

MONTHLY REPORT NO. 66 FOR DECEMBER 1978  
THERMAL AND BIOLOGICAL MONITORING PROGRAMS  
PEACH BOTTOM ATOMIC POWER STATION  
UNITS NO. 2 AND 3

Due to severe icing conditions, thermograph servicing could not be performed for the December, 1978 reporting period. The analysis for this period will be submitted shortly after conditions permit retrieval of the thermal data.

The daily river flows as measured at Holtwood Hydroelectric Station and the daily generation at PBAPS in thermal megawatts for the reporting period are presented in Table 1. Figure 1 shows the instrument and survey locations.

Figures 2, 3, 4, and 5 are isotherm plots, which include three (3) horizontal sections of boat surveys made during the December recording period. Boat survey information is tabulated in Table 2. Surveys for this period were started at the north end of Conowingo Pond. The delta T at the state line indicated on the isotherms is calculated by subtracting the Holtwood Dam temperature and the hourly Confidence Limit (applicable to the mid-survey time) from the state line temperature. This delta T can be interpreted as being caused by PBAPS since ambient hourly variations at the state line have been considered.

Although the isotherm plots do not cover the entire reporting period on a daily, hour by hour basis and cannot be used as a continuous indication of temperature variation, they do represent a fair treatment of typical plume characteristics. In addition, they may also be used as an empirical tool in estimating probable plume patterns in advance of certain natural and plant operating conditions.

7903020352

TABLE 1

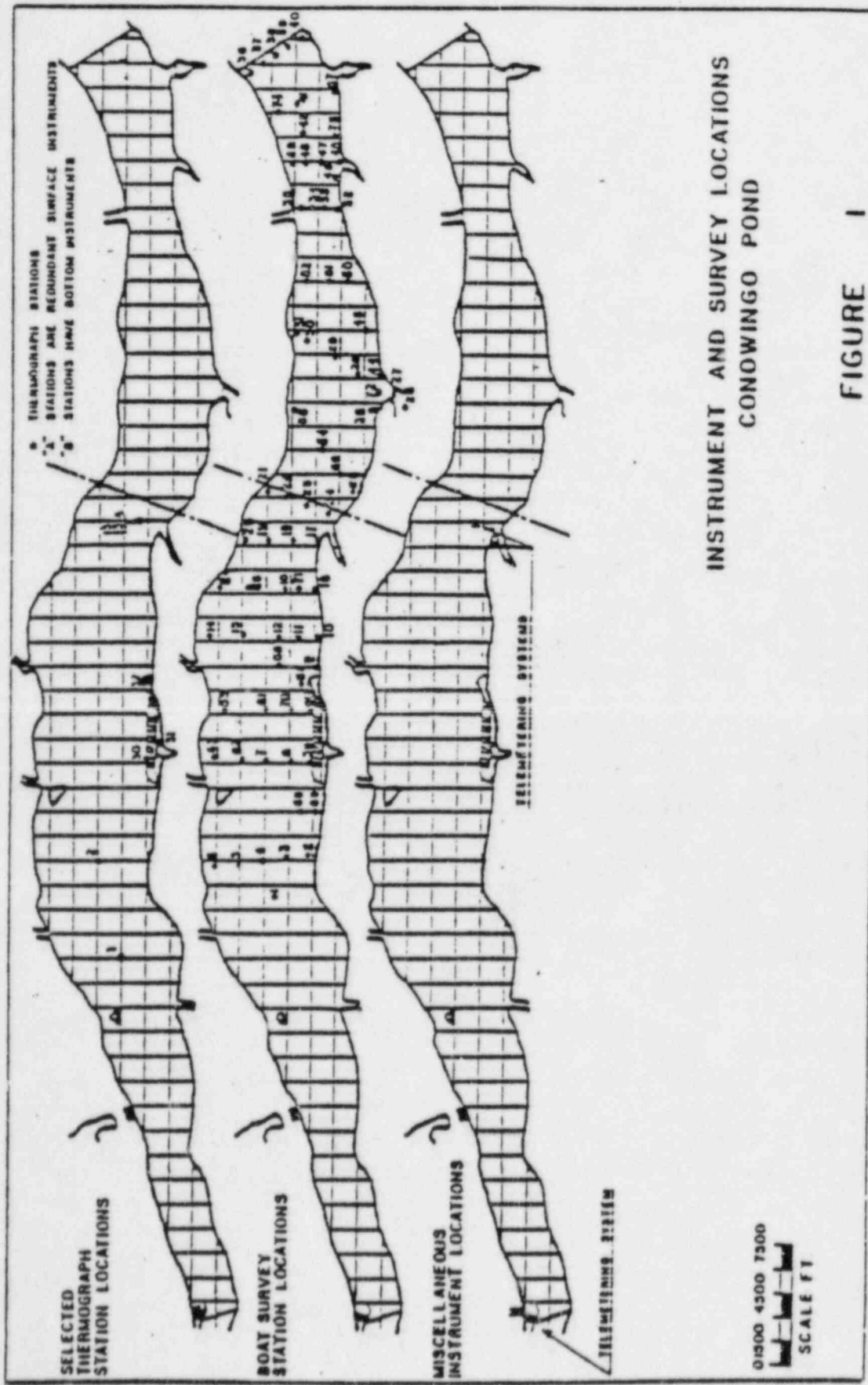
MOLTACOD DAILY FLOWS(CFS) AND DAILY THERMAL MEGAWATTS- DEC 1978

DES	YEAR	MONTH	DAY	HW_FLOW	MW_THERM
1	78	12	1	18100	6444
2	78	12	2	17500	5679
3	78	12	3	16500	6294
4	78	12	4	18000	6574
5	78	12	5	18500	6578
6	78	12	6	21700	6576
7	78	12	7	22700	6577
8	78	12	8	25100	4505
9	78	12	9	32400	4982
10	78	12	10	44500	5757
11	78	12	11	56500	6476
12	78	12	12	61300	6557
13	78	12	13	55800	6573
14	78	12	14	48000	6582
15	78	12	15	40000	6576
16	78	12	16	35000	6503
17	78	12	17	32300	6517
18	78	12	18	28000	6572
19	78	12	19	25900	6566
20	78	12	20	24900	6573
21	78	12	21	23000	6573
22	78	12	22	20500	6570
23	78	12	23	22000	6567
24	78	12	24	26700	6553
25	78	12	25	40300	6533
26	78	12	26	46800	6391
27	78	12	27	41300	6450
28	78	12	28	32800	6404
29	78	12	29	25700	6465
30	78	12	30	22200	6475
31	78	12	31	23100	6456

TABLE 2

BOAT SURVEY INFORMATION

SURVEY DATE	12/4/78	12/13/78	12/18/78	12/29/78
TIME:				
Survey Start (EST)	1340	1000	0930	0915
State Line (EST)	1445	1115	1045	1030
Survey Finish (EST)	1600	1400	1145	1130
HYDRAULIC DATA:				
Pond Elevation Start (Ft.)	107.50	108.55	108.12	107.04
Pond Elevation Finish (Ft.)	107.98	108.31	107.79	106.38
Natural Flow (24 hour ave., CFS)	16,400	53,900	26,600	23,600
Conowingo Inflow (24 hrs. ave., CFS)	16,700	51,800	28,975	28,250
Conowingo Dam Draft (24 hr. ave., CFS)	18,400	53,600	29,850	34,775
PBAPS Power Output:				
Unit 2: Thermal (MW)	3286	3283	3289	3261
Electrical (MW)	1064	1062	1063	1059
Unit 3: Thermal (MW)	3288	3290	3283	3272
Electrical (MW)	1044	1047	1044	1034
METEOROLOGICAL DATA:				
Time (EST)	1330	1050	0920	0910
Air Temperature (°F)	66	42	39	27
Relative Humidity (%)	74	60	55	48
Precipitation (24 hour total, in)	.66	None	None	None
Wind Speed (mph)	10	10	10-15	3-5
Cloud Over	Full	Sunny	Partly	Partly
Location:	Sta #7	Sta #7	Sta #7	Sta #7
Wind Direction	S	SW	NW	N
WATER TEMPERATURE (SURVEY)				
PBAPS Discharge °C, (°F)	14.3(57.7)	11.4(52.5)	10.4(50.7)	10.8(51.4)
Intake °C, (°F)	4.0(39.2)	1.9(35.4)	1.9(35.4)	0.0(32)
T °C, (°F)	10.3(18.5)	9.5(17.1)	8.5(15.3)	10.8(19.4)
Pond Surface Max. °C, (°F)	14.4(57.9)	10.6(51.1)	10.4(50.7)	10.8(51.4)
Min. °C, (°F)	3.7(38.7)	1.9(35.4)	1.6(34.9)	0.0(32)
Pond Bottom Max. °C, (°F)	14.4(57.9)	11.5(52.7)	10.8(51.4)	10.8(51.4)
Min. °C, (°F)	3.6(38.5)	1.9(35.4)	1.6(34.9)	0.0(32)
No. of C.W. Pumps Operating	6	6	6	5
No. of Cooling Towers Operating	3	2	2	2



INSTRUMENT AND SURVEY LOCATIONS  
CONOWINGO POND

FIGURE I

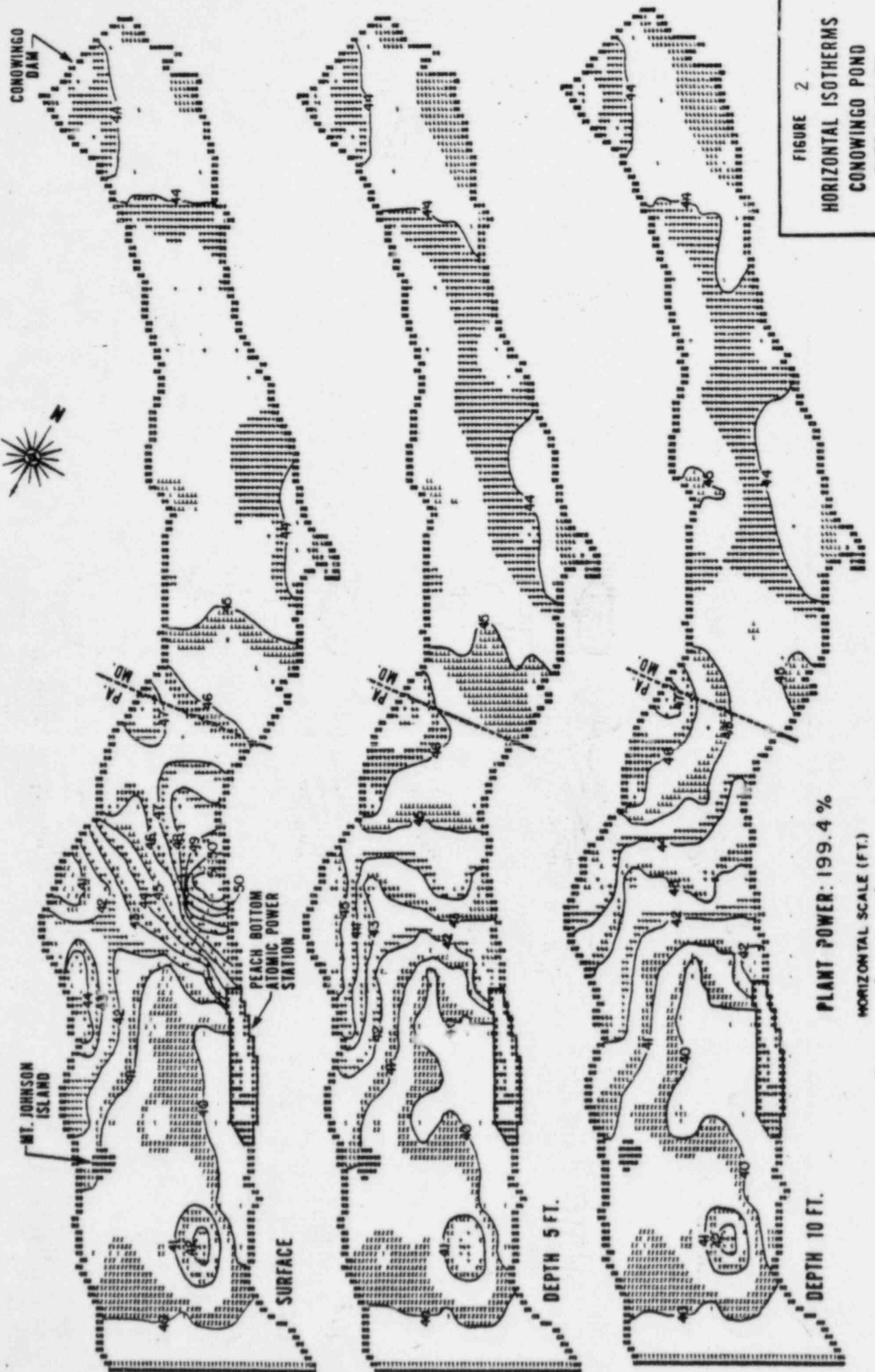
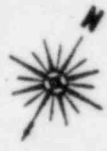
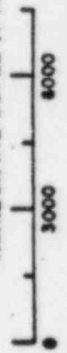


FIGURE 2  
HORIZONTAL ISOOTHERMS  
CONOWINGO POND  
DATE 12/04/78  
TIME 1340/1600

PLANT POWER: 199.4 %

HORIZONTAL SCALE (FT.)



AT STATE LINE = 2.8 °F

DEPTH 5 FT.

DEPTH 10 FT.



CONOWINGO DAM



MT. JOHNSON ISLAND

PEACH BOTTOM  
ATOMIC POWER  
STATION

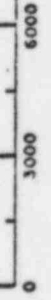
SURFACE

DEPTH 5 FT.

DEPTH 10 FT.

PLANT POWER: 200%

HORIZONTAL SCALE (FT.)



ΔT AT STATE LINE = 0°F

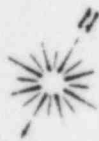
FIGURE 3

HORIZONTAL ISOTHERMS  
CONOWINGO POND

DATE 12/13/78  
TIME 0945/1000



CONVINGO DAM



MT. JOHNSON ISLAND

PEACH BOTTOM  
ATOMIC POWER  
STATION

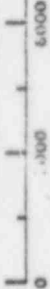
SURFACE

DEPTH 5 FT.

DEPTH 10 FT.

PLANT POWER: 196 %

HORIZONTAL SCALE (FT)



AT STATE LINE - 0°

FIGURE 5

HORIZONTAL ISOTHERMS

CO<sub>2</sub>: 1160 POUNDS

DATE 12-29-78

TIME 0915 / 1130