EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

Report Period: January 1 to June 30, 1984

Facility Ginna Station Licensee Rochester Gas & Electric

1. Regulatory Limits

a.	Fission and activation gases:	6.30 E+05 uCi/sec
b.	Iodines:	4.55 E-02 uCi/sec
c.	Particulates, half-lives > 8 days:	1.06 E+00 uCi/sec
d.	Liquid effluents:	Identified MPC

2. Maximum Permissible Concentrations

Provide the MPCs used in determining allowable release rates or concentrations.

a.	Fission and activation gases:	10 CFR PART 20
b.	Iodines:	10 CFR PART 20
c.	Particulates, half-lives > 8 days:	10 CFR PART 20
d.	Liquid effluents:	10 CFR PART 20 & 2E-04 uCi/ml for dissolved Noble Gases.

3. Average Energy

Provide the average energy ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases, if applicable.

0.189 Mev

4. Measurements and Approximations of Total Radioactivity

Provide the methods used to measure or approximate the total radioactivity in effluents and the methods used to determine radionuclide composition.

a.	Fission and activation gases:	Gamma Spectroscopy of Grab Samples and Continuous Gross Activity Monitoring
b.	Iodines:	Gamma Spectroscopy of Continuous Samples
c.	Particulates:	Gamma Spectrocsopy of Continuous Samples
d.	Liquid effluents:	Gamma Spectroscopy of Batch Grab Samples or Composited Samples.

5. Batch Releases

Provide the following information relating to batch releases of radioactive materials in liquid and gaseous effluents.

a. Liquid

1.	Number of batch releases:	490
2.	Total time period for batch releases:	46091 min.
3.	Maximum time period for a batch release:	3326 min.
4.	Average time period for batch releases:	94 min.
5.	Minimum time period for a batch release:	10 min.
6.	Average stream flow during periods of release of effluent into a flowing stream:	2.68 E+05 gpm

b. Gaseous

1.	Number of batch releases:	11
2.	Total time period for batch releases:	3573 min.
3.	Maximum time period for a batch release:	615 min.
4.	Average time period for batch releases:	325 min.
5.	Minimum time period for a batch release:	76 min.

6. Abnormal Releases

a. Liquid

1. Number of releases: NONE
2. Total activity released:

b. Gaseous

1. Number of releases: NONE
2. Total activity released:

TABLE 1A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter 1	Quarter 2	Est. Total Error %
A. Fission & activation gases				
1. Total release	Ci	2.39E+02	3.28E+00	1.3 E+01
2. Average release rate for period	uCi/sec	3.04E+01	4.17E-01	
3. Percent of technical specification limit	%	4.83E-03	6.62E-05	
B. Iodines				
1. Total iodine-131	Ci	1.30E-03	1.64E-04	1.5 E+01
2. Average release rate for period	uCi/sec	1.65E-04	2.09E-05	
3. Percent of technical specification limit	%	3.60E-01	4.58E-02	
C. Particulates				
1. Particulates with half-lives > 8 days	Ci	1.91E-06	8.71E-07	4.8 E+01
2. Average release rate for period	uCi/sec	2.43E-07	1.11E-07	
3. Percent of technical specification limit	%	2.29E-05	1.05E-05	
4. Gross alpha radioactivity	Ci	8.00E-08	1.46E-07	
D. Tritium				
1. Total release	Ci	2.31E+01	2.03E+01	8.0 E+00
2. Average release rate for period	uCi/sec	2.94E+00	2.56E+00	
3. Percent of technical specification limit	%	3.44E-04	2.99E-04	

TABLE 1B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

GASEOUS EFFLUENTS - ELEVATED RELEASE

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
1. Fission gases		1	2	1	2
krypton-85	Ci	6.50E-01		1.64E+00	2.22E+00
krypton-85m	Ci	6.48E-02	2.87E-03	5.84E-03	
krypton-87	Ci	8.97E-03	5.88E-03		
krypton-88	Ci	1.06E-02	7.67E-03		
xenon-133	Ci	2.25E+02	3.74E-02	6.05E+00	3.57E-01
xenon-135	Ci	4.11E+00	3.97E-01		
xenon-135m	Ci	9.08E-02	6.44E-02		
xenon-138	Ci	8.02E-03	1.88E-02		
Others (specify)	Ci				
xenon-133m	Ci	1.10E+00		2.96E-02	
xenon-131m	Ci	3.48E-01	8.37E-02	1.31E-01	1.95E-01
unidentified	Ci				
Total for period	Ci	2.31E+02	6.18E-01	7.86E+00	2.77E+00
2. Iodines					
iodine-131	Ci	1.30E-03	1.64E-04		
iodine-133	Ci	9.79E-05	1.80E-05		
iodine-135	Ci				
Total for period	Ci	1.40E-03	1.82E-04		
3. Particulates					
strontium-89	Ci	*	*		
strontium-90	Ci	*	*		
cesium-134	Ci				
cesium-137	Ci				
barium-lanthanum-140	Ci				
Others (specify)	Ci				
	Ci				
	Ci				
unidentified	Ci				

* Samples sent out for analysis but results not yet received. Data to be included with next semiannual report for July - December, 1984.

TABLE 2A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

	Unit	Quarter	Quarter	Est.Total Error, %
A. Fission and activation products		1	2	
1. Total release (not including tritium, gases, alpha)	Ci	8.75E-03	9.03E-02	8.7 E+00
2. Average diluted concentration during period	uCi/ml	5.92E-11	7.69E-10	
3. Percent of applicable limit	%	3.12E-04	4.24E-03	
B. Tritium				
1. Total release	Ci	1.33E+02	8.67E+01	8.0 E+00
2. Average diluted concentration during period	uCi/ml	8.96E-07	7.38E-07	
3. Percent of applicable limit	%	2.99E-02	2.46E-02	
C. Dissolved and entrained gases				
1. Total release	Ci	6.22E-04	2.19E-05	2.2 E+01
2. Average diluted concentration during period	uCi/ml	4.20E-12	1.86E-13	
3. Percent of applicable limit	%	2.10E-06	9.28E-08	
D. Gross alpha radioactivity				
1. Total release	Ci	1.22E-05	2.36E-04	2.6 E+01
E. Volume of waste released (prior to dilution)	liters	3.52E+07	2.51E+07	5.0 E+00
F. Volume of dilution water used during period	liters	1.48E+11	1.18E+11	5.0 E+00

TABLE 2B

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
Nuclides Released	Unit	Quarter	Quarter	Quarter	Quarter
strontium-89	Ci				*
strontium-90	Ci			2.00E-06	*
cesium-134	Ci			1.68E-03	2.18E-02
cesium-137	Ci			2.71E-03	3.40E-02
iodine-131	Ci			5.37E-06	
cobalt-58	Ci			2.17E-04	5.08E-03
cobalt-60	Ci			3.24E-03	2.01E-02
iron-59	Ci				2.10E-04
zinc-65	Ci				
manganese-54	Ci			6.71E-04	1.76E-03
chromium-51	Ci			9.65E-05	3.85E-03
zirconium-niobium-95	Ci			2.05E-05	5.40E-04
molybdenum-99	Ci				
technetium-99m	Ci				
barium-lanthanum-140	Ci			3.35E-07	1.06E-05
cerium-141	Ci				
Other (specify)	Ci				
ruthenium-103	Ci			6.86E-06	3.00E-04
silver-110m	Ci			8.11E-05	2.14E-03
cerium-144	Ci			1.46E-05	2.20E-04
iron-55	Ci			5.20E-03	*
unidentified	Ci				
Total for period (above)	Ci			8.75E-03	9.03E-02
xenon-133	Ci			6.22E-04	2.19E-05
xenon-135	Ci				

* Samples sent out for analysis but results not yet received. Data to be included with next semiannual report for July - December, 1984.

RELEASE PERMITS NOT MEETING LLD VALUE

No.	Date	Isotopes	Cause
203	3/14/84	Co-60	a.
204	3/15/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
205	3/16/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
206	3/16/84	Fe-59,Zn-65	b.
221	3/27/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
223	3/28/84	Zn-65,Cs-137,Ce-141	b.
224	3/28/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
225	3/29/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
230	4/01/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
234	4/03/84	Co-60	a.
235	4/03/84	Zn-65,Cs-137,Ce-141	b.
238	4/05/84	Fe-59,Zn-65,Ce-141	b.
239	4/05/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
240	4/05/84	Zn-65,Ce-141	b.
241	4/06/84	Zn-65,Cs-137,Ce-141	b.
243	4/07/84	Fe-59,Zn-65,Ce-141	b.
247	4/08/84	Fe-59,Zn-65	b.
255	4/11/84	Zn-65,Ce-141	b.
256	4/12/84	Fe-59,Zn-65,Cs-134, Cs-137,Ce-141	b.
257	4/12/84	Ce-141	b.
258	4/13/84	Mn-54,Fe-59,Zn-65,Cs-137,Cs-134,Ce-141	b.
259	4/13/84	Fe-59,Zn-65,Ce-141	b.
272	4/18/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
274	4/18/84	Zn-65,Cs-134,Cs-137,Ce-141,I-131	b.
276	4/18/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
278	4/19/84	Zn-65	b.
280	4/20/84	Fe-59,Zn-65,Cs-137,Cs-134,Ce-141	b.
289	4/22/84	Fe-59,Zn-65,Cs-134,Ce-141	b.
290	4/22/84	Fe-59,Zn-65,Ce-141	b.
355	5/15/84	Co-60	a.
411	5/30/84	Fe-59,Zn-65	b.
424	6/02/84	Co-60	a.
446	6/12/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
447	6/12/84	Zn-65,Cs-134,Cs-137,Ce-141	b.
449	6/13/84	Zn-65,Cs-134,Cs-137,Ce-141	b.
470	6/23/84	Ce-141	b.
471	6/23/84	Fe-59,Zn-65,Cs-134,Cs-137,Ce-141	b.
472	6/24/84	Fe-59,Zn-65,Cs-137,Ce-141	b.
473	6/24/84	Fe-59,Zn-65	b.
483	6/28/84	Co-60	a.

a. Co-60 is normally found as a background activity in all samples. When poor peak resolution is obtained from the detector and/or electronics on samples with no detectable activity, a high LLD calculation may result after the background correction in the Co-60 peak area.

b. Activity from other isotopes caused an increased background resulting in the LLD calculation exceeding 5E-07 for the listed isotopes.

2/26/84 Retention tank composite of continuous release.

Sampler was disconnected from sample point for majority of sample period. Sample obtained was small and not representative of compositing period. Releases through this sample point normally have no identifiable isotopes.

TABLE 3

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (YEAR)

SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

1. Type of Waste	Unit	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3 Ci	6.14E 1 2.02E 2	5.0 E 0
b. Dry compressible waste, contaminated equip., etc.	m^3 Ci	4.34E 1 6.25E 0	1.4 E 1
c. Irradiated components, control rods, etc.	N/A		
d. Other (describe)			

2. Estimate of major nuclide compositing (by type of waste)

a.	H-3	%	2.0E 1
	Co-58	%	1.6E 0
	Co-60	%	4.0E 1
	Ni-63	%	8.0E 0
	Cs-134	%	8.4E 1
	Cs-137	%	4.0E 1
b.	Co-58	%	2.9E 0
	Co-60	%	3.2E 1
	Cs-134	%	1.7E 1
	Cs-137	%	3.2E 1
	H-3	%	4.8E 0
	Ni-63	%	7.1E 0

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Highway Transport	Barnwell, SC
3	Highway Transport	Richland, WA

B. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Mode of Transportation	Destination
None Shipped		