PHILADELPHIA ELECTRIC COMPANY

PHILADELPHIA

PEACH BOTTOM ATOMIC POWER STATION

UNIT NOS. 2 AND 3

DOCKET NOS. 50-277 & 50-278

SEMI-ANNUAL EFFLUENT RELEASES REPORT

NO. 13

JANUARY 1, 1982 THROUGH JUNE 30, 1982

SUBMITTED TO

THE UNITED STATES NUCLEAR REGULATORY COMMISSION

PURSUANT TO

FACILITY OPERATING LICENSE NO. DPR-44 & 56

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PHILADELPHIA ELECTRIC COMPANY

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Preparation Directed By:
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Peach Bottom Atomic Power Station

IE25

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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 & 3. This data covers the period January 1, 1982 through June 30, 1982. The notations E+ and E- are used to denote positive and negative exponents to the base of 10.

TABLE A
1982

PEACH BOTTOM UNITS 2 & 3 - LIQUID RADIOACTIVE RELEASE DATA

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	TOTAL
Gross Activity (βγ) Total Curies Except Tritium	8.457E-01	7.631E-01	4.479E-01	6.466E-01	7.131E-01	8.592E-01	4.27E+00
Average μCi/ml Gross Activity (except Tritium) at Point of Release	3.483E-08	2.837E-08	2.426E-08	2.563E-08	2.659E-08	2.289E-08	(2) 2.682E-08
Total Curies of Tritium	2.63E+00	3.27E+00	4.03E+00	2.64E+00	2.03E+00	2.15E+00	1.675E+01
Average μCi/ml Tritium at Point of Release	1.083E-07	1.216E-07	2.183E-07	1.046E-07	7.569E-08	5.729E-08	(2) 1.052E-07
Total Curies, Alpha	≤1.61E-06	≤1.81E-06	≤2.17E-06	≤3.13E-06	≤2.98E-06	≤2.66E-06	≤2.87E-05
Average μCi/ml Alpha at Point of Release	≤6.631E-14	≤6.729E-14	≤1.175E-13	≤1.241E-13	≤1.111E-13	≤7.09E-14	(2 ≤1.80[illegible]-13
Total Curies of Dissolved Noble Gases	7.040E-02	8.14E-02	2.060E-02	2.400E-02	1.520E-02	2.190E-02	2.335E-01
Average μCi/ml of Noble Gases at Point of Release	2.899E-09	3.026E-09	1.116E-09	9.513E-10	5.667E-10	5.835E-10	(2) 1.467E-09
Maximum μCi/ml Released except Tritium - at Point of Release	4.917E-08	6.132E-08	1.502E-07	5.186E-08	4.610E-08	3.747E-08	(3) 1.502E-07
Total Volume of Waste: Gallons:	5.931E+05	7.802E+05	1.004E+06	8.804E+05	9.236E+05	8.932E+05	5.074E+06
Liters:	2.245E+06	2.953E+06	3.798E+06	3.332E+06	3.496E+06	3.381E+06	1.920E+07
Total Volume of Dilution: Gallons:	6.414E+09	7.107E+09	4.876E+09	6.666E+09	7.087E+09	9.914E+09	4.206E+10
Liters:	2.428E+10	2.690E+10	1.846E+10	2.523E+10	2.682E+10	3.753E+10	1.592E+11
(1) % of Tech. spec. Curie Limit	13%	11.4%	6.7%	9.7%	10.7%	12.9%	(2) 10.7%

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

TABLE B

1982

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

ISOTOPE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	Ci TOTAL
Strontium-89	2.025E-03	9.332E-04	2.75E-04	5.098E-04	6.083E-04	9.399E-04	5.291E-03
Strontium-90	6.65E-05	4.19E-05	2.33E-05	5.50E-05	9.650E-05	9.770E-05	3.811E-04
Cesium-134	4.949E-02	6.667E-02	5.345E-02	4.514E-02	4.777E-02	9.059E-02	3.531E-01
Cesium-137	7.824E-02	7.802E-02	7.372E-02	7.058E-02	7.989E-02	1.190E-01	4.995E-01
Iodine-131	5.344E-02	3.854E-02	1.022E-02	4.694E-04	6.486E-04	*	1.033E-01
Cobalt-58	1.172E-03	4.205E-03	4.020E-03	1.113E-02	7.943E-03	8.903E-03	3.737E-02
Cobalt-60	1.449E-02	2.062E-02	3.809E-02	1.401E-01	1.062E-01	8.721E-02	4.067E-01
Zinc-65	4.920E-02	7.252E-02	1.106E-01	2.209E-01	2.394E-01	4.182E-01	1.111E-02
Managanese-54	*	4.758E-04	3.452E-04	1.905E-03	3.103E-04	*	3.036E-03
Chronium-51	1.304E-03	*	5.625E-03	8.113E-03	3.052E-04	4.384E-03	1.973E-02
Zirconium-95	*	*	*	*	*	*	*
Manganese-56	*	*	1.264E-04	*	*	1.911E-05	1.455E-04
Lanthanum-140	3.770E-04	3.626E-04	*	*	8.263E-04	4.831E-03	6.397E-03
Niobium-95	*	*	*	1.473E-04	3.730E-05	3.901E-05	2.236E-01
Sodium-24	4.653E-01	2.590E-01	1.284E-01	1.044E-01	1.957E-01	1.051E-01	1.258E-00
Yitrium-91M	3.386E-04	7.627E-04	*	*	*	7.993E-04	1.901E-03
Xenon-135M	1.078E-02	1.677E-02	2.481E-05	*	*	*	2.757E-02
Iodine-133	4.196E-02	7.226E-02	4.668E-03	4.120E-03	5.403E-03	3.236E-03	1.316E-01
Iodine-135	7.048E-03	1.283E-02	2.752E-04	*	*	5.809E-03	2.591E-02
Strontium-92	*	*	4.709E-05	1.825E-04	3.398E-05	9.653E-05	3.601E-04
Technetium-99m	2.527E-03	1.688E-03	6.066E-04	1.247E-03	1.301E-03	3.333E-04	7.703E-03

TABLE B (Cont'd)

1982

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

ISOTOPE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	Ci TOTAL
Xenon-133M	*	8.971E-05	*	*	*	2.808E-04	3.705E-04
Xenon-133	3.431E-02	3.567E-02	1.271E-02	1.791E-02	1.060E-02	1.579E-02	1.270E-01
Xenon-135	2.531E-02	2.816E-02	7.900E-03	6.116E-03	4.643E-03	5.809E-03	7.794E-02
Phosphorus-32	1.089E-03	2.814E-03	9.837E-03	4.498E-03	2.444E-03	1.227E-03	2.191E-02
Iron-55	≤1.08E-04	≤7.65E-05	1.31E-03	≤1.32E-04	≤8.71E-05	≤8.010E-05	≤1.800E-03
Nickel-63	1.206E-03	7.442E-04	1.253E-03	1.396E-03	2.160E-03	7.404E-03	1.400E-02
Barium-140	9.976E-04	1.957E-04	*	*	*	4.784E-04	1.672E-03
Neptunium-239	2.536E-03	1.321E-02	*	*	*	*	1.575E-02
Iodine-132	9.566E-04	9.558E-04	*	*	*	*	1.912E-03
Tellurium-132	3.602E-04	1.647E-02	*	*	*	*	1.683E-02
Cadmium-109	5.078E-03	6.040E-03	*	*	*	*	1.112E-02
Krypton-85M	*	2.977E-04	*	*	*	*	2.977E-04
Silver-110M	*	*	*	2.865E-04	*	*	2.865E-04
Cobalt-64	*	*	*	2.046E-02	2.583E-02	*	4.629E-02
Strontium-91	*	*	*	*	*	7.073E-04	7.073E-04
Ruthenium-103	*	*	*	*	7.308E-05	*	7.308E-05
TOTALS	8.497E-01	7.504E-01	4.635E-01	6.598E-01	7.323E-01	8.814E-01	4.337

* Less Than Minimum Detectable

TABLE C

1982

PEACH BOTTOM UNITS 2 & 3 - GASEOUS RADIOACTIVE RELEASE DATA

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	TOTAL
Mixed Noble Gases Ci	3.377E+03	2.205E+03	2.464E+02	3.449E+02	3.481E+02	5.141E+02	7.035E+03
% of Tech. Spec. Limit (1)	3.01E-011	2.784E-01	1.845E-01	1.858E-01	1.569E-01	1.878E-01	2.157E-01
Iodine 131 Ci	4.552E-03	5.667E-03	1.452E-03	6.135E-04	6.343E-04	5.145E-04	1.343E-02
% of Tech. Spec. Limit (2)	2.624E-01	5.209E-01	1.401E-01	4.738E-02	4.589E-02	4.935E-02	1.777E-01
Particulates >8 Day Half Life Ci	7.926E-04	5.272E-04	1.299E-04	3.444E-04	3.324E-04	6.324E-04	2.759E-03
Particulate Alpha Ci	9.11E-07	1.23E-06	6.89E-07	9.290E-07	5.11E-07	5.97E-07	4.867E-06
% of Tech. Spec. Limit (2)	4.069E-02	2.001E-02	5.364E-03	2.080E-02	2.468E-02	1.098E-02	2.042E-02
Tritium Ci (3)	3.450E+00	2.758E+00	2.758E+00	1.635E+00	1.308E+00	1.308E+00	1.322E+01
Max. Noble Gas Release Rate Ci/sec	1.403E+04	4.718E+04	4.315E+02	7.26E+02	3.905E+02	1.560E+03	4.718E+04
Date:	1/23/82	2/20/82	3/26/82	4/13/82	5/26/82	6/28/82	2/20/82
% of Tech. spec. Limit for Maximum Noble Gas Release (1)	1.11E+00	1.67E+01	1.90E-01	4.20E-01	1.80E-01	2.20E-01	1.67E+01
Maximum % of Tech. Spec. Limit (1)	1.001E+01	1.670E+01	1.07E+00	1.21E+00	1.60E+00	8.70E-01	1.670E+01

(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

1982

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

ISOTOPE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	Ci TOTAL
Krypton-85m	2.849E+01	1.445E+01	2.400E+00	2.500E+00	5.500E+00	5.600E+00	5.894E+01
Xenon-133	2.466E+03	1.614E+03	6.423E+01	7.990E+01	8.825E+01	1.753E+02	4.487E+03
Xenon-135	7.135E+02	5.044E+02	1.084E+02	1.910E+02	2.261E+02	3.045E+02	2.048E+03
Krypton-88	1.862E+01	3.99E+00	*	*	*	*	2.261E+01
Xenon-138	4.900E+00	*	*	*	*	*	4.900E+00
Xenon-133m	7.706E+01	5.483E+01	*	*	*	*	1.319E+02
Krypton-87	3.510E+00	*	*	*	*	*	3.510E+00
Xenon-135m	6.531E+01	5.32E+00	*	*	7.080E+00	*	7.771E+01
Total	3.377E+03	2.197E+03	1.750E+02	2.734E+02	3.269E+02	4.854E+02	6.835E+03
Iodine-131	4.552E-03	5.667E-03	1.452E-03	6.135E-04	6.343E-04	5.14E-04	1.343E-02
Iodine-133	7.338E-02	5.870E-02	5.870E-02	7.246E-02	5.797E-02	5.797E-02	3.792E-01
Iodine-135	4.577E-02	3.662E-02	5.870E-02	4.298E-02	3.438E-02	3.438E-02	2.528E-01
Total	1.237E-01	1.009E-01	1.188E-01	1.161E-01	9.298E-02	9.286E-02	6.454E-01
Strontium-89	2.131E-04	1.867E-04	5.146E-05	5.118E-05	4.983E-05	4.622E-05	5.985E-04
Strontium-90	1.081E-05	5.500E-06	1.155E-05	3.230E-06	4.530E-06	3.230E-06	3.885E-05
Cesium-134	7.58E-05	1.257E-05	*	*	*	8.571E-05	1.741E-04
Cesium-137	5.800E-05	9.98E-06	1.873E-05	*	7.780E-05	1.487E-04	3.132E-04
Lanthanum-140	9.34E-05	7.644E-05	3.572E-05	3.148E-05	3.380E-05	2.423E-05	2.951E-04
Cobalt-58	*	*	*	*	*	3.130E-06	3.130E-06
Cobalt-60	1.394E-04	2.924E-05	*	*	6.280E-05	1.658E-04	3.972E-04
Zinc-65	1.76E-04	1.887E-04	*	2.474E-04	8.880E-05	1.566E-04	8.575E-04

TABLE D (Cont'd)

1982

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

ISOTOPE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	Ci TOTAL
Manganese-54	*	*	*	*	*	*	*
Strontium-91	1.929E-04	9.834E-05	4.460E-05	4.61E-05	5.09E-05	2.590E-05	4.587E-04
Zirconium-95	*	*	*	*	*	*	*
Molybdenum-99	*	*	*	*	*	*	*
Sodium-24	9.88E-05	*	*	*	*	*	9.88E-05
Cesium-138	5.068E-03	2.821E-03	1.116E-03	1.608E-03	2.032E-03	7.775E-03	2.042E-02
Barium-140	1.187E-04	9.324E-05	4.751E-05	4.169E-05	4.810E-05	1.969E-05	3.689E-04
Yitrium-91m	4.420E-03	1.209E-03	1.845E-04	1.645E-04	1.710E-04	9.899E-05	6.248E-03
Technetium-99m	1.06E-05	*	*	*	*	*	1.060E-05
TOTAL	1.045E-02	4.538E-03	1.447E-03	2.139E-03	2.565E-03	8.504E-03	2.964E-02

* Less than minimum detectable

TABLE E
1982

PEACH BOTTOM UNITS 2 & 3 - SOLID RADIOACTIVE WASTE SHIPMENT

	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	TOTAL
Number of shipments 165	26	27	29	28	29	26	
Volume of waste (ft)	1.273E+04	1.314E+04	5.457E+03	1.234E+04	1.709E+04	5.339E+03	6.609E+04
Activity, Curies	3.196E+02	2.825E+02	3.909E+02	6.875E+02	3.993E+02	6.321E+02	2.712E+03
Shipping dates (# of shipments)	A 12/31 (1)	A 1/29 (1)	A 2/26 (1)	A 3/31 (1)	A 4/30 (1)	A 6/2 (1)	
	A 1/4 (1)	A 2/1 (1)	A 3/1 (1)	A 4/1 (1)	B 5/1 (1)	A 6/3 (1)	
	A 1/6 (1)	A 2/3 (1)	A 3/2 (1)	A 4/2 (1)	A 5/3 (1)	A 6/4 (1)	
A. Disposition - All waste shipped by Hittman Nuclear and Development Corporation in trucks to the Chem Nuclear Corporation, Barnwell, South Carolina.	A 1/7 (1)	A 2/4 (1)	A 3/3 (1)	B 4/3 (1)	A 5/4 (1)	A 6/7 (1)	
	A 1/8 (1)	A 2/5 (1)	A 3/4 (1)	A 4/5 (1)	A 5/5 (1)	A 6/8 (1)	
	B 1/9 (2)	B 2/5 (1)	A 3/5 (1)	A 4/7 (1)	B 5/6 (1)	A 6/9 (2)	
	A 1/12 (1)	B 2/6 (1)	A 3/8 (1)	A 4/8 (1)	A 5/7 (1)	A 6/10 (1)	
	A 1/13 (1)	A 2/8 (2)	A 3/9 (2)	A 4/12 (2)	B 5/8 (1)	B 6/14 (1)	
	A 1/15 (2)	A 2/10 (1)	A 3/10 (1)	A 4/13 (1)	A 5/10 (1)	A 6/11 (2)	
	B 1/16 (2)	B 2/10 (1)	A 3/11 (1)	A 4/14 (2)	A 5/11 (2)	A 6/14 (1)	
	A 1/18 (1)	A 2/11 (2)	A 3/12 (1)	A 4/15 (1)	A 5/12 (1)	A 6/17 (2)	
	A 1/19 (2)	A 2/12 (1)	B 3/12 (2)	A 4/16 (2)	A 5/13 (1)	A 6/18 (1)	
B. Disposition - All waste shipped by Hittman Nuclear and Development Corporation on trucks to U.S. Ecology, Inc., Richland, Washington.	A 1/20 (1)	B 2/12 (1)	A 3/15 (1)	B 4/17 (1)	A 5/14 (1)	A 6/21 (1)	
	A 1/21 (1)	B 2/13 (1)	A 3/16 (1)	A 4/19 (1)	B 5/15 (1)	A 6/22 (1)	
	A 1/22 (1)	B 2/15 (1)	A 3/17 (2)	A 4/20 (1)	A 5/17 (1)	A 6/23 (2)	
	B 1/22 (1)	A 2/16 (1)	A 3/18 (1)	A 4/22 (2)	A 5/18 (1)	A 6/24 (2)	
	A 1/25 (1)	A 2/17 (2)	A 3/19 (1)	A 4/23 (1)	A 5/19 (1)	A 6/25 (1)	
	A 1/26 (1)	A 2/18 (1)	A 3/22 (1)	B 4/23 (1)	A 5/20 (1)	A 6/28 (1)	
	A 1/27 (1)	A 2/22 (2)	A 3/23 (1)	B 4/24 (1)	A 5/21 (2)	A 6/29 (2)	
	B 1/27 (1)	A 2/23 (1)	A 3/24 (1)	A 4/26 (1)	B 5/22 (1)		
Shipments are logged according to the month received at destination, which sometimes differs from the month in which it was shipped.	A 1/28 (1)	A 2/24 (2)	A 3/25 (3)	A 4/27 (2)	A 5/24 (1)		
	B 1/30 (1)	A 2/25 (1)	A 3/26 (1)	B 4/29 (2)	A 5/25 (2)		
			A 3/29 (1)		A 5/26 (1)		
			A 3/30 (1)		A 5/27 (1)		
					B 5/27 (1)		
					A 5/28 (1)		