

NINE MILE POINT NUCLEAR STATION - UNIT 1
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY - JUNE 1997

NIAGARA MOHAWK POWER CORPORATION

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NINE MILE POINT NUCLEAR STATION - UNIT 1
SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
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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.

1



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.

For emergency condenser vent releases, 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. For emergency condenser vent releases, 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 measured by liquid scintillation or gas proportional counting of monthly samples taken with an air sparging/water trap apparatus.

E) 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.

F) 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 <u>X</u> Unit 2 <u> </u>	Reporting Period <u>January - June 1997</u>	
Liquid Effluents:		
10CFR20, Appendix B, Table II, Column 2		
Average MPC - uCi/ml (Qtr. 1) = <u>N/A</u>		
Average MPC - uCi/ml (Qtr. 2) = <u>N/A</u>		
Average Energy (Fission and Activation gases - Mev):		
Qtr. <u>1</u>	: E _γ = <u>2.47E-01</u>	E _β = <u>3.17E-01</u>
Qtr. <u>2</u>	: E _γ = <u>N/A</u>	E _β = <u>N/A</u>
Liquid: There were no batch liquid releases during the reporting period.		
Number of batch releases	:	<u>0</u>
Total time period for batch releases (hrs)	:	<u>N/A</u>
Maximum time period for a batch release (hrs)	:	<u>N/A</u>
Average time period for a batch release (hrs)	:	<u>N/A</u>
Minimum time period for a batch release (hrs)	:	<u>N/A</u>
Total volume of water used to dilute the liquid effluent during release period (L)	:	<u>N/A</u>
Total volume of water used to dilute the liquid effluent during reporting period (L)	:	<u>1.87E+11</u>
Gaseous (Emergency Condenser Vent): There were no releases from the operation of the Emergency Condenser Vent.		
Number of batch releases	:	<u>0</u>
Total time period for batch releases (hrs)	:	<u>N/A</u>
Maximum time period for a batch release (hrs)	:	<u>N/A</u>
Average time period for a batch release (hrs)	:	<u>N/A</u>
Minimum time period for a batch release (hrs)	:	<u>N/A</u>
Gaseous (Primary Containment Purge):		
Number of batch releases	:	<u>3</u>
Total time period for batch releases (hrs)	:	<u>1.97E+01</u>
Maximum time period for a batch release (hrs)	:	<u>8.37E+00</u>
Average time period for a batch release (hrs)	:	<u>6.56E+00</u>
Minimum time period for a batch release (hrs)	:	<u>4.27E+00</u>



ATTACHMENT 1
Summary Data

Unit 1 <u>X</u> Unit 2 <u> </u>	Reporting Period <u>January - June 1997</u>
Abnormal Releases: There were no abnormal releases during the reporting period.	
A. Liquids:	
Number of releases	<u>0</u>
Total activity released	<u>N/A</u> Ci
B. Gaseous:	
Number of releases	<u>0</u>
Total activity released	<u>N/A</u> Ci



ATTACHMENT 2

Unit 1 X Unit 2

Reporting Period January - June 1997

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

		<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>EST. TOTAL</u> <u>ERROR. %</u>
A.	<u>Fission & Activation gases¹</u>			
	1. Total release	1.40E-03	**	5.00E+01
	2. Average release rate	1.80E-04	**	
B.	<u>Iodines</u>			
	1. Total Iodine-131	1.85E-04	1.06E-05	3.00E+01
	2. Average release rate for period	2.48E-05	1.35E-06	
C.	<u>Particulates²</u>			
	1. Particulates with half-lives >8 days	8.90E-04	1.68E-03	3.00E+01
	2. Average release rate for period	1.20E-04	2.14E-04	
	3. Gross alpha radioactivity	4.04E-05	7.35E-05	2.50E+01
D.	<u>Tritium²</u>			
	1. Total release	1.20E+01	2.71E+01	5.00E+01
	2. Average release rate for period	1.62E+00	3.45E+00	
E.	<u>Percent of Tech. Spec. Limits</u>			
	<u>Fission and Activation Gases</u>			
	Percent of Quarterly Gamma Air Dose Limit (5 mR)	1.13E-05	**	
	Percent of Quarterly Beta Air Dose Limit (10 mrad)	7.23E-06	**	
	Percent of Annual Gamma Air Dose Limit to Date (10 mR)	5.64E-06	5.64E-06	
	Percent of Annual Beta Air Dose Limit to Date (20 mrad)	3.62E-06	3.62E-06	
	Percent of Whole Body Dose Rate Limit (500 mrem/yr)	3.01E-07	**	
	Percent of Skin Dose Rate Limit (3000 mrem/yr)	1.33E-07	**	
	<u>Tritium, Iodines, and Particulates²</u> <u>(with half-lives greater than 8 days)</u>			
	Percent of Quarterly Dose Limit (7.5 mrem)	2.99E-01	4.06E-01	
Percent of Annual Dose Limit (15 mrem)	1.51E-01	4.36E-01		
Percent of Organ Dose Rate Limit (1500 mrem/yr)	6.36E-03	8.16E-03		

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 second quarter 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 January - June 1997

GASEOUS EFFLUENTS - ELEVATED RELEASE

CONTINUOUS MODE³

Nuclides Released		1 st QUARTER	2 nd QUARTER
1. Fission Gases¹			
Argon-41	CI	**	**
Krypton-85	CI	**	**
Krypton-85m	CI	**	**
Krypton-87	CI	**	**
Krypton-88	CI	**	**
Xenon-127	CI	**	**
Xenon-133	CI	**	**
Xenon-133m	CI	**	**
Xenon-135	CI	**	**
Xenon-135m	CI	**	**
Xenon-137	CI	**	**
Xenon-138	CI	**	**
2. Iodines¹			
Iodine-131	CI	<u>1.85E-04</u>	<u>1.06E-05</u>
Iodine-133	CI	<u>1.95E-03</u>	<u>4.01E-04</u>
Iodine-135	CI	**	**
3. Particulates^{1,2}			
Strontium-89	CI	<u>1.81E-05</u>	<u>5.20E-04</u>
Strontium-90	CI	**	<u>6.51E-05</u>
Cesium-134	CI	**	**
Cesium-137	CI	<u>1.80E-05</u>	<u>1.87E-05</u>
Cobalt-60	CI	<u>4.38E-04</u>	<u>4.73E-04</u>
Cobalt-58	CI	<u>1.57E-04</u>	<u>5.00E-06</u>
Manganese-54	CI	**	<u>1.46E-04</u>
Barium-Lanthanum-140	CI	**	**
Antimony-125	CI	**	**
Niobium-95	CI	**	<u>4.92E-06</u>
Cerium-141	CI	**	**
Cerium-144	CI	**	**
Iron-59	CI	**	**
Cesium-136	CI	**	**
Chromium-51	CI	**	**
Zinc-65	CI	<u>2.16E-04</u>	<u>4.74E-05</u>
Iron-55	CI	**	**
Molybdenum-99	CI	<u>4.11E-05</u>	<u>3.92E-04</u>
	CI	**	**
4. Tritium²			
	CI	<u>3.67E+00</u>	<u>2.03E+01</u>

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 second quarter 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.

11



ATTACHMENT 4

Unit 1 X Unit 2

Reporting Period January - June 1997

GASEOUS EFFLUENTS - GROUND LEVEL RELEASES

For continuous mode releases, only leakage from the vents results in an assumed release based on the concentrations in the condensate storage tanks and condenser shells.

		CONTINUOUS MODE		BATCH MODE There were no batch releases during the reporting period.	
		1 st QUARTER	2 nd QUARTER	1 st QUARTER	2 nd QUARTER
1.	<u>Fission Gases</u> ¹				
	Argon-41	CI	::		
	Krypton-85	CI	::		
	Krypton-85m	CI	::		
	Krypton-87	CI	::		
	Krypton-88	CI	::		
	Xenon-133	CI	::		
	Xenon-133m	CI	::		
	Xenon-135	CI	<u>1.40E-03</u>		
	Xenon-135m	CI	::		
	Xenon-137	CI	::		
	Xenon-138	CI	::		
	Xenon-127	CI	::		
2.	<u>Iodines</u> ¹				
	Iodine-131	CI	::		
	Iodine-133	CI	<u>3.06E-07</u>		
	Iodine-135	CI	::		
3.	<u>Particulates</u> ^{1,2}				
	Strontium-89	CI	::		
	Strontium-90	CI	::		
	Cesium-134	CI	::		
	Cesium-137	CI	<u>1.93E-08</u>		
	Cobalt-60	CI	<u>8.98E-07</u>		
	Cobalt-58	CI	<u>2.87E-08</u>		
	Manganese-54	CI	<u>1.82E-07</u>		
	Barium-Lanthanum-140	CI	::		
	Antimony-125	CI	::		
	Niobium-95	CI	::		
	Cerium-141	CI	::		
	Cerium-144	CI	::		
	Iron-59	CI	<u>2.26E-08</u>		
	Cesium-136	CI	::		
	Chromium-51	CI	<u>9.74E-07</u>		
	Zinc-65	CI	::		
	Iron-55	CI	::		
	Molybdenum-99	CI	::		
4.	<u>Tritium</u> ¹	CI	<u>8.38E+00</u>		
			<u>6.75E+00</u>		

¹ Emergency Condenser Vent (ground level) releases are determined in accordance with the Off-Site Dose Calculation Manual.

² Iron-55 and Strontium results for the second quarter 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.



Unit 1 X Unit 2

Reporting Period January - June 1997

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

		1 st QUARTER	2 nd QUARTER	EST. TOTAL ERROR, %
A.	<u>Fission & Activation Products</u>			
1.	Total release (not including Tritium, gases, alpha)	CI	No Releases	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	No Releases	
B.	<u>Tritium</u>			
1.	Total release	CI	No Releases	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	No Releases	
C.	<u>Dissolved and Entrained Gases</u>			
1.	Total release	CI	No Releases	5.00E+01
2.	Average diluted concentration during reporting period	μCi/ml	No Releases	
D.	<u>Gross Alpha Radioactivity</u>			
1.	Total release	CI	No Releases	5.00E+01
E.	<u>Volumes</u>			
1.	Prior to dilution	Liters	No Releases	5.00E+01
2.	Volume of dilution water used during release period	Liters	No Releases	5.00E+01
3.	Volume of dilution water available during reporting period:	Liters	<u>9.74E+10</u>	<u>8.99E+10</u>
F.	<u>Percent of Technical Specification Limits</u>			
	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 (2.00E104 FCI/ml)	%	No Releases	No Releases



Unit 1 X Unit 2 Reporting Period January - June 1997

LIQUID EFFLUENTS RELEASED

Nuclides Released		BATCH MODE ¹	
		1 st QUARTER	2 nd QUARTER
Strontium-89	CI	No Releases	No Releases
Strontium-90	CI	No Releases	No Releases
Cesium-134	CI	No Releases	No Releases
Cesium-137	CI	No Releases	No Releases
Iodine-131	CI	No Releases	No Releases
Cobalt-58	CI	No Releases	No Releases
Cobalt-60	CI	No Releases	No Releases
Iron-59	CI	No Releases	No Releases
Zinc-65	CI	No Releases	No Releases
Manganese-54	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
Technetium-99m	CI	No Releases	No Releases
Barium-Lanthanum-140	CI	No Releases	No Releases
Cerium-141	CI	No Releases	No Releases
Tungsten-187	CI	No Releases	No Releases
Arsenic-76	CI	No Releases	No Releases
Iodine-133	CI	No Releases	No Releases
Iron-55	CI	No Releases	No Releases
Neptunium-239	CI	No Releases	No Releases
Praseodymium-144	CI	No Releases	No Releases
Iodine-135	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 January - June 1997

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS: There were no shipments sent for burial.

A.1 TYPE	Volume (m ³)			Activity ¹ (Ci)		
	Class			Class		
1. Spent Resin ²	A	B	C	A	B	C
	0	0	0	0	0	0
Filter Sludge	0	0	0	0	0	0
Concentrated Waste Evaporator Bottoms	0	0	0	0	0	0
Total	0	0	0	0	0	0
2. Dry Compressible Waste, Dry Non-Compressible Waste (Contaminated Equipment)	0	0	0	0	0	0
3. Irradiated Components	0	0	0	0	0	0
4. Other	0	0	0	0	0	0

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

² Four Unit 1 steel encased high Integrity containers of waste Class A bead resin were added to Interim storage at Nine Mile Point during the reporting period. The total activity, decay corrected to June 30, 1997, was 3.29E+01 curies and the volume was 2.25E+01m³.



Unit 1 <u>X</u> Unit 2 <u> </u>		Reporting Period <u>January - June 1997</u>	
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS			
A.1 TYPE	Container	Package	Solidification Agent
1. Spent Resin	N/A	N/A	N/A
Filter Sludge	N/A	N/A	N/A
Concentrated Waste	N/A	N/A	N/A
2. Dry Compressible Waste, Dry Non-Compressible Waste (Contaminated Equipment)	N/A	N/A	N/A
3. Irradiated Components	N/A	N/A	N/A
4. Other	N/A	N/A	N/A



Unit 1 <u>X</u> Unit 2 <u> </u>		Reporting Period <u>January - June 1997</u>
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS		
A.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		
a. Spent Resins, Filter Sludges, Concentrated Waste: There were no shipments		
<u>Nuclide</u>	<u>Percent</u>	
b. Dry Compressible Waste, Dry Non-Compressible Waste (Contaminated Equipment): There were no shipments.		
<u>Nuclide</u>	<u>Percent</u>	
c. Irradiated Components: There were no shipments.		
<u>Nuclide</u>	<u>Percent</u>	
d. Other: There were no shipments.		
<u>Nuclide</u>	<u>Percent</u>	

11



Unit 1 X Unit 2 Reporting Period January - June 1997**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

A.3. SOLID WASTE DISPOSITION: There were no shipments

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A

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

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	N/A	N/A



Unit 1 X Unit 2

Reporting Period January - June 1997

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 January - June 1997. 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., non-compacted trash, dry non-compressible waste, high conductivity waste water) that was processed and commingled prior to burial.

C.1. TYPE OF WASTE - Noncompacted trash, high conductivity waste water, and/or dry non-compressible waste processed by vendor facilities prior to burial at Barnwell, SC.	Burial Volume <u>(m³)</u>	Activity <u>(Ci)</u>	Est. Total <u>Error. %</u>
	<u>1.40E+01</u>	<u>2.52E-01</u>	<u>5.00+01</u>

C.2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION

<u>Nuclide</u>	<u>Percent</u>
(1) Co-60	5.35E+01
(2) Mn-54	3.05E+01
(3) Fe-55	6.94E+00
(4) Cs-137	4.89E+00
(5) Fe-59	1.59E+00
(6) Co-58	1.08E+00
(7) Other	1.50E+00

C.3. SOLID WASTE DISPOSITION¹

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>28</u>	<u>Truck</u>	<u>Barnwell, SC</u>

¹ Note: During the report period seventeen shipments of NMP-1 radwaste were sent to offsite processors. This material will be processed by the vendor and can be commingled with other licensees' waste for burial. However, the vendor performs an analysis of each shipment to determine the volume and activity buried under each utilities' license, and prepares a separate report for each licensee. This information is provided in the Semi-Annual Radioactive Effluent Release Report for the period in which the material is buried.



Unit 1 Unit 2 Reporting Period January - June 1997**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS****D. SEWAGE WASTES SHIPPED TO A TREATMENT FACILITY FOR PROCESSING AND BURIAL**

There were no shipments of sewage sludge with detectable quantities of plant-related nuclides from NMP to the treatment facility during the reporting period.



ATTACHMENT 7

Unit 1 X Unit 2

Reporting Period January - June 1997

SUMMARY OF CHANGES TO THE OFF-SITE DOSE CALCULATION MANUAL

The Unit 1, Off-site Dose Calculation Manual (ODCM) was changed during the reporting period to add a flowpath from the THERMEX modular equipment directly to the Waste Collector tank. The Radioactive Waste Disposal System figure was revised to show this flowpath as well as other process flowpaths. These ODCM changes will not reduce the accuracy or reliability of the ODCM dose calculations or setpoint determinations in accordance with Technical Specifications. A copy of revision 18 of the ODCM is attached and a summary of the changes presented to and approved by the Station Operations Review Committee in April 1997 is provided below. The summary also includes the justification for the changes.

Old Page #	New Page #	Section #	Change	Reason for Change
5	5	2.1.4.4	Adds a liquid flowpath from the THERMEX modular equipment directly to the waste collector tank.	THERMEX is an enhancement to the liquid radioactive waste processing system. THERMEX provides an alternate method of removing radioactive material from the liquid radioactive waste process stream to meet Technical Specification 3.6.16.a, "the liquid radwaste system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge as necessary to meet the requirements of Specification 3.6.15." The flowpath from THERMEX directly to the waste collector tank allows THERMEX effluent to dilute equipment drain contaminants entering the waste collector tank, and thus enhance the waste collector system efficiency. The ability of the system to remove radioactive materials does not affect the method used to determine the liquid radwaste monitor setpoint. Further, since THERMEX is not a specific-ion selective process, the scaling factors for gamma emitting and non-gamma emitting radionuclides remain unchanged. Therefore, ODCM dose calculations remain unaffected.
Fig. D-1	Fig. D-1	Appendix D	Revise Figure D-1, Radioactive Waste Disposal System, to show the flowpath described above. Also, reconfigure the process flowpaths for THERMEX from the floor drain sample tanks and the return line to the floor drain sample tanks. Show additional flowpaths from THERMEX to the spent resin tank and to the waste building floor drain system for flushing THERMEX filtration components.	Show current system configuration.



ATTACHMENT 8

Unit 1 X Unit 2

Reporting Period January - June 1997

SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM

There were no changes to the Unit 1 Process Control Program during the reporting period.



ATTACHMENT 9

Unit 1 Unit 2

Reporting Period January - June 1997

SUMMARY OF INOPERABLE MONITORS

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



ENCLOSURE 1

Update of Actual Data for the Fourth Quarter 1996

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1



Unit 1 X Unit 2 Reporting Period July - December 1996

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 fourth quarter 1996.

Nuclide ¹	GASEOUS 4 th QUARTER 1996		LIQUID 4 th QUARTER 1996	
	Activity (Ci)		Activity (Ci)	
Sr-89	<u>2.01E-05</u>		No Releases	
Sr-90	**		No Releases	
H-3	<u>1.47E+01</u>		No Releases	
Fe-55	<u>2.75E-06</u>		No Releases	
Particulates	1. Particulates with half-lives >8 days	CI	<u>2.32E-04</u>	<u>N/A</u>
	2. Average release rate for period	μCi/sec	<u>2.92E-05</u>	<u>N/A</u>
Tritium	1. Total release	CI	<u>1.47E+01</u>	<u>N/A</u>
	2. Average release rate for period	μCi/sec (gaseous) μCi/ml (liquid)	<u>1.85E+00</u>	<u>N/A</u>
<u>Tritium, Iodines, and Particulates (with half-lives greater than 8 days)</u>	1. Percent of Quarterly Dose Limit ²	%	<u>2.77E-01</u> (Quarterly)	<u>N/A</u> (Quarterly)
	2. Percent of Annual Dose Limit to Date ²	%	<u>2.55E-01</u> (Annual)	<u>N/A</u> (Annual)
	3. Percent of Organ - Dose Rate Limit (Gaseous)(Quarterly)	%	<u>5.49E-03</u> (Quarterly)	<u>N/A</u> (Quarterly)
	- Dose Limit (Liquid) (Annual & Quarterly)		<u>N/A</u> (Annual)	<u>N/A</u> (Annual)
	4. Percent of 10CFR20 Concentration Limit (Liquid)	%	<u>N/A</u>	<u>N/A</u>
5. Percent of Dissolved or Entrained Noble Gas (Liquid)	%	<u>N/A</u>	<u>N/A</u>	

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 maximally exposed organ for gaseous effluents.

