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. 14

REVISION NO. 1

JULY 1, 1982 THROUGH DECEMBER 31, 1982

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License No. DPR-44 & 56

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

IE25
1/1

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I. INTRODUCTION

In accordance with the Unique Reporting Requirements of Technical Specification 6.9.3., this report summarizes the Effluent Release Data for Peach Bottom Atomic Power Station Units 2 and 3 for the period July 1, 1982 thru December 31, 1982. The notation P and N are used to denote positive and negative exponents to the base 10.

The release of radioactive materials during the reporting period were within the Technical Specification limits. Specifically, the average liquid radioactive release for the reporting period was 12.6% of the permissible limit; the maximum noble gas release was 7.66% of the permissible limit and; the average iodine release was 0.119% of the permissible release.

This report has been revised to include the unmonitored release which occurred in October as a result of a leak in the 3D RHR Heat Exchangers.

TABLE A

PEACH BOTTOM UNITS 2 & 3 - 1982 LIQUID RADIOACTIVE RELEASE DATA

	JULY	AUG.	SEPT.	OCT.	NOV.(4)	DEC.	TOTAL
Gross Activity ($\beta\gamma$) Total Curies Except Tritium	1.81	2.54	5.64N1	2.27N2(5)	0	1.28N1	5.06
Average µCi/ml Gross Activity (except Tritium) at Point of Release	2.98N8	8.67N8	3.40N8	0	0	5.12N8	4.62N8(2)
Total Curies of Tritium	3.37	2.03	1.31	0	0	1.67N1	6.88
Average µCi/ml Tritium at Point of Release	5.54N8	6.93N8	7.89N8	0	0	6.68N8	6.31N8(2)
Total Curies, Alpha	≤2.73N6	3.11N6	1.13N6	0	0	3.70N7	≤7.34N6
Average µCi/ml Alpha at Point of Release	≤4.49N14	1.06N13	6.81N14	0	0	1.48N13	≤6.73N14(2)
Total Curies of Dissolved Noble Gases	8.14N2	4.07N1	6.70N2	0	0	3.27N3	5.59N1
Average µCi/ml of Noble Gases at Point of Release	1.34N9	1.39N8	4.04N9	0	0	1.31N9	5.13N9(2)
Maximum µCi/ml Released (except Tritium) - at Point of Release	6.41N8	1.69N7	5.37N9	0	0	4.95N8	1.69N7(3)
Total Volume of Waste: Gallons:	9.33P5	5.70P5	7.77P5	6.6P4(5)	0	3.81P4	1.88P6
Liters:	3.53P6	2.16P6	1.05P6	2.5P5(5)		1.44P5	7.13P6
Total Volume of Dilution: Gallons:	1.61P10	3.74P9	4.40P9	0	0	6.61P8	2.89P10
Liters:	6.09P10	2.93P10	1.66P10			2.50P9	1.09P11(2)
(1) % of Tech. Spec. Curie Limit	27%	38%	8.4%	0	0	1.9%	12.6%

(1) Based on Tech. Spec. 3.8.B.2
(2) Average for 6 month period
(3) Maximum for 6 month period
(4) No liquid release for this month.
(5) Unmonitored release.

TABLE B

PEACH BOTTOM UNITS 2 & 3 - 1992 ISOTOPIC ANALYSIS OF LIQUID RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.**	DEC.	Ci TOTAL
Strontium-89	1.00N3	3.91N3	5.05N4	0	0	1.73N4	5.59N3
Strontium-90	6.42N5	1.30N4	2.41N5	0	0	4.04N6	2.27N4
Cesium-134	5.38N2	3.41N2	5.07N3	0	0	9.30N3	1.02N1
Cesium-137	8.16N2	4.65N2	7.56N3	1.48N3****	0	1.28N2	1.49N1
Iodine-131	6.86N3	2.20N2	3.41N3	0	0	1.28N2	4.51N2
Cobalt-58	1.30N2	7.33N2	6.46N3	0	0	2.00N3	9.48N2
Cobalt-60	5.58N2	1.59N1	1.47N2	4.60N3****	0	7.59N3	2.42N1
Zinc-65	1.84N1	5.28N1	9.65N2	1.44N2****	0	2.29N2	8.45N1
Manganese-54	7.69N4	2.29N3	1.21N4	0	0	1.31N4	3.31N3
Chromium-51	1.07N2	1.96N1	1.46N2	0	0	6.56N3	2.28N1
Zirconium-95	*	*	*	0	0	*	*
Manganese-56	*	1.88N3	1.25N3	0	0	*	3.13N3
Lanthanum-140	2.70N3	8.60N3	5.37N4	0	0	*	1.18N2
Niobium-95	*	4.43N4	1.68N4	0	0	*	6.11N4
Sodium-24	1.21	7.73N1	2.66N1	0	0	4.83N2	2.30
Yttrium-91M	3.93N4	1.27N2	1.38N3	0	0	1.96N4	1.47N2
Xenon-135M	1.72N2	6.70N2	4.40N2	0	0	*	1.28N1
Iodine-133	4.67N2	3.77N2	1.63N2	0	0	2.58N3	1.03N1
Iodine-135	1.58N2	1.79N2	1.44N2	0	0	1.19N3	4.93N2
Strontium-92	*	9.26N4	2.78N4	0	0	2.75N4	1.48N3
Technetium-99m	1.81N2	2.32N2	1.02N2	0	0	1.80N3	5.33N2
Xenon-133M	*	*	*	0	0	*	*

TABLE B (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1982 ISOTOPIC ANALYSIS OF LIQUID RADIOACTIVE RELEASES (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.**	DEC.	Ci TOTAL
Xenon-133	1.31N2	2.89N1	3.53N3	0	0	1.00N3	3.07N1
Xenon-135	5.12N2	2.78N2	1.95N2	0	0	2.08N3	1.01N1
Phosphorus-32	1.81N3	1.82N2	4.49N4	0	0	2.70N4***	2.07N2
Iron-55	2.45N4	≤1.02N4	≤2.71N5	0	0	1.15N5***	≤3.86N4
Nickel-63	*	1.01N3	8.36N5	0	0	9.12N5***	1.18N3
Barium-140	*	9.39N3	4.09N4	0	0	*	9.80N3
Neptunium-239	*	6.42N3	*	0	0	*	6.42N3
Iodine-132	*	2.40N3	2.03N3	0	0	*	4.43N3
Tellurium-132	8.59N5	6.20N4	*	0	0	*	7.06N4
Xenon-131M	*	2.32N2	*	0	0	*	2.32N2
Krypton-85M	*	*	*	0	0	1.87N4	1.87N4
Iodine-134	*	*	1.22N3	0	0	*	1.22N3
Copper-64	*	*	1.58N2	0	0	*	1.58N2
Strontium-91	*	7.24N4		0	0	*	7.24N4
Ruthenium-103	*	*	*	0	0	*	*
Molybdenum-99	*	9.61N3	*	0	0	*	9.61N3
TOTALS	1.79	2.40	5.47N1	0	0	1.31N1	4.87

* Less Than Minimum Detectable
** No releases during this month
*** Estimate calculated by using average of 1982 ratioed by volume of release. Necessitated due to limited releases and small composite samples size which prohibited measurement of these isotopes.
**** Unmonitored release.

TABLE C

PEACH BOTTOM UNITS 2 & 3 - 1982 GASEOUS RADIOACTIVE RELEASE DATA

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Mixed Noble Gases (Ci)	7.67P2	4.18P2	4.45P2	9.54P2	1.18P3	2.31P3	6.07P3
% of Tech. Spec. Limit (1)	0.289	0.227	0.232	0.272	0.365	0.449	0.306
Iodine-131 (Ci)	2.19N3	2.45N3	1.67N3	2.23N3	7.42N4	7.56N3	1.68N2
% of Tech. Spec. Limit (2)	0.145	0.192	0.155	0.089	0.067	0.065	0.119
Particulates >8 Day Half Life (Ci)	3.61N4	6.95N4	4.19N4	9.04N4	3.42N4	3.32N3	6.04N3
Particulate Alpha (Ci)	1.12N6	9.42N7	7.57N7	8.90N7	6.50N7	8.20N7	5.18N6
% of Tech. Spec. Limit (2)	0.003	0.042	0.004	0.019	0.004	0.124	0.033
Tritium (Ci) (3)	2.15	1.72	1.72	2.34	1.87	1.87	1.17P1
Max. Noble Gas Release Rate (μCi/sec)		2.72P3	1.41P3	8.47P2	1.37P3	1.24P3	2.50P4 2.50P4
Date:	8/6/82	9/4/82	9/25/82	10/23/82	11/13/82	12/10/82	12/10/82
% of Tech. Spec. Limit for Maximum Noble Gas Release (1)	0.39	0.28	0.59	0.34	0.74	7.66	7.66
Maximum % of Tech. Spec. Limit (1)	1.27	3.14	2.20	1.31	0.98	7.66	7.66

(1) Basis: Tech. Spec. 3.8.C.1
(2) Basis: Tech. Spec. 3.8.C.2
(3) Quarterly analysis used for monthly estimate
(4) Average for 6 month period
(5) Maximum for 6 month period

TABLE D

PEACH BOTTOM UNITS 2 & 3 - 1982 ISOTOPIC ANALYSIS OF GASEOUS RADIOACTIVE EFFLUENTS (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Krypton-85m	6.26	9.1N1	*	1.04	1.25	9.33	1.88P1
Xenon-133	3.92P2	2.72P2	2.75P2	7.80P2	1.03P3	1.96P3	4.61P3
Xenon-135	3.30P2	1.23P2	1.38P2	1.10P2	1.09P2	3.59P2	1.17P3
Krypton-88	*	*	*	*	*	*	*
Xenon-138	*	*	*	2.55P1	*	2.93P1	5.48P1
Xenon-133m	*	*	*	1.14P1	3.45	2.60P1	4.09P1
Krypton-87	*	1.37	1.07	*	*	3.10	5.54
Xenon-135m	1.02P1	*	2.4	6.13	1.72	6.98	2.74P1
Total	7.38P2	3.97P2	4.16P2	9.34P2	1.14P3	2.29P3	5.93P3
Iodine-131	2.19N3	2.45N3	1.67N3	2.23N3	7.42N4	7.56N3	1.68N2
Iodine-133	1.10N2	8.84N3	8.84N3	1.37N1	1.10N1	1.10N1	3.86N1
Iodine-135	4.37N2	3.49N2	3.49N2	4.35N2	3.47N2	3.47N2	2.26N1
Total	5.69N2	4.62N2	4.54N2	1.83N1	1.45N1	1.52N1	6.29N1
Strontium-89	1.59N4	1.12N4	1.52N4	1.70N4	1.48N4	1.35N4	8.76N4
Strontium-90	3.42N6	3.72N6	9.06N6	4.54N6	3.81N6	1.42N6	2.60N5

TABLE D (Continued)

PEACH BOTTOM UNITS 2 & 3 - 1982 ISOTOPIC ANALYSIS OF GASEOUS RADIOACTIVE EFFLUENTS (In Curies)

ISOTOPE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	Ci TOTAL
Cesium-134	*	8.70N7	*	1.08N5	*	2.67N4	2.79N4
Cesium-137	1.67N6	3.86N5	4.03N6	4.89N5	*	3.57N4	4.50N4
Lanthanum-140	1.47N4	1.18N4	1.82N4	1.28N4	1.34N4	5.79N5	7.67N4
Cobalt-58	*	6.66N6	*	4.26N5	*	1.58N4	2.07N4
Cobalt-60	3.86N6	7.34N6	4.01N5	2.70N4	*	4.36N4	7.57N4
Zinc-65	2.73N6	8.86N5	*	8.91N5	*	1.17N3	1.35N3
Manganese-54	*	*	*	*	*	7.67N6	7.67N6
Strontium-91	2.12N4	2.29N4	2.57N4	2.14N4	2.09N4	4.68N5	1.17N3
Cadmium-109	*	2.63N4	*	*	*	*	2.63N4
Chromium-51	*	*	*	2.15N5	*	3.64N4	3.86N4
Sodium-24	*	2.30N4	*	2.17N4	*	*	4.47N4
Cesium-139	5.35N3	3.86N3	4.85N3	4.17N4	3.59N3	5.52N3	2.36N2
Barium-140	1.90N4	1.74N4	2.53N4	2.45N4	1.90N4	3.56N5	1.09N3
Yttrium-91m	6.47N4	1.86N3	9.94N4	8.93N4	9.62N4	3.14N4	5.67N3
Technetium-99m	1.26N5	3.24N5	3.60N6	5.63N5	*	1.41N5	1.19N4
TOTAL	6.73N3	7.02N3	6.74N3	2.83N3	5.24N3	8.88N3	3.74N2

* Less than minimum detectable

TABLE E

PEACH BOTTOM UNITS 2 & 3 - 1982 SOLID RADIOACTIVE WASTE SHIPMENT

	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
Number of shipments	33	40	32	21	24	25	175
Volume of waste (ft^3)	1.92P4	4.92P3	1.07P4	5.43P3	5.34P3	2.52P3	4.81P4
Activity, Curies	3.3P2	6.63P2	2.17P2	1.59P2	2.32P2	1.95P2	1.80P3
Shipping dates (# of shipments)	A 6/30 (1) A 7/1 (1) A 7/2 (1) A 7/6 (1) A 7/7 (2) A 7/8 (2) B 7/9 (1) A 7/12 (1) A 7/13 (2) A 7/15 (2) B 7/16 (1) B 7/17 (1) B 7/18 (1) A 7/19 (1) A 7/20 (1) A 7/21 (2) A 7/22 (1) B 7/22 (1) B 7/23 (1) B 7/24 (1) B 7/25 (1) A 7/26 (1) A 7/26 (1) A 7/27 (2) A 7/28 (1) A 7/29 (1)	A 7/30 (2) A 8/2 (2) A 8/3 (1) A 8/4 (2) A 8/5 (1) A 8/6 (1) A 8/7 (1) A 8/9 (1) A 8/10 (1) A 8/11 (1) A 8/12 (2) A 8/13 (1) A 8/14 (2) A 8/16 (3) A 8/17 (2) A 8/18 (2) A 8/19 (2) A 8/20 (1) A 8/21 (1) A 8/23 (2) A 8/24 (1) A 8/25 (2) A 8/25 (2) A 8/27 (2) A 8/28 (1) A 8/30 (2)	A 8/31 (1) A 9/1 (1) A 9/2 (1) A 9/3 (1) A 9/7 (1) A 9/8 (1) A 9/9 (1) B 9/9 (1) B 9/11 (1) B 9/15 (1) A 9/13 (1) A 9/14 (3) A 9/15 (1) A 9/16 (1) A 9/17 (1) B 9/18 (2) A 9/20 (1) A 9/21 (1) A 9/22 (1) A 9/23 (2) A 9/25 (1) A 9/24 (2) A 9/24 (2) A 9/28 (1) A 9/29 (2) B 9/25 (1)	A 9/30 (1) A 10/4 (1) A 10/5 (1) A 10/6 (1) A 10/7 (1) B 10/7 (2) A 10/8 (1) A 10/11 (1) A 10/12 (1) A 10/14 (1) A 10/15 (1) A 10/18 (1) A 10/19 (1) A 10/20 (1) A 10/21 (1) A 10/22 (2) A 10/26 (2) A 10/27 (1)	A 10/29(1) A 11/1 (1) A 11/2 (1) A 11/3 (2) A 11/4 (1) A 11/8 (1) A 11/9 (1) A 11/10 (1) A 11/11 (2) A 11/12 (1) A 11/15 (1) A 11/16 (1) A 11/17 (1) A 11/18 (2) A 11/19 (1) B 11/20 (1) A 11/22 (1) A 11/23 (2) A 11/24 (1) A 11/29 (1)	A 11/30 (1) A 12/1 (2) A 12/2 (2) A 12/3 (1) A 12/4 (2) A 12/6 (1) A 12/7 (1) A 12/8 (1) A 12/9 (1) A 12/10 (1) A 12/13 (1) A 12/14 (2) A 12/15 (1) A 12/17 (1) A 12/20 (1) A 12/21 (2) A 12/22 (2) A 12/23 (2)	

A. Disposition - All waste shipped by Hittman Nuclear and Development Corporation in trucks to the Chem Nuclear Corporation, Barnwell, South Carolina.

B. Disposition - All waste shipped by Hittman Nuclear and Development Corporation on trucks to U.S. Ecology, Inc., Richland, Washington.

Shipments are logged according to the month received at destination, which sometimes differs from the month in which it was shipped.

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

June 6, 1983
Docket Nos. 50-277
50-278

Mr. J. M. Allan, Acting Administrator
Region I
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

SUBJECT: Report of Semi-Annual Effluent Releases No. 14, Revision 1, July 1, 1982, through December 31, 1982, Peach Bottom Atomic Power Station Unit Nos. 2 and 3

Dear Mr. Allan:

Enclosed are two copies of the Semi-Annual Effluent Releases Report No. 14, Revision 1, July 1, 1982, through December 31, 1982, for Peach Bottom Atomic Power Station Unit Nos. 2 and 3, which has been revised to include the unmonitored release that occurred in October, 1982, as a result of a leak in the 3D RHR Heat Exchanger. The unmonitored release was omitted from the original submittal of Report No. 14 as identified by the Nuclear Regulatory Commission site inspector.

Revision 1 of 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

W. M. Alden
Engineer-In-Charge
Licensing Section
Nuclear Generation Division

GHS:bas
Attachment
cc: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Site Inspector - Peach Bottom

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