

PHILADELPHIA ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION
Unit Nos. 2 and 3
Docket Nos. 50-277 & 50-278

SEMI-ANNUAL EFFLUENT RELEASES REPORT

NO. 18

JULY 1, 1984 THROUGH DECEMBER 31, 1984

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating Licenses DPR-44 & DPR-56

Preparation Directed By:
R. S. Fleischmann, II, Superintendent
Peach Bottom Atomic Power Station

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I. INTRODUCTION

In accordance with the Unique Reporting Requirements of Technical Specification 6.9.3. applicable during the reporting period, this report summarizes the Effluent Release Data for Peach Bottom Atomic Power Station Units 2 and 3 for the period July 1, 1984 through December 31, 1984. The notations P and N are used to denote positive and negative exponents to the base 10.

The release of radioactive materials during the reporting period was within the Technical Specification limits. Specifically, the average liquid radioactive release for the reporting period was 14.1% of the permissible limit; the maximum noble gas release was 35.75% of the permissible limit; and the average iodine release was 0.74% of the permissible limit.

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TABLE A

PEACH BOTTOM UNITS 2 & 3 - 1984 LIQUID RADIOACTIVE RELEASE DATA

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	
Gross Activity ⁽¹⁾ Total Curies Except Tritium	3.26N3	6.16N2	2.04N2	4.08N1	7.18N1	4.41	5.62	
Average μ Ci/ml Gross Activity (except Tritium) at Point of Release	8.23N10	6.09N9	5.27N9	1.77N8	8.69N8	4.24N7	(2) 9.41N8	
Total Curies of Tritium	1.00	2.19	1.45	7.64	3.62	5.02	2.09P1	
Average μ Ci/ml Tritium at Point of Release	2.53N7	2.17N7	3.75N7	3.31N7	4.38N7	4.83N7	(2) 3.50N7	
Total Curies, Alpha	3.13N6	7.04N5	1.38N5	2.15N4	3.79N5	3.06N5	3.71N4	
Average μ Ci/ml Alpha at Point of Release	7.90N13	6.97N12	3.57N12	9.31N12	4.59N12	2.94N12	(2) 6.21N12	
Total Curies of Dissolved Noble Gases	7.43N4	7.93N3	1.97N2	1.87N1	5.60N1	3.94	4.72	
Average μ Ci/ml of Noble Gases at Point of Release	1.88N10	7.85N10	5.09N9	8.10N9	6.78N8	3.79N7	(2) 7.91N8	
Maximum μ Ci/ml Released (except Tritium) - at Point of Release	8.15N10	1.00N8	7.81N10	5.06N8	3.68N8	1.14N7	(3) 1.14N7	
Total Volume of Waste	Gallons: Liters:	1.53P5 5.79P5	3.51P5 1.33P6	1.51P5 5.73P5	9.01P5 3.41P6	4.17P5 1.58P6	4.04P5 1.53P6	2.38P6 9.00P6
Total Volume of Dilution:	Gallons: Liters:	1.05P9 3.96P9	2.67P9 1.01P10	1.02P9 3.87P9	6.11P9 2.31P10	2.18P9 8.26P9	2.74P9 1.04P10	1.58P10 5.97P10
% of Tech. Spec. Curie Limit (1)		.05%	.92%	.31%	6.1%	10.8%	66.2%	(2) 14.1%

- (1) Based on Tech. Spec. 3.8.B.2 (applicable during reporting period)
(2) Average for 6 month period
(3) Maximum for 6 month period

TABLE B

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF LIQUID
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Cadmium-109	*	*	*	*	3.05N3	*	3.05N3
Strontium-89	1.74N5	3.85N5	1.43N5	3.82N2	6.79N5	3.81N3	4.21N2
Strontium-90	8.10N6	2.39N5	1.49N5	1.46N3	1.79N5	1.22N4	1.65N3
Cesium-134	1.22N4	3.53N3	*	2.01N2	2.52N2	9.93N2	1.48N1
Cesium-137	4.65N4	5.40N3	7.05N5	3.22N2	2.89N2	1.08N1	1.75N1
Iodine-131	*	1.80N4	1.60N4	2.66N2	3.25N2	4.87N2	1.08N1
Cobalt-58	*	8.67N4	*	1.82N4	4.83N4	8.53N4	2.39N3
Cobalt-60	5.67N4	2.56N2	3.66N4	9.35N3	8.94N3	1.54N2	6.02N2
Zinc-65	1.41N3	1.35N2	4.94N4	2.42N2	1.33N2	5.51N2	1.08N1
Manganese-54	*	3.41N4	*	2.28N4	4.04N3	1.10N2	1.56N2
Chromium-51	*	3.80N3	*	*	4.47N5	*	3.84N3
Zirconium-95	*	*	*	*	*	*	*
Manganese-56	*	*	*	*	6.96N4	1.08N3	1.78N3
Lanthanum-140	4.56N5	4.79N5	2.92N4	2.57N3	3.40N5	8.04N4	3.79N3
Niobium-95	*	3.48N4	*	1.78N5	*	*	3.66N4
Sodium-24	*	*	*	1.79N2	4.56N3	4.51N2	6.76N2

TABLE B (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF LIQUID
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Yttrium-91m	*	7.19N5	*	1.14N4	*	8.27N4	1.01N3
Xenon-135M	*	3.45N5	5.18N4	8.13N3	9.88N4	3.03N2	4.00N2
Iodine-133	*	*	4.93N5	3.36N2	3.26N2	4.63N2	1.13N1
Iodine-135	*	*	*	7.36N3	4.28N4	1.55N2	2.33N2
Strontium-92	*	*	*	*	*	1.28N4	1.28N4
Technetium-99m	*	*	*	3.14N3	2.22N4	6.89N3	1.03N2
Xenon-133M	*	*	2.99N4	2.66N3	1.01N2	2.92N2	4.23N2
Tin-113	*	*	*	*	2.14N4	5.32N4	7.46N4
Xenon-133	3.38N4	5.00N3	1.05N2	1.12N1	1.00N1	1.07	1.30
Xenon-135	4.05N4	2.89N3	8.42N3	6.32N2	3.45N1	1.05	1.47
Phosphorus-32	1.62N5	3.32N4	8.02N5	6.14N4	2.37N4	7.49N4	2.03N3
Cesium-136	*	*	*	*	2.55N3	4.82N3	7.37N3
Iron-55	4.75N4	9.30N4	1.26N3	3.75N3	2.53N5	1.01N3	7.45N3
Nickel-63	2.20N4	3.72N4	2.52N5	1.13N3	6.63N4	9.63N4	3.37N3
Barium-140	*	*	*	3.79N4	*	1.53N3	1.91N3
Neptunium-239	*	*	*	*	*	9.24N4	9.24N4

TABLE B (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF LIQUID
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	C. TOTAL
Iodine-132	*	*	*	5.46N4	*	1.82N3	2.27N3
Tellurium-132	*	*	*	*	*	1.49N4	1.49N4
Xenon-131M	*	*	*	1.05N3	4.16N2	9.02N3	5.17N2
Krypton-85M	*	*	*	*	1.94N2	5.63N2	7.57N2
Iodine-134	*	*	*	*	*	*	*
Copper-64	*	*	*	*	*	*	*
Strontium-91	*	*	*	*	*	4.04N4	4.04N4
Ruthenium-103	*	*	*	*	*	*	*
Molybdenum-99	*	*	*	*	*	2.18N3	2.18N3
Krypton-88	*	*	*	*	3.38N2	1.67	1.70
Antimony-124	*	2.86N4	*	*	*	*	2.86N4
Antimony-125	*	1.12N3	*	*	*	*	1.12N3
Cerium-144	*	*	*	3.15N3	*	*	3.15N3
Krypton-87	*	*	*	*	9.93N3	1.97N2	2.96N2
TOTALS	4.09N3	6.47N2	2.26N2	4.14N1	7.20N1	4.41	5.64

*Less than minimum detectable.

TABLE C

PEACH BOTTOM UNITS 2 & 3 - 1984 GASEOUS RADIOACTIVE RELEASE DATA

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Mixed Noble Gases (Ci)	4.06P3	7.27P3	7.86P3	1.41P4	1.02P4	1.58P4	5.93P4
% of Tech. Spec. Limit (1)	.31	.42	.61	.79	1.82	3.13	1.18
Iodine-131 (Ci)	3.28N3	1.46N2	1.33N2	1.69N2	2.06N2	7.17N3	7.59N2
% of Tech. Spec. Limit (2)	.18	.83	1.13	1.05	.74	.51	.74
Particulates >8 Day Half Life (Ci)	4.34N4	8.17N4	7.36N4	1.30N3	9.10N4	5.27N4	4.72N3
Particulate Alpha (Ci)	7.03N6	2.33N6	2.67N6	1.83N6	1.28N6	1.27N6	1.64N5
% of Tech. Spec. Limit (2)	.026	.075	.055	.049	.042	.017	.044
Tritium (Ci) (3)	2.82	2.82	2.82	2.95	2.36	2.36	1.61P1
Max. Noble Gas Release Rate (uCi/sec)	2.45P4	6.50P4	1.93P4	5.91P4	1.11P5	1.20P5	1.20P5
Date:	7/12	8/22	9/28	10/23	11/15	12/11	12/11
% of Tech. Spec. Limit for Maximum Noble Gas Release (1)	7.36	19.4	5.39	19.16	32.65	35.75	35.75
Maximum % of Tech. Spec. Limit (1)	7.36	19.4	7.75	22.7	32.65	35.75	35.75

(1) Basis: Tech. Spec. 3.8.C.1 (applicable during reporting period)

(2) Basis: Tech. Spec. 3.8.C.2 (applicable during reporting period)

(3) Quarterly analysis used for monthly estimate.

TABLE D

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF GASEOUS
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Krypton-85m	3.86	1.00P1	8.49	1.73P1	2.47P1	3.56P1	1.00P2
Xenon-133	3.79P3	6.71P3	7.34P3	1.30P4	9.29P3	1.45P4	5.46P4
Xenon-135	1.10P2	1.92P2	1.76P2	2.6P2	4.87P2	5.69P2	1.79P3
Krypton-88	1.05P1	2.28P1	1.90P1	3.13P1	7.04P1	8.17P1	2.36P2
Xenon-138	2.71P1	3.52P1	6.78P1	1.54P2	4.23P1	8.29P1	4.09P2
Xenon-133m	8.93P1	1.40P2	1.52P2	2.62P2	2.04P2	3.31P2	1.18P3
Krypton-87	8.87	2.29P1	1.95P1	3.76P1	4.90P1	5.51P1	1.93P2
Xenon-135m	2.4	9.81P1	5.44P1	1.68P2	4.81P1	1.23P2	4.94P2
Xenon-131m	*	8.77P1	2.09P1	1.24P2	1.60P1	3.51P1	2.84P2
No. I.D.	*	1.09P1	*	*	*	*	1.09P1
<hr/>							
Total	4.04P3	7.33P3	7.86P3	1.41P4	1.02P4	1.58P4	5.93P4
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Iodine-131	3.28N3	1.46N2	1.33N2	1.69N2	2.06N2	7.17N3	7.59N2
Iodine-133	2.42N2	1.93N2	1.93N2	2.21N3	1.77N3	1.77N3	6.86N2
Iodine-135	3.97N2	3.17N2	3.17N2	4.57N2	3.65N2	3.65N2	2.22N1
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Total	6.72N2	6.56N2	6.43N2	6.48N2	5.89N2	4.54N2	3.67N1

TABLE D (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF GASEOUS
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Strontium-89	1.60N4	9.03N5	2.61N4	8.03N4	5.17N4	4.27N4	2.26N3
Strontium-90	5.45N6	5.63N6	2.58N5	2.90N5	5.15N6	3.60N6	7.46N5
Iodine-133	*	1.36N4	3.76N4	6.78N4	1.5N4	9.74N5	1.44N3
Cesium-134	*	4.6N4	1.33N4	4.75N5	1.38N4	*	7.79N4
Cesium-137	1.18N4	4.76N4	1.49N4	8.39N5	1.50N4	5.65N5	1.03N3
Lanthanum-140	1.38N5	1.18N5	2.48N5	4.66N5	4.65N5	4.09N5	1.84N4
Cobalt-58	*	*	*	*	*	*	*
Cobalt-60	*	*	4.36N5	*	1.98N6	*	4.56N5
Zinc-65	2.12N4	1.54N4	3.20N4	1.71N4	6.09N5	*	9.18N4
Manganese-54	*	*	*	*	*	*	*
Strontium-91	1.91N5	7.88N6	1.05N5	7.63N5	4.63N5	7.39N5	2.34N4
Cadmium-109	*	*	*	*	*	*	*
Chromium-51	*	*	*	*	*	*	*
Sodium-24	*	3.29N5	8.31N5	4.35N5	*	*	1.60N4
Cesium-138	3.64N3	6.84N3	2.5N2	2.85N2	1.62N2	2.41N2	1.04N1
Barium-140	1.73N5	2.03N5	1.29N5	6.71N5	2.55N5	5.34N5	1.97N4

TABLE D (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1984 ISOTOPIC ANALYSIS OF GASEOUS
RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Yttrium-91m	1.86N4	1.85N4	2.45N4	4.92N4	5.33N4	2.35N4	1.88N3
Technetium-99m	*	2.18N5	2.13N5	2.30N5	7.59N6	*	7.37N5
Barium-139	1.37N4	2.86N5	4.92N4	9.35N4	7.47N4	1.22N3	3.56N3
Tellurium-132	*	*	7.90N7	*	*	*	7.90N7
Copper-64	*	*	*	*	*	1.99N3	1.99N3
Iodine-131	*	*	*	*	*	1.43N4	1.43N4
TOTAL	4.51N3	8.47N3	2.72N2	3.20N2	1.86N2	2.84N2	1.19N1

*Less than minimum detectable.

TABLE E

PEACH BOTTOM UNITS 2 & 3 - 1984 SOLID RADIOACTIVE WASTE SHIPMENTS

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Number of shipments	24	22	15	21	25	17	124
Volume of waste (cu.-ft)	7.89P3	7.14P3	4.11P3	5.52P3	1.32P4	5.92P3	4.38P4
Activity, Curies	5.01P4	1.37P4	1.23P2	1.65P2	5.06P2	1.17P2	6.47P4
Shipping dates (# of shipments)	A 6/29 (1)	A 7/31 (1)	A 9/4 (1)	A 9/28 (1)	A 11/5 (1)	A 11/30 (1)	
A. Disposition - All waste shipped by Hittman Nuclear and Development Corporation on trucks to the Chem Nuclear Corporation, Barnwell, South Carolina.	A 7/3 (1) A 7/5 (1) A 7/6 (1) A 7/9 (1) A 7/10 (1) A 7/11 (1) A 7/12 (1) B 7/13 (2) A 7/13 (1)	A 8/1 (2) A 8/2 (1) A 8/3 (1) A 8/7 (1) B 8/9 (1) A 8/9 (1) A 8/14 (1) B 8/14 (1) A 8/15 (1)	A 9/5 (1) A 9/7 (1) A 9/10 (1) A 9/11 (1) A 9/12 (1) B 9/12 (1) A 9/13 (1) A 9/14 (1) A 9/17 (1)	A 10/1 (1) A 10/2 (1) A 10/3 (1) A 10/4 (1) A 10/5 (1) A 10/9 (1) A 10/10 (1) A 10/11 (1) B 10/11 (1)	A 11/6 (1) A 11/7 (1) A 11/8 (1) B 11/8 (1) A 11/9 (1) B 11/9 (1) A 11/13 (1) A 11/14 (2) A 11/14 (1)	A 12/3 (1) A 12/4 (1) A 12/5 (1) B 12/6 (1) A 12/6 (1) A 12/7 (1) A 12/10 (1) A 12/12 (1) B 12/13 (1)	
B. Disposition - All waste shipped by Hittman Nuclear and Development 11/17 (1) Corporation on trucks to U.S. Ecology, Inc., Richland, Washington.	A 7/16 (1) A 7/17 (1) A 7/18 (2) B 7/19 (1) A 12/21 (1) A 7/20 (1) B 7/20 (1) A 7/24 (2)	A 8/16 (1) A 8/17 (1) A 8/20 (1) A 8/22 (1) B 8/24 (1) A 8/24 (1) A 8/27 (1)	A 9/18 (1) A 9/24 (1) A 9/25 (1) A 9/27 (2)	A 10/12 (1) A 10/15 (1) A 10/16 (1) A 10/19 (1) A 10/23 (1) B 10/23 (1) A 10/24 (1)	A 11/15 (1) A 11/16 (1) B 11/16 (1) B A 11/19 (1) A 11/20 (1) B 11/20 (2)	A 12/17 (1) A 12/18 (1) A 12/19 (1) B 12/26 (1) A 12/27 (2)	
Shipments are logged according to the month received at destination, which sometimes differs from the month in which it was shipped.	A 7/25 (1) A 7/26 (1) A 7/30 (2)	A 8/28 (1) A 8/29 (1) A 8/30 (2)		A 10/25 (1) A 10/26 (1) A 10/29 (1) A 10/30 (1)	A 11/21 (1) A 11/26 (1) A 11/27 (1) A 11/28 (1) B 11/28 (1) A 11/29 (1)		

PEACH BOTTOM ATOMIC POWER STATION
Unit Nos. 2 and 3
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SEMI-ANNUAL EFFLUENT RELEASES REPORT

NO. 18

JULY 1, 1984 THROUGH DECEMBER 31, 1984

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating Licenses DPR-44 & DPR-56

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

February 28, 1985

Docket No. 50-277

50-278

Dr. Thomas E. Murley, Administrator
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

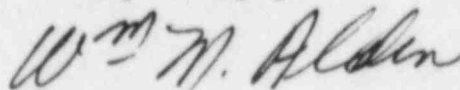
SUBJECT: Semi-Annual Effluent Releases Report No. 18
July 1, 1984 through December 31, 1984
Peach Bottom Atomic Power Station
Unit Nos. 2 and 3

Dear Dr. Murley:

Enclosed are two copies of the Semi-Annual Effluent
Releases Report No. 18, July 1, 1984 through December 31, 1984
for Peach Bottom Atomic Power Station Unit Nos. 2 and 3.

This report is being submitted in compliance with the
Technical Specifications of Operating Licenses DPR-44 and DPR-56
and to fulfill the requirements of Regulatory Guide 10.1.

Very truly yours,



W. M. Alden
Engineer-In-Charge
Licensing Section
Nuclear Services

DWB:vdw

Attachments

cc: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

T. P. Johnson, Site Inspector