



South Carolina Electric & Gas Company  
P. O. Box 86  
Jenkinsville, SC 29065  
(803) 345-4040

John L. Skolds  
Vice President  
Nuclear Operations

August 11, 1992

Mr. William R. Krecker  
Environmental Quality Manager  
Water Quality Assessment & Enforcement  
Division  
South Carolina Department of Health  
& Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Dear Mr. Krecker:

Subject: VIRGIL C. SUMMER NUCLEAR STATION  
DISCHARGE BAY FISH KILL (ONO 920059)  
AUGUST 5, 1992

South Carolina Electric & Gas Company (SCE&G) herewith submits a report concerning a recent fish kill which occurred in the circulating water discharge bay of the Virgil C. Summer Nuclear Station (VCSNS). The enclosed report describes the event and probable cause.

SCE&G will continue to monitor temperature and flow conditions within the area as previously discussed with DHEC and the South Carolina Department of Wildlife and Marine Resources.

In accordance with the VCSNS Operating License NPF-12, Appendix B, a copy of this report is being provided to the Nuclear Regulatory Commission. Additionally, a copy of the report will be provided to the South Carolina Department of Wildlife and Marine Resources per the request of Mr. H. J. Logan, Chief of Fisheries.

If you have any questions please call Mr. Charles McKinney at 345-4723.

Very truly yours,

John L. Skolds

cjm  
Enclosure

c: W. M. Lide, Jr.  
W. R. Baehr  
R. R. Mahan  
Document Control Desk  
NRC Resident Inspector  
A. G. Alvarez/D. C. Blanks/S. E. Summer/File  
G. J. Bullwinkel/W. E. Moore/R. M. Webb/H. L. Wolfe  
Central Midlands District  
R. J. White  
Dick Christie  
NSRC  
RTS (ONO 920059)  
File (809.06-1 & 818.05)

NUCLEAR EXCELLENCE - A SUMMER TRADITION!

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FISH KILL REPORT  
AUGUST 5, 1992

A fish kill involving approximately 2500 fish was discovered in the circulating water discharge area (see Figure 1) of the Virgil C. Summer Nuclear Station (VCSNS) on August 5, 1992. The fish, due to the state of decomposition, appeared to have died during the previous night. Data suggest that the fish kill was caused by thermal stress related to VCSNS circulating water discharge temperatures and Monticello Reservoir drawdown (see Figure 2). The apparent mechanism responsible for the fish kill appears similar to previous kills in this area.

Table I lists the species of fish involved in the kill along with size information. Figure 3 shows size classes of white catfish killed. Approximately 90% of the dead fish were catfish. This is consistent with other kills in this area and supports the theory that the fish move into the discharge bay from the discharge canal (see Figure 1) during full reservoir conditions and are trapped in the bay area by reservoir drawdown. Table 2 presents Monticello Reservoir level, VCSNS circulating water discharge temperature, and discharge bay bottom temperature (one foot from the bottom).

There were no unusual discharges from VCSNS to Monticello Reservoir and water quality in the reservoir, as measured at the UGSG monitor at Fairfield Pumped Storage Facility, appeared normal. VCSNS power level remained at 100% for the period preceding the fish kill except for approximately four hours on August 2, 1992, when power level was reduced to 90%.

It is not known why this fish kill was more extensive than previous kills in this area. It may be that a period of relatively high reservoir levels combined with a minor reduction in power level at VCSNS influenced recruitment into the bay, but the data are inconclusive. It is still believed that shoal removal in the discharge bay (Spring 1991) has reduced the number of fish kill events. Under the conditions associated with 1989 and 1990 fish kills, before shoal removal, an additional thirteen fish kills (defined as ten fish or greater) would be predicted for July 8, 1992, through August 3, 1992. Temperature monitoring in the discharge bay and canal will continue, as will daily fish kill checks, while conditions are favorable for fish kills this summer.



Stephen E. Summer  
Environmental Services

FIGURE 1

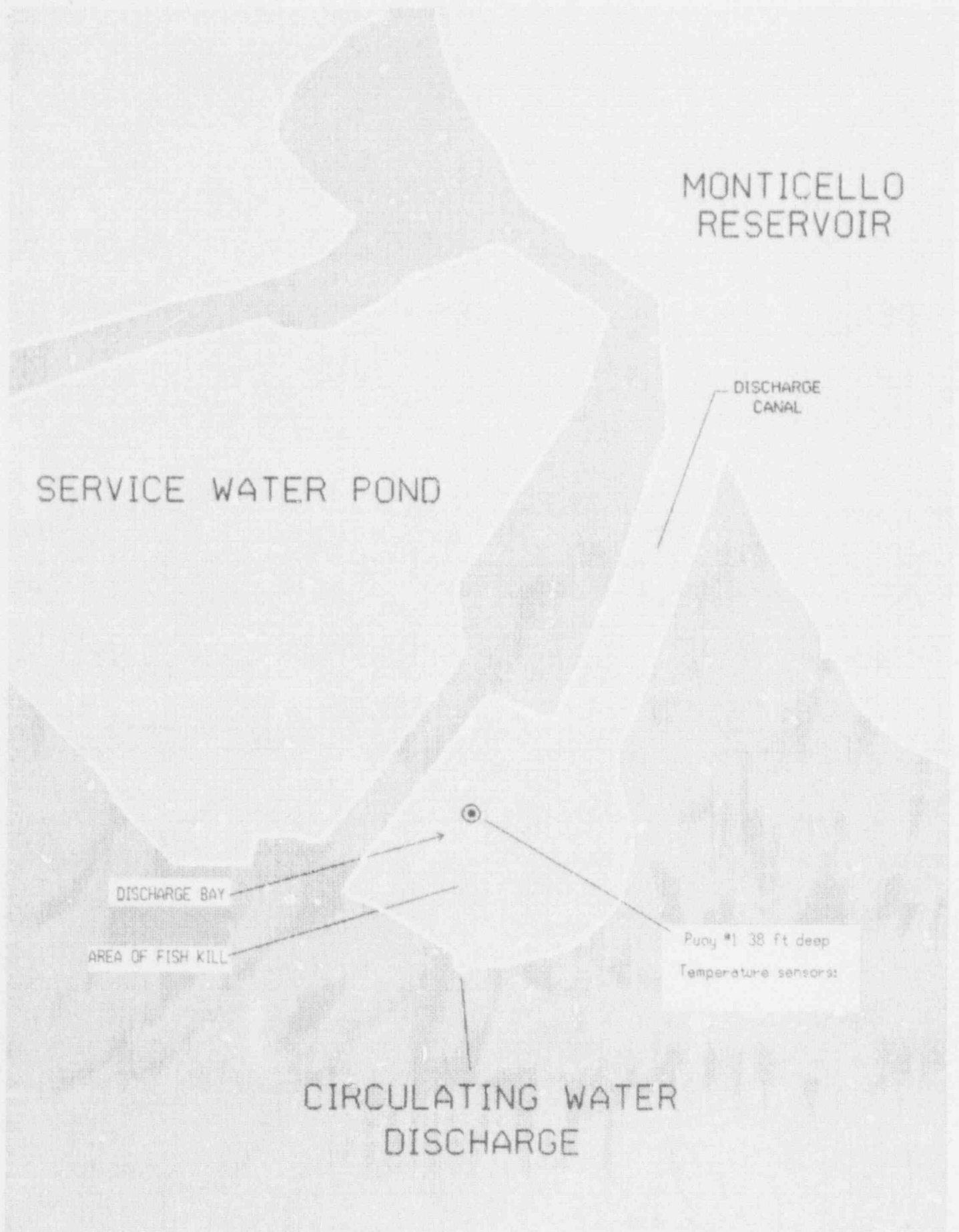


FIGURE 2. DISCHARGE BAY TEMPERATURE/RESERVOIR LEVEL  
30 JULY - 5 AUGUST 1992

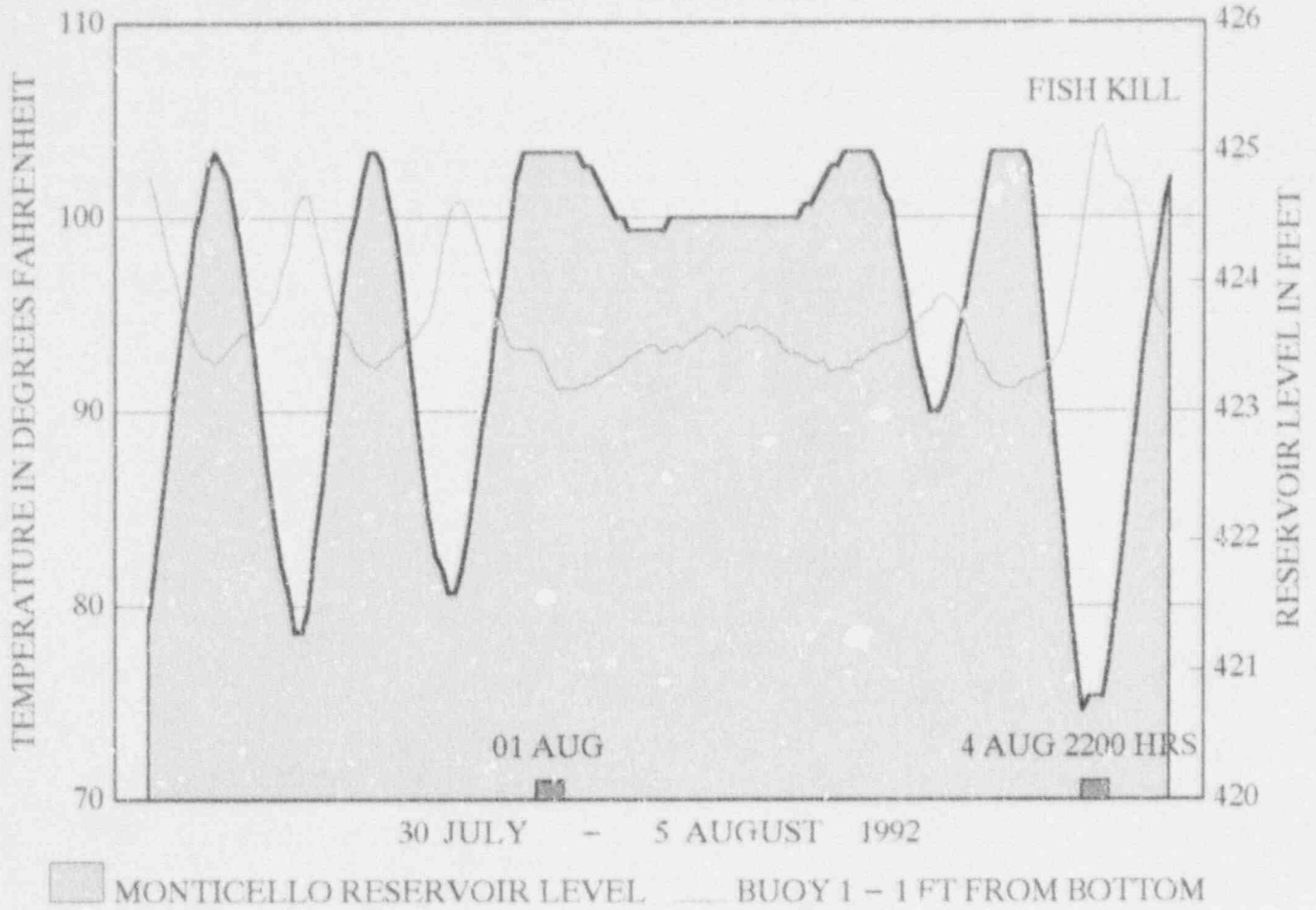


FIGURE 3.  
VCSNS DISCHARGE BAY - AUGUST 4 1992 FISH KILL  
WHITE CATFISH

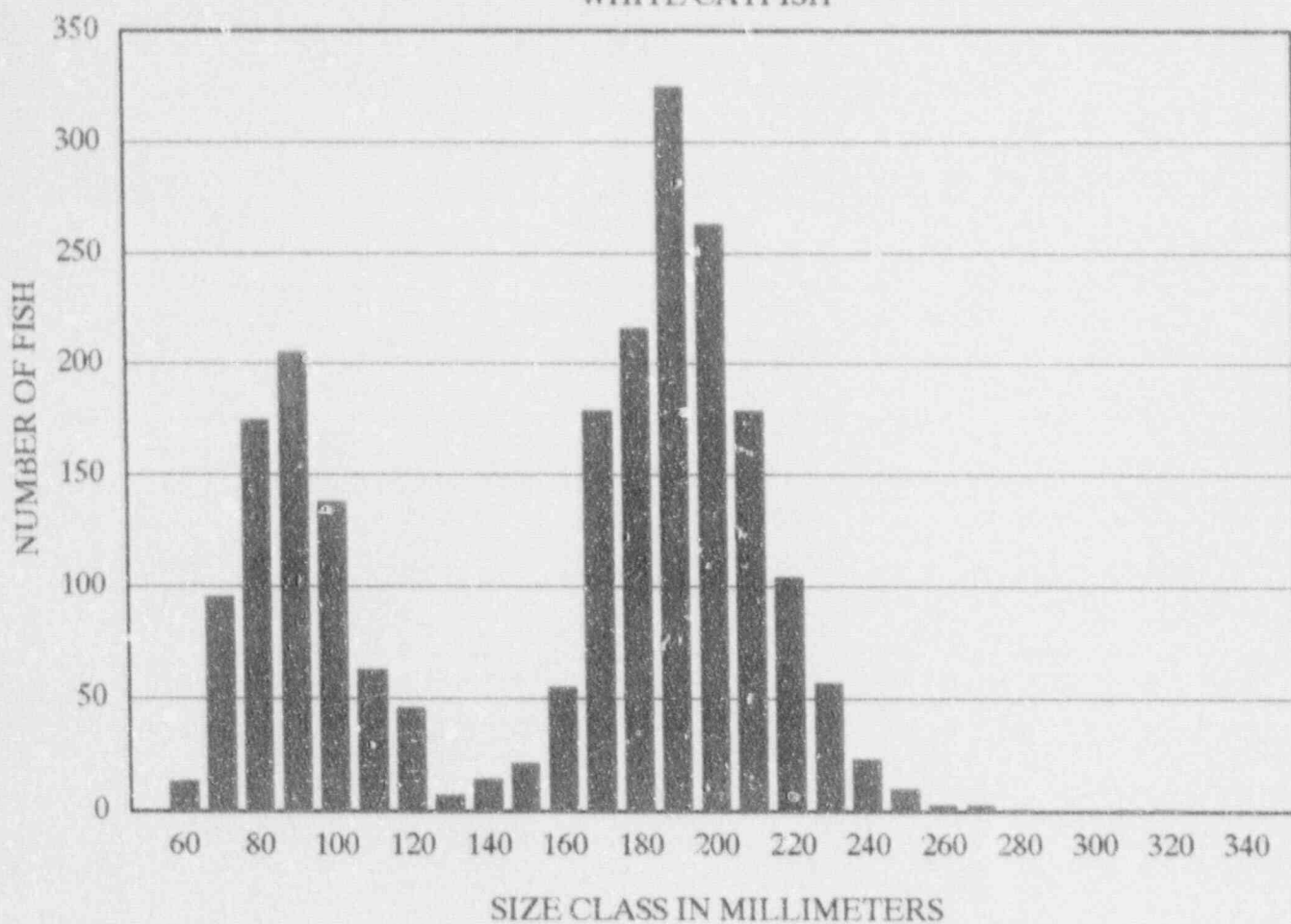


TABLE I

<u>SPECIES</u>	<u>NUMBER KILLED</u>	<u>SIZE (mm)</u>
white catfish	2197	60 - 320*
channel catfish	64	80 - 375
bluegill	184	80 - 140
gizzard shad	8	62 - 229
black crappie	4	105 - 150
warmouth	1	125
unidentified catfish	18	not measured
unidentified shad	8	60 - 95
unidentified fish	60	not measured

\* See figure 3

TABLE 2.

Date	Time	MONTICELLO RESERVOIR LEVEL (feet)	VCSNS CIRCULATING WATER DISCHARGE TEMPERATURE ° F	DISCHARGE BAY BOTTOM TEMPERATURE ° F
08/01/92	00:00	422.1	107.6	100.2
08/01/92	01:00	422.5	107.3	99.0
08/01/92	02:00	422.9	107.2	98.0
08/01/92	03:00	423.2	107.1	96.8
08/01/92	04:00	423.7	106.8	95.8
08/01/92	05:00	424.0	106.6	94.4
08/01/92	06:00	424.4	106.6	93.4
08/01/92	07:00	424.8	106.6	93.2
08/01/92	08:00	425.0	106.6	93.2
08/01/92	09:00	425.0	106.7	93.2
08/01/92	10:00	425.0	106.9	93.2
08/01/92	11:00	425.0	107.2	92.8
08/01/92	12:00	425.0	107.8	91.8
08/01/92	13:00	425.0	108.5	91.2
08/01/92	14:00	425.0	109.0	91.2
08/01/92	15:00	425.0	109.3	91.2
08/01/92	16:00	425.0	109.6	91.2
08/01/92	17:00	424.9	109.6	91.4
08/01/92	18:00	424.9	109.3	91.4
08/01/92	19:00	424.8	109.3	91.6
08/01/92	20:00	424.7	109.4	91.8
08/01/92	21:00	424.6	109.3	92.0
08/01/92	22:00	424.5	109.6	92.2
08/01/92	23:00	424.5	109.6	92.4

TABLE 2. (Continued)

Date	Time	MONTICELLO RESERVOIR LEVEL (feet)	VCSNS CIRCULATING WATER DISCHARGE TEMPERATURE ° F	DISCHARGE BAY BOTTOM TEMPERATURE ° F
08/02/92	00:00	424.4	108.5	92.8
08/02/92	01:00	424.4	108.0	93.0
08/02/92	02:00	424.4	109.0	93.2
08/02/92	03:00	424.4	109.4	93.4
08/02/92	04:00	424.4	109.5	93.4
08/02/92	05:00	424.4	109.6	93.0
08/02/92	06:00	424.5	109.6	93.2
08/02/92	07:00	424.5	109.5	93.4
08/02/92	08:00	424.5	109.3	93.2
08/02/92	09:00	424.5	109.1	93.6
08/02/92	10:00	424.5	108.9	93.8
08/02/92	11:00	424.5	108.7	94.0
08/02/92	12:00	424.5	109.0	94.4
08/02/92	13:00	424.5	109.5	94.2
08/02/92	14:00	424.5	109.8	93.8
08/02/92	15:00	424.5	109.9	94.0
08/02/92	16:00	424.5	109.7	94.4
08/02/92	17:00	424.5	109.4	94.4
08/02/92	18:00	424.5	109.5	94.2
08/02/92	19:00	424.5	109.5	94.4
08/02/92	20:00	424.5	109.2	94.2
08/02/92	21:00	424.5	109.0	94.0
08/02/92	22:00	424.5	108.7	93.8
08/02/92	23:00	424.5	108.7	93.2



TABLE 2. (Continued)

Date	Time	MONTICELLO RESERVOIR LEVEL (feet)	VCSNS CIRCULATING WATER DISCHARGE TEMPERATURE ° F	DISCHARGE BAY BOTTOM TEMPERATURE ° F
08/03/92	00:00	424.5	108.5	93.0
08/03/92	01:00	424.5	108.6	93.0
08/03/92	02:00	424.6	108.6	92.8
08/03/92	03:00	424.6	108.5	92.6
08/03/92	04:00	424.7	108.5	92.4
08/03/92	05:00	424.8	108.4	92.6
08/03/92	06:30	424.9	108.1	92.0
08/03/92	07:00	424.9	107.9	92.2
08/03/92	08:00	425.0	107.7	92.2
08/03/92	09:00	425.0	107.6	92.2
08/03/92	10:00	425.0	107.5	92.6
08/03/92	11:00	425.0	107.5	92.6
08/03/92	12:00	425.0	107.4	93.0
08/03/92	13:00	424.9	N/A	93.2
08/03/92	14:00	424.7	N/A	93.4
08/03/92	15:00	424.6	107.5	93.4
08/03/92	16:00	424.3	107.7	93.6
08/03/92	17:00	424.0	107.7	93.8
08/03/92	18:00	423.7	107.5	94.4
08/03/92	19:00	423.4	107.5	94.6
08/03/92	20:00	423.2	107.5	95.0
08/03/92	21:00	423.0	107.5	95.2
08/03/92	22:00	423.0	107.5	95.8
08/03/92	23:00	423.1	107.5	95.0

TABLE 2. (Continued)

Date	Time	MONTICELLO RESERVOIR LEVEL (feet)	VCSNS CIRCULATING WATER DISCHARGE TEMPERATURE ° F	DISCHARGE BAY BOTTOM TEMPERATURE ° F
08/04/92	00:00	423.3	107.5	95.8
08/04/92	01:00	423.6	107.4	95.4
08/04/92	02:00	423.8	107.0	94.6
08/04/92	03:00	424.1	106.9	93.6
08/04/92	04:00	424.4	106.8	92.6
08/04/92	05:00	424.7	106.8	92.4
08/04/92	06:00	425.0	106.8	91.6
08/04/92	07:00	425.0	106.8	91.4
08/04/92	08:00	425.0	106.8	91.2
08/04/92	09:00	425.0	106.8	91.2
08/04/92	10:00	425.0	106.9	91.2
08/04/92	11:00	425.0	107.1	91.6
08/04/92	12:00	424.9	107.5	91.6
08/04/92	13:00	424.3	107.7	91.8
08/04/92	14:00	423.8	108.1	91.0
08/04/92	15:00	423.2	108.5	92.4
08/04/92	16:00	422.7	108.9	92.8
08/04/92	17:00	422.2	109.5	93.6
08/04/92	18:00	421.6	109.5	95.4
08/04/92	19:00	421.1	109.8	97.4
08/04/92	20:00	420.7	109.8	99.6
08/04/92	21:00	420.8	109.7	102.3
08/04/92	22:00	420.8	109.8	104.3
08/04/92	23:00	420.8	110.0	104.7

TABLE 2. (Continued)

Date	Time	MONTICELLO RESERVOIR LEVEL (feet)	VCSNS CIRCULATING WATER DISCHARGE TEMPERATURE ° F	DISCHARGE BAY BOTTOM TEMPERATURE ° F
08/05/92	00:00	421.1	110.0	103.1
08/05/92	01:00	421.5	109.8	102.1
08/05/92	02:00	422.0	109.6	101.9
08/05/92	03:00	422.5	109.1	101.5
08/05/92	04:00	423.0	108.6	100.2
08/05/92	05:00	423.5	108.2	98.4
08/05/92	06:00	423.9	108.0	96.6
08/05/92	07:00	424.2	107.9	95.4
08/05/92	08:00	424.6	107.7	94.8