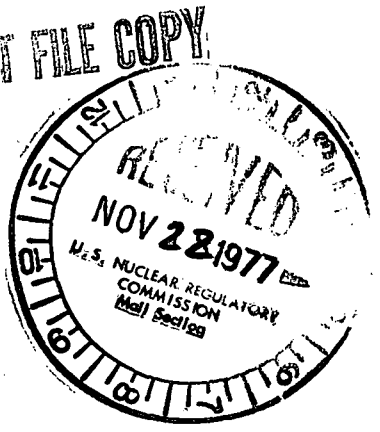
Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690



November 21, 1977

Mr. Edson G. Case, Deputy Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Unit 2
Proposed Amendment to Appendix A,
Technical Specifications, for Facility
Operating License No. DPR-19 to
Support Reload No. 3
NRC Docket No. 50-237

Reference (a): R. L. Bolger letter to E. G. Case,
dated September 12, 1977.

Dear Mr. Case:

Pursuant to 10 CFR 50.59, Commonwealth Edison proposes to amend Appendix A Technical Specifications to Facility Operating License No. DPR-19 to support core reload No. 3 at Dresden Station Unit 2.

A transient reevaluation was performed which resulted in a different limiting pressure transient (Load Rejection without Bypass) than that presented in NEDO-24034 (Turbine Trip without Bypass) transmitted by Reference (a). In addition, an input error in the Turbine Trip without Bypass analysis of NEDO-24034 was located. The new analyses are summarized in Attachment I to this letter. The resulting ΔCPR's for 8 x 8 fuel are: 1) old Turbine Trip transient (0.21), 2) new Turbine Trip transient (0.18), and 3) new Generator Load Rejection transient (0.20). The Rod Withdrawal Error remains the limiting ΔCPR for 7 x 7 fuel.

The Unit 2 core configuration has been changed from that described in NEDO-24034. The revised fuel type map is shown in Attachment II. The revised core configuration has been evaluated for the Fuel Bundle Loading Error and has been found to be more severe. The new analysis results for the re-shuffled core are presented below.

Misplaced Fuel Bundle

The worst case misplaced bundle is the misplacement of a fresh 8 x 8 bundle in an exposed 8 x 8 bundle location. Starting from an initial MCPR of 1.26, the resulting MCPR is 0.98. Consequently, the initial MCPR will be raised to 1.34. The maximum LHGR of the misplaced bundle is 17.8 kw/ft.

The misplacement of a fresh 8 x 8 bundle in a 7 x 7 location has not been affected (1.17 MCPR).

Rotated Fuel Bundle

The rotated bundle is a fresh 8 x 8 bundle. Starting from an initial MCPR of 1.26, the resulting MCPR is 1.10. The maximum LHGR is 16.1 kw/ft.

Attachment III contains two Technical Specification pages (81D and 85B) which have been revised to account for the above mentioned reevaluations. These two pages replace the same two pages transmitted by Reference (a).

Appropriate page changes for NEDO-24034 will be transmitted when they become available.

These proposed Technical Specification changes have received on-site and off-site review and approval.

Three (3) signed originals and thirty-seven (37) copies of this letter are provided for your use.

Very truly yours,

R. L. Bolger
Assistant Vice President

Attachments

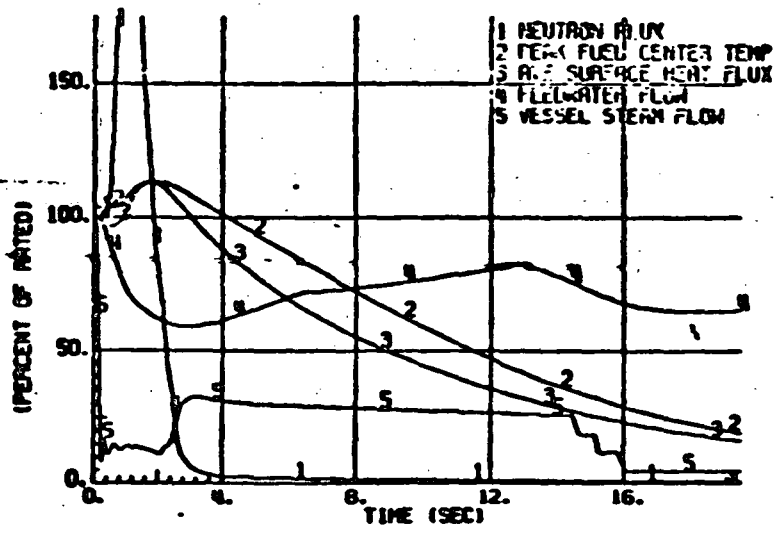
SUBSCRIBED and SWORN to before me this 21st day of November, 1977.

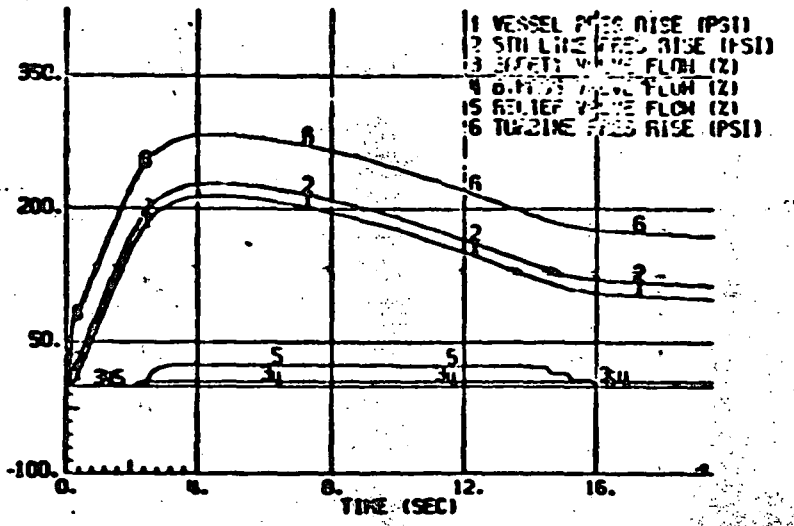
Nancy M. Dascenzo
Notary Public

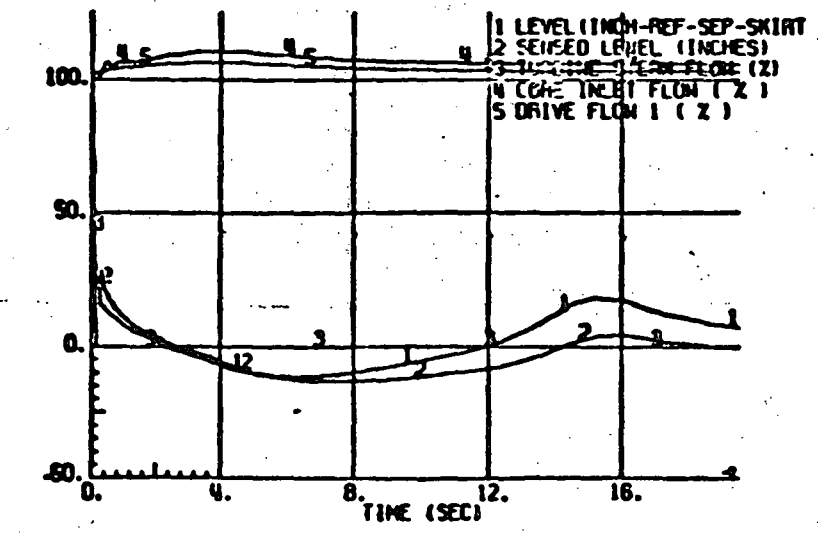
Attachment I

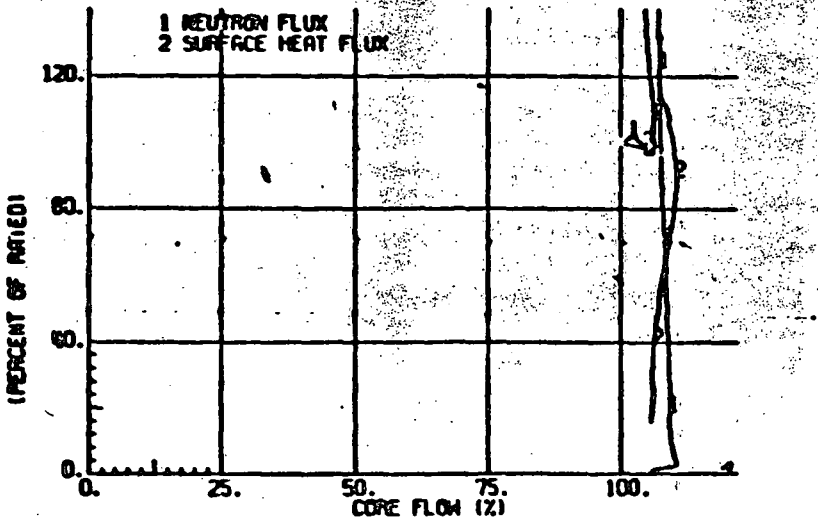
	Power (%)	Core Flow (%)	ϕ (%)	Q/A (%)	P_{sl} (Psig)	P_v (Psig)	ΔCPR 7x7	ΔCPR 8x8
Generator Load Rejection w/o Bypass, Trip Scram								
EOC6 - 1500 MWd/t	100	100	302.5	113.6	1215	1252	0.15	0.20
EOC6	98	100	266.5	111.0	1215	1249	0.14	0.19
Turbine Trip w/o Bypass, Trip Scram								
EOC6 - 1500 MWd/t	100	100	257.4	110.1	1215	1249	0.13	0.18
EOC6	98	100	245.6	109.2	1213	1246	0.13	0.18

	Maximum ΔCPR	
	7x7	8x8
Generator Load Rejection w/o Bypass, Trip Scram	0.15	0.20
Turbine Trip w/o Bypass, Trip Scram	0.13	0.18



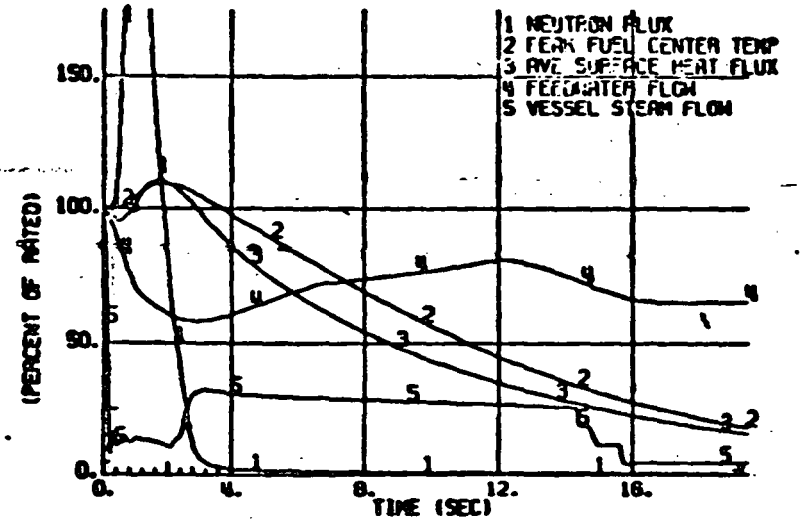


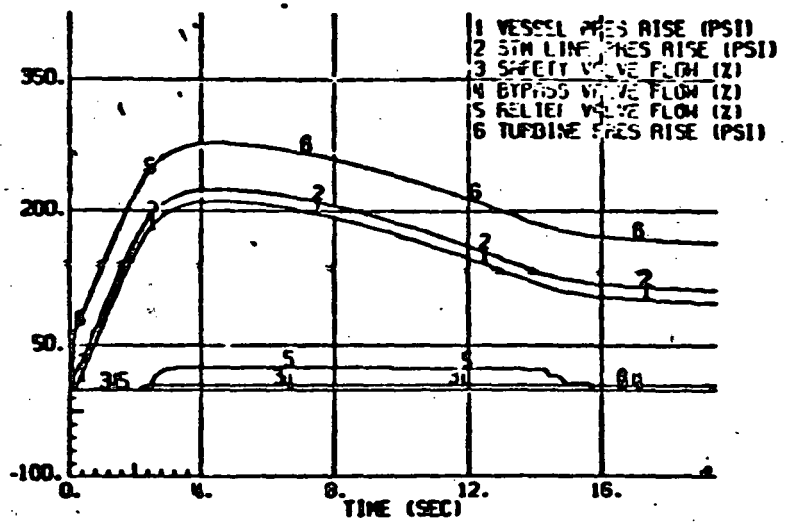


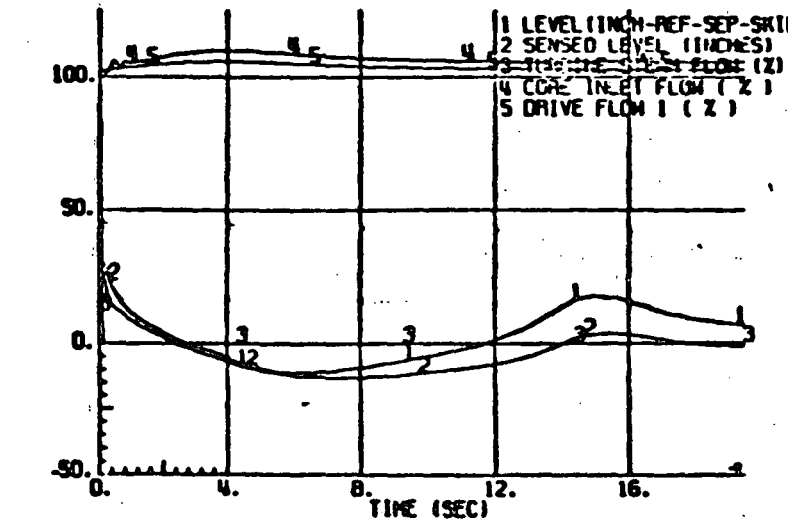


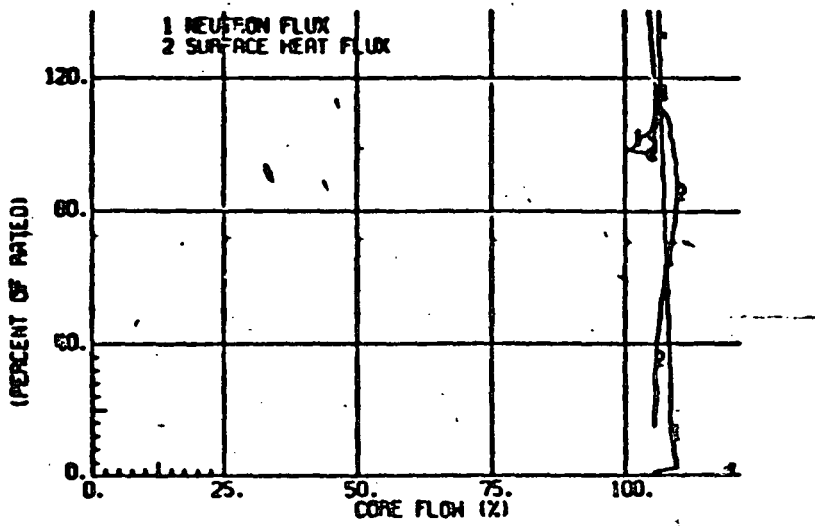
EB2CR806LR150 EOC6-1500
100% PWR-100% FLOW

LOAD REJECTION-NO BYPASS-TRIP SCRAM









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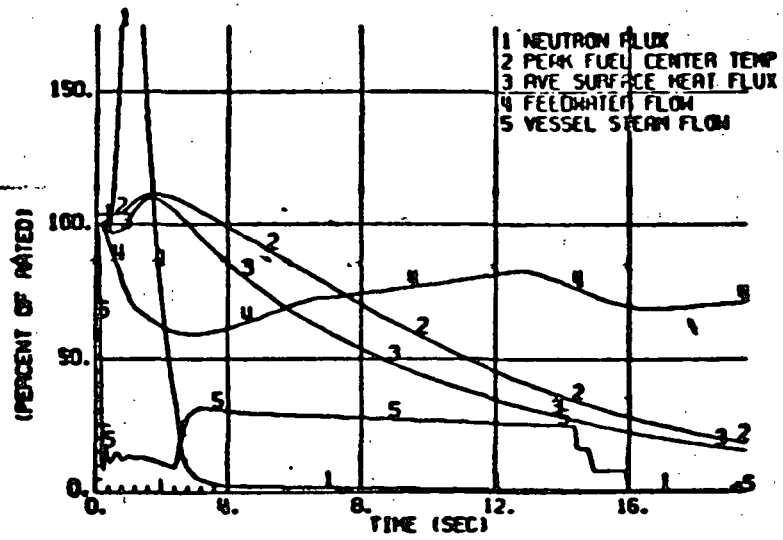
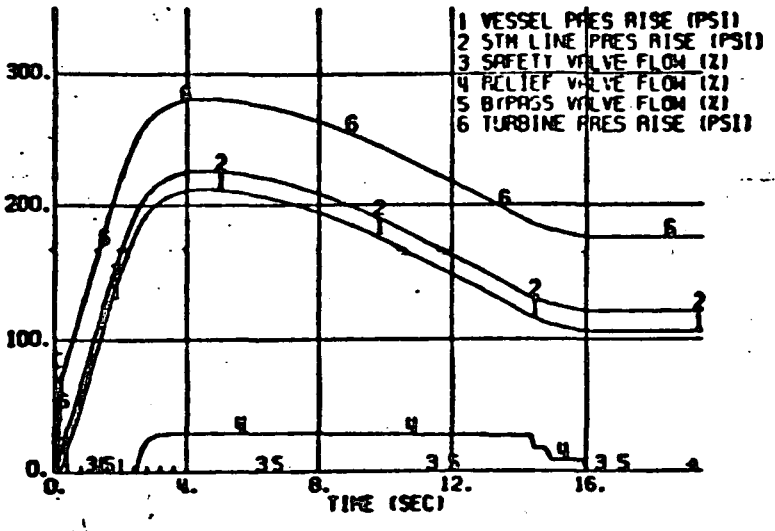
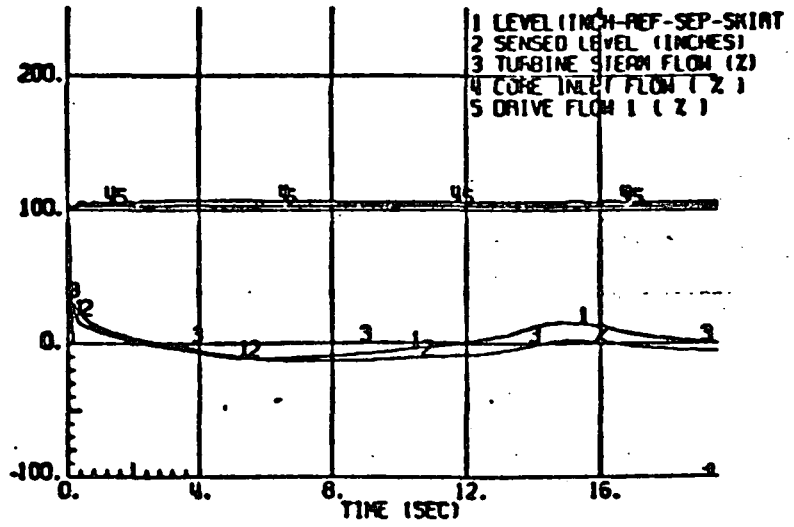
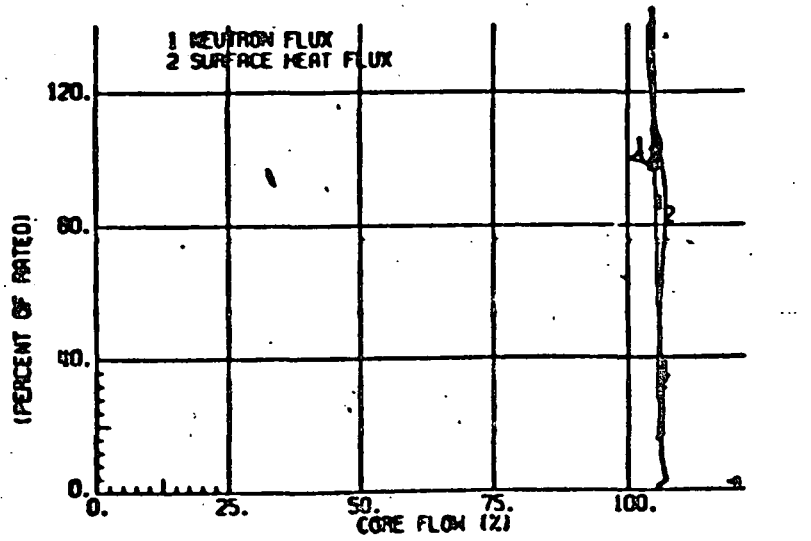
98Z PWR-100Z FLOW

LOAD REJECTION-NO BYPASS-TRIP SCRAM



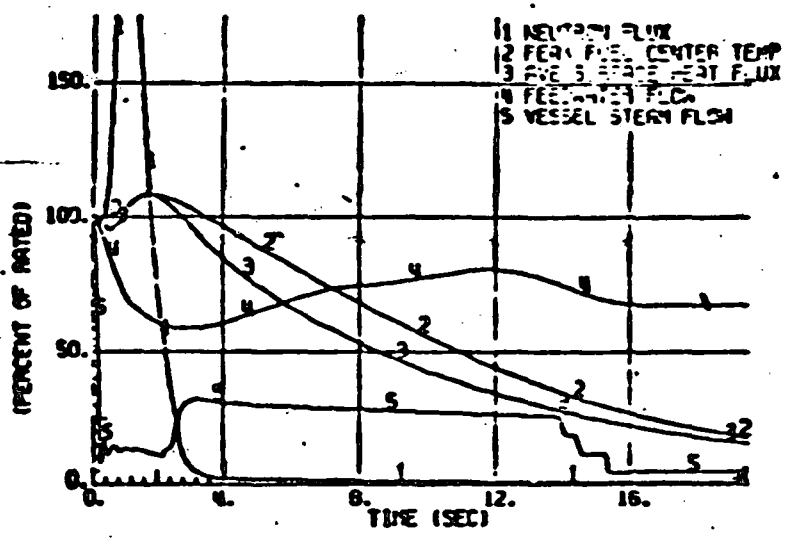


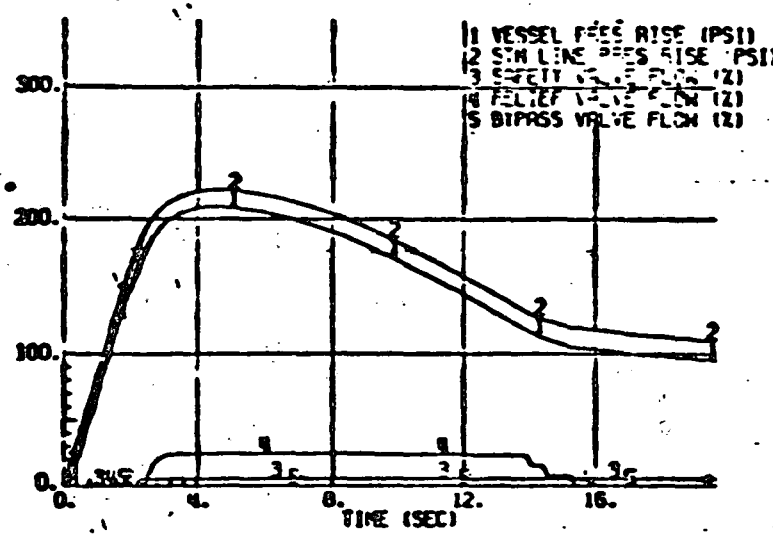


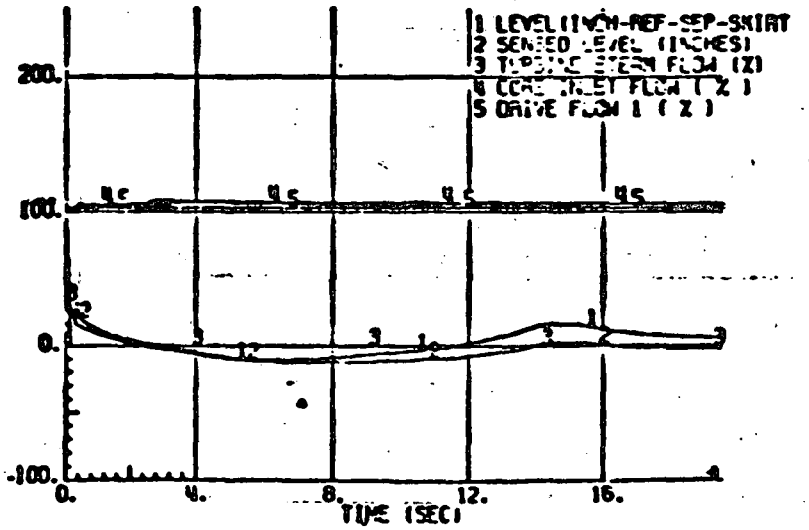


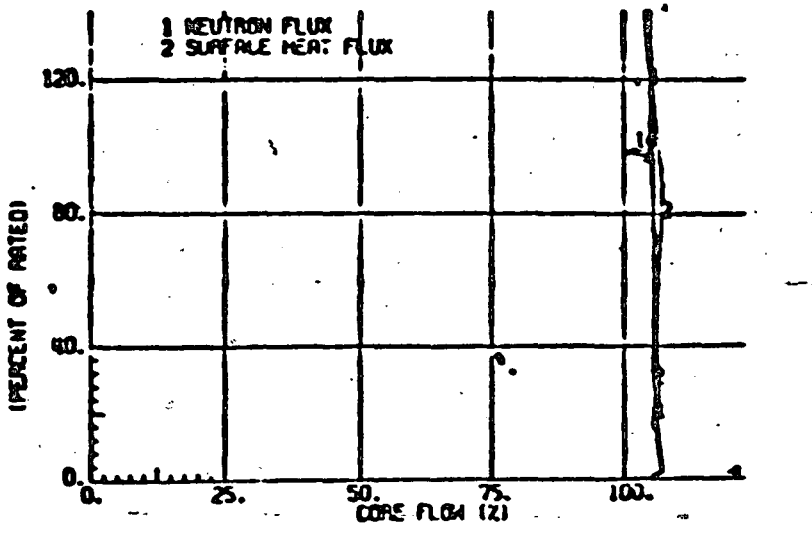
DRESDEN 2 CYCLE 6 EB2J-COST1008 EOC 6 - 1500 MWD/T
TURBINE TRIP WITHOUT BYPASS. TRIP SCRAM
100% POWER

JAC 88717
102877 16:49



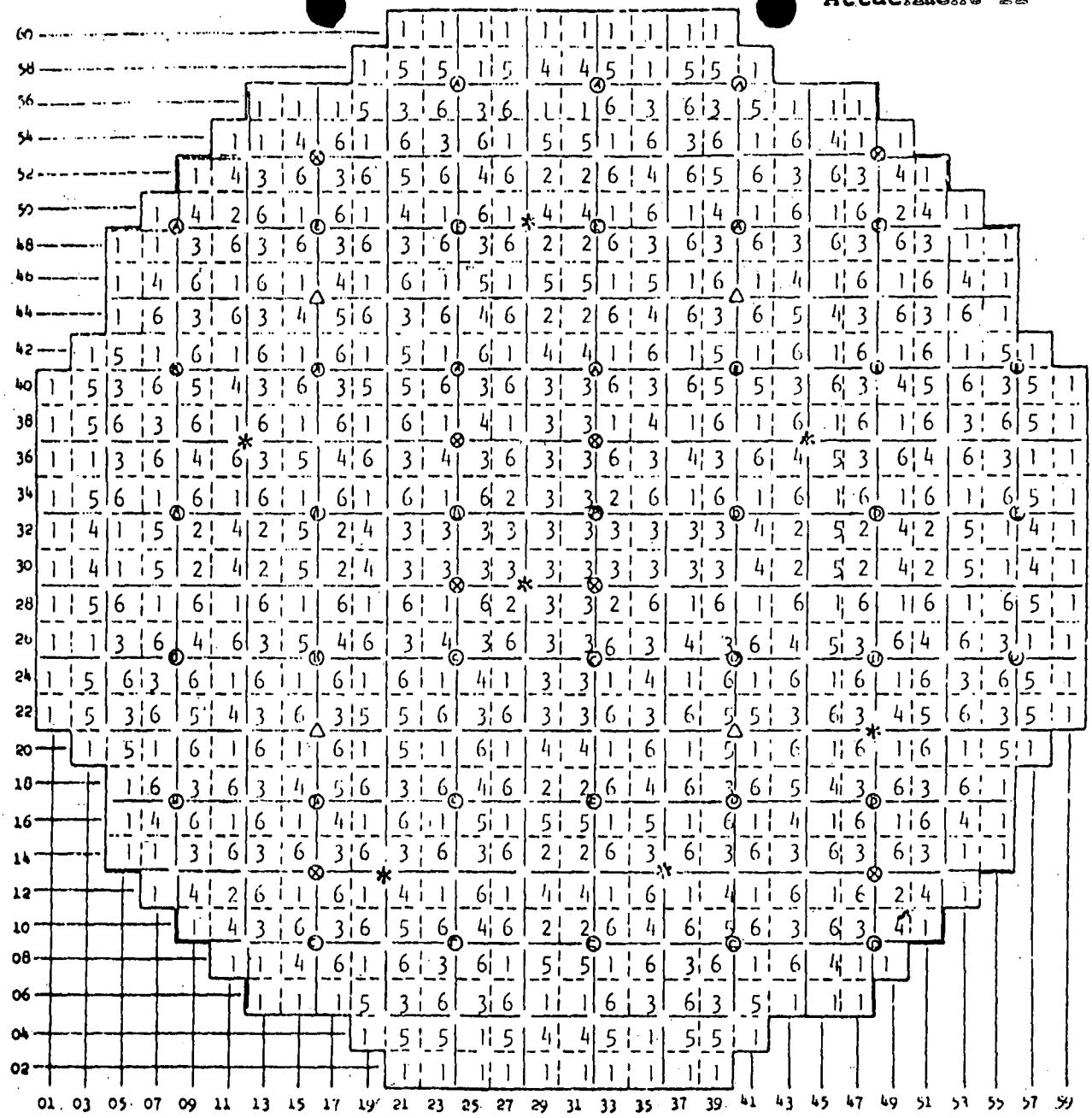






DRESDEN 2, CYCLE 6
TURBINE TRIP WITHOUT BYPASS, TRIP SCRAM
RATED POWER

EB2EPB36TT133 EOC6



Ⓐ LPRM Location (Letter indicates TIP machine)

Ⓑ LPRM Location (Common location for all TIP machines)

⊗ IRM Locations

△ APRM Locations

* Source Locations

ATTACHMENT 1
NFS/BWR
11-15-77

1 - Initial Fuel
2 - Reload 1 (7D230-Generic B)
3 - Reload 1 (8D250)
4 - Reload 2 (8D250)
5 - Reload 2 (8D262)
6 - Reload 3 (8D250)

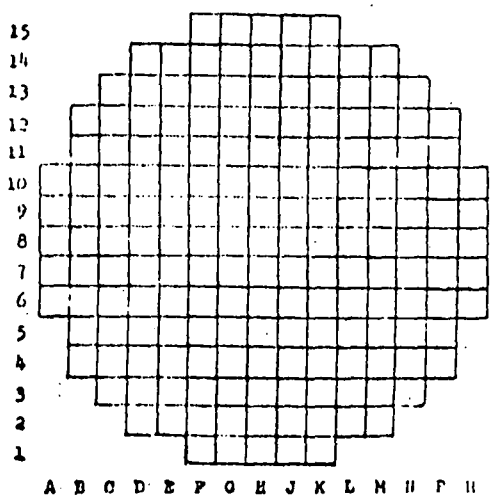


Figure 1 - Dresden 2 Fuel Type Map

Attachment III

3.5 LIMITING CONDITION FOR OPERATION	4.5 SURVEILLANCE REQUIREMENTS

K. Minimum Critical Power Ratio (MCPR)

During steady state operation, MCPR shall be greater than or equal to -

Unit 2	
1.39	(7 x 7 fuel)
1.34	(8 x 8 fuel)

at rated power and flow. For core flows other than rated, these nominal values of MCPR shall be increased by a factor of K_f, where K_f is as shown in Figure 3.5-2.

If at any time during steady state power operation, it is determined that the limiting value for MCPR is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the steady state MCPR is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours. Surveillance and corresponding action shall continue until reactor operation is within the prescribed limits. For core flows other than rated, the MCPR shall be 1.32 times K_f where K_f is as shown in Figure 3.5-2.

K. Minimum Critical Power Ratio (MCPR)

MCPR shall be determined daily during a reactor power operation at $\geq$ 25% rated thermal power and following any change in power level or distribution that would cause operation with a limiting control rod pattern as described in the bases for Specification 3.3.B.5.

heat generation rate even if fuel pellet densification is postulated. The power spike penalty specified is based on that presented in Ref. (2) and assumes a linearly increasing variation in axial gaps between core bottom and top, and assumes with 95% confidence, that no more than one fuel rod exceeds the design LHGR due to power spiking. An irradiation growth factor of 0.25% was used as the basis for determining ΔP/P in accordance with Refs. (3) and (4).

K. Minimum Critical Power Ratio (MCPR)

The steady state values for MCPR specified in this Specification were selected to provide margin to accommodate transients and uncertainties in monitoring the core operating state as well as uncertainties in the critical power correlation itself. These values also assure that operation will be such that the initial condition assumed for the LOCA analysis, a MCPR of 1.18, is satisfied. For any of the special set of transients or disturbance caused by single operator error or single equipment malfunction, it is required that design analyses initialized at this steady state operating limit yield a MCPR of not less than that specified in Specification 1.1.A at any time during the transient assuming instrument trip settings given in Specification 2.1. For analysis of the thermal consequences of these transients, the limiting value of MCPR stated in this specification is conservatively assumed to exist prior to the initiation of the transients. The results apply with increased conservatism while operating with MCPR's greater than specified.

The most limiting transients with respect to MCPR are generally:

(a) Rod withdrawal error
(b) Turbine or generator trip without bypass
(c) Loss of feedwater heater

Several factors influence which of these transients results in the largest reduction in critical power ratio such as the specific fuel loading, exposure, and fuel type. The current cycles Reload Licensing Submittal specifies the limiting transient for each fuel type.

For core flow rates less than rated, the steady state MCPR is increased by the formula given in the Specification. This assure that the MCPR will be maintained greater than that specified in Specification 1.1.A even in the event that the motor-generator set speed controller causes the scoop tube positioner for the fluid coupler to move to the maximum speed position.

(2) Fuel Densification Effects on General on General Electric Boiling Water Reactor Fuel," Section 3.2.1, Supplement 6, Aug. 1973.

(3) USAEC Report, "Supplement 1 to the Technical Report on Densification of General Electric Reactor Fuels," Dec. 14, 1973.

(4) GE Planning and Development Memorandum #45, "Length Growth of BWR Fuel Elements", R. A. Proebsthe, October 1, 1973 (Proprietary).

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