

Peach Bottom Atomic Power Station

Thermal Mapping Report No. 81-3

FOR

July 28, 1981

FOR

Thermal Monitoring Requirements

Units No. 2 and 3

Philadelphia Electric Company

# SUMMARY

On July 25, 1981 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 July 28:

|                                        |   |                   |
|----------------------------------------|---|-------------------|
| Date                                   | : | July 28, 1981     |
| River Flow (cfs)                       | : | 12,500            |
| Heat Discharged (BTU/hr)               | : | $1.3 \times 10^9$ |
| # of C.W. Pumps Operating              | : | 3                 |
| # of Cooling Towers                    | : | 3                 |
| Temp Discharge Canal °F <sup>(1)</sup> | : | 83.7              |
| Temp State Line °F <sup>(2)</sup>      | : | 81.9              |
| Temp Holtwood Dam °F                   | : | 78.6              |

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

(2) Pennsylvania/Maryland State Line.

## BOAT SURVEY INFORMATION

## SURVEY DATE

## TIME:

|                       |      |
|-----------------------|------|
| Survey Start (EST)    | 0640 |
| State Line (EST)      | 0955 |
| * Survey Finish (EST) | 1000 |

## HYDRAULIC DATA:

|                                        |        |
|----------------------------------------|--------|
| * Pond Elevation Start (Ft.)           | 107.43 |
| * Pond Elevation Finish (Ft.)          | 108.12 |
| Natural Flow (24 hour ave., CFS)       | 12,500 |
| Conowingo Inflow (24 hrs. ave., CFS)   | 13,725 |
| Conowingo Dam Draft (24 hr. ave., CFS) | 16,950 |

## PBAPS Power Output:

|                      |        |
|----------------------|--------|
| Unit 2: Thermal (MW) | 3124.2 |
| Electrical (MW)      | 997.9  |
| Unit 3: Thermal (MW) | 0      |
| Electrical (MW)      | -14    |

## METEOROLOGICAL DATA:

|                                   |              |
|-----------------------------------|--------------|
| Time (EST)                        | 0625-0640    |
| Air Temperature (°F)              | 74           |
| Relative Humidity (%)             | 72           |
| Precipitation (24 hour total, in) | 0            |
| Wind Speed (mph)                  | 4            |
| Cloud Over                        | PARTLY       |
| Location:                         | BOAT STA. #7 |
| Wind Direction                    | E            |

## WATER TEMPERATURE (SURVEY)

|                                 |          |      |        |
|---------------------------------|----------|------|--------|
| PBAPS Discharge                 | °C, (°F) | 28.7 | (83.7) |
| Intake                          | °C, (°F) | 26.8 | (80.2) |
| Δ T                             | °C, (°F) | 1.9  | (3.5)  |
| Pond Surface Max.               | °C, (°F) | 28.3 | (82.9) |
| Min.                            | °C, (°F) | 26.5 | (79.7) |
| Pond Bottom Max.                | °C, (°F) | 29.1 | (84.4) |
| Min.                            | °C, (°F) | 26.6 | (79.9) |
| No. of C.W. Pumps Operating     |          | 3    |        |
| No. of Cooling Towers Operating |          | 3    |        |

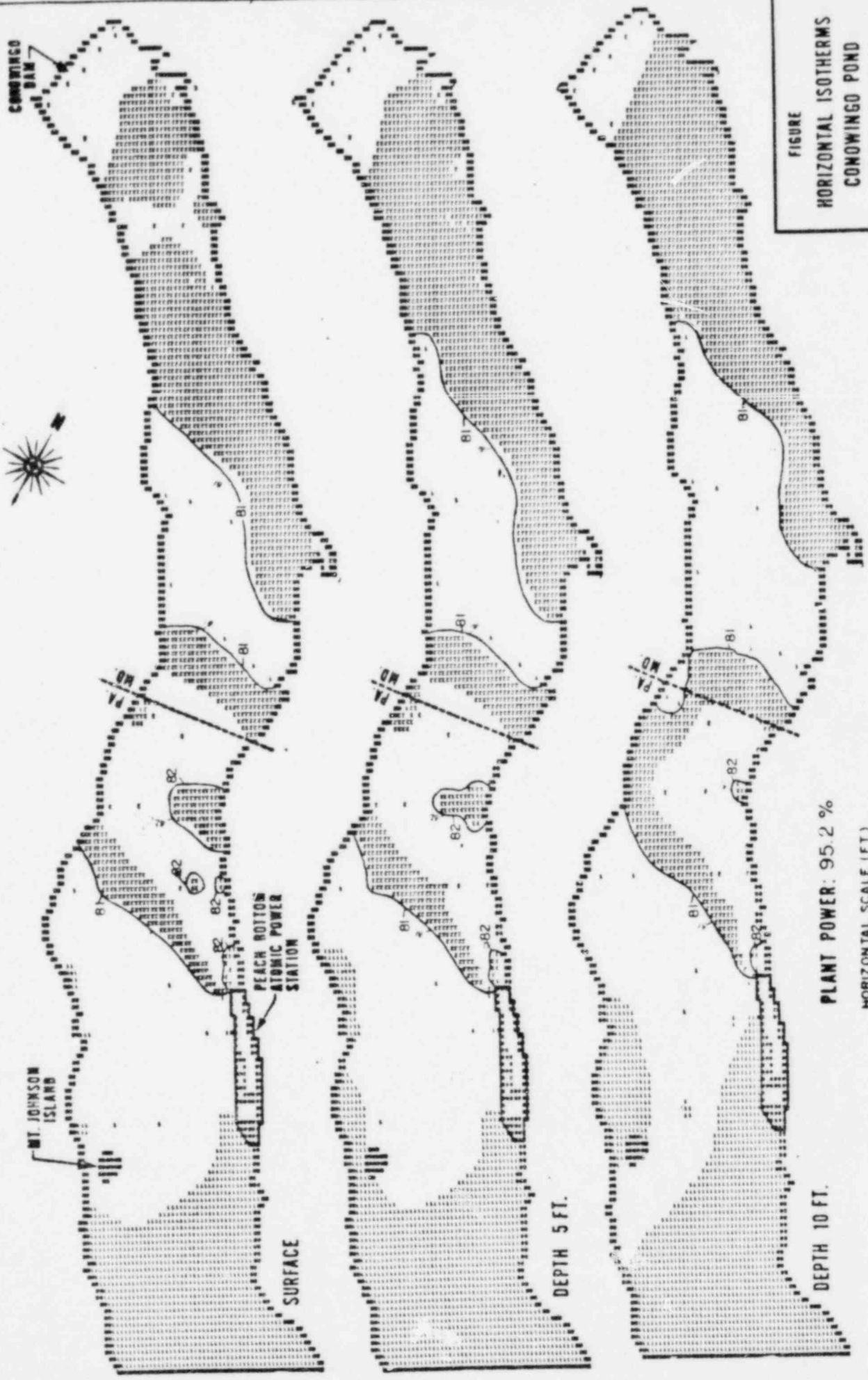
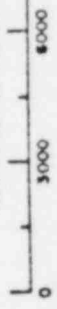


FIGURE  
HORIZONTAL ISOOTHERMS  
CONOWINGO POND  
DATE: 7/28/81  
TIME: 0640-1000

PLANT POWER: 95.2 %

HORIZONTAL SCALE (FT.)

AT STATE LINE = 0 ° F



DEPTH 5 FT.

DEPTH 10 FT.