

Peach Bottom Atomic Power Station

Thermal Mapping Report No. 82-7

For

October 27, 1982

For

Thermal Monitoring Requirements

Units No. 2 and 3

Philadelphia Electric Company

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SUMMARY

On October 27, 1982 less than 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 October 27, 1982:

Date	:	October 27, 1982
River Flow (cfs)	:	6,300
Heat Discharged (BTU/hr)	:	7.88×10^9
# of C.W. Pumps Operating:		6
# of Cooling Towers	:	2
Temp Discharge Canal °F ⁽¹⁾		66.0°
Temp State Line °F ⁽²⁾	:	59.4°
Temp Holtwood Dam °F	:	53.1°

$$\begin{aligned}\Delta T \text{ Plant} &= [(STA 23 - STA 1 - TCL)] 1.8 \\ &= [(15.2^\circ\text{C} - 12.7^\circ\text{C} - 1.8^\circ\text{C})] 1.8 \\ &= 1.26^\circ\text{F}\end{aligned}$$

(1) Bulk temperature of water discharged to Conowingo Pond from discharge canal.

(2) Pennsylvania/Maryland State Line.

Note: Station 1 is located upstream of PBAPS and Station 23 is located at the state line.

TABLE
BOAT SURVEY INFORMATION

SURVEY DATE 10/27/82

TIME:

Survey Start (EST)	0810
State Line (EST)	0943
Survey Finish (EST)	1130

HYDRAULIC DATA:

Pond Elevation Start (Ft.)	108.11
Pond Elevation Finish (Ft.)	107.89
Natural Flow (24 hour ave., CFS)	6,300
Conowingo Inflow (24 hrs. ave., CFS)	6,350
Conowingo Dam Draft (24 hr. ave., CFS)	8,675

PBAPS Power Output:

Unit 2: Thermal (MW)	1789.2
Electrical (MW)	512.3
Unit 3: Thermal (MW)	3199.9
Electrical (MW)	1029.4

METEOROLOGICAL DATA:

Time (EST)	0830
Air Temperature (*F)	46°
Relative Humidity (%)	70
Precipitation (24 hour total, in)	0
Wind Speed (mph)	4
Cloud Over	clear
Location:	River Tower Weather Station
Wind Direction	345°

WATER TEMPERATURE (SURVEY)

PBAPS Discharge	*C, (*F)	18.9 (66.0)
Intake	*C, (*F)	13.06 (55.5)
ΔT	*C, (*F)	5.83 (10.5)
Pond Surface Max.	*C, (*F)	17.4 (63.3)
Min.	*C, (*F)	12.7 (54.9)
Pond Bottom Max.	*C, (*F)	16.8 (62.2)
Min.	*C, (*F)	12.7 (54.9)
No. of C.W. Pumps Operating		6
No. of Cooling Towers Operating		2

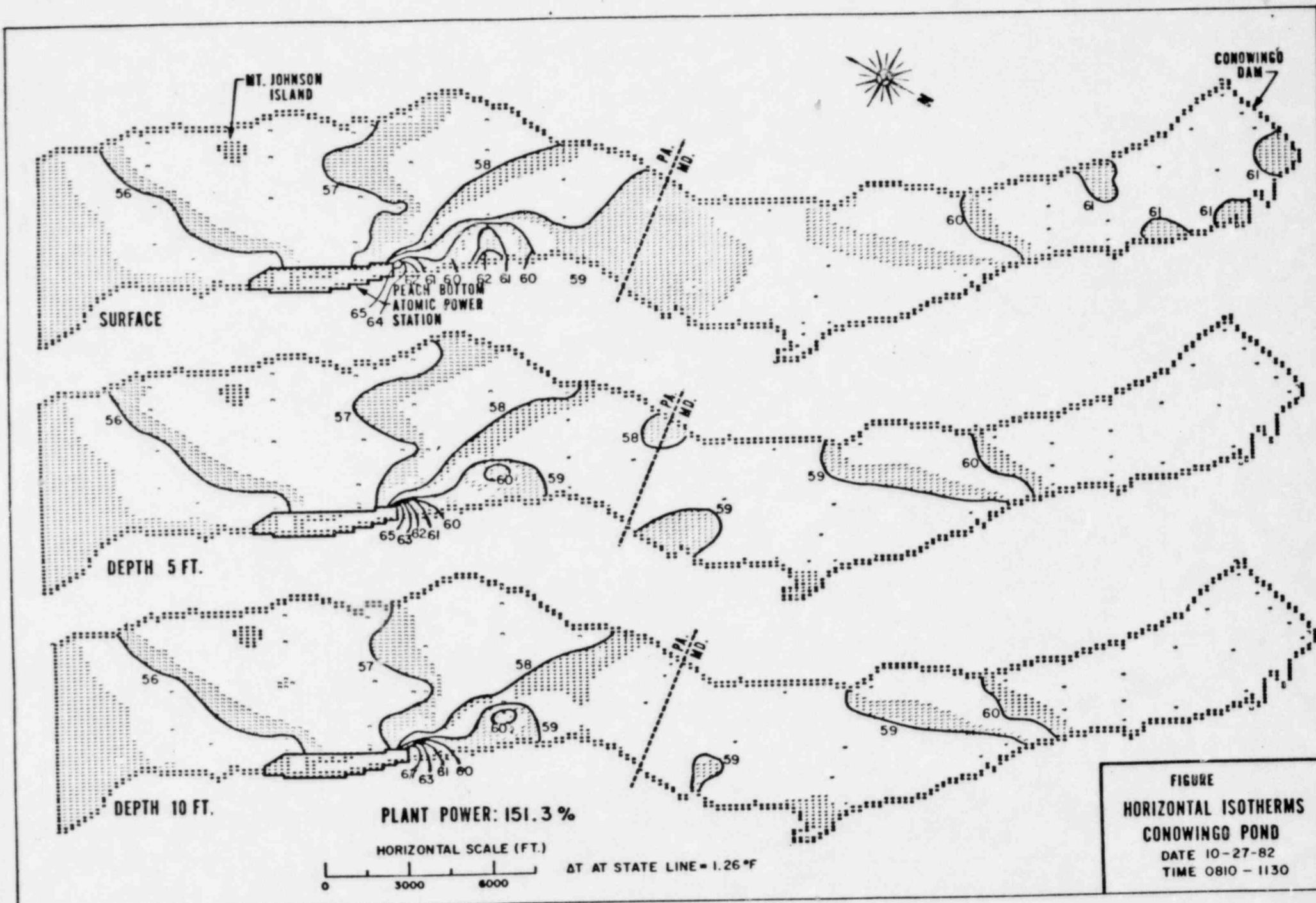


FIGURE
 HORIZONTAL ISOTHERMS
 CONOWINGO POND
 DATE 10-27-82
 TIME 0810 - 1130