DOCKETED USAEC
JAN 26 1973
REGULATORY MAIL SECTION DOCKET CLERK

Commonwealth Edison Company
ONE FIRST NATIONAL PLAZA ★ CHICAGO, ILLINOIS
Address Reply to:
POST OFFICE BOX 767 ★ CHICAGO, ILLINOIS 60690

Regulatory File Cy.

January 24, 1973

RECEIVED
JAN 26 1973
U.S. ATOMIC ENERGY COMMISSION
Regulatory Mail Section

Mr. Angelo Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

Subject: Dresden Special Report No. 19/Quad-Cities Special Report No. 6, Dkt Nos 50-237, 249, 254, 265

Dear Mr. Giambusso:

Attached is Dresden Station Special Report No. 19/ Quad-Cities Special Report No. 6, entitled "Feedwater Control System Modifications".

This report is in response to your letter of August 21, 1972, requesting information on the programs underway to investigate the performance of the feedwater control systems and safety valves for Dresden Units 2 and 3. The program for the safety valves was submitted as Dresden Station Special Report No. 18 on November 14, 1972.

As the attached report discusses, modifications have been made to the feedwater control systems on Dresden Unit 2 and Quad-Cities Unit 2. Results of several subsequent shutdowns on Dresden Unit 2 are included which show that an improvement in operation of the feedwater control system has been achieved.

The same feedwater control system modifications are also scheduled for Dresden Unit 3 and Quad-Cities Unit 1 during 1973.

One signed original and 59 copies of this report are provided for your use.

Very truly yours,

L. D. Butterfield, Jr.
Nuclear Licensing Administrator

638 Rev

237-296.1

Regulatory File Cy.

Received w/Ltr Dated 1-24-73

DRESDEN NUCLEAR POWER STATION

Special Report No. 19

QUAD-CITIES STATION

Special Report No. 6

FEEDWATER CONTROL SYSTEM MODIFICATIONS

January 24, 1972

Commonwealth Edison Company

296.2

A test was performed during May 1972 on Dresden Unit 2 feedwater control system in an attempt to improve the response to the control system. The results of this test indicated that a modification could enhance the performance of the feedwater control system. This modification included: (1) replacing the "Bailey" positioner with a "Moore" positioner to obtain better response; (2) installing a miniature instrument air line bypass around the "Moore" booster relays to help stabilize the response of the booster relays; (3) installing a lag-lead compensation network to attenuate process noise frequencies to allow higher gains for improved system response; (4) installing an automatic water level set point reduction from a normal 30 inches to 15 inches in the event of a reactor scram to anticipate the swell in reactor water level that eventually results.

The feedwater control modification as described above has been installed on Quad-Cities Unit 2 and Dresden Unit 2 on October 15, 1972, and November 5, 1972, respectively. Subsequent operation of the feedwater control system on these units has demonstrated satisfactory response. No further modifications on these systems are anticipated. Quad-Cities Unit 1 and Dresden Unit 3 will be modified and the modification should be completed on these two units during the spring of 1973.

Enclosed are three sets of curves showing the variation of Dresden Unit 2 reactor water level following scrams. The first set of curves was obtained prior to the feedwater control system modification. The remaining sets of curves were obtained with the modified feedwater control system in operation. The first scram was from 480 MWe on August 17, 1972. Daily turbine tests were in progress. The reactor received a scram signal when one of the intercept valves (No. 2 CIV) was tested. The Electro Hydraulic Control (EHC) system oil pressure fluctuates when the system is actuated and it is believed that the system had not stabilized from the previous test when No. 2 CIV was tested, resulting in the reactor scram. A period of time is now allowed between tests to avoid this problem in the future. The wide range level indication varied from -16 to +38 inches, a range of 54 inches. The narrow range instrument varied from -14 to +56 inches, a variation of 70 inches.

The second scram on November 27, 1972, was from 800 MWe. Air leaks in the Unit 2/3 air compressor system overloaded the system causing the compressor to trip. The first indication of low air pressure was from the scram valves in the control rod system. When the control rods began to drift in, the operator manually scrammed the reactor. Several requests for modifications to the instrument air system have been initiated. The wide range

indication varied from -10 to +30 inches or a 40 inch range. The narrow range varied from -14 to +40 or 54 inches.

The third scram on December 3, 1972, was from a power of 480 MWe. A spurious generator trip caused the reactor to scram on a power load unbalance. The wide and narrow instruments varied from -8 to +26 or 34 inches and from -8 to +38 or 46 inches respectively.

These curves indicate that there has been a significant improvement in the feedwater control systems.

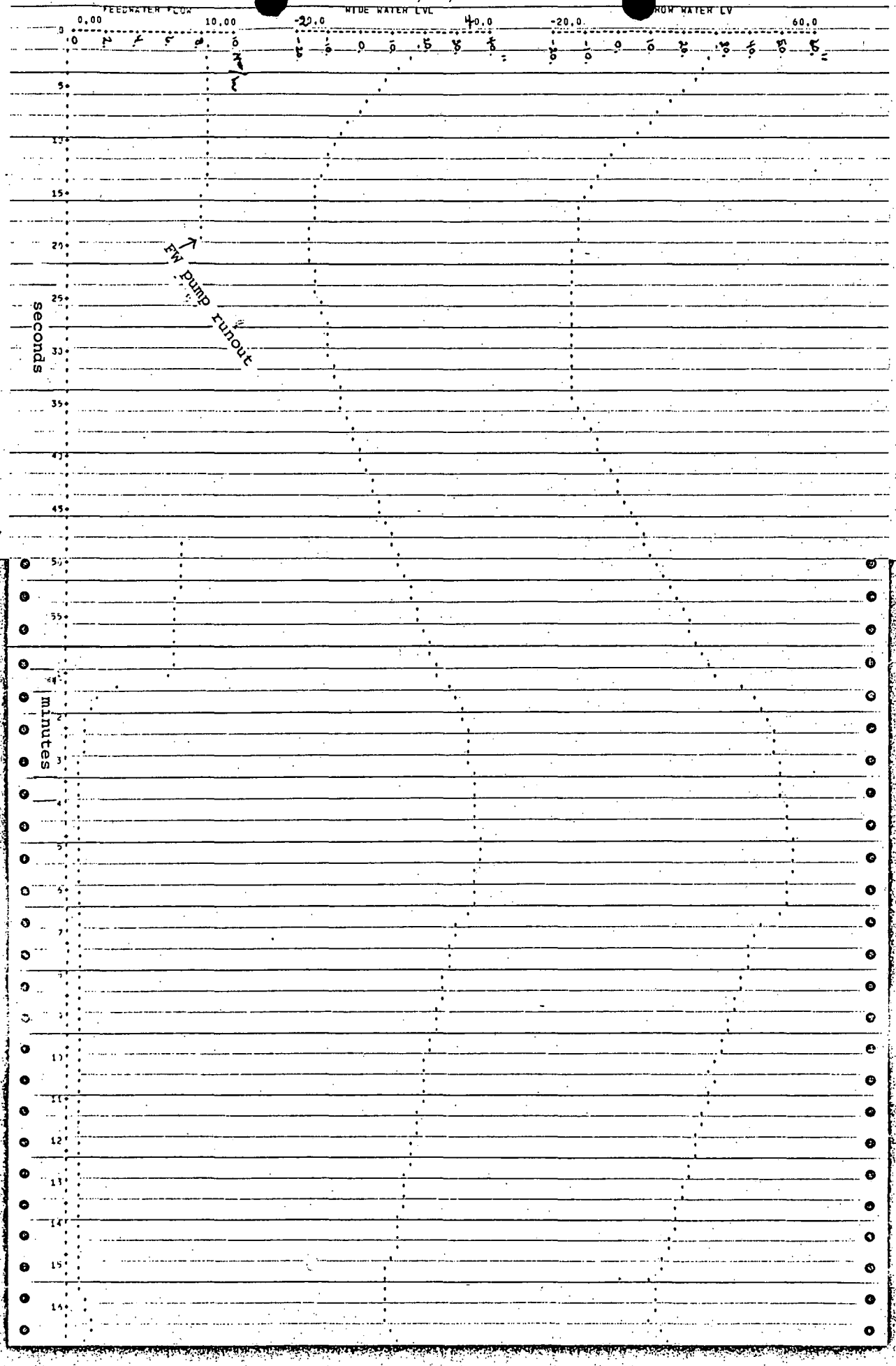
Figures 1 through 3 are plots from the process computer which indicate the response of the feedwater control system to the shutdowns outlined above.

296.5

FIGURE I

D-2 Scram From Low EHC Oil Pressure at 480 MWe

8/17/72

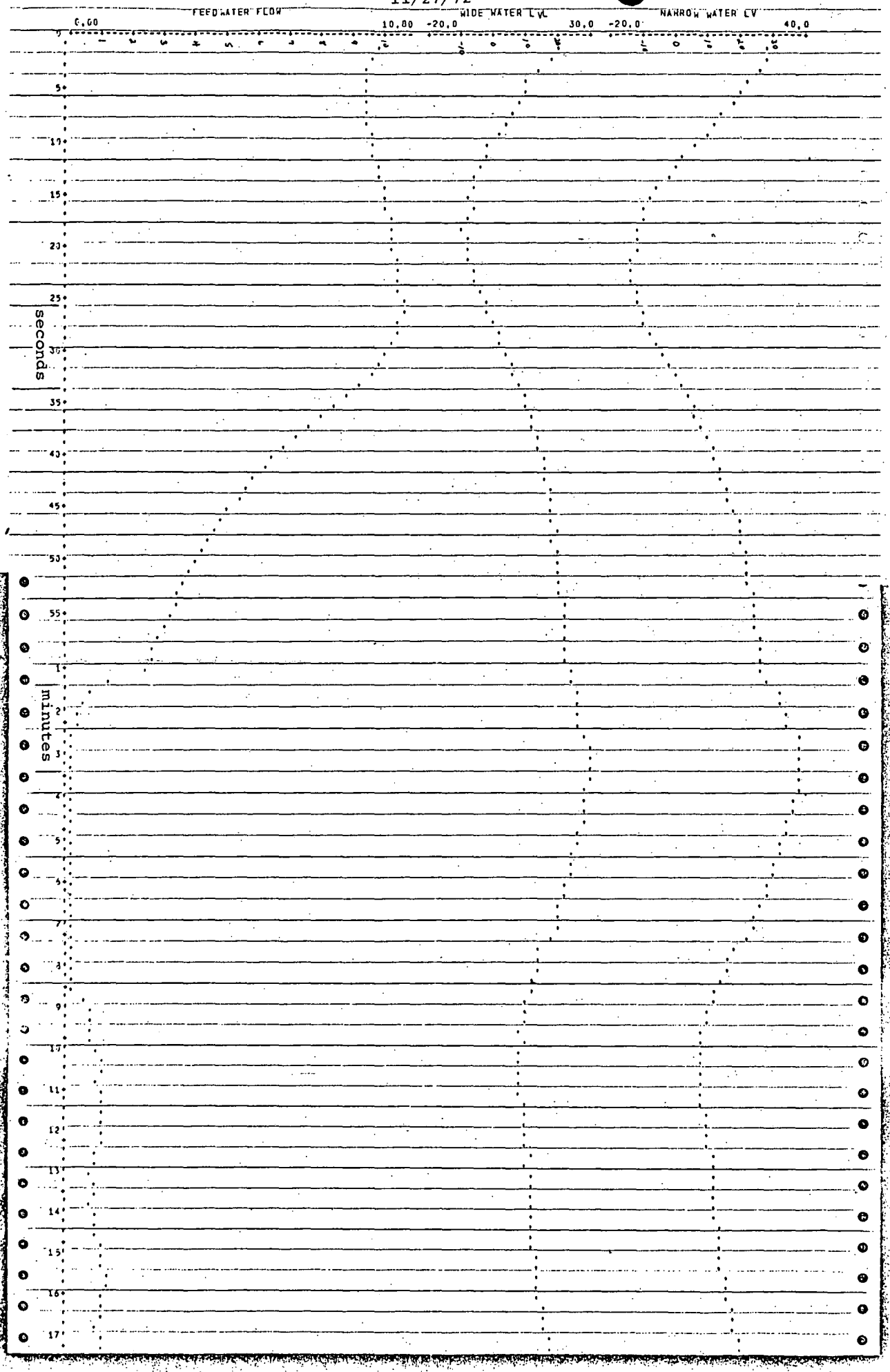


296.6

FIGURE II

D-2 Manual Scram from 800 MWe

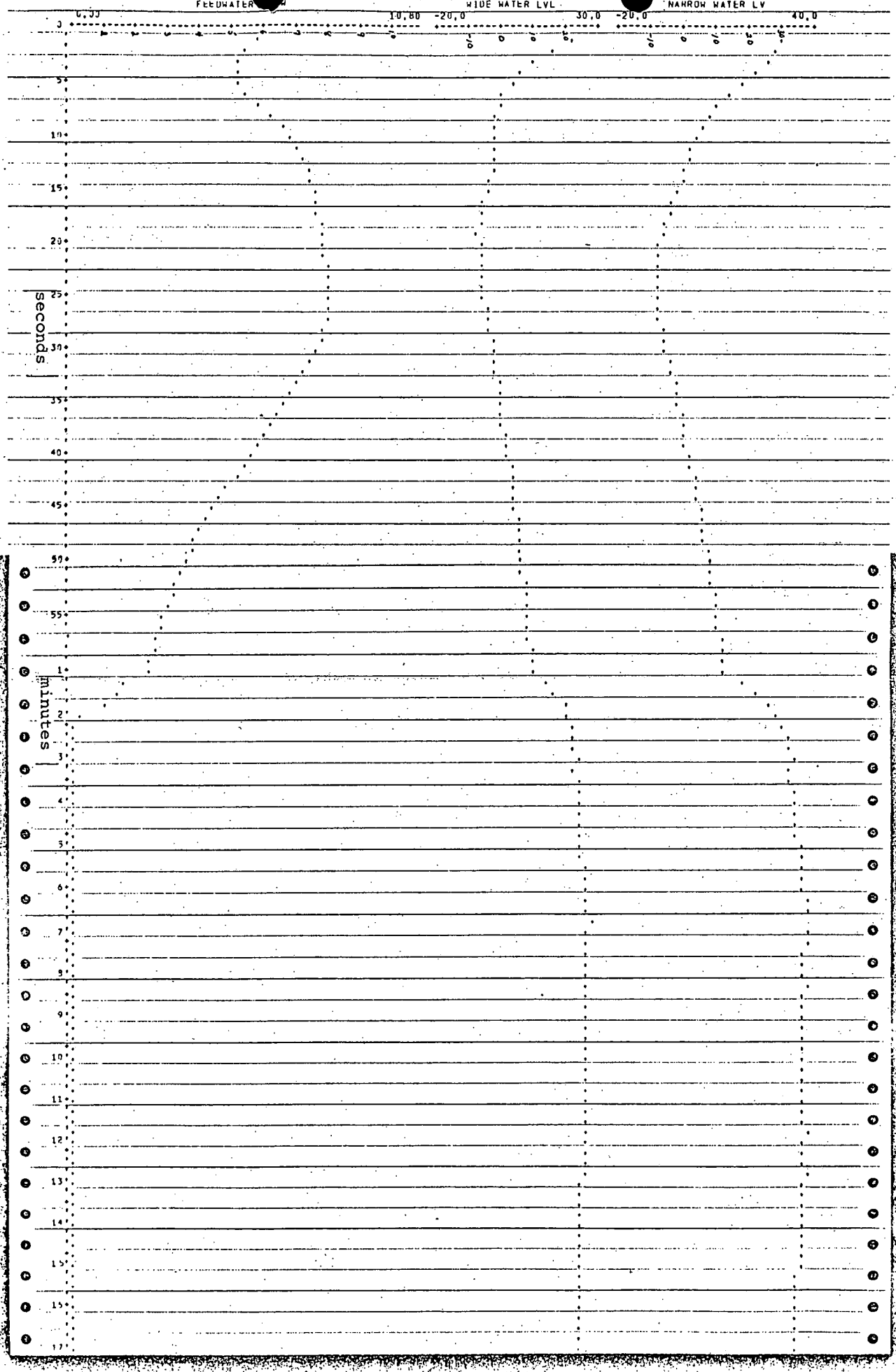
11/27/72



296.7

FIGURE III D-2 Scram from Loss of Generator Field at 480 MWe

12/03/72



296.8