



**Constellation  
Generation Group**

Nine Mile Point  
Nuclear Station

August 29, 2002  
NMP1L 1683

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: January – June 2002 Semi-Annual Radioactive Effluent Release Report**

Gentlemen:

In conformance with the Nine Mile Point Unit 1 (NMP1) Technical Specifications, we are enclosing the Semi-Annual Radioactive Effluent Release Report for the reporting period January – June 2002. 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 any 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).

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 10CFR50.4(b)(1) and Technical Specifications.

Attachment 10 to this report provides an update of actual data for the last quarter of the preceding report period. Attachment 11 to this report provides a correction to the calculated whole body dose and skin dose to a member of the public due to shoreline recreational activities located outside the site boundary reported in the previous report period.

During the reporting period from January – June 2002, NMP1 did not exceed any 10CFR20, 10CFR50, 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,

Bruce S. Montgomery  
General Manager Nuclear Engineering

Enclosure  
BSM/CW/jm

cc: Mr. H. J. Miller, Regional Administrator, Region I  
Mr. G. K. Hunegs, NRC Senior Resident Inspector, Region I  
Mr. P. S. Tam, Senior Project Manager, NRR (2 copies)  
Records Management

IE 48

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

**January – June 2002**

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**Constellation  
Generation Group**

**Nine Mile Point  
Nuclear Station**

*A Member of the  
Constellation Energy Group*

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

**JANUARY – JUNE 2002**

**SUPPLEMENTAL INFORMATION**

**Facility: Nine Mile Point Unit #1**

**Licensee: Nine Mile Point Nuclear Station, LLC**

**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. Tritium effluent activity is measured during purge and weekly when fuel is offloaded until stable tritium release rates are demonstrated.

### 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. Tritium activity is estimated on the most recent analysis of the Condensate Storage Tank water. 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.

### 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 <u>X</u>	Unit 2 <u>  </u>	Reporting Period <u>January – June 2002</u>				
<b>Liquid Effluents:</b>						
10CFR20, Appendix B, Table II, Column 2						
Average MPC - uCi/ml (Qtr. 1) = <u>3.00E-03</u>						
Average MPC - uCi/ml (Qtr. 2) = <u>2.58E-03</u>						
<b>Average Energy (Fission and Activation gases – Mev):</b>						
Qtr. 1 :	$\bar{E}_\gamma = $ <u>2.47E-01</u>	$\bar{E}_p = $ <u>3.17E-01</u>				
Qtr. 2 :	$\bar{E}_\gamma = $ <u>1.18E+00</u>	$\bar{E}_p = $ <u>6.11E-01</u>				
<b>Liquid:</b>						
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)	:	<table style="display: inline-table; border: none;"> <tr> <td style="text-align: center;"><u>1<sup>st</sup></u></td> <td style="text-align: center;"><u>2<sup>nd</sup></u></td> </tr> <tr> <td align="center">: <u>4.49E+10</u></td> <td align="center">: <u>9.45E+10</u></td> </tr> </table>	<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>	: <u>4.49E+10</u>	: <u>9.45E+10</u>
<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>					
: <u>4.49E+10</u>	: <u>9.45E+10</u>					
Total volume of water used to dilute the liquid effluent during reporting period (L)	:	<table style="display: inline-table; border: none;"> <tr> <td style="text-align: center;"><u>1<sup>st</sup></u></td> <td style="text-align: center;"><u>2<sup>nd</sup></u></td> </tr> <tr> <td align="center">: <u>1.30E+11</u></td> <td align="center">: <u>1.28E+11</u></td> </tr> </table>	<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>	: <u>1.30E+11</u>	: <u>1.28E+11</u>
<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>					
: <u>1.30E+11</u>	: <u>1.28E+11</u>					
<b>Gaseous – (There were no releases from the operation of the Emergency Condenser Vent):</b>						
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>				
<b>Gaseous (Primary Containment Purge):</b>						
Number of batch releases	:	<u>1</u>				
Total time period for batch releases (hrs)	:	<u>1.38E+01</u>				
Maximum time period for a batch release (hrs)	:	<u>1.38E+01</u>				
Average time period for a batch release (hrs)	:	<u>1.38E+01</u>				
Minimum time period for a batch release (hrs)	:	<u>1.38E+01</u>				

ATTACHMENT 1  
Summary Data

Unit 1 <u>X</u> Unit 2 <u>  </u>	Reporting Period <u>January - June 2002</u>
<b>Abnormal Releases:</b>	
<b>A. Liquids:</b>	
Number of releases	<u>1</u>
Total activity released	<u>1.35E+01 Ci</u>
<b>B. Gaseous:</b>	
Number of releases	<u>0</u>
Total activity released	<u>N/A Ci</u>
<b><u>UNIT 1 ABNORMAL RELEASE</u></b>	
<b><u>BACKGROUND</u></b>	
<p>Cooling for several vital components is provided by the Reactor Building Closed Loop Cooling (RBCLC) System and the Turbine Building Closed Loop Cooling (TBCLC) System. Both systems have the residual heat removed via the Service Water System</p>	
<b><u>EVENT</u></b>	
<p>The analysis results for the monthly Service water West Discharge sample collected in March 2002 showed positive detection of tritium (H-3). In addition to positive detection of tritium in the service water, elevated make-up flow rate to the TBCLC was observed. Action Request (ACR) 02-01355 was written to troubleshoot the suspected TBCLC heat exchanger (HTX-71-12R) for tube leakage. The heat exchanger was isolated on 6/7/02 to perform inspections and required maintenance. Three leaking tubes were found during the initial entry into the heat exchanger and further testing by Eddy Current identified 60 additional tubes requiring plugs. This condition was entered into our corrective action program and Deviation Event Report (DER) 1-2002-1910 was initiated. Repairs were completed and the heat exchanger returned to service on 6/23/02. Analysis results of Service water samples collected on 7/17/02 showed no positive detection of tritium, with all results being below the lowest level of detection (LLD).</p>	
<b><u>ANALYSIS</u></b>	
<p>An offsite vendor analysis of the Service Water samples representing the period 03/01/02 through 06/07/02 yielded a calculated release of 13.471 Curies of activity. The nuclides identified are: H-3 (12.85 Ci) and Fe-55 (0.621 Ci). Analysis of the continuous discharge from 03/01/02 to 06/07/02 resulted in a calculated whole body dose of 1.05E-04 mrem, and a calculated maximum organ dose (Bone) of 5.98E-04 mrem. The activity and resulting dose contribution is reflected in Attachment 5.</p>	

Unit 1 X Unit 2   Reporting Period January – June 2002

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

			1st QUARTER	2nd QUARTER	EST. TOTAL ERROR, %
A.	<u>Fission &amp; Activation gases</u>				
	1. Total release	Ci	<u>2.11E-04</u>	<u>1.24E+00</u>	5.00E+01
	2. Average release rate	μCi/sec	<u>2.72E-05</u>	<u>1.58E-01</u>	
B.	<u>Iodines</u>				
	1. Total Iodine-131	Ci	<u>7.15E-04</u>	<u>5.31E-04</u>	3.00E+01
	2. Average release rate for period	μCi/sec	<u>9.19E-05</u>	<u>6.76E-05</u>	
C.	<u>Particulates<sup>1</sup></u>				
	1. Particulates with half-lives > 8 days	Ci	<u>1.64E-03</u>	<u>1.34E-03</u>	3.00E+01
	2. Average release rate for period	μCi/sec	<u>2.10E-04</u>	<u>1.71E-04</u>	2.50E+01
	3. Gross alpha radioactivity	Ci	<u>3.53E-05</u>	<u>4.70E-05</u>	
D.	<u>Tritium<sup>1</sup></u>				
	1. Total release	Ci	<u>1.10E+01</u>	<u>2.19E+01</u>	5.00E+01
	2. Average release rate for period	μCi/sec	<u>1.41E+00</u>	<u>2.78E+00</u>	
E.	<u>Percent of Tech Spec. Limits</u>				
	<u>Fission and Activation Gases</u>				
	Percent of Quarterly Gamma Air Dose Limit (5 mR)	%	<u>1.71E-06</u>	<u>2.78E-02</u>	
	Percent of Quarterly Beta Air Dose Limit (10 mrad)	%	<u>1.09E-06</u>	<u>4.48E-03</u>	
	Percent of Annual Gamma Air Dose Limit to Date (10 mR)	%	<u>8.56E-07</u>	<u>1.39E-02</u>	
	Percent of Annual Beta Air Dose Limit to Date (20 mrad)	%	<u>5.45E-07</u>	<u>2.24E-03</u>	
	Percent of Whole Body Dose Rate Limit (500 mrem/yr)	%	<u>4.55E-08</u>	<u>7.45E-04</u>	
	Percent of Skin Dose Rate Limit (3000 mrem/yr)	%	<u>2.01E-08</u>	<u>1.95E-04</u>	
	<u>Tritium, Iodines, and Particulates<sup>1</sup></u> <u>(with half-lives greater than 8 days)</u>				
	Percent of Quarterly Dose Limit (7.5 mrem)	%	<u>4.47E-01</u>	<u>3.58E-01</u>	
	Percent of Annual Dose Limit (15 mrem)	%	<u>2.25E-01</u>	<u>4.23E-01</u>	
	Percent of Organ Dose Rate Limit (1500 mrem/yr)	%	<u>9.07E-03</u>	<u>7.19E-03</u>	

<sup>1</sup> Tritium, Iron-55, and Strontium results for June were not received from the off-site vendor at the time of this report. These values include estimates, and actual numbers will be provided in the next report period.

Unit 1 X Unit 2   

Reporting Period January - June 2002

GASEOUS EFFLUENTS - ELEVATED RELEASE

		CONTINUOUS MODE <sup>3</sup>		BATCH MODE There were no batch Releases during the Reporting period.	
Nuclides Released		1st QUARTER	2nd QUARTER	1st QUARTER	2nd QUARTER
1.	<u>Fission Gases</u> <sup>1</sup>				
	Argon-41	Ci	**	**	
	Krypton-85	Ci	**	**	
	Krypton-85m	Ci	**	**	
	Krypton-87	Ci	**	**	
	Krypton-88	Ci	**	**	
	Xenon-127	Ci	**	**	
	Xenon-131m	Ci	**	**	
	Xenon-133	Ci	**	**	
	Xenon-133m	Ci	**	**	
	Xenon-135	Ci	**	**	
	Xenon-135m	Ci	**	**	
	Xenon-137	Ci	**	**	
	Xenon-138	Ci	**	<u>1.24E+00</u>	
2.	<u>Iodines</u> <sup>1</sup>				
	Iodine-131	Ci	<u>7.15E-04</u>	<u>5.31E-04</u>	
	Iodine-133	Ci	<u>4.40E-03</u>	<u>2.07E-03</u>	
	Iodine-135	Ci	**	**	
3.	<u>Particulates</u> <sup>1,2</sup>				
	Strontium-89	Ci	<u>1.95E-04</u>	<u>4.60E-04</u>	
	Strontium-90	Ci	**	<u>4.96E-05</u>	
	Cesium-134	Ci	**	**	
	Cesium-137	Ci	<u>2.04E-05</u>	**	
	Cobalt-60	Ci	<u>3.32E-04</u>	<u>2.36E-04</u>	
	Cobalt-58	Ci	<u>6.85E-06</u>	<u>2.21E-05</u>	
	Manganese-54	Ci	<u>7.29E-05</u>	<u>1.78E-04</u>	
	Barium-Lanthanum-140	Ci	<u>4.88E-05</u>	<u>8.76E-05</u>	
	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	<u>9.61E-04</u>	<u>3.07E-04</u>	
	Molybdenum-99	Ci	**	**	
	Neodymium-147	Ci	**	**	
4.	<u>Tritium</u> <sup>2</sup>	Ci	<u>8.20E+00</u>	<u>1.98E+01</u>	

<sup>1</sup> 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.

<sup>2</sup> Tritium, Iron-55, and Strontium results for June were not received from the off-site vendor at the time of this report. These values include estimates, and actual numbers will be included in the next report period.

<sup>3</sup> Contributions from purges are included.



Unit 1 X Unit 2   

Reporting Period January – June 2002

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.

		<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>
1.	<u>Fission Gases</u> <sup>1</sup>				
	Argon-41	Ci	**	**	
	Krypton-85	Ci	**	**	
	Krypton-85m	Ci	**	**	
	Krypton-87	Ci	**	**	
	Krypton-88	Ci	**	**	
	Xenon-127	Ci	**	**	
	Xenon-131m	Ci	**	**	
	Xenon-133	Ci	**	**	
	Xenon-133m	Ci	**	**	
	Xenon-135	Ci	<u>2.11E-04</u>	<u>1.56E-05</u>	
	Xenon-135m	Ci	**	**	
	Xenon-137	Ci	**	**	
	Xenon-138	Ci	**	**	
2.	<u>Iodines</u> <sup>1</sup>				
	Iodine-131	Ci	**	**	
	Iodine-133	Ci	**	**	
	Iodine-135	Ci	**	**	
3.	<u>Particulates</u> <sup>1,2</sup>				
	Strontium-89	Ci	**	<u>2.47E-07</u>	
	Strontium-90	Ci	**	<u>3.08E-08</u>	
	Cesium-134	Ci	**	**	
	Cesium-137	Ci	**	**	
	Cobalt-60	Ci	**	<u>1.76E-08</u>	
	Cobalt-58	Ci	**	**	
	Manganese-54	Ci	**	<u>2.88E-09</u>	
	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	**	<u>1.76E-08</u>	
	Molybdenum-99	Ci	**	**	
	Neodymium-147	Ci	**	**	
4.	<u>Tritium</u> <sup>2</sup>	Ci	<u>2.78E+00</u>	<u>2.08E+00</u>	

<sup>1</sup> Concentrations less than the lower limit of detection of the counting system used are indicated with a double asterisk.

<sup>2</sup> Tritium, Iron-55, and Strontium results for June 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 report period.

Unit 1 X Unit 2   

Reporting Period January – June 2002

LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES

		<u>1st</u> <u>QUARTER</u>	<u>2nd</u> <u>QUARTER</u>	<u>EST.</u> <u>TOTAL</u> <u>ERROR, %</u>	
<b>A. <u>Fission &amp; Activation Products</u></b>					
1.	Total release (not including Tritium, gases, alpha)	Ci	**	6.21E-01	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	**	4.85E-09	
<b>B. <u>Tritium</u></b>					
1.	Total release	Ci	2.86E+00	9.99E+00	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	2.20E-08	7.80E-08	
<b>C. <u>Dissolved and Entrained Gases</u></b>					
1.	Total release	Ci	**	**	5.00E+01
2.	Average diluted concentration during reporting period	µCi/ml	**	**	
<b>D. <u>Gross Alpha Radioactivity</u></b>					
1.	Total release	Ci	**	**	5.00E+01
<b>E. <u>Volumes</u></b>					
1.	Prior to dilution	Liters	N/A	N/A	5.00E+01
2.	Volume of dilution water used during release period	Liters	4.49E+10	9.45E+10	5.00E+01
3.	Volume of dilution water available during reporting period:	Liters	1.30E+11	1.28E+11	5.00E+01
<b>F. <u>Percent of Technical Specification Limits</u></b>					
	Percent of Quarterly Whole Body Dose Limit (1.5 mrem)	%	8.86E-05	6.86E-03	
	Percent of Quarterly Organ Dose Limit (5 mrem)	%	8.86E-05	3.99E-02	
	Percent of Annual Whole Body Dose Limit to Date (3 mrem)	%	4.42E-05	3.49E-03	
	Percent of Annual Organ Dose Limit to Date (10 mrem)	%	4.42E-05	1.99E-02	
	Percent of 10CFR20 Concentration Limit	%	7.33E-04	3.21E-03	
	Percent of Dissolved or Entrained Noble Gas Limit (2.00E-04 µCi/ml)	%	**	**	

<sup>1</sup> Activities whose concentrations were less than the lower limit of detection of the counting system used are indicated with a double asterisk.

Unit 1 X Unit 2   

Reporting Period January – June 2002

LIQUID EFFLUENTS RELEASED

		CONTINUOUS MODE <sup>1</sup>	
		1st QUARTER	2nd QUARTER
Nuclides Released			
Strontium-89	Ci	**	**
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	**	**
Iodine-133	Ci	**	**
Iron-55	Ci	**	<u>6.21E-01</u>
Neptunium-239	Ci	**	**
Iodine-135	Ci	**	**
Dissolved or Entrained Gases	Ci	**	**
Tritium	Ci	<u>2.86E+00</u>	<u>9.99E+00</u>

<sup>1</sup> No batch mode release occurred during the report period.

<sup>2</sup> Concentrations less than lower limit of detection of the counting system used are indicated with a double asterisk.

Unit 1 X

Unit 2   

Reporting Period January - June 2002

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A.1 TYPE	Volume (m <sup>3</sup> )			Activity <sup>1</sup> (Ci)		
	Class			Class		
	A	B	C	A	B	C
1. Spent Resins (Class A), Mechanical Filters (Class C) (Dewatered)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
2. Dry Active Waste (Contaminated Equipment)	<u>0</u>	<u>5.55E+00</u>	<u>0</u>	<u>0</u>	<u>2.43E+01</u>	<u>0</u>
3. Other: (to vendor for processing or consolidation)						
a. Dry Active Waste	<u>7.25E+01</u>	<u>0</u>	<u>0</u>	<u>1.20E-01</u>	<u>0</u>	<u>0</u>
b. Resins (Dewatered)	<u>2.22E+01</u>	<u>0</u>	<u>0</u>	<u>7.25E+01</u>	<u>0</u>	<u>0</u>

<sup>1</sup> The estimated total error is 5.00E+01%.

Unit 1 <u>X</u> Unit 2 <u>  </u>		Reporting Period <u>January – June 2002</u>	
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS			
A.1 TYPE	<u>Container</u>	<u>Package</u>	<u>Solidification Agent</u>
1. Spent Resins, Mechanical Filters (Dewatered)			
2. Dry Active Waste (Contaminated Equipment)	<u>Poly HIC w/ steel shell</u>	<u>Type A</u>	<u>None</u>
3. Other: (To Vendor for Processing or Consolidation)			
a. Dry Active Waste	<u>Metal Box (sealand)</u>	<u>STP</u>	<u>None</u>
b. Spent Resins (Dewatered)	<u>HIC</u> <u>HIC</u>	<u>STP</u> <u>Type A</u>	<u>None</u> <u>None</u>

Unit 1 <u>X</u>	Unit 2 <u>  </u>	Reporting Period <u>January – June 2002</u>
<b>SOLID WASTE AND IRRADIATED FUEL SHIPMENTS</b>		
A.2 ESTIMATE OF MAJOR NUCLIDE COMPOSITION (BY TYPE OF WASTE)		
a. Spent Resins, Mechanical Filters (Dewatered)		
<u>Nuclide (Resins)</u>	<u>Percent (Resins)</u>	
b. Dry Active Waste (Contaminated Equipment)		
<u>Nuclide</u> (1) Fe-55 (2) Co-60 (3) Mn-54 (4) Cs-137 (5) Other	<u>Percent</u> 7.26E+01 1.59E+01 4.65E+00 4.64E+00 2.21E+00	
c. Other: (to Vendor for Processing or Consolidation)		
1. Dry Active Waste	<u>Nuclide</u> (1) Fe-55 (2) Co-60 (3) Cs-137 (4) Mn-54 (5) Ce-144 (6) Ni-63 (7) Other	<u>Percent</u> 7.17E+01 1.86E+01 3.78E+00 3.09E+00 1.54E+00 1.12E+00 1.70E-01
2. Misc. Filters and Equipment	<u>Nuclide</u> (1) Fe-55 (2) Co-60 (3) Mn-154 (4) C-14 (5) Other	<u>Percent</u> 4.30E+01 3.05E+01 2.41E+01 1.21E+00 1.19E+00

Unit 1 X Unit 2   

Reporting Period January – June 2002

**SOLID WASTE AND IRRADIATED FUEL SHIPMENTS**

**A.3. SOLID WASTE DISPOSITION:**

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>4</u>	<u>Truck</u>	<b>Studsvik Processing Facility, LLC <u>Erwin, TN</u></b>
<u>1</u>	<u>Truck</u>	<b>GTS Duratek <u>Oak Ridge, TN</u></b>
<u>1</u>	<u>Truck</u>	<b>Barnwell Waste Management Facility <u>Barnwell, SC</u></b>

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

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

Unit 1 X Unit 2    

Reporting Period January - June 2002

**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 2002. 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 trash, dry non-compressible waste, asbestos, scrap metal, and resins) that was processed and commingled prior to burial.

C.1. TYPE OF WASTE - Compacted and noncompacted trash, dry non-compressible waste, asbestos, scrap metal, and resins processed by vendor facilities prior to burial.

Burial Volume (m <sup>3</sup> )	Activity (Ci)	Est. Total Error, %
<u>7.32E+00</u>	<u>6.95E+01</u>	<u>5.00E+01</u>

C.2. ESTIMATE OF MAJOR NUCLIDE COMPOSITION

<u>Nuclide</u>	<u>Percent</u>
(1) Fe-55	4.37E+01
(2) Co-60	3.13E+01
(3) Mn-54	2.25E+01
(4) C-14	1.25E+00
(5) Other	1.25E+00

C.3. SOLID WASTE DISPOSITION

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
<u>10</u>	<u>Truck</u>	<u>Clive, UT</u>
<u>10</u>	<u>Truck</u>	<u>Barnwell, SC</u>



Unit 1  Unit 2 Reporting Period January - June 2002**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.

Unit 1 X    Unit 2   

Reporting Period January - June 2002

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

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

Unit 1 X    Unit 2   

Reporting Period January - June 2002

**SUMMARY OF CHANGES TO THE PROCESS CONTROL PROGRAM (PCP)**

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

Unit 1 <u>X</u> Unit 2 <u>  </u>	Reporting Period <u>January - June 2002</u>
<b>SUMMARY OF INOPERABLE MONITORS</b>	
There were no monitors inoperable for more than 30 days during the report period.	

Unit 1 X Unit 2   

Reporting Period July - December 2001

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

Update of data using actual results from the offsite vendors for Strontium, Tritium, and Iron-55 for the fourth quarter of 2001.

Nuclide	GASEOUS	LIQUID
	4 <sup>th</sup> QUARTER 2001	4 <sup>th</sup> QUARTER 2001
	Activity (Ci)	Activity (Ci)
Sr-89	<u>1.89E-04</u>	<u>No Releases</u>
Sr-90	<u>**</u>	<u>No Releases</u>
H-3	<u>1.19E+01</u>	<u>No Releases</u>
Fe-55	<u>1.72E-03</u>	<u>No Releases</u>

			GASEOUS	LIQUID
<u>Particulates</u>	1. Particulates with half-lives >8 days	Ci	<u>3.01E-03</u>	<u>No Releases</u>
	2. Average release rate for period	μCi/sec (gaseous) μCi/ml (liquid)	<u>3.78E-04</u>	<u>No Releases</u>
<u>Tritium</u>	1. Total release	Ci	<u>1.19E+01</u>	<u>No Releases</u>
	2. Average release rate for period	μCi/sec (gaseous) μCi/ml (liquid)	<u>1.50E+00</u>	<u>No Releases</u>

			GASEOUS	LIQUID
<u>Tritium, Iodines, and Particulates (with half-lives greater than 8 days)</u>	1. Percent of Quarterly Dose Limit <sup>2</sup>	%	<u>6.18E-01</u> (Quarterly)	<u>No Releases</u> (Quarterly)
	2. Percent of Annual Dose Limit to Date <sup>1</sup>	%	<u>2.00E+00</u> (Annual)	<u>No Releases</u> (Annual)
	3. Percent of Organ Dose Rate Limit (Gaseous)(Quarterly)-Dose Limit (Liquid) (Quarterly & Annual)	%	<u>1.23E-02</u> (Quarterly)	<u>No Releases</u> (Quarterly) <u>No Releases</u> (Annual)
	4. Percent of 10CFR20 Concentration Limit <sup>2</sup> (Liquid)	%		<u>No Releases</u>
	5. Percent of Dissolved or Entrained Noble Gas (Liquid)	%		<u>No Releases</u>

<sup>1</sup> The dose is to the whole body for liquid effluents and to the maximally exposed organ for gaseous effluents.

<sup>2</sup> The percent of the 10CFR20 concentration limit is based on the average concentration during the quarter.

Unit 1  Unit 2 Reporting Period July – December 2001**UPDATE OF DOSES TO MEMBERS OF THE PUBLIC DUE TO THEIR ACTIVITIES OUTSIDE THE SITE BOUNDARY FOR 2001**

The total whole body and skin dose from shoreline recreational activities for 2001 were previously reported in the July – December 2001 Semi-annual Radioactive Effluent Release Report as 7.51E-04 mRem whole body and 8.77E-04 mRem skin dose. As a result of a calculation error and updated analysis results the correct total whole body and skin dose from shoreline recreational activities for 2001 are 2.26E-04 mRem whole body and 2.64E-04 mRem skin dose.

The calculation error resulted in the whole body and skin doses being reported higher than their correct values. This error has been entered into our corrective action program.