NO BATCH RELEASES DURING THE REPORTING PERIOD	
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	**	**		
Xenon-127	Ci	**	**		
2. Iodines[1]					
Iodine-131	Ci	**	**		
Iodine-133	Ci	**	**		
Iodine-135	Ci	**	**		
3. Particulates[1]					
Strontium-89	Ci	**	**		
Strontium-90	Ci	**	**		
Cesium-134	Ci	**	**		
Cesium-137	Ci	**	**		
Cobalt-60	Ci	**	**		
Cobalt-59	Ci	**	**		
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	**	**		
Zinc-65	Ci	**	**		
Iron-55	Ci	**	**		
Molybdenum-99	Ci	**	**		
4. Tritium	Ci	4.22E+00	6.31E+00		

[1] Concentrations less than the lower limit of detection of 1.00E-04 μCi/ml for Noble Gases, 1.00E-11 μCi/ml for particulates, 1.00E-12 μCi/ml for Iodines, and 1.00E-06 μCi/ml for Tritium as required by Technical Specifications are indicated with a double asterisk.

THERE WERE NO LIQUID RELEASES DURING THE JULY-DECEMBER 1992 REPORTING PERIOD

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

THERE WERE NO LIQUID RELEASES DURING JULY - DECEMBER 1992.		3rd QUARTER	4th QUARTER	EST. TOTAL ERROR, %
A. Fission & Activation Products[1]				
1. Total release (not including tritium, gases, alpha)	Ci			5.00E+01
2. Average diluted concentration during reporting period	µCi/ml			
B. Tritium				
1. Total release	Ci			5.00E+01
2. Average diluted concentration during reporting period	µCi/ml			
C. Dissolved and Entrained Gases[1]				
1. Total release	Ci			5.00E+01
2. Average diluted concentration during reporting period	µCi/ml			
D. Gross Alpha Radioactivity				
1. Total release	Ci	NO RELEASES	NO RELEASES	5.00E+01
E. Volumes				
1. Prior to dilution	Liters			5.00E+01
2. Volume of dilution water used during release period	Liters			5.00E+01
3. Volume of dilution water available during reporting period	Liters			5.00E+01
F. Percent of Technical Specification Limits				
Percent of Quarterly Whole Body Dose Limit (1.5 mrem)	%			
Percent of Quarterly Organ Dose Limit (5 mrem)	%			
Percent of Annual Whole Body Dose Limit to Date (3 mrem)	%			
Percent of Annual Organ Dose Limit to Date (10 mrem)	%			
Percent of 10CFR20 Concentration Limit	%			
Percent of Dissolved or Entrained Noble Gas Limit (1.00E-5 µCi/ml)	%			

[1] Concentrations less than the lower limit of detection of 5.00E-07 µCi/ml for gamma emitting nuclides, 1.00E-05 µCi/ml for dissolved and entrained noble gases and tritium, 5.00E-08 µCi/ml for Sr-89/90, 1.00E-06 µCi/ml for Fe-55 and 1.00E-07 µCi/ml for gross alpha radioactivity as required by Technical Specifications are indicated with a double asterisk.

THERE WERE NO LIQUID RELEASES DURING JULY-DECEMBER 1992 REPORTING PERIOD

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

LIQUID EFFLUENTS RELEASED

Nuclides Released[1]		BATCH MODE 3rd QUARTER	4th QUARTER
Strontium-89	Ci	NO RELEASES	NO RELEASES
Strontium-90	Ci		
Cesium-134	Ci		
Cesium-137	Ci		
Iodine-131	Ci		
Cobalt-58	Ci		
Cobalt-60	Ci		
Iron-59	Ci		
Zinc-65	Ci		
Manganese-54	Ci		
Chromium-51	Ci		
Zirconium-Niobium-95	Ci		
Molybdenum-99	Ci		
Technetium-99m	Ci		
Barium-Lanthanum-140	Ci		
Cerium-141	Ci		
Tungsten-187	Ci		
Arsenic-76	Ci		
Iodine-133	Ci		
Iron-55	Ci		
Neptunium-239	Ci		
Praseodymium-144	Ci		
Iodine-135	Ci		
Dissolved or Entrained Gases	Ci		
Tritium	Ci		

[1] Concentrations less than the lower limit of detection of 5.00E-07 μCi/ml for gama emitting nuclides, 1.00E-05 μCi/ml for dissolved and entrained noble gases and tritium, 5.00E-08 μCi/ml for Sr-89/90, 1.00E-06 μCi/ml for Fe-55 and 1.00-07 μCi/ml for gross alpha radioactivity as required by Technical Specifications are indicated with a double asterisk.

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

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 Resin[2]	3.50E+01	*	*	1.11E+01	*	*
Filter Sludge	*	1.65E+01	*	*	8.27E+01	*
Concentrated Waste Evaporator Bottoms	5.50E+00	1.10E+01	*	5.27E+00	2.42E+01	*
Total	4.05E+01	2.75E+01	-	1.64E+01	1.07E+02	-
2. Dry Compressible Waste	There were no shipments that were sent directly for burial. All shipments were sent to a vendor for processing and subsequent burial. (See Attachment 6, page 5.)					
Dry Non-Compressible Waste (Contaminated Equipment)						
Total						
3. Irradiated Components	*	*	2.15E+00	*	*	1.15E+04
4. Other						
a. Spent Fuel Pool Filters	7.14E+00	*	*	1.00E+02	*	*
b. Charcoal	5.10E+00	*	*	2.66E+00	*	*

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

[2] The Spent Resin is mixed with charcoal from the Advanced Liquid Processing System. Most of the volume and activity is from the resin.

* There were no shipments during the reporting period.

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.1 TYPE	Container	Package	Solidification Agent
1. Spent Resin[1]	HIC	Type A	N/A
Filter Sludge	HIC	Type A	Cement
Concentrated Waste	HIC	Type A	Cement
2. Dry Compressible Waste	(See Attachment 6, page 5)		
Dry Non-Compressible Waste (Contaminated Equipment)			
3. Irradiated Components	Steel Liner	Type B	N/A
4. Other: a. Spent Fuel Pool Filter	Encapsulated Liner	Type B	Cement
b. Charcoal	Steel Liner	Type A	Cement

[1] The Spent Resin is mixed with charcoal from the Advanced Liquid Processing System. Most of the volume and activity is from the resin.

* There were no shipments during the reporting period.

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

a. Spent Resins, Filter Sludges, Concentrated Waste*

Nuclide	Percent
Co-60	5.80E+01
Fe-55	1.86E+01
Cs-137	1.78E+01
Mn-54	2.17E+00
Ni-63	1.70E+00
Other	1.73E+00

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

* ALL SHIPMENTS WERE SENT TO AN OFFSITE VENDOR FOR PROCESSING AND SUBSEQUENT BURIAL. (See Attachment 6, page 5.)

c. Irradiated Components, Control Rods

Nuclide	Percent
Co-60	8.33E+01
Fe-55	1.05E+01
Ni-63	5.88E+00
Other	3.20E-01

d. Other (a) Spent Fuel Pool Filters

Nuclide	Percent
Co-60	8.78E+01
Fe-55	8.34E+00
Ni-63	3.08E+00
Other	7.80E-01

(b) Charcoal

Nuclide	Percent
Co-60	3.65E+01
Cs-137	5.67E+01
Fe-55	4.54E+00
Ni-63	1.44E+00
Other	8.20E-01

* The spent resins were mixed with charcoal from the ALPS.

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
13	Truck	Barnwell, SC
2	Truck	Beatty, NV
1	Truck	Hanford, WA

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

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

Below is a summary of Dry Activated Waste that was shipped off-site for processing and burial by vendor facilities (i.e., ALARON, QUADREX, and/or SCIENTIFIC ECOLOGY GROUP) during July-December, 1992. 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) 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 information provided in this section, therefore, is in addition to that required by the Technical Specifications. The following data represents the actual shipments made from the off-site vendors of our non-compacted commingled trash that was processed prior to burial.

C.1. Type of Waste - noncompacted commingled trash shipped to Oakridge, TN for processing prior to burial at Barnwell, SC

Burial Volume (m^3)	Activity (Ci)	Est. Total Error, %
2.42E+01	1.06E+00	5.00E+01

C.2. Estimate of Major Nuclide Composition

	Nuclide		Percent
(1)	Co-60	(1)	5.57E+01
(2)	Cs-137	(2)	3.10E+01
(3)	Mn-54	(3)	6.60E+00
(4)	Co-58	(4)	3.70E+00
(5)	Fe-59	(5)	1.77E+00
(6)			
(7)			
(8)			
(9)			
(10)	Other		1.23E+00

C.3. Solid Waste Disposition[1]

Number of Shipments	Mode of Transportation	Destination
30	Truck	Barnwell, SC
5	Truck	Beatty, NV

[1] The number of shipments reported here represents the total number that was shipped for burial. This does not represent the number of shipments Niagara Mohawk sent to be processed.

Unit 1 X Unit 2 ___ Reporting Period July - December 1992

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

D. SEWAGE SLUDGE SHIPPED TO A TREATMENT FACILITY CENTER 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 Unit 2 activities, also.

D.1. Type of waste - sewage sludge

Disposal Volume (L)	Activity (Ci)
3.78E+04	3.40E-07

D.2. Estimate of Major Nuclide Composition

Nuclide	Percent
Co-60	1.00E+02

D.3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Final Destination
*	Truck	Landfill

* There were two shipments of sewage sludge with quantified Co-60 that were sent by vendor vacuum tank truck from NMP to the treatment facility with a total volume of 3.78E+04 Liters. The number of shipments sent from NMP does not reflect the number of shipments to the ultimate destination (i.e., landfill) or actual burial volume . Sludge is mixed with municipal sludge, dried, and subsequently transferred to a state approved landfill by municipal personnel.

ATTACHMENT 7

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

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

Update of data using actual results from the off-site vendors for Strontium, Tritium, and Iron-55. (Second Quarter, only)

	GASEOUS 2nd (Quarter)	LIQUID 2nd (Quarter)
Nuclide[1]	Activity (Ci)	Activity (Ci)
Sr-89	**	N/A
Sr-90	**	N/A
H-3	3.24E+00	N/A
Fe-55	5.32E-05	N/A

Particulates[1]			GASEOUS	LIQUID
1.	Particulates with half-lives >8 days	Ci	6.51E-04	N/A
2.	Average release rate for period	µCi/sec	7.97E-05	N/A
Tritium[1]				
1.	Total release	Ci	3.24E+00	N/A
2.	Average release rate for period	µCi/sec	3.97E-01	N/A

Tritium, Iodines, and Particulates (with half-lives greater than 8 days)			GASEOUS	LIQUID
1.	Percent of Quarterly Dose Limit	%	2.47E-01 (Quarterly)	N/A (Quarterly)
2.	Percent of Annual Dose Limit to Date	%	2.67E-01 (Annual)	N/A (Annual)
3.	Percent of Organ - Dose Rate Limit (Gaseous)(Quarterly) - Dose Limit (Liquid) (Annual & Quarterly)	%	4.79E-03 (Quarterly) N/A (Annual)	N/A (Quarterly) N/A (Annual)
4.	Percent of 10CFR20 Concentration Limit (Liquid)	%	N/A	N/A
5.	Percent of Dissolved or Entrained Noble Gas (Liquid)	%	N/A	N/A

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

ATTACHMENT 8

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL

There were no revisions to the Unit 1 Offsite Dose Calculation Manual During the July-December 1992 reporting period.

ATTACHMENT 9

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

There were no revisions to the technical content of the Process Control Program (PCP) during the reporting period; however, the PCP has been revised to be a licensing document similar to the ODCM, and is not identified with the previous procedure number N1-AP-3.7. The new PCP document is not identified with a number, and has the title, "Unit 1 Radwaste Process Control Program". This change became effective on December 30, 1992.

ATTACHMENT 10

Unit 1 X Unit 2 ___ Reporting Period July-December, 1992

SUMMARY OF INOPERABLE MONITORS

Monitor	Dates of Inoperability	Cause and Corrective Actions
RAGEMS	Entire Reporting Period	The Unit 1 RAGEMS has been accepted by operations as reported in the January-June, 1992 SARERR. However, a work order has been initiated to repair the communication link between the PDP 1134 computer and the RAGEMS skid. RAGEMS is intended to be used as an emergency stack gas monitoring system.

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Doses to members of the public (as defined by the Technical Specifications) from the operation of the NMP1 facility as a result of activity inside the site boundary is controlled by activities at the Energy Center. 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 because it is the most time consuming. Although there is no specific survey information available, many of the same individuals have been observed to return again and again because of the access to salmonoid and lake trout populations. 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 or insignificant. In addition, only releases from the NMP1 stack were evaluated for the inhalation pathway. The emergency condensers were not operated during 1992.

The direct radiation pathway is evaluated in accordance with the methodology found in the Offsite Dose Calculation Manual (ODCM). This pathway considers three components: direct radiation from the generating facilities, direct radiation from any possible overhead plume and direct radiation from plume submersion. The direct radiation pathway is evaluated by the use of high sensitivity environmental 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, 1992 was considered. Data from two environmental TLDs from the approximate area where the fishing occurs were compared to three control environmental TLD locations for the same time period. The average fishing area TLD dose rate was 7.34E-03 mRem per hour for the period. The average control TLD dose rate was 5.76E-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 39 weeks is 4.93E-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 NMP2 facility.

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The inhalation dose pathway is evaluated by utilizing the inhalation equation in the Offsite Dose Calculation Manual, as adapted from the 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 release concentration, times the average NMP1 stack flowrate, 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 1992 calculation utilized the following information:

NMP1 Stack:

- Unit 1 average stack flowrate = 1.026+02 m^3/sec
- X/Q value = 8.9 E-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)
- Co-60 = 2.48E+00 pCi/m^3
- Fe-55 = 2.21E+00 pCi/m^3
- Sr-89 = 1.34E+00 pCi/m^3
- Sr-90 = 1.42E+00 pCi/m^3
- H-3 = 7.81E+03 pCi/m^3
- I-131 = 2.42E+00 pCi/m^3
- I-135 = 3.02E+00 pCi/m^3
- Mn-54 = 2.69E-02 pCi/m^3

The inhalation dose to a member of the public as a result of activities inside the site boundary is 4.59E-03 mRem to the bone (maximum organ dose) and 6.06E-04 mRem to the whole body.

The dose from standing on the shoreline to fish is based on the methodology in the Offsite Dose Calculation Manual as adapted from Regulatory Guide 1.109. During 1992, 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 use of waders, of course, would result in a dose of zero from this pathway. The shoreline sediment doses are not taken into consideration by environmental TLD data.

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The Offsite Dose Calculation Manual equation basically 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.

The calculation utilized the following information:

- Usage factor = 312 hours.
- Density in grams per 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 = 0.402 pCi/g.
- Average Co-60 concentration = 0.036 pCi/g.

The total whole body and skin dose from standing on the shoreline to fish is 8.61E-03 mRem whole body and 1.01E-02 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.

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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 5.02E-01 mRem to the whole body and 4.59E-03 mRem to the maximum exposed internal organ (bone). The dose to the skin of an adult is 1.01E-02 mRem. These doses are generally a result of the operation of NMP1. However, a portion of these doses for the direct radiation pathway are attributable to the NMP2 facility.

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Radiation doses to the likely most exposed member of the public outside of the site boundary are evaluated relative to 40CFR190 requirements. The dose limits of 40CFR190 are 25 mRem (whole body or organ) per calendar year and 75 mRem (thyroid) per calendar year. The intent of 40CFR190 also requires that the effluents of NMP1 as well as other nearby uranium fuel cycle facilities be considered. In this case, the effluents of NMP1, 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' Offsite Dose Calculation Manuals or may, in some cases, be calculated from the analysis results of actual environmental samples. Acceptable methods for calculating doses from environmental samples are also found in the facilities' Offsite Dose Calculation Manuals. 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 1992 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 over head gaseous plumes, plume submersion and from ground deposition. This total dose is measured by environmental TLD. 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 1992, the closest residence and the critical downwind residence are at the same location.

   The measured average dose for 1992 at the critical residence was 53.0 mRem. The average control dose (average of five locations) was 50.3 mRem. The average dose at the critical residence is slightly greater than the average control location dose. The net increase in dose is due to the differences between doses from naturally occurring radionuclides in the soil and rock at the different locations and due to the standard deviation in TLD measurements. This

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difference in dose rate can be demonstrated by observing the 1992 average dose for an environmental TLD located near the critical residence TLD, but approximately 700 feet closer to the generating facilities. The annual average dose for this TLD location was 49.6 mRem. The dose for this location is lower than the critical residence location even though they are close to one another and even though the TLD location with the lowest dose is closer to the generating facilities.

7. The dose, as a result of fish consumption, is considered as part of the aquatic pathway. The dose for 1992 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 average concentration was adjusted to account for any background concentrations using average control sample data. Only Cs-137 was detected during 1992 at a net concentration of 1.3E-3 pCi/g-wet. The calculated maximum adult organ dose was 3.0E-3 mRem to the liver. The maximum whole body dose is 1.9E-03 mRem to an adult.

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 Offsite Dose Calculation Manual as adapted from Regulatory Guide 1.109. The Offsite Dose Calculation Manual gives the total dose to the whole body and skin from the sum of plant related radionuclides detected in 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 is 1.04E-03 mRem whole body and 1.21E-03 mRem skin dose for the period.

9. In summary, the maximum dose to the most likely exposed member of the public is 1.31E-01 mRem to the bone (maximum organ dose) and 7.62E-02 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 were secondary. The total whole body,

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maximum organ and skin dose from shoreline recreational activities and fish consumption are 2.34E-03 mRem whole body, 3.00E-03 mRem to the liver, and 1.21E-03 mRem skin dose for the period. The direct radiation dose to the critical residence from the generating facilities was insignificant or zero. These maximum total doses are a result of operations at the Nine Mile Point Unit 1, Nine Mile Point Unit 2 and the James A. Fitzpatrick facilities. The maximum organ dose and whole body dose are below the 40CRF190 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.