

PEACH BOTTOM ATOMIC POWER STATION

THERMAL MAPPING REPORT NO. 84-3

FOR

OCTOBER 1, 1984

FOR

THERMAL MONITORING REQUIREMENTS

UNITS NO. 2 AND 3

PHILADELPHIA ELECTRIC COMPANY

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PDR ADOCK 05000277
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SUMMARY

On October 1, 1984, one cooling tower was in operation and the river flow was less than 15,000 cfs, therefore, thermal plume mapping was performed.

The following table list conditions on October 1, 1984:

River Flow (cfs)	:	7,200
Heat Discharge (BTU/hr)	:	6.11×10^9
# of C.W. Pumps Operating	:	3
# of Cooling Towers	:	1
Temp. Discharge Canal ^{°F} (1)	:	82.2
Temp. State Line ^{°F} (2)	:	69.4
Temp. Holtwood Dam ^{°F}	:	67.3

$$\begin{aligned}\Delta T \text{ Plant} &= [(STA23-STA1-TCL)] 1.8 \\ &= [(20.8 - 19.0 - 1.8)] 1.8 \\ &= 0^\circ\text{F}\end{aligned}$$

- (1) Bulk temperature of water discharged to Conowingo Pond from Discharge Canal.
- (2) Pennsylvania/Maryland State Line.

TABLE

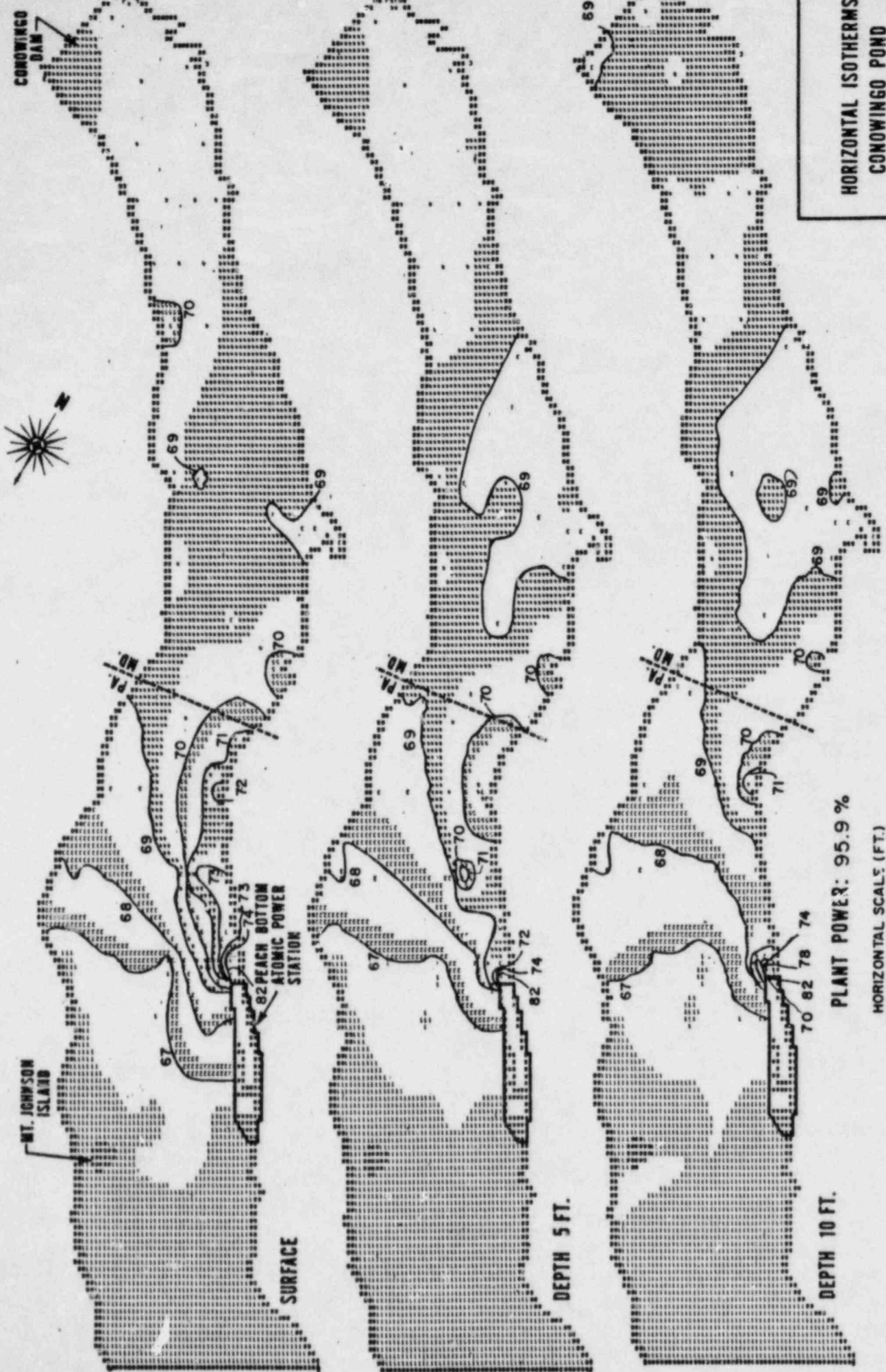
BOAT SURVEY INFORMATION

SURVEY DATE	10/01/84
TIME:	
Survey Start (EST)	0834
State Line (EST)	1013
Survey Finish (EST)	1240
HYDRAULIC DATA:	
Pond Elevation Start (Ft.)	107.50
Pond Elevation Finish (Ft.)	107.66
Natural Flow (24 hr. ave., CFS)	7,200
Conowingo Inflow (24 hr. ave., CFS)	8,175
Conowingo Dam Draft (24 hr. ave., CFS)	8,450
PBAPS Power Output:	
Unit 2: Thermal (MW)	0
Electrical (MW)	-4.6
Unit 3: Thermal (MW)	3144
Electrical (MW)	1004
METEOROLOGICAL DATA:	
Time (EST)	1013
Air Temperature (°F)	51
Dew Point (°F)	45
Precipitation (24 hr. total, in)	.33
Wind Speed (mph)	9
Cloud Over	Cloudy
Location:	Weather Station #1
Wind Direction	10°

WATER TEMPERATURE (SURVEY)

PBAPS Discharge	°C, (°F)	27.9 (82.2)
Intake	°C, (°F)	18.8 (65.9)
ΔT	°C, (°F)	9.1 (16.3)
Pond Surface Max.	°C, (°F)	27.9 (82.2)
Min.	°C, (°F)	18.3 (64.9)
Pond Bottom Max.	°C, (°F)	27.8 (82.0)
Min.	°C, (°F)	17.9 (64.2)
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No. of C.W. Pumps Operating		3
No. of Cooling Towers Operating		1

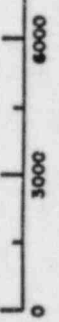
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HORIZONTAL ISOTHERMS
CONOWINGO POND
 DATE 10-1-84
 TIME 0834 - 1240

PLANT POWER: 95.9 %
 HORIZONTAL SCALE: (FT.)

AT STATE LINE = 0 ° F



DEPTH 5 FT.

DEPTH 10 FT.

PEACH BOTTOM ATOMIC POWER STATION

THERMAL MAPPING REPORT NO. 84-4

FOR

OCTOBER 6, 1984

FOR

THERMAL MONITORING REQUIREMENTS

UNITS NO. 2 AND 3

PHILADELPHIA ELECTRIC COMPANY

SUMMARY

On October 6, 1984, one cooling tower was in operation and the river flow was less than 15,000 cfs, therefore, thermal plume mapping was performed.

The following table list conditions on October 6, 1984:

River Flow (cfs)	:	6,500
Heat Discharge (BTU/hr)	:	4.72×10^9
# of C.W. Pumps Operating	:	3
# of Cooling Towers	:	1
Temp. Discharge Canal °F ⁽¹⁾	:	77.8
Temp. State Line °F ⁽²⁾	:	66.7
Temp. Holtwood Dam °F	:	62.4

$$\begin{aligned}\Delta T \text{ Plant} &= [(STA23-STA1-TCL)] 1.8 \\ &= [(19.3 - 17.5 - 0.7)] 1.8 \\ &= 1.98^\circ\text{F}\end{aligned}$$

- (1) Bulk temperature of water discharged to Conowingo Pond from Discharge Canal.
(2) Pennsylvania/Maryland State Line.

TABLE

BOAT SURVEY INFORMATION

SURVEY DATE 10/06/84

TIME:

Survey Start (EST)	0545
State Line (EST)	0710
Survey Finish (EST)	0840

HYDRAULIC DATA:

Pond Elevation Start (Ft.)	108.05
Pond Elevation Finish (Ft.)	108.03
Natural Flow (24 hr. ave., CFS)	6,500
Conowingo Inflow (24 hr. ave., CFS)	6,475
Conowingo Dam Draft (24 hr. ave., CFS)	2,250

PBAPS Power Output:

Unit 2: Thermal (MW)	0
Electrical (MW)	-4.7
Unit 3: Thermal (MW)	3167
Electrical (MW)	1032

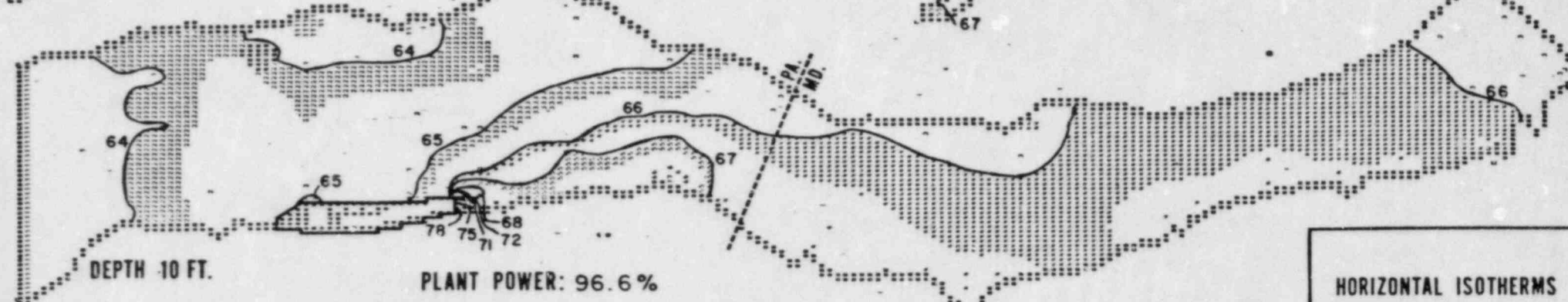
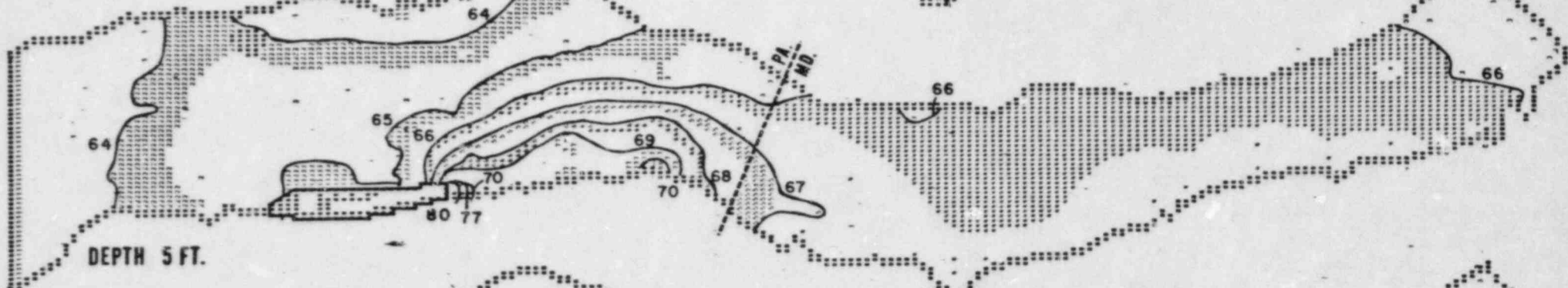
METEOROLOGICAL DATA:

Time (EST)	0543
Air Temperature (°F)	47
Dew Point (°F)	29
Precipitation (24 hr. total, in)	0
Wind Speed (mph)	7
Cloud Over	Clear
Location:	Weather Station #1
Wind Direction	36°

WATER TEMPERATURE (SURVEY)

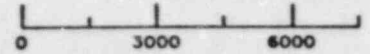
PBAPS Discharge	°C, (°F)	25.5 (77.8)
Intake	°C, (°F)	18.5 (65.2)
ΔT	°C, (°F)	7.0 (12.6)
Pond Surface Max.	°C, (°F)	27.0 (80.6)
Min.	°C, (°F)	17.2 (63.0)
Pond Bottom Max.	°C, (°F)	24.3 (75.7)
Min.	°C, (°F)	16.7 (62.1)
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No. of C.W. Pumps Operating		3
No. of Cooling Towers Operating		1

MA/dg/10238484-4



PLANT POWER: 96.6%

HORIZONTAL SCALE (FT.)



ΔT AT STATE LINE = 1.98 °F

HORIZONTAL ISOTHERMS
 CONOWINGO POND
 DATE 10/6/84
 TIME 0545 - 0840

PEACH BOTTOM ATOMIC POWER STATION

THERMAL MAPPING REPORT NO. 84-5

FOR

OCTOBER 13, 1984

FOR

THERMAL MONITORING REQUIREMENTS

UNITS NO. 2 AND 3

PHILADELPHIA ELECTRIC COMPANY

SUMMARY

On October 13, 1984, two cooling towers were in operation and the river flow was less than 15,000 cfs, therefore, thermal plume mapping was performed.

The following table list conditions on October 13, 1984:

River Flow (cfs)	:	5,300
Heat Discharge (BTU/hr)	:	5.32×10^9
# of C.W. Pumps Operating	:	3
# of Cooling Towers	:	2
Temp. Discharge Canal °F ⁽¹⁾	:	77.3
Temp. State Line °F ⁽²⁾	:	66.4
Temp. Holtwood Dam °F	:	62.2

$$\begin{aligned} T_{\text{Plant}} &= [(STA23-STA1-TCL)] 1.8 \\ &= [(19.1 - 17.0 - 0.9)] 1.8 \\ &= 2.16^\circ\text{F} \end{aligned}$$

- (1) Bulk temperature of water discharged to Conowingo Pond from Discharge Canal.
(2) Pennsylvania/Maryland State Line.

TABLE

BOAT SURVEY INFORMATION

SURVEY DATE	10/13/84
TIME:	
Survey Start (EST)	0715
State Line (EST)	0827
Survey Finish (EST)	1030
HYDRAULIC DATA:	
Pond Elevation Start (Ft.)	108.53
Pond Elevation Finish (Ft.)	108.53
Natural Flow (24 hr. ave., CFS)	5,300
Conowingo Inflow (24 hr. ave., CFS)	4,525
Conowingo Dam Draft (24 hr. ave., CFS)	2,225
PBAPS Power Output:	
Unit 2: Thermal (MW)	0
Electrical (MW)	-7.3
Unit 3: Thermal (MW)	3147
Electrical (MW)	1019.2
METEOROLOGICAL DATA:	
Time (EST)	0827
Air Temperature (°F)	59.5
Dew Point (°F)	46
Precipitation (24 hr. total, in)	0
Wind Speed (mph)	9
Cloud Over	Cloudy
Location:	Weather Station #1A
Wind Direction	352°

WATER TEMPERATURE (SURVEY)

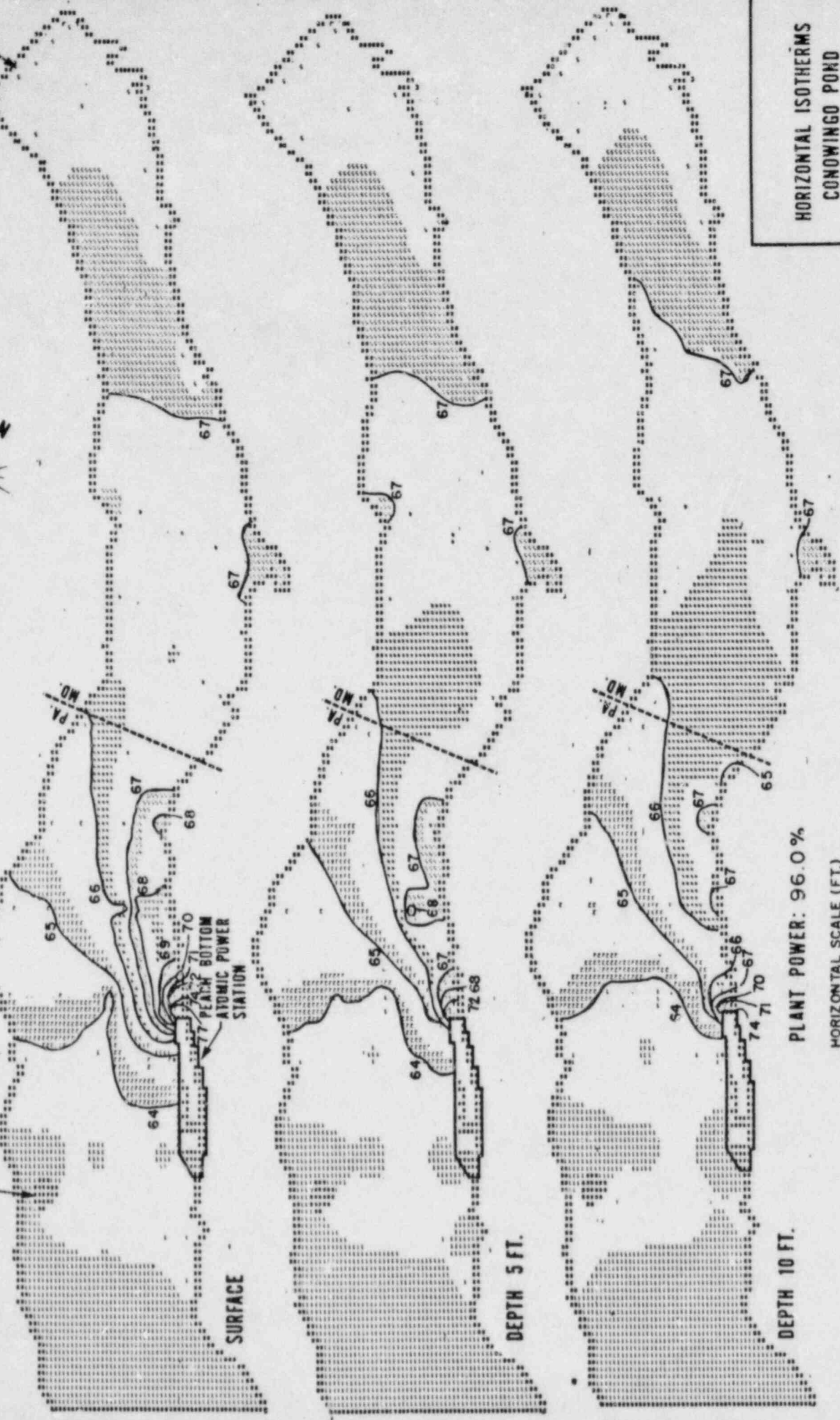
PBAPS Discharge	°C, (°F)	25.2	(77.3)
Intake	°C, (°F)	17.3	(63.1)
ΔT	°C, (°F)	7.9	(14.2)
Pond Surface Max.	°C, (°F)	25.2	(77.4)
Min.	°C, (°F)	17.0	(62.6)
Pond Bottom Max.	°C, (°F)	25.1	(77.2)
Min.	°C, (°F)	16.9	(62.4)
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No. of C.W. Pumps Operating		3	
No. of Cooling Towers Operating		2	

Ma/dg/10238484-5

CONOWINGO DAM



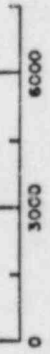
MT. JOHNSON ISLAND



HORIZONTAL ISOTHERMS
CONOWINGO POND
DATE 10-13-84
TIME 0715 - 1030

PLANT POWER: 96.0%

HORIZONTAL SCALE (FT.)



ΔT AT STATE LINE = 2.16 °F

SURFACE

DEPTH 5 FT.

DEPTH 10 FT.

PHILADELPHIA ELECTRIC COMPANY

2301 MARKET STREET

P.O. BOX 8699

PHILADELPHIA, PA. 19101

(215) 841-4000

October 30, 1984

Mr. Thomas A. Ippolito
Operation Reactors Branch 3
Division of Reactor Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Ippolito:

Enclosed are copies of Thermal Mapping Reports 84-3, 84-4, and 84-5 covering the Isotherm surveys for October 1, October 6, and October 13, 1984.

The information has been completed in compliance with the reporting requirements set forth in Appendix B to the Peach Bottom Operating License Environmental Technical Specification and Bases.

Yours truly,

*Helen T. Kachigive
for W.B.W.*

W. B. Willsey
Director
Environmental Affairs

WBW:htr
Enclosure

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

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