

Peach Bottom Atomic Power Station

Thermal Mapping Report No. 82-1

For

August 3, 1982

For

Thermal Monitoring Requirements

Units No. 2 and 3

Philadelphia Electric Company

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P PDR

SUMMARY

On August 3, 1982, three cooling towers were in operation and river flows were less than 15,000 cfs therefore thermal plume mapping was performed.

The following table lists conditions on August 3:

Date	:	8/3/82
River Flow (cfs)	:	13,800
Heat Discharged (BTU/hr)	:	8.78×10^9
# of C.W. Pumps Operating:		6
# of Cooling Towers	:	3
Temp Discharge Canal °F ⁽¹⁾	:	91.8
Temp State Line °F ⁽²⁾	:	86.4°
Temp Holtwood Dam °F	:	80.6

$$\begin{aligned}\Delta T \text{ Plant} &= [(\text{STA 23} - \text{STA 1} - \text{TCL})] 1.8 \\ &= [(30.2 - 27.2 - 3.0)] 1.8 \\ &= 0^\circ\text{F}\end{aligned}$$

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

TABLE
BOAT SURVEY INFORMATION

SURVEY DATE	8/3/82	
TIME:		
Survey Start (EST)	0815	
State line (EST)	1050	
* Survey Finish (EST)	1203	
HYDRAULIC DATA:		
* Pond Elevation Start (Ft.)	107.19	
* Pond Elevation Finish (Ft.)	107.63	
Natural Flow (24 hour ave., CFS)	13,800	
Conowingo Inflow (24 hrs. ave., CFS)	13,225	
Conowingo Dam Draft (24 hr. ave., CFS)	16,050	
PBAPS Power Output:		
Unit 2: Thermal (MW)	3284.5	
Electrical (MW)	1047.1	
Unit 3: Thermal (MW)	3259.4	
Electrical (MW)	1039.3	
METEOROLOGICAL DATA:		
Time (EST)	0804-0819	
Air Temperature (*F)	74	
Relative Humidity (%)	63	
Precipitation (24 hour total, in)	0	
Wind Speed (mph)	10	
Cloud Over	0	
Location:	Boat Station #7	
Wind Direction	360*	
WATER TEMPERATURE (SURVEY)		
PBAPS Discharge	*C, (*F)	33.2 (91.8)
Intake	*C, (*F)	26.7 (80.1)
ΔT	*C, (*F)	6.5 (11.7)
Pond surface Max.	*C, (*F)	32.2 (90.0)
Min.	*C, (*F)	27.0 (80.6)
Pond Bottom Max.	*C, (*F)	30.9 (87.6)
Min.	*C, (*F)	26.1 (79.0)
No. of C.W. Pumps Operating	6	
No. of Cooling Towers Operating	3	

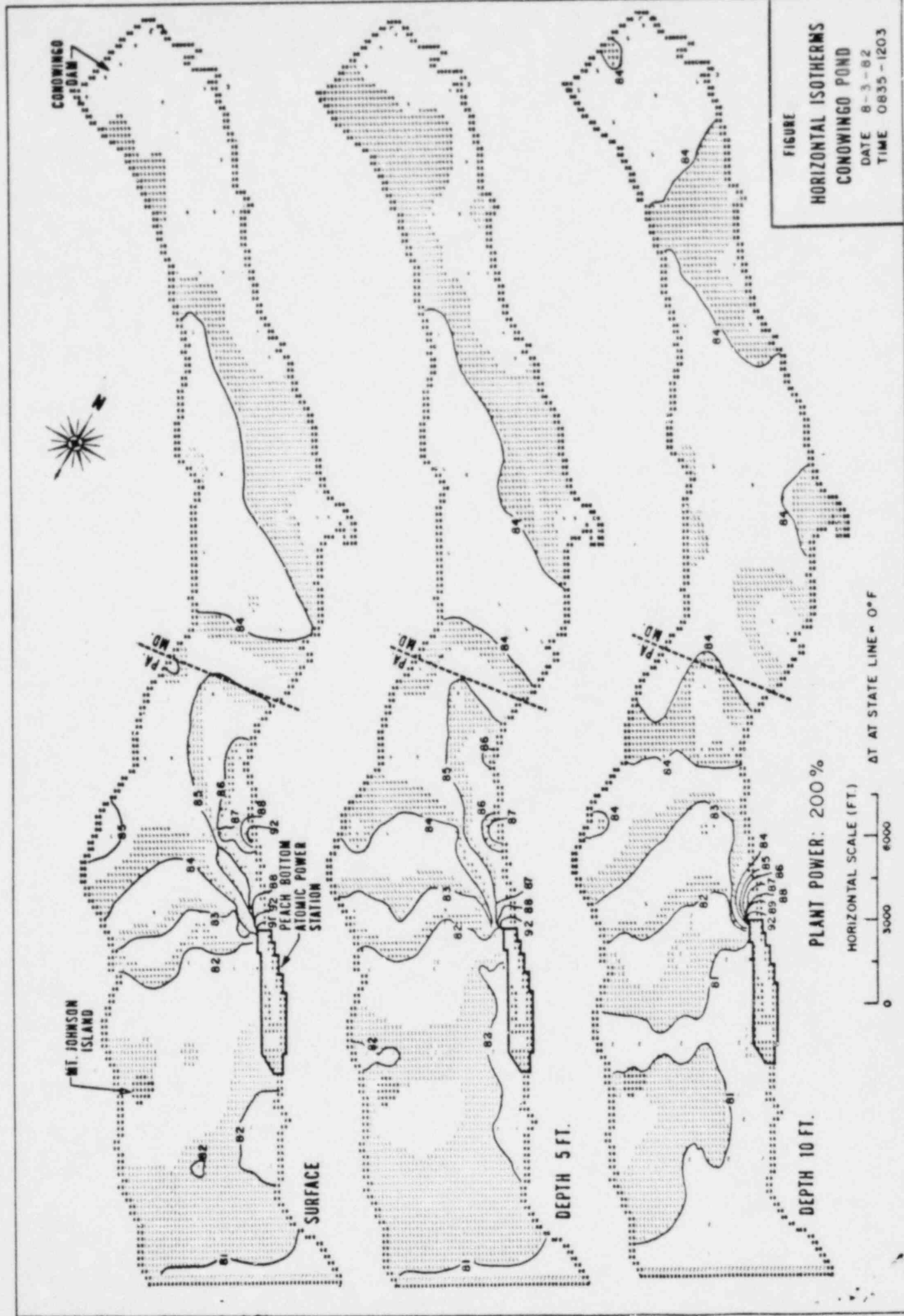


FIGURE
 HORIZONTAL ISOTHERMS
 CONOWINGO POND
 DATE 8-3-82
 TIME 0835-1203

PLANT POWER: 200 %
 HORIZONTAL SCALE (FT)

AT STATE LINE = 0°F