

TENNESSEE VALLEY AUTHORITY

KNOXVILLE, TENNESSEE 37902

TVA Mailroom

JUN 10 1982

Mr. John Marlar, Chief
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Dear Mr. Marlar:

NOTIFICATION OF NONCOMPLIANCE WITH EFFLUENT LIMITATIONS - NPDES PERMIT
NO. TN0026450 - SEQUOYAH NUCLEAR PLANT (SQN)

Description of the discharge--Discharge No. 024 - Diffuser gate discharge to the Tennessee River. The temperature rise between the upstream and downstream temperature monitors exceeded the maximum permit limitation of 3°C from 5:30 p.m. to 8:45 p.m. on May 15, 1982. The maximum temperature rise during this period was 3.9°C at 6:45 p.m. The maximum downstream temperature during this time was 26.15°C at 7:25 p.m.

Cause and period of the noncompliance--During the period of noncompliance, upstream temperature remained fairly constant at 22°C. The temperature of the discharge prior to diffuser-induced mixing averaged 25.1°C, showing little variation between 24.8°C and 25.4°C. The downstream temperature exhibited an upward trend throughout the day starting at 23.1°C at 4:00 a.m. and reaching a maximum of 26.15°C at 7:25 p.m. The dilution factor during the noncompliance period varied from approximately 2.6 to 8.5, based on discharge volumes and riverflows. The design of the diffuser discharge pipe should have provided a mixing ratio of approximately 6 to 1 for the flow and temperature conditions prevailing at the time of the noncompliance.

The existing thermal stratification within the Chickamauga Reservoir near the SQN site is such that there exists a 10-foot layer of cooler bottom water (T less than 18.9°C) in which much of the initial mixing of the thermal discharge occurs. Consequently, the upstream temperature at the 5-foot depth is not representative of the ambient water temperature conditions. This stratification results in the discharge jet entraining sufficient cool bottom water that it reaches its point of neutral buoyancy at an elevation substantially below that of the surface.

Enclosed are data graphs showing upstream, downstream, and diffuser pond release temperatures plus dam releases, riverflows, and dilution factors during the period of noncompliance from 5:30 p.m. to 8:45 p.m. The exact cause of this noncompliance is not known. However, we believe it was not plant induced. It is evident from the diffuser pond temperatures measured (that were less than the downstream temperature between 6 p.m. and 9 p.m.) and the field verified diffuser performance that the downstream temperature measured was not plant induced but the result of a combination of solar heating, low riverflows, and stratification as discussed above.

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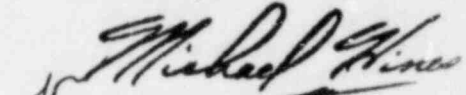
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Steps taken to reduce eliminate, and prevent recurrence of the noncomplying discharge--At the time the noncompliance was noted, an increase in release volume from Chickamauga Dam was initiated to increase riverflow past the plant, thus increasing the mixing ratio.

Sincerely,



Mohamed T. El-Ashry, Ph.D.
Assistant Manager of Natural
Resources (Environment)

Enclosure

cc (Enclosure):

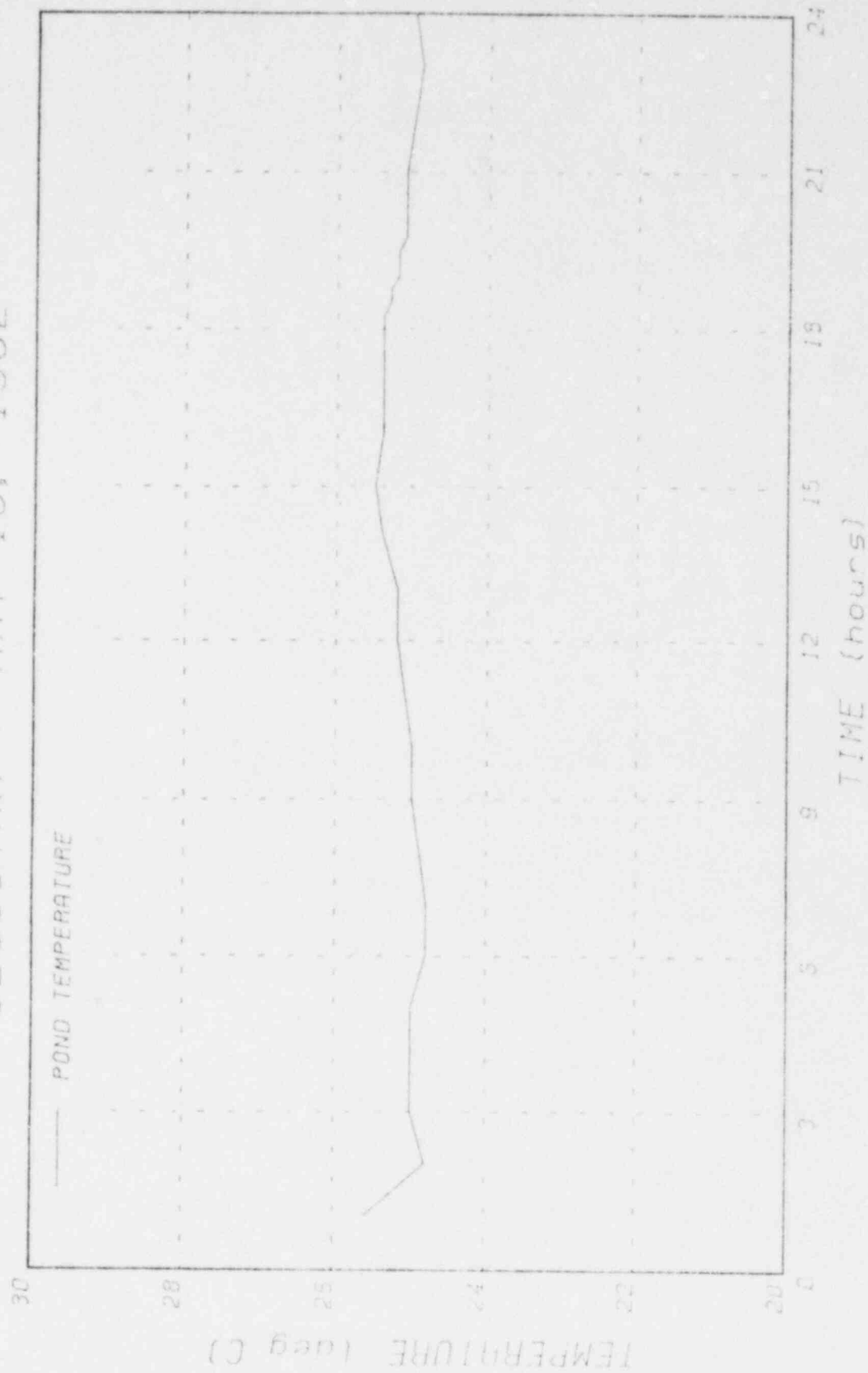
Tennessee Department of Public Health
Division of Water Quality Control
150 Ninth Avenue, North
TERRA Building
Nashville, Tennessee 37203

Mr. Harold R. Denton, Director (5)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, DC 20555

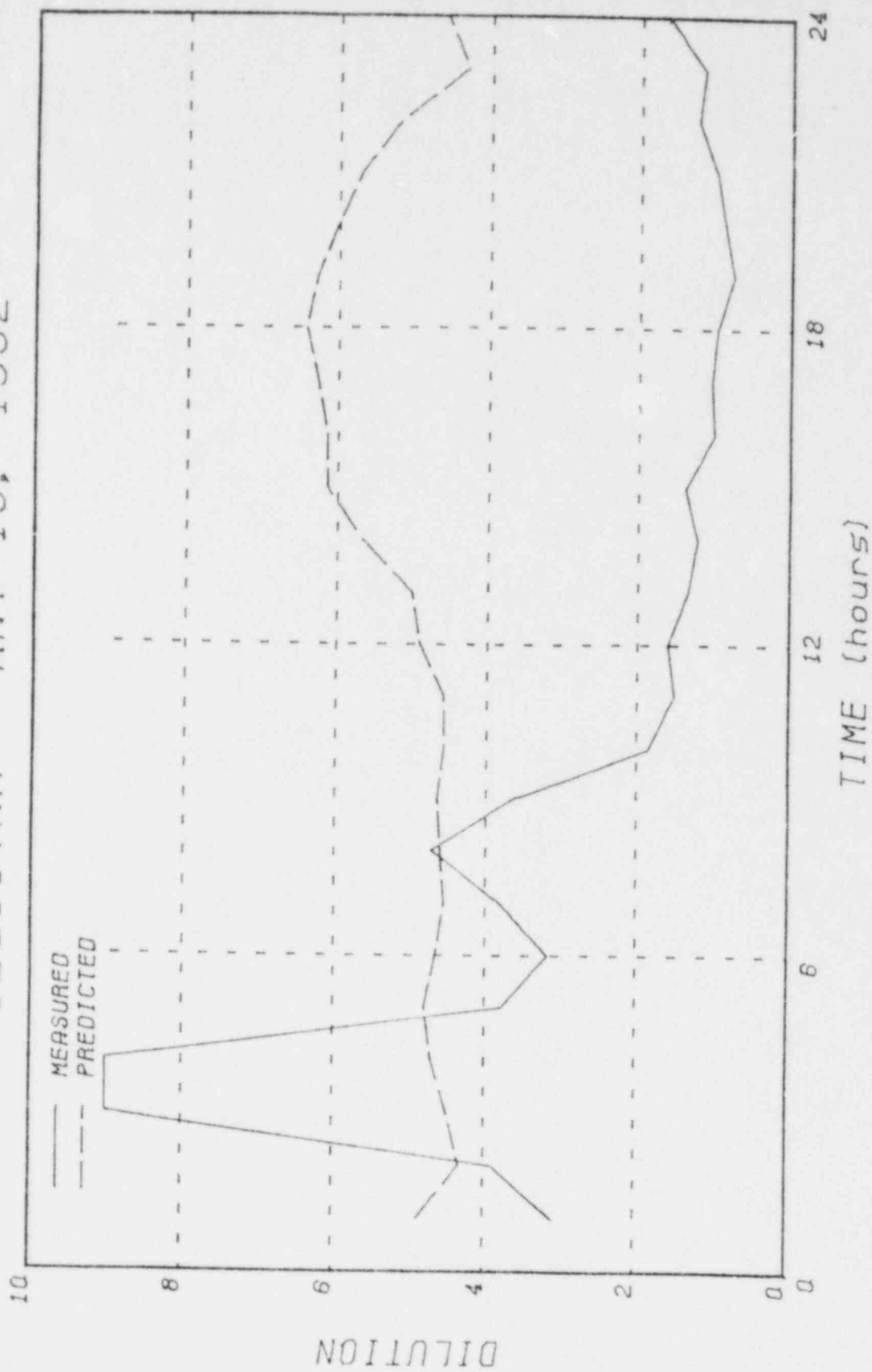
Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street
Atlanta, Georgia 30303

Mr. Jack McCormick, Basin Chief
Chattanooga Basin Office
Division of Water Quality Control
2501 Milne Street
Chattanooga, Tennessee 37406

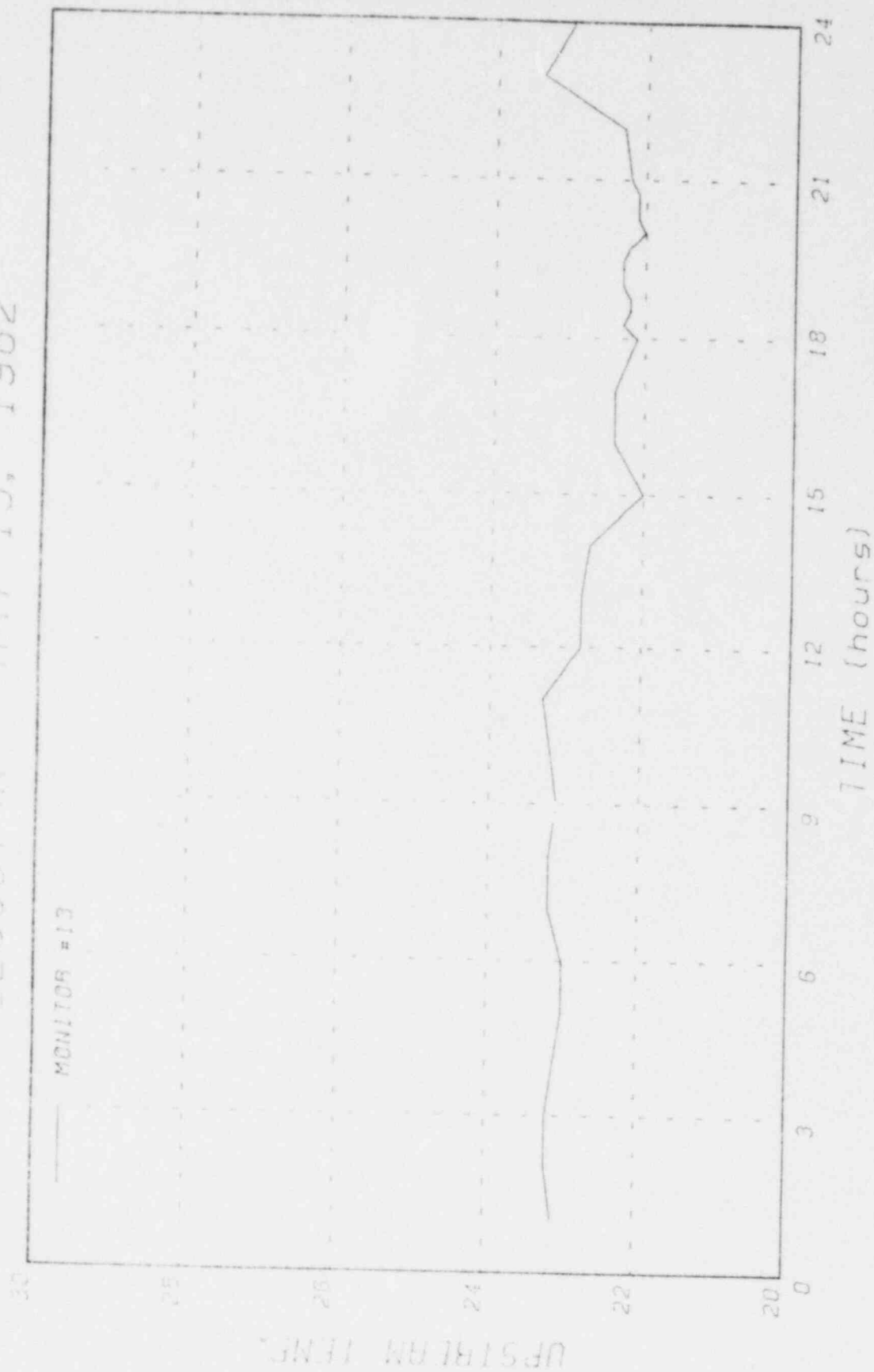
SEQUOYAH - MAY 15, 1982



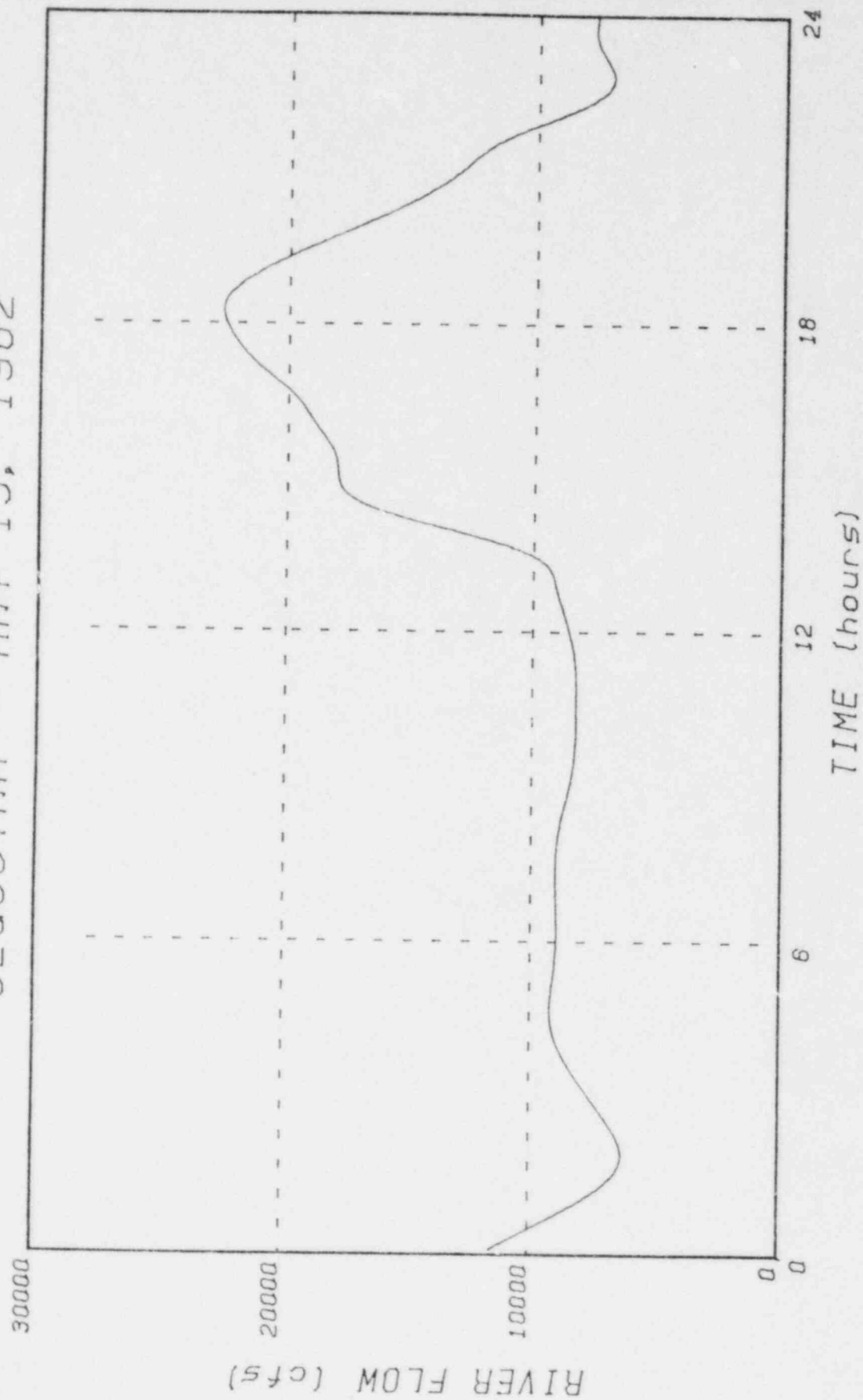
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