2008

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

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1.0 INTRODUCTION

This Annual Radioactive Effluent Release Report is for the R. E. Ginna Nuclear Power Plant and is submitted in accordance with the requirements of Technical Specification Section 5.6.3. The report covers the period from January 1, 2008 through December 31, 2008.

This report includes a summary of the quantities of radioactive gaseous and liquid effluents and solid waste released from the plant presented in the format outlined in Appendix B of Regulatory Guide 1.21, Revision 1, June 1974.

All gaseous and liquid effluents discharged during this reporting period were in compliance with the limits of the R. E. Ginna Technical Specifications as defined in the Offsite Dose Calculation Manual (ODCM).

2.0 SUPPLEMENTAL INFORMATION

2.1 Regulatory Limits

The ODCM limits applicable to the release of radioactive material in liquid and gaseous effluents are:

2.1.1 Fission and Activation Gases

The instantaneous dose rate, as calculated in the ODCM, due to noble gases released in gaseous effluents from the site shall be limited to a release rate which would yield $\leq$ 500 mrem/yr to the total body and $\leq$ 3000 mrem/yr to the skin if allowed to continue for a full year.

The air dose, as calculated in the ODCM, due to noble gases released in gaseous effluents from the site shall be limited to the flowing:

(i) During any calendar quarter to $\leq$ 5 mrad for gamma radiation and to $\leq$ 10 mrad for beta radiation.

(ii) During any calendar year to $\leq$ 10 mrad for gamma radiation and to $\leq$ 20 mrad for beta radiation.

2.1.2 Radioiodine, Tritium, and Particulates

The instantaneous dose rate, as calculated in the ODCM, due to radioactive materials released in gaseous effluents from the site as radioiodines, radioactive

materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days shall be limited to a release rate which would yield ≤ 1500 mrem/yr to any organ if allowed to continue for a full year.
The dose to an individual, as calculated in the ODCM, from radioiodine, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days released with gaseous effluents from the site shall be limited to the following:

(i) During any calendar quarter to ≤ 7.5 mrem to any organ.

(ii) During any calendar year to ≤ 15 mrem to any organ.

2.1.3 Liquid Effluents

The release of radioactive liquid effluents shall be such that the concentration in the circulating water discharge does not exceed ten times the concentration values specified in Appendix B, Table 2, Column 2 and notes thereto of 10 CFR 20, as explained in Section 1 of the ODCM. For dissolved or entrained noble gases the total activity due to dissolved or entrained noble gases shall not exceed 2.0 E-04 uCi/ml.

The dose or dose committed to an individual as calculated in the ODCM from radioactive materials in liquid effluents released to unrestricted areas shall be limited:

(i) During any calendar quarter to ≤ 1.5 mrem to the total body and to ≤ 5 mrem to any organ, and

(ii) During any calendar year to ≤ 3 mrem to the total body and to ≤ 10 mrem to and organ.

2.2 Effluent Air and Water Concentrations

2.2.1 For gaseous effluents, effluent concentration limits are not directly used in release rate calculations since the applicable limits are stated in terms of dose rate at the unrestricted area boundary, in accordance with Technical Specification 5.5.4.g.

2.2.2 For liquid effluents, ten times the effluent concentration values specified in 10 CFR 20, Appendix B, Table II, Column 2, are used to calculate release rates and permissible concentrations at the unrestricted area boundary as permitted by Technical Specification 5.5.4.b. A value of 2.0 E-04 uCi/ml is used as the ECL for dissolved and entrained noble gases in liquid effluents.

2.3 Release Rate Limits

The release rate limits for fission and activation gases from the R. E. Ginna Nuclear Power Plant are not based on the average energy of the radionuclide mixture in gaseous effluents; therefore, this value is not applicable. However the 2008 average beta/gamma energy of the radionuclide mixture in fission and activation gases released from Ginna is available for review upon request.

2.4 Measurements and Approximations of Total Radioactivity

Gamma spectroscopy was the primary analysis method used to determine the radionuclide composition and concentration of gaseous and liquid effluents. Composite samples were analyzed for Sr-89, Sr-90, and Fe-55 by a contract laboratory. Tritium and alpha were performed using liquid scintillation and gas flow proportional counting respectively.

The total radioactivity in effluent releases was determined from the measured concentration of each radionuclide present and the total volume of effluents released.

2.5 Batch Releases

2.5.1 Liquid

1. Number of batch releases:	1.68 E+02
2. Total time period for batch releases:	1.05 E+06 min
3. Maximum time period for a batch release:	4.46 E+04 min
4. Average time period for batch releases:	6.25 E+03 min
5. Minimum time period for a batch release:	1.90 E+01 min
6. Average blowdown (LPM) during periods of effluent release into the discharge canal:	4.43 E+02 lpm

2.5.2 Gaseous

1. Number of batch releases:	4.00 E+01
2. Total time period for batch releases:	5.20 E+05 min
3. Maximum time period for a batch release:	4.46 E+04 min
4. Average time period for batch releases:	1.30 E+04 min
5. Minimum time period for a batch release:	3.10 E+01 min

2.6 Abnormal Releases

There were two abnormal or unplanned releases in 2008 that are included in the gaseous batch release table 1B.

2.6.1 Gaseous

Two (2) unplanned releases with a total activity of 1.19 E+00 Curies.

Permit 2008-042 VCT Valve Leakage 1.19 E+00 Curies. (Condition Report, CR-2008-005464)
Permit 2008-051 Pressurizer Valve Leakage 2.27 E-03 Curies. (Condition Report, CR-2008-006575)

3.0 SUMMARY OF GASEOUS RADIOACTIVE EFFLUENTS

The quantities of radioactive material released in gaseous effluents are summarized in Tables 1A and 1B. Plant Vent and Containment Vent releases are modeled as mixed mode and Air Ejector is modeled as ground level release. In 2005, Ginna revised gaseous release procedures to remove the unrealistically conservative step of including sample activity that was less than the Minimum Detectable Activity, MDA, (which is the calculated *a posteriori* LLD for each sample counted), as if it were actually a measured value. This conservatism had been included in procedures years ago to account for sample purges and valve leakage which have since been demonstrated to be dramatically lower than the conservative estimate. Any leaks or purges with measurable activity are now included in release permits by integration of Radiation Monitoring System (RMS) data. This change has resulted in lower total reported activity in gaseous effluents for 2008 as compared to years prior to 2005.

4.0 SUMMARY OF LIQUID RADIOACTIVE EFFLUENTS

The quantities of radioactive material released in liquid effluents are summarized in Tables 2A and 2B.

5.0 SOLID WASTE

The quantities of radioactive material released in shipments of solid waste transported from the site during the reporting period are summarized in Table 3. Principal nuclides were determined by gamma spectroscopy and non-gamma emitters were calculated from scaling factors determined by an independent laboratory from representative samples of that waste type. The majority of Dry

Active Waste is processed utilizing an off-site processor who reduces the volume and then sends the waste for burial.

6.0 LOWER LIMIT OF DETECTION

The required Lower Limit of Detection, (LLD), as defined in the ODCM, was met for all samples used in reporting effluent releases for 2008 except as listed below:

Gaseous Permit Containment Mini Purge Permit 2008-028 I-131 and I-133 LLDs not met due to reduced sample collection time.

Liquid Permit "A" Monitoring Tank Permit 2008-147 Cs-137 LLD not met due to increased compton background activity in sample. Technically not a missed LLD but missed a posteriori MDA.

7.0 RADIOLOGICAL IMPACT

An assessment of doses to the maximally exposed individual from gaseous and liquid effluents was performed for locations representing the maximum calculated dose in occupied sectors. Meteorological sectors from WNW through ENE are entirely over Lake Ontario. In all cases, calculated dose in each sector was significantly below the ODCM limit. Doses were assessed based upon historical meteorological conditions considering the noble gas exposure, inhalation, ground plane exposure, and ingestion pathways. The ingestion pathways considered were the fruit, vegetable, fish, drinking water, goat's milk, cow's milk, and cow meat pathways. Results of this assessment are presented in Tables 4A and 4B. Since September 11, 2001, Ginna Security had been augmented by full-time presence of the New York State Police and the New York National Guard. The augmentation was discontinued in mid 2008. These personnel had posts within the site boundary. For this reason, the exposure and uptake pathways for 2008 are calculated using meteorological dispersion and deposition parameters at onsite posts, as well as at the site boundary.

7.1 Total Dose

40 CFR 190 limits the total dose to members of the public due to radiation and radioactivity from uranium fuel cycle sources to:

<25 mrem total body or any organ and;
<75 mrem thyroid for a calendar year.

Using the maximum exposure and uptake pathways, the maximum liquid pathways, and the direct radiation measurements onsite in the vicinity of the

National Guard outpost, yield the following dose summaries to the maximally exposed individual member of the public onsite.

8.34E-01 mrem total body (8.00E-01 mrem direct radiation plus 3.44E-02 mrem all other pathways).
3.43E-02 mrem GI-LLI (maximum organ dose).

The estimated maximum dose to the National Guard personnel onsite in 2008 is significantly less than the dose to the hypothetical maximally exposed individual member of the public offsite. This is due to their departure from site in mid 2008, direct radiation shielding effects, and meteorological dispersion/deposition parameters at the National Guard outpost.

Using the maximum exposure and uptake pathways, the maximum liquid pathways, and the direct radiation measurements at the site boundary, yield the following dose summaries to the hypothetical maximally exposed individual member of the public offsite. This dose conservatively bounds any real member of the public.

7.2E+00 mrem total body (7.2E+00 mrem direct radiation plus 3.44E-02 mrem all other pathways).
3.43E-02 mrem GI-LLI (maximum organ dose).

8.0 METEOROLOGICAL DATA

The annual summary of hourly meteorological data collected during 2008 is not included with this report, but can be made available at the R. E. Ginna Nuclear Power Plant.

9.0 LAND USE CENSUS CHANGES

The following land use changes have occurred over the within a 5-mile radius of the power plant:

- The pace of the development of single family homes has slowed compared to previous years.
- Although relatively small, planned commercial development did not proceed to the construction phase.
- No new agricultural land use noted.
- A new onsite supplemental garden added to the East of the plant to provide additional samples.
- No new food producing facilities were noted.

10.0 CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL

Changes to the ODCM during the reporting period are summarized below. All changes followed the site process which includes reviews to ensure no reduction in accuracy or reliability of dose calculations or set point determinations occurred as a result of the change. All ODCM changes received required Plant Operation Review Committee (PORC) (onsite review function) recommendation for approval prior to being implemented.

ODCM Revision 21 (change ODCM/008) included updated titles, references to RG&E changed to Ginna, replacement of radiation monitor R15A references with R47 and R48 due to monitor replacement, added clarifying information to several notes, and increased control limit in C.2.1 from a factor of ten to a factor of one hundred to remove a conservatism in calculations of gaseous releases at the point of release.

ODCM Revision 22 (change ODCM/009) included the relocation of environmental dosimeter #13 due to Independent Spent Fuel Storage Installation (ISFSI) construction.

ODCM Revision 23 (change ODCM/010)included the relocation of environmental air sampler station #4 and environmental dosimeter #4 due to new parking lot construction.

A copy of the current Revision 24 of the ODCM is attached to this report.

11.0 CHANGES TO THE PROCESS CONTROL PROGRAM

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

12.0 MAJOR CHANGES TO THE RADWASTE TREATMENT SYSTEMS

There were no major changes to the Radwaste Treatment Systems during the reporting period.

13.0 INOPERABLE MONITORS

The following gaseous effluent monitors were inoperable for greater than 7 days in 2008:
R10B (07/04/08-07/24/08) failed source check and required repairs. (19.4 days)
R48 (06/30/08-07/25/08) failed and required repairs. (24.8 days)

R47 (12/13/08-12/23/08) due to air ejector in leakage >20 cfm. Air ejector leakage was reduced by a piping repair. (10.2 days)

No gaseous or liquid effluent monitors were inoperable for greater than 30 days in 2008.

14.0 GROUNDWATER SAMPLING RESULTS

No inadvertent releases to groundwater occurred during 2008. Sample results are included in Table 5.

15.0 CHANGES TO PREVIOUS ANNUAL EFFLUENT OPERATING REPORTS

None

R. E. Ginna Nuclear Power Plant

Table 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
January – June 2008

A. Fission & Activation Gases	Unit	Quarter 1st	Quarter 2nd	Est. Total Error, %
1. Total release	Ci	4.59E-01	2.98E+00	1.50E+01
2. Average release rate for period	uCi/sec	5.84E-02	3.79E-01	
3. Percent of Technical Specification limit	%	9.27E-05	6.02E-04	
B. Iodines				
1. Total iodine-131	Ci	0.00E+00	3.44E-08	1.50E+01
2. Average release rate for period	uCi/sec		4.37E-09	
3. Percent of Technical Specification limit	%		9.60E-06	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci		1.34E-07	2.00E+01
2. Average release rate for period	uCi/sec		1.70E-08	
3. Percent of Technical Specification limit	%		1.28E-06	
4. Gross alpha radioactivity	Ci			
D. Tritium				
1. Total release	Ci	1.38E+01	1.68E+01	9.20E+00
2. Average release rate for period	uCi/sec	1.75E+00	2.14E+00	
3. Percent of Technical Specification limit	%	2.06E-04	2.52E-04	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
July – December 2008

A. Fission & Activation Gases	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
1. Total release	Ci	5.10E-01	6.24E-01	1.50E+01
2. Average release rate for period	uCi/sec	6.41E-02	7.86E-02	
3. Percent of Technical Specification limit	%	1.02E-04	1.25E-04	
B. Iodines				
1. Total iodine-131	Ci	0.00E+00	0.00E+00	
2. Average release rate for period	uCi/sec			
3. Percent of Technical Specification limit	%			
C. Particulates				
1. Particulates with half-lives > 8 days	Ci			
2. Average release rate for period	uCi/sec			
3. Percent of Technical Specification limit	%			
4. Gross alpha radioactivity	Ci			
D. Tritium				
1. Total release	Ci	1.15E+01	1.22E+01	9.20E+00
2. Average release rate for period	uCi/sec	1.44E+00	1.53E+00	
3. Percent of Technical Specification limit	%	1.69E-04	1.80E-04	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
January – June 2008

A. Fission & Activation Products	Unit	Quarter 1st	Quarter 2nd	Est. Total Error, %
1. Total release (not including tritium, gases, alpha)	Ci	1.74E-04	2.53E-03	9.90E+00
2. Average diluted concentration during period	uCi/ml	3.96E-13	5.88E-12	
3. Percent of applicable limit	%	9.78E-13	3.73E-12	
B. Tritium				
1. Total release	Ci	1.66E+02	9.48E+01	9.20E+00
2. Average diluted concentration during period	uCi/ml	3.83E-07	2.20E-07	
3. Percent of applicable limit	%	1.92E+00	1.10E+00	
C. Dissolved and entrained gases				
1. Total release	Ci	4.39E-04	6.11E-03	9.90E+00
2. Average diluted concentration during period	uCi/ml	1.01E-12	1.42E-11	
3. Percent of applicable limit	%	5.05E-07	7.10E-06	
D. Gross alpha radioactivity				
1. Total release	Ci	0.00E+00	0.00E+00	
E. Volume of waste released (prior to dilution)	Liters	1.02E+08	9.26E+07	
F. Volume of dilution water used during period	Liters	4.33E+11	4.30E+11	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table.2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
July – December 2008

A. Fission & Activation Products	Unit	Quarter 3rd	Quarter 4th	Est. Total Error, %
1. Total release (not including tritium, gases, alpha)	Ci	1.67E-03	7.38E-04	9.90E+00
2. Average diluted concentration during period	uCi/ml	3.26E-12	1.48E-12	
3. Percent of applicable limit	%	3.09E-12	2.07E-12	
B. Tritium				
1. Total release	Ci	3.30E+01	3.65E+01	9.20E+00
2. Average diluted concentration during period	uCi/ml	6.42E-08	7.30E-08	
3. Percent of applicable limit	%	3.21E-01	3.65E-01	
C. Dissolved and entrained gases				
1. Total release	Ci	0.00E+00	0.00E+00	
2. Average diluted concentration during period	uCi/ml			
3. Percent of applicable limit	%			
D. Gross alpha radioactivity				
1. Total release	Ci	0.00E+00	0.00E+00	
E. Volume of waste released (prior to dilution)	Liters	1.07E+08	1.06E+08	
F. Volume of dilution water used during period	Liters	5.13E+11	5.00E+11	

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS – CONTINUOUS AND BATCH RELEASES
January – June 2008

		Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
Nuclides released	Unit	1st	2nd	1st	2nd
1. Fission Gases					
Argon-41	Ci			9.11E-02	8.33E-01
Krypton-85	Ci				
Krypton-85m	Ci				3.04E-02
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-131m	Ci				2.88E-03
Xenon-133	Ci		3.20E-01	3.65E-01	1.34E+00
Xenon-133m	Ci				6.69E-03
Xenon-135	Ci		1.57E-02	2.81E-03	4.25E-01
Xenon-135m	Ci				
Xenon-138	Ci				
Others (specify)	Ci				
Xenon-135	Ci				
	Ci				
Total for period	Ci	0.00E+00	3.36E-01	4.60E-01	2.63E+00
2. Iodines					
Iodine-131	Ci				3.44E-08
Iodine-132	Ci				6.70E-07
Iodine-133	Ci				
Others (specify)	Ci				
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	7.04E-07
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium-137	Ci				
Niobium-95	Ci				
Cobalt-58	Ci				1.34E-07
Cobalt-60	Ci				
Bromine-82	Ci		2.06E-05		7.72E-06
Total for period	Ci	0.00E+00	2.06E-05	0.00E+00	7.85E-06

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

GASEOUS EFFLUENTS – CONTINUOUS AND BATCH RELEASES
July – December 2008

		Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
Nuclides released	Unit	3rd	4th	3rd	4th
1. Fission Gases					
Argon-41	Ci			6.85E-02	7.21E-02
Krypton-85	Ci				
Krypton-85m	Ci			4.53E-04	7.48E-04
Krypton-87	Ci				
Krypton-88	Ci				
Xenon-131m	Ci				
Xenon-133	Ci			4.28E-01	5.36E-01
Xenon-133m	Ci			1.64E-03	1.22E-03
Xenon-135	Ci			1.13E-02	1.35E-02
Xenon-135m	Ci				
Xenon-138	Ci				
Others (specify)	Ci				
	Ci				
	Ci				
	Ci				
Total for period	Ci	0.00E+00	0.00E+00	5.10E-01	6.23E-01
2. Iodines					
Iodine-131	Ci				
Iodine-132	Ci				
Iodine-133	Ci				
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3. Particulates					
Strontium-89	Ci				
Strontium-90	Ci				
Cesium-134	Ci				
Cesium-137	Ci				
Niobium-95	Ci				
Cobalt-58	Ci				
Cobalt-60	Ci				
Zirconium-95	Ci				
Total for period	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: Isotopes for which no value is given were not identified in applicable releases.

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Table 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS – CONTINUOUS AND BATCH RELEASES
January – June 2008

Nuclides released	Unit	Continuous Mode Quarter 1st	Continuous Mode Quarter 2nd	Batch Mode Quarter 1st	Batch Mode Quarter 2nd
Nuclide					
Chromium-51	Ci				1.98E-05
Manganese-54	Ci				
Iron-55	Ci				
Cobalt-57	Ci				
Cobalt-58	Ci			1.56E-05	2.37E-03
Iron-59	Ci				
Cobalt-60	Ci			1.15E-04	1.11E-04
Zinc-65	Ci				
Stronium-89	Ci				
Stronium-90	Ci				
Niobium-95	Ci				
Zirconium-95	Ci				
Molybdenum-99	Ci				
Silver-110m	Ci				
Antimony-122	Ci				
Antimony-124	Ci				
Antimony-125	Ci			4.00E-05	
Iodine-131	Ci				
Iodine-132	Ci				1.39E-05
Tellerium-132	Ci				1.56E-05
Cesium-134	Ci				
Iodine-135	Ci				
Cesium-136	Ci				
Cesium-137	Ci				
Barium/Lanthanum-140	Ci				
Cerium-141	Ci				
Tellerium-123m	Ci			1.27E-06	2.86E-06
Tellerium-125m	Ci				
Total for period	Ci	0.00E+00	0.00E+00	1.72E-04	2.53E-03
Xenon-133	Ci			4.39E-04	6.06E-03
Xenon-133m	Ci				4.71E-05
Xenon-135	Ci				2.43E-06

Note: Isotopes for which no value is given were not identified in applicable releases.

R. E. Ginna Nuclear Power Plant

Table 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT

LIQUID EFFLUENTS – CONTINUOUS AND BATCH RELEASES
July – December 2008

		Continuous Mode		Batch Mode	
		Quarter	Quarter	Quarter	Quarter
Nuclides released	Unit	3rd	4th	3rd	4th
Nuclide					
Chromium-51	Ci				
Manganese-54	Ci				
Iron-55	Ci				
Cobalt-57	Ci				5.70E-06
Cobalt-58	Ci			1.60E-03	6.03E-04
Iron-59	Ci				
Cobalt-60	Ci			7.63E-05	1.22E-04
Zinc-65	Ci				
Stronium-89	Ci				
Stronium-90	Ci				
Niobium-95	Ci				
Zirconium-95	Ci				
Molybdenum-99	Ci				
Silver-110m	Ci				
Antimony-122	Ci				
Antimony-124	Ci				
Antimony-125	Ci				
Iodine-131	Ci				
Iodine-132	Ci				
Tellerium-132	Ci				
Cesium-134	Ci				
Iodine-135	Ci				
Cesium-136	Ci				
Cesium-137	Ci				
Barium/Lanthanum-140	Ci				
Cerium-141	Ci				
Tellerium-123m	Ci				7.71E-06
Tellerium-125m	Ci				
Total for period	Ci	0.00E+00	0.00E+00	1.68E-03	7.39E-04
Xenon-133	Ci				
Xenon-135	Ci				

Note: Isotopes for which no value is given were not identified in applicable releases.

Table 3
EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
January 1, 2008 - December 31, 2008

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL - (Not irradiated fuel)

1. Type of waste	Unit	12 month period	Est. total Error %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	1.61E+01 1.29E+02	7.00E+00
b. Dry compressible waste, contaminated equip, etc.	m^3 Ci	5.17E+01 5.36E+02	7.00E+00
c. Irradiated components, control rods, etc.	m^3 Ci	None	
d. Other:	m^3 Ci	None	

2.Estimate of major nuclide composition (by type of waste)								
a.			b.			d. (None)		
Co-58	%	2.70E+00	Fe-55	%	1.91E+01		%	
Ni-63	%	5.06E+01	Co-58	%	1.52E+01		%	
Co-60	%	1.32E+01	Ni-63	%	2.36E+01		%	
Cs-137	%	2.52E+00	Cr-51	%	2.24E+00		%	
Fe-55	%	2.60E+01	Co-60	%	3.14E+01		%	
Sb-125	%	1.07E+00	Zr-95	%	7.40E-01		%	
Co-57	%	2.30E-01	Mn-54	%	6.20E-01		%	
Mn-54	%	2.04E+00	Cs-137	%	2.97E+00		%	
Nb-95	%	2.10E-01	Nb-95	%	1.11E+00		%	
H-3	%	3.90E-01	H-3	%	1.41E+00		%	
Total		9.90E+01	Total		9.84E+01	Total		

3. Solid Waste Disposition		
Number of Shipments	**Mode of Transportation**	**Destination**
2.00E+00	Sole Use Truck	Barnwell, SC
5.00E+00	Sole Use Truck	Duratek, TN
9.00E+00	Sole Use Truck	Studsvik, TN

B. IRRADIATED FUEL SHIPMENTS (Disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
First Quarter 2008
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	2.66E-09	1.87E-09				
NNE	2.23E-09	1.57E-09				
NE	2.57E-09	1.81E-09				
ENE	3.27E-09	2.29E-09				
E	5.94E-09	4.17E-09	3.84E-07	4.21E-07	5.78E-07	2.52E-07
ESE	7.56E-09	5.31E-09	4.89E-07	5.35E-07	7.35E-07	3.21E-07
SE	4.57E-09	3.21E-09	2.96E-07	3.24E-07	4.45E-07	1.94E-07
SSE	1.89E-09	1.32E-09	1.22E-07	1.33E-07	1.83E-07	8.01E-08
S	3.30E-09	2.32E-09	2.13E-07	2.33E-07	3.21E-07	1.40E-07
SSW	3.30E-09	2.32E-09	2.13E-07	2.33E-07	3.21E-07	1.40E-07
SW	3.30E-09	2.32E-09	2.13E-07	2.33E-07	3.21E-07	1.40E-07
WSW	3.52E-09	2.47E-09	2.27E-07	2.49E-07	3.42E-07	1.49E-07
W	2.24E-09	1.57E-09	1.45E-07	1.58E-07	2.17E-07	9.50E-08
WNW	1.89E-10	1.33E-10				
NW	6.19E-10	4.35E-10				
NNW	1.94E-09	1.36E-09				
Maximum	7.56E-09	5.31E-09	4.89E-07	5.35E-07	7.35E-07	3.21E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
Second Quarter 2008
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	2.81E-08	2.33E-08				
NNE	2.35E-08	1.95E-08				
NE	2.71E-08	2.25E-08				
ENE	3.44E-08	2.86E-08				
E	6.26E-08	5.20E-08	7.58E-07	8.33E-07	1.14E-06	5.04E-07
ESE	7.97E-08	6.61E-08	9.64E-07	1.06E-06	1.45E-06	6.41E-07
SE	4.82E-08	4.00E-08	5.83E-07	6.41E-07	8.77E-07	3.88E-07
SSE	1.99E-08	1.65E-08	2.40E-07	2.64E-07	3.62E-07	1.60E-07
S	3.48E-08	2.88E-08	4.20E-07	4.62E-07	6.32E-07	2.80E-07
SSW	3.48E-08	2.88E-08	4.20E-07	4.62E-07	6.32E-07	2.80E-07
SW	3.48E-08	2.88E-08	4.20E-07	4.62E-07	6.32E-07	2.80E-07
WSW	3.71E-08	3.07E-08	4.48E-07	4.93E-07	6.74E-07	2.98E-07
W	2.36E-08	1.96E-08	2.85E-07	3.14E-07	4.29E-07	1.90E-07
WNW	1.99E-09	1.65E-09				
NW	6.53E-09	5.41E-09				
NNW	2.04E-08	1.69E-08				
Maximum	7.97E-08	6.61E-08	9.64E-07	1.06E-06	1.45E-06	6.41E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
Third Quarter 2008
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	2.20E-09	1.91E-09				
NNE	1.84E-09	1.60E-09				
NE	2.12E-09	1.85E-09				
ENE	2.70E-09	2.35E-09				
E	4.90E-09	4.27E-09	3.21E-07	3.51E-07	4.82E-07	2.11E-07
ESE	6.24E-09	5.43E-09	4.08E-07	4.46E-07	6.13E-07	2.68E-07
SE	3.77E-09	3.28E-09	2.47E-07	2.70E-07	3.71E-07	1.62E-07
SSE	1.56E-09	1.35E-09	1.02E-07	1.11E-07	1.53E-07	6.68E-08
S	2.72E-09	2.37E-09	1.78E-07	1.95E-07	2.67E-07	1.17E-07
SSW	2.72E-09	2.37E-09	1.78E-07	1.95E-07	2.67E-07	1.17E-07
SW	2.72E-09	2.37E-09	1.78E-07	1.95E-07	2.67E-07	1.17E-07
WSW	2.90E-09	2.52E-09	1.90E-07	2.07E-07	2.85E-07	1.25E-07
W	1.85E-09	1.61E-09	1.21E-07	1.32E-07	1.81E-07	7.93E-08
WNW	1.56E-10	1.36E-10				
NW	5.11E-10	4.45E-10				
NNW	1.60E-09	1.39E-09				
Maximum	6.24E-09	5.43E-09	4.08E-07	4.46E-07	6.13E-07	2.68E-07

R. E. Ginna Nuclear Power Plant

Table 4A
Radiation Dose to Maximum Individual Receptor
Fourth Quarter 2008
(Units in rem)

	All	All	Adult	Teen	Child	Infant
	Noble Gas	Noble Gas	Thyroid	Thyroid	Thyroid	Thyroid
	Air Gamma	Air Beta				
N	2.41E-09	2.27E-09				
NNE	2.02E-09	1.90E-09				
NE	2.33E-09	2.19E-09				
ENE	2.96E-09	2.78E-09				
E	5.38E-09	5.06E-09	3.40E-07	3.73E-07	5.12E-07	2.23E-07
ESE	6.84E-09	6.44E-09	4.33E-07	4.74E-07	6.51E-07	2.84E-07
SE	4.14E-09	3.90E-09	2.62E-07	2.87E-07	3.94E-07	1.72E-07
SSE	1.71E-09	1.61E-09	1.08E-07	1.18E-07	1.62E-07	7.08E-08
S	2.98E-09	2.81E-09	1.89E-07	2.07E-07	2.84E-07	1.24E-07
SSW	2.98E-09	2.81E-09	1.89E-07	2.07E-07	2.84E-07	1.24E-07
SW	2.98E-09	2.81E-09	1.89E-07	2.07E-07	2.84E-07	1.24E-07
WSW	3.18E-09	2.99E-09	2.01E-07	2.20E-07	3.03E-07	1.32E-07
W	2.02E-09	1.91E-09	1.28E-07	1.40E-07	1.93E-07	8.40E-08
WNW	1.71E-10	1.61E-10				
NW	5.60E-10	5.27E-10				
NNW	1.75E-09	1.65E-09				
Maximum	6.84E-09	6.44E-09	4.33E-07	4.74E-07	6.51E-07	2.84E-07

R. E. Ginna Nuclear Power Plant

Table 4B
Radiation Dose to Maximum Individual Receptor
From Liquid Release
2008
(Units in rem)

	Adult	Teen	Child	Infant
First Quarter				
Total Body	1.81E-06	1.32E-06	2.01E-06	1.58E-06
GI-LLI	1.82E-06	1.32E-06	2.01E-06	1.58E-06
Liver	1.81E-06	1.32E-06	2.01E-06	1.58E-06
Second Quarter				
Total Body	8.61E-07	6.28E-07	9.54E-07	7.47E-07
GI-LLI	9.33E-07	6.75E-07	9.63E-07	7.47E-07
Liver	8.57E-07	6.24E-07	9.48E-07	7.47E-07
Third Quarter				
Total Body	2.88E-07	2.11E-07	3.19E-07	2.48E-07
GI-LLI	3.26E-07	2.35E-07	3.24E-07	2.48E-07
Liver	2.85E-07	2.08E-07	3.15E-07	2.48E-07
Fourth Quarter				
Total Body	3.24E-07	2.36E-07	3.59E-07	2.81E-07
GI-LLI	3.44E-07	2.49E-07	3.61E-07	2.81E-07
Liver	3.23E-07	2.35E-07	3.57E-07	2.81E-07

R. E. Ginna Nuclear Power Plant
Table 5
Groundwater Monitoring Wells

Location	Depth to Water (ft)	Sample Date	Tritium
Groundwater AVT S. 13'	4.0	1/22/08	*
	1.9	2/24/08	*
	1.1	3/11/08	*
	1.3	4/11/08	*
	2.8	6/25/08	*
	4.0	9/3/08	*
	1.5	12/2/08	*
Groundwater AVT M. 17'	4.2	1/22/08	*
	2.3	2/24/08	*
	1.5	3/11/08	*
	1.7	4/11/08	*
	3.3	6/25/08	*
	4.2	9/3/08	*
	2.1	12/2/08	*
Groundwater AVT N. 6'	4.0	1/22/08	*
	2.2	2/24/08	*
	1.5	3/11/08	*
	1.9	4/11/08	*
	3.3	6/25/08	*
	N/A	9/3/08	(2)
	1.7	12/2/08	*
Screen House East, N. 24'[1]	9.6	6/25/08	*
	10.0	9/3/08	*
	9.7	12/2/08	*
Screen House East, M. 20'[1]	8.9	6/25/08	*
	9.6	9/3/08	*
	9.5	12/2/08	
Screen House East, So. 15.5'[1]	8.4	6/25/08	*
	9.7	9/3/08	*
	9.7	12/2/08	
Screen House West	N/A	1/22/08	(3)
	N/A	2/24/08	(3)
	N/A	3/11/08	(3)
	13.6	4/11/08	*
	6.2	6/25/08	*
	10.1	9/3/08	*
	8.8	12/2/08	*

R. E. Ginna Nuclear Power Plant
Table 5
Groundwater Monitoring Wells

Location	Depth to Water (ft)	Sample Date	Tritium
Butler Building	11.4	1/22/08	*
	11.7	2/24/08	*
	13.1	3/11/08	*
	12.9	4/11/08	*
	11.6	6/25/08	*
	14.3	9/3/08	*
	14.5	12/2/08	*
SE of CSB	16.5	1/22/08	*
	16.2	2/24/08	*
	15.3	3/11/08	*
	15.3	4/11/08	*
	17.2	6/25/08	*
	17.9	9/3/08	*
	15.5	12/2/08	*
Retention Pond		6/25/08	*
		9/03/08	*
		12/02/08	(3)
Storm Drain F		1/22/08	(2)
		2/24/08	(2)
		3/11/08	*
		4/11/08	(2)
		6/25/08	(2)
		9/03/08	(2)
		12/02/08	(2)
Storm Drain G		1/22/08	*
		2/24/08	*
		3/11/08	(3)
		4/11/08	*
		6/25/08	*
		9/03/08	*
		12/02/08	*
Storm Drain H		1/22/08	*
		2/24/08	*
		3/11/08	*
		4/11/08	*
		6/25/08	*
		9/03/08	(2)
		12/02/08	*

R. E. Ginna Nuclear Power Plant
Table 5
Groundwater Monitoring Wells

Location	Depth to Water (ft)	Sample Date	Tritium
Storm Drain I		1/22/08	*
		2/24/08	*
		3/11/08	*
		4/11/08	*
		6/25/08	*
		9/03/08	*
		12/02/08	*

* – Analytical results less than MDA
(1) – The Screen House East monitoring wells were established in late spring of 2008. The June 2008 analytical data represent the first analytical information collected from these wells.
(2) – Sampling location was dry. Unable to collect a sample for analysis.
(3) – Sampling location was frozen. Unable to collect a sample for analysis.