

ATTACHMENT

Consumers Power Company  
Big Rock Point Plant  
Docket 50-155

Semiannual Radioactive Effluent Release Report  
January through June 1985  
Corrections to CPGO Submittal dated  
August 29, 1985

September 17, 1985

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BIG ROCK POINT SEMIANNUAL EFFLUENT REPORT  
JANUARY - JUNE 1985

This report provides information relating to radioactive effluent releases and solid radioactive waste disposal operations of the Big Rock Point Plant during the period of January through June 1985 in the format contained in Plant Technical Specification 6.9.2.

1. Supplemental Information

a. Batch Releases

Information relating to batch and continuous releases of liquid and gaseous effluents is provided in Table 1.

b. Abnormal Releases

None.

2. Gaseous Effluents

Table 2a presents a summary of all gaseous radioactive effluents released during the period. Release totals for each radionuclide determined to be present in gaseous effluents are contained in Table 2b. Gaseous releases of I-132, I-133 and I-135 were determined from the ratios of monthly short-lived halogen analyses to the weekly I-131 analyses. The maximum noble gas release rate was  $7.08\text{E}+03$  uCi/second. There were no I-134 releases.

3. Liquid Effluents

Table 3a presents a summary of all liquid radioactive effluents released during the period. Release totals for each radionuclide determined to be present in liquid effluents are contained in Table 3b. The maximum concentration was  $1.47\text{E}-07$  uCi/ml.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. Total volume of radioactive waste shipped offsite during the first six months of 1985 is 390.0 cubic ft.

5. Radiological Impact on Man

Potential doses to individuals and populations were calculated using GASPAR and LADTAP computer codes. The semi-annual totals for curies released were input per nuclide.

- a. Doses to individuals in unrestricted areas received from water related exposure pathways are  $1.01\text{E}-02$  mRem maximum total body does (adult) and  $1.65\text{E}-02$  mRem maximum organ dose (teenage liver dose).

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- b. The maximum offsite air doses are  $3.24\text{E-}01$  mrad for beta and  $5.87\text{E-}01$  mrad for gamma.
- c. The most restrictive organ dose is the thyroid dose. The average thyroid dose to individuals within a distance of 50 miles of the site from radioactive iodine and radioactive material in particulate form from major pathways of exposure is  $6.90\text{E-}04$  mRem.
- d. Total body doses to the population and average doses to individuals in the population from receiving water related pathways to a distance of 50 miles from the site are  $5.57\text{E-}03$  manRem and  $3.62\text{E-}05$  mRem respectively.
- e. Total body doses to the population and average doses to individuals in the population from gaseous effluents to a distance of 50 miles from the site are  $9.88\text{E-}01$  manRem and  $6.41\text{E-}03$  mRem respectively.

TABLE 2B

## BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
GASEOUS EFFLUENTS - ELEVATED RELEASESJANUARY 1985 to June 1985

1. FISSION GASES	Units	Qtr 1st	Qtr 2nd
Krypton-83m	Ci	5.49E+02	4.62E+02
Krypton-85	Ci	1.58E+00	1.32E+00
Krypton-85m	Ci	9.75E+02	8.18E+02
Krypton-87	Ci	4.48E+03	2.02E+03
Krypton 88	Ci	1.07E+04	1.92E+03
Krypton 89	Ci	2.62E+02	2.19E+02
Krypton 90	Ci	1.21E+02	1.01E+02
Xenon-131m	Ci	1.99E+00	1.67E+00
Xenon-133	Ci	2.26E+03	1.91E+03
Xenon-133m	Ci	4.80E+01	4.03E+01
Xenon-135	Ci	5.29E+03	3.53E+03
Xenon-135m	Ci	9.46E+02	7.94E+02
Xenon-137	Ci	4.55E+02	3.81E+02
Xenon-138	Ci	5.42E+03	4.22E+03
Xenon-139	Ci	1.79E+02	1.50E+02
Nitrogen-13	Ci	5.08E+02	3.79E+02
Total for Period	Ci	3.22E+04	1.70E+04

TABLE 2B (cont'd)

## BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT  
GASEOUS EFFLUENTS - ELEVATED RELEASESJANUARY 1985 to June 1985

2. IODINES	Units	Qtr 1st	Qtr 2nd
Iodine-131	Ci	1.49E-02	4.50E-02
Iodine-132	Ci	7.29E-03	2.13E-02
Iodine-133	Ci	1.47E-02	4.58E-02
Iodine-134	Ci	-0-	-0-
Iodine-135	Ci	1.45E-02	3.84E-02
Total for Period	Ci	5.14E-02	1.51E-01

3. *PARTICULATES			
Chromium-51	Ci	1.27E-03	3.60E-03
Manganese-54	Ci	1.06E-05	7.11E-05
Iron-59	Ci	-0-	3.68E-05
Cobalt-60	Ci	5.33E-05	1.99E-04
Zinc-65	Ci	1.90E-05	3.14E-04
Silver-110m	Ci	1.88E-05	3.76E-04
Cesium-136	Ci	5.77E-06	1.75E-04
Cesium-137	Ci	1.56E-04	7.14E-04
Barium-140	Ci	2.77E-04	5.45E-04
Mercury-203	Ci	1.49E-06	5.81E-05
Cesium-134	Ci	9.00E-05	5.42E-04
Cobalt-58	Ci	1.54E-06	3.00E-05
Niobium-95	Ci	-0-	2.25E-07

TABLE 2B (cont'd)

## BIG ROCK POINT

EFFLUENT AND WASTE DISPOSAL SEMI-ANNUAL REPORT  
GASEOUS EFFLUENTS - ELEVATED RELEASESJANUARY 1985 to June 1985

2. PARTICULATES	Units	Qtr 1st	Qtr 2nd
*Lanthanum-140	Ci	1.40E-03	2.70E-03
*Bromine-82	Ci	1.65E-03	1.57E-03
*Cesium-138	Ci	1.34+00	1.08E+00
*Molybdenum-99	Ci	6.66E-04	1.11E-03
*Manganese-56	Ci	-0-	2.35E-04
*Neptunium-239	Ci	2.15E-04	1.56E-03
*Sodium 24	Ci	1.13E-03	4.93E-04
Sr-89	Ci	1.93E-03	-0-
Sr-90	Ci	3.32E-06	-0-
Net Unidentified Beta	Ci	-0-	2.66E-04
Total for Period	Ci	3.83E-3	6.93E-03

\* Half-life less than 8 days; not included in overall totals