

BIG ROCK POINT PLANT
RADIOACTIVE EFFLUENT RELEASE
January - June 1982

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BIG ROCK POINT SEMI ANNUAL EFFLUENT REPORT
JAN - JUNE 1982

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 1982 in the format contained in Plant Technical Specification 6.9.3.

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

No abnormal releases of radioactive effluents to the environment occurred during the period.

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-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 $7.47\text{E}+02$ $\mu\text{Ci/second}$.

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 $6.34\text{E}-07$ $\mu\text{Ci/ml}$.

4. Solid Waste

Table 4 presents a summary of radioactive waste shipped offsite for burial during the period. Total volume of solid waste shipped offsite during the first six months of 1982 was approximately 2909 cubic feet. Shipment dates were June 2, 1982, June 10, 1982 and June 15, 1982.

TABLE 1

BATCH RELEASES (1982)

BIG ROCK POINT NUCLEAR POWER PLANT
JANUARY - JUNE EFFLUENT REPORT

A. GASEOUS

| WASTE GAS DECAY TANKS | UNITS | 1st | 2nd |
|-----------------------|---------|------------|------------|
| Number of Releases | | Continuous | Continuous |
| Total Release Time | Minutes | -- | -- |
| Maximum Release Time | Minutes | -- | -- |
| Average Release Time | Minutes | -- | -- |
| Minimum Release Time | Minutes | -- | -- |

B. LIQUID

| | UNITS | 1st | 2nd |
|----------------------|---------|-------|-------|
| Number of Releases | | 15 | 9 |
| Total Release Time | Minutes | 4882 | 2147 |
| Maximum Release Time | Minutes | 648 | 370 |
| Average Release Time | Minutes | 325.5 | 238.6 |
| Minimum Release Time | Minutes | 195 | 130 |

Table 2a
BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

| | UNITS | 1st | 2nd |
|--|-------|-----|-----|
|--|-------|-----|-----|

A. FISSION & ACTIVATION GASES

| | | | |
|---|---------|----------|----------|
| 1. Total release | Ci | 1.68E+03 | 2.65E+03 |
| 2. Average release rate for period | μCi/sec | 2.16E+02 | 3.37E+02 |
| 3. Percent of Technical Specification Limit | % | 2.16E-02 | 3.37E-02 |

B. IODINES

| | | | |
|---|---------|----------|----------|
| 1. Total iodine-131 | Ci | 3.12E-04 | 5.89E-04 |
| 2. Average release rate for period (I-131) | μCi/sec | 4.01E-05 | 7.49E-05 |
| 3. Percent of Technical Specification Limit (I-131) | % | 3.34E-03 | 6.24E-03 |

C. PARTICULATES

| | | | |
|---|---------|----------|----------|
| 1. Particulates with half-lives >8 days | Ci | 5.60E-04 | 5.41E-04 |
| 2. Average release rate for period | μCi/sec | 7.20E-05 | 6.88E-05 |
| 3. Percent of Technical Specification Limit | % | 6.19E-03 | 1.90E-03 |
| 4. Gross alpha radioactivity | Ci | 3.71E-07 | 8.42E-07 |

D. TRITIUM

| | | | |
|---|---------|----------|----------|
| 1. Total release | Ci | 1.13E+00 | 1.40E+00 |
| 2. Average release rate for period | μCi/sec | 1.45E-01 | 1.78E-01 |
| 3. Percent of Technical Specification Limit | % | 6.04E-03 | 7.42E-03 |

Total gaseous effluents are less than 2% of appendix I values.

TABLE 2b

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS - ELEVATED RELEASE

| NUCLIDES RELEASED | UNITS | 1st | 2nd |
|-------------------|-------|-----|-----|
|-------------------|-------|-----|-----|

1. FISSION GASES

| | | | |
|--------|----|----------|----------|
| Kr83m | Ci | 3.22E+01 | 4.76E+01 |
| Kr85 | Ci | 4.10E-04 | 6.05E-04 |
| Kr85M | Ci | 3.71E+01 | 5.47E+01 |
| Kr87 | Ci | 9.79E+01 | 1.52E+02 |
| Kr88 | Ci | 8.72E+01 | 1.28E+02 |
| Kr89 | Ci | 9.09E+01 | 1.34E+02 |
| Kr90 | Ci | 1.02E+02 | 1.51E+02 |
| | | | |
| Xe131M | Ci | 9.38E-03 | 1.39E-02 |
| Xe133 | Ci | 8.65E+00 | 1.08E+01 |
| Xe133m | Ci | 5.22E-01 | 7.71E-01 |
| Xe135 | Ci | 1.08E+02 | 1.54E+02 |
| Xe135m | Ci | 1.48E+02 | 2.19E+02 |
| Xe137 | Ci | 1.45E+02 | 2.13E+02 |
| Xe138 | Ci | 5.45E+02 | 9.23E+02 |
| Xe139 | Ci | 1.37E+02 | 2.01E+02 |
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| | | | |

TABLE 2b (Continued)

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS - ELEVATED RELEASE

| NUCLIDES RELEASED | UNITS | 1st | 2nd |
|-------------------|-------|-----|-----|
|-------------------|-------|-----|-----|

1. FISSION GASES (Continued)

| | | | |
|------------------|----|----------|----------|
| | | | |
| N-13 | Ci | 1.27E+02 | 2.35E+02 |
| Total for period | Ci | 1.68E+03 | 2.65E+03 |

2. IODINES

| | | | |
|------------------|----|----------|----------|
| Iodine-131 | Ci | 3.12E-04 | 5.89E-04 |
| Iodine-133 | Ci | 1.77E-03 | 6.55E-03 |
| Iodine-135 | Ci | 2.05E-03 | 9.79E-03 |
| Total for period | Ci | 4.13E-03 | 1.69E-02 |

3. PARTICULATES

| | | | |
|----------|----|----------|----------|
| Na24 | Ci | 2.72E-04 | 2.97E-04 |
| * Cr51 | Ci | 1.62E-05 | 2.02E-04 |
| * Mn54 | Ci | 1.24E-05 | 1.97E-05 |
| * Fe59 | Ci | -- | 3.12E-06 |
| * Co60 | Ci | 6.36E-05 | 1.08E-04 |
| * Zn65 | Ci | 2.85E-05 | 2.59E-05 |
| Br82 | Ci | 4.99E-04 | 1.16E-03 |
| Mo99 | Ci | -- | 1.24E-04 |
| * Ag110m | Ci | -- | 2.02E-05 |
| * Cs136 | Ci | 6.32E-06 | 5.36E-06 |

*half life >8 days

(continued)

TABLE 2b (Continued)

BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

GASEOUS EFFLUENTS - ELEVATED RELEASE

3. PARTICULATES (Continued)

| | | | |
|-------------------------|----|----------|----------|
| * Cs137 | Ci | 8.41E-05 | 2.46E-06 |
| * Ba140 | Ci | 1.89E-04 | 1.18E-04 |
| La140 | Ci | 9.61E-04 | 6.18E-04 |
| | | | |
| Np239 | Ci | 6.64E-05 | 4.55E-04 |
| * Net Unidentified Beta | Ci | 1.60E-04 | 3.60E-05 |
| | | | |
| | | | |
| | | | |
| | | | |

*half life >8 days

TABLE 3a
BIG ROCK POINT NUCLEAR POWER PLANT

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

| | UNITS | 1st | 2nd |
|--|-------|-----|-----|
|--|-------|-----|-----|

A. FISSION AND ACTIVATION PRODUCTS

| | | | | |
|--|--------|----------|----------|---|
| 1. Total release (not including tritium, gases, alpha) | Ci | 1.86E-01 | 5.07E-02 | * |
| 2. Average diluted concentration during period | µCi/ml | 1.18E-08 | 2.77E-09 | |
| 3 Percent of Technical Specification Limit | % | 1.18E-01 | 1.16E-01 | |

B. TRITIUM

| | | | |
|--|--------|----------|----------|
| 1. Total release | Ci | 1.47E+00 | 9.77E-01 |
| 2. Average diluted concentration during period | µCi/ml | 9.30E-08 | 5.34E-08 |
| 3 Percent of Technical Specification Limit | % | 3.10E-03 | 1.78E-03 |

C. DISSOLVED AND ENTRAINED GASES

| | | | |
|--|--------|----------|----|
| 1. Total release | Ci | 3.30E-04 | -- |
| 2. Average diluted concentration during period | µCi/ml | 2.09E-11 | -- |
| 3 Percent of Technical Specification Limit | % | 9.08E-06 | -- |

D. GROSS ALPHA RADIOACTIVITY

| | | | |
|------------------|----|----------|----------|
| 1. Total release | Ci | 6.49E-06 | 3.35E-06 |
|------------------|----|----------|----------|

| | | | |
|---|--------|----------|----------|
| E. VOLUME OF WASTE RELEASED (PRIOR TO DILUTION) | Liters | 2.68E+05 | 1.46E+05 |
|---|--------|----------|----------|

| | | | |
|--|--------|----------|----------|
| F. VOLUME OF DILUTION WATER USED DURING PERIOD | Liters | 1.58E+10 | 1.83E+10 |
|--|--------|----------|----------|

*See note Table 3.b.

Total liquid effluents are less than 4.6% of Appendix I values

TABLE 3b

BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
LIQUID EFFLUENTS

| NUCLIDES RELEASED | UNITS | 1st | 2nd |
|--------------------------|-------|----------|------------|
| Cs137 | Ci | 3.84E-02 | 1.58E-02 |
| Cs134 | Ci | 1.13E-03 | 4.32E-04 |
| Mn54 | Ci | 4.38E-02 | 8.69E-03 |
| Fe59 | Ci | 2.85E-02 | 1.10E-03 |
| Co60 | Ci | 2.83E-02 | 1.29E-02 |
| Co58 | Ci | 1.90E-03 | -- |
| Zn65 | Ci | 1.52E-03 | -- |
| Sb124 | Ci | 1.36E-03 | 5.91E-05 |
| La140 | Ci | 1.66E-04 | -- |
| Sr89 | Ci | 2.83E-05 | 1.63E-04 * |
| Sr90 | Ci | 2.88E-04 | 5.92E-03 * |
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| | | | |
| | | | |
| Net Unidentified Beta | Ci | 4.07E-02 | 5.60E-03 |
| Total for Period (Above) | Ci | 1.86E-01 | 5.07E-02 * |
| Xenon-133 | Ci | 3.30E-04 | -- |

*Estimated based on unidentified beta values as June values are not available.

TABLE 4
BIG ROCK POINT NUCLEAR POWER PLANT
EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT (1982)
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (NOT IRRADIATED FUEL)

| 1. Type of Waste | Units | 1st Half |
|---|-----------------------|-----------------|
| a. Spent resins, filter sludges, evaporator bottoms, etc. | m ³ Ci | -- |
| b. Dry compressible waste, contaminated equipment, etc. | ft ³ Ci | 2909* 2.51Ci |
| c. Irradiated components, control rods, etc. | m ³ Ci | -- |
| d. Other (describe) | m ³ Ci | -- |

2. Solid Waste Disposition

| <u>Number of Shipments</u> | <u>Mode of Transportation</u> | <u>Destination License Number</u> |
|---------------------------------|-------------------------------|---------------------------------------|
| 3 (6/15/82, 6/10/82, 6/2/82) | Truck | Richland, WA WN-1019-2 |

B. IRRADIATED FUEL SHIPMENTS (DISPOSITION)

| <u>Number of Shipments</u> | <u>Mode of Transportation</u> | <u>Destination</u> |
|----------------------------|-------------------------------|--------------------|
| -- | -- | -- |

*Technical Specification requires this value to be reported in cubic feet.
Volume in cubic meters is 82.4.