UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

March 17, 1988

MEMORANDUM FOR: Mark A. Ring, Team Leader, LaSalle Augmented Inspection Team (AIT)

FROM: Edward G. Greenman, Director, Division of Reactor Projects

SUBJECT: AIT CHARTER (DRAFT)

Enclosed for your implementation is the draft Charter for the inspection of the events associated with the LaSalle reactor trip which occurred on March 9, 1988. This Charter is prepared in accordance with the NRC Incident Investigation Manual, Revision 1. The objectives of the AIT are to communicate the facts surrounding this event to regional and headquarters management, to identify and communicate any generic safety concerns related to this event to regional and headquarters management, and to document the findings and conclusions of the onsite inspection.

If you have any questions regarding these objectives or the enclosed Charter, please do not hesitate to contact either myself or W. Forney of my staff who is the regional point of contact for the LaSalle AIT.

Edward G. Greenman, Director
Division of Reactor Projects

Enclosure: AIT Charter

cc w/enclosure:
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Attachment 2

Draft Augmented Inspection Team (AIT) Charter

LaSalle Core Oscillations Event of 3/9/88

You and your team are to perform an inspection to accomplish the following:

1. Develop and validate the sequence of events associated with the March 9 scram of LaSalle Unit 2. Include plant conditions immediately prior to the initiating events and any contributory causal factors leading to initiation of the event.

2. Review the core nuclear and thermal/hydraulic performance during the event.

   a. Examine the licensee's/vendor evaluations. Determine whether the event was previously analyzed or fits within existing analyses. Include the recirculation pump trip and feedwater system response. Review analysis for the potential for core damage.

   b. Review/evaluate related plant responses including secondary systems and the reactor protection and ATWS systems.

   c. Confirm the absence of any resultant plant damage.

3. Interview on-shift operators and supervisors to:

   a. Determine if they had been appraised of the potential for this type of transient or had been provided with training relevant to it.

   b. Determine initial activities.

   c. Determine indications available and used.

   d. Establish shift responses including supervisors.

   e. Characterize the decision processes involved in restart of the recirculation pumps.

   f. Characterize operators use of plant procedures.

   g. Establish why prompt action was not taken to terminate the transient through either normal rod motion or manual scram.

4. Review procedures for adequacy.

   a. Include normal, abnormal , and emergency procedures.

   b. Determine if Technical Specifications contain relevant restrictions on power/flow/trip setpoints and rod configurations.

   c. Evaluate the relationship of the TS and procedures to the GE analysis SIL-380.

   d. Consider changes that may be desirable.

5. Interview management to determine:

   a. When it was first informed of the event.

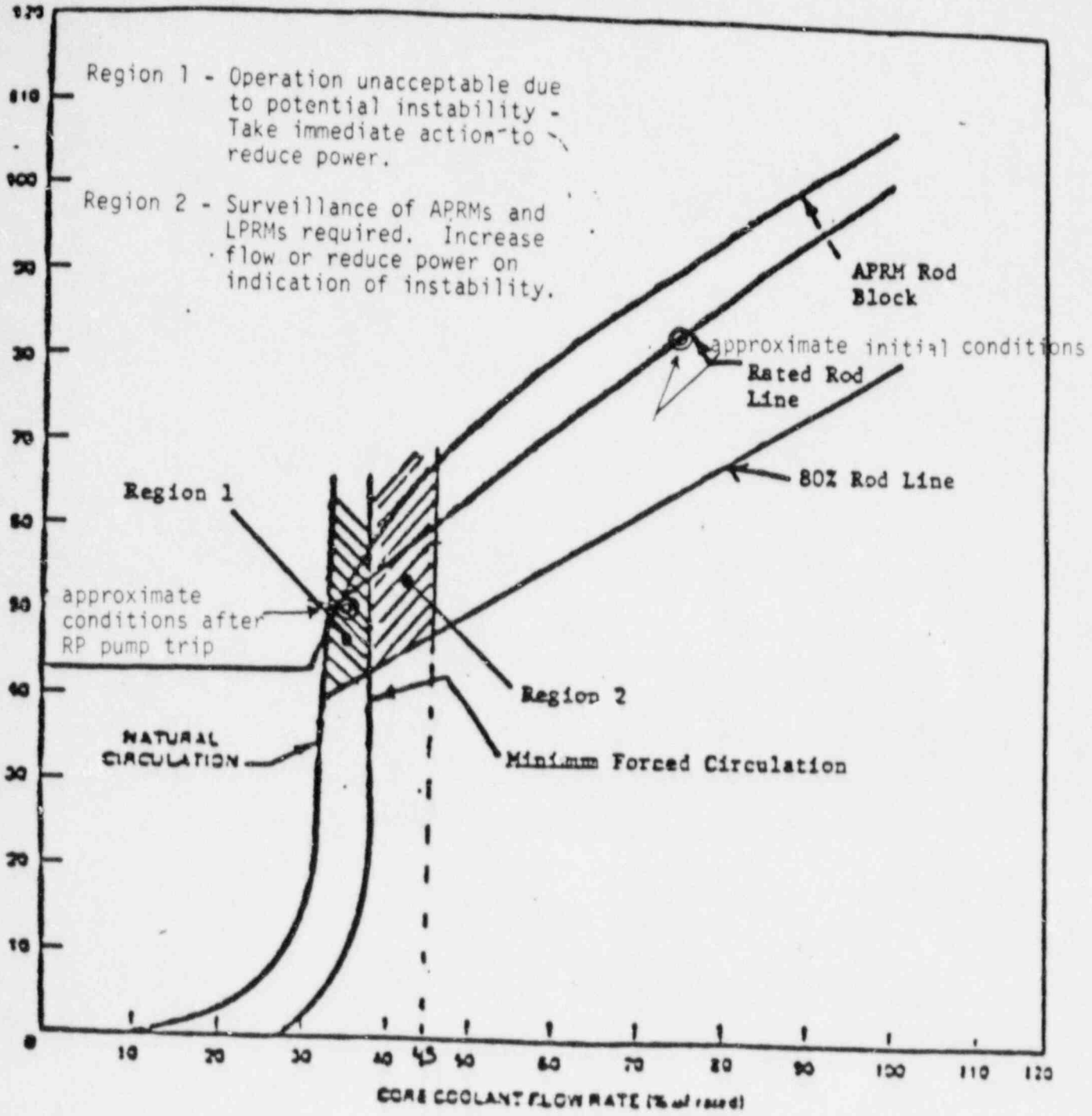
   b. The nature of the information communicated.

   c. The directions/decisions provided to the operating shift.

6. Reporting.

   a. Evaluate the accuracy, timeliness, and effectiveness with which information on this event was reported to the NRC, including the Resident Staff.

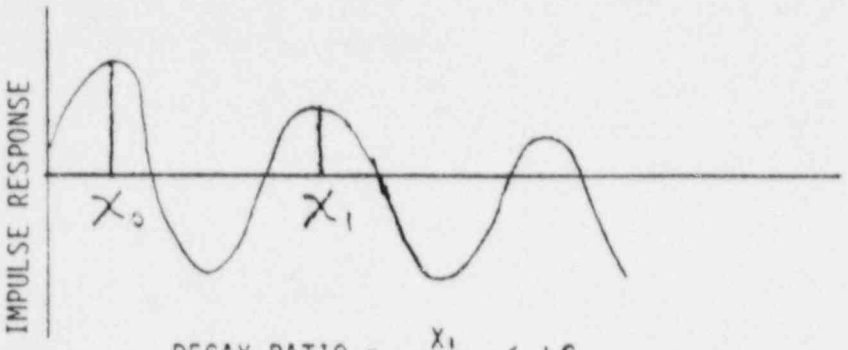
7. Evaluate the findings and identify those for which generic communications may be applicable.



Attachment 3
Figure 1

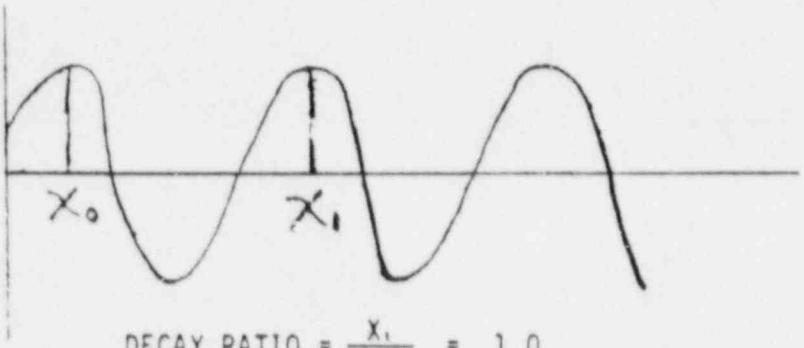
IDENTIFIED REGIONS OF THE BWR POWER FLOW MAP

MEASURE OF STABILITY IS DECAY RATIO



DAMPED SYSTEM

$$\text{DECAY RATIO} = \frac{X_1}{X_0} < 1.0$$



UNDAMPED SYSTEM

$$\text{DECAY RATIO} = \frac{X_1}{X_0} = 1.0$$

LIMIT CYCLE

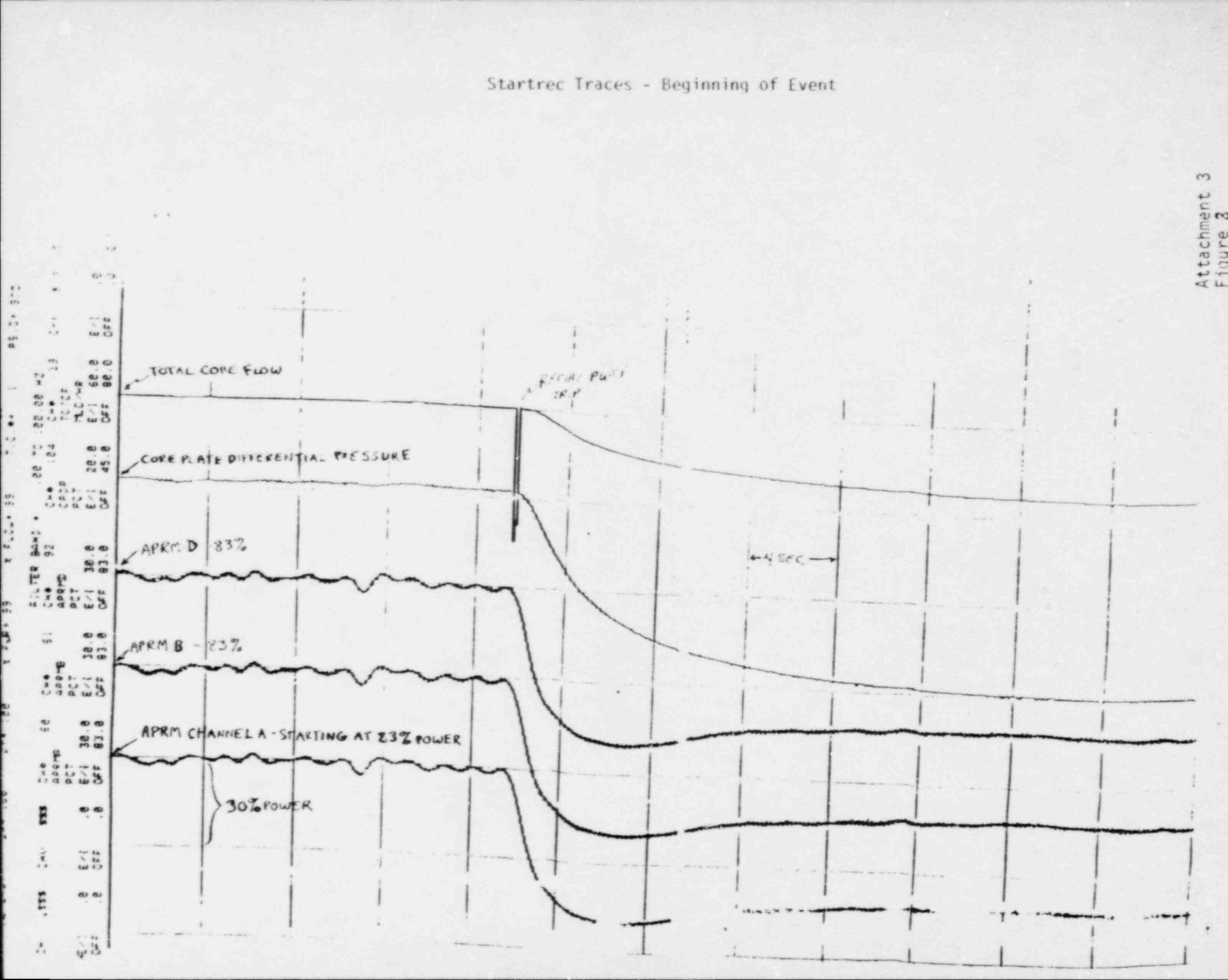
FOR BWRs, DECAY RATIO IS A FUNCTION OF

FUEL DESIGN
CORE OPERATING CONDITIONS
FUEL BURNUP

Attachment 3
Figure 2

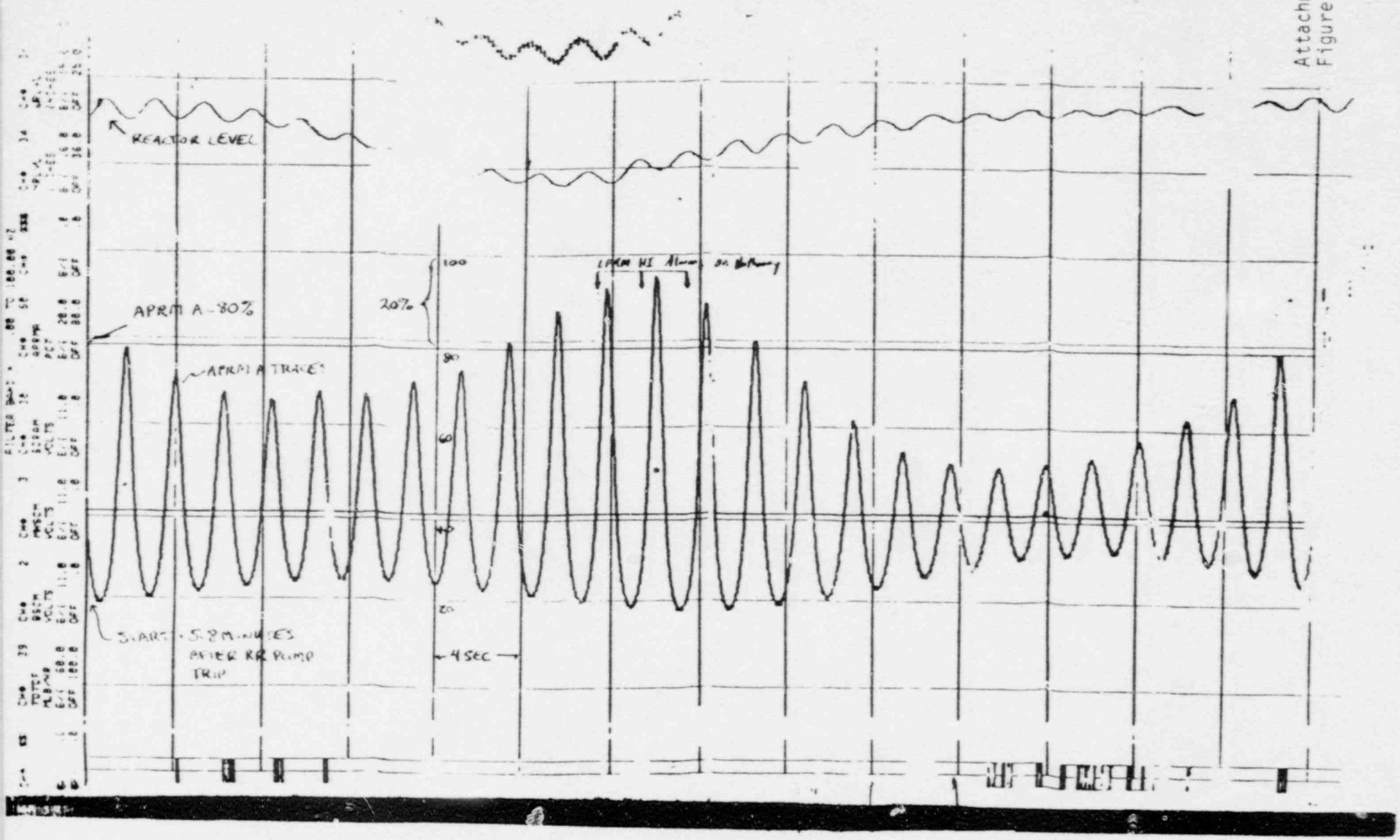
Startrec Traces - Beginning of Event

Attachment 3
Figure 3



Startrec Traces - Oscillations

Attachment 3
Figure 4



3/4.4 REACTOR COOLANT SYSTEM

3/4.4.1 RECIRCULATION SYSTEM

RECIRCULATION LOOPS

LIMITING CONDITION FOR OPERATION

3.4.1.1 Two reactor coolant system recirculation loops shall be in operation.

APPLICABILITY: OPERATIONAL CONDITIONS 1* and 2*.

ACTION:

a. With one reactor coolant system recirculation loop not in operation:

1. Within 4 hours:

a) Place the recirculation flow control system in the Master Manual mode, and

b) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Safety Limit by 0.01 to 1.08 per Specification 2.1.2, and,

c) Increase the MINIMUM CRITICAL POWER RATIO (MCPR) Limiting Condition for Operation by 0.01 per Specification 3.2.3, and,

d) Reduce the MAXIMUM AVERAGE PLANAR LINEAR HEAT GENERATION RATE (MAPLHGR) limit to a value of 0.85 times the two recirculation loop operation limit per Specification 3.2.1, and,

e) Reduce the Average Power Range Monitor (APRM) Scram and Rod Block and Rod Block Monitor Trip Setpoints and Allowable Values to those applicable for single loop recirculation loop operation per Specifications 2.2.1, 3.2.2, and 3.3.6.

2. When operating within the surveillance region specified in Figure 3.4.1.1-1:

a) With core flow less than 39% of rated core flow, initiate action within 15 minutes to either:

1) Leave the surveillance region within 4 hours, or

2) Increase core flow to greater than or equal to 39% of rated flow within 4 hours.

b) With the APRM and LPRM# neutron flux noise level greater than three (3) times their established baseline noise levels:

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*See Special Test Exception 3.10.4.

#Detector levels A anc C of one LPRM string per core octant plus detector levels A and C of one LPRM string in the center region of the core should be monitored.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

1) Initiate corrective action within 15 minutes to restore the noise levels to within the required limit within 2 hours, otherwise

2) Leave the surveillance region specified in Figure 3.4.1.1-1 within the next 2 hours.

3. The provisions of Specification 3.0.4 are not applicable.

4. Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

b. With no reactor coolant system recirculation loops in operation, immediately initiate measures to place the unit in at least HOT SHUTDOWN within the next 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.1.1 Each reactor coolant system recirculation loop flow control valve shall be demonstrated OPERABLE at least once per 18 months by:

a. Verifying that the control valve fails "as is" on loss of hydraulic pressure at the hydraulic power u[illegible] and

b. Verifying that the average rate of [illegible]ntrol valve movement is:

1. Less than or equal to 11% of stroke per second opening, and

2. Less than or equal to 11% of stroke per second closing.

4.4.1.2 With one reactor coolant system recirculation loop not in operation:

a. Establish baseline APRM and LPRM# neutron flux noise level values within 4 hours upon entering the surveillance region of Figure 3.4.1.1-1 provided that the baseline values have not been established since last refueling.

b. When operating in the surveillance region of Figure 3.4.1.1-1, verify that the APRM and LPRM# neutron flux noise levels are less than or equal to three (3) times the baseline values:

1. At least once per 12 hours, and

2. Within 1 hour after completion of a THERMAL POWER increase of at least 5% of RATED THERMAL POWER, initiating the surveillance within 15 minutes of completion of the increase.

c. When operating in the surveillance region of Figure 3.4.1.1-1, verify that core flow is greater than or equal to 39% of rated core flow at least once per 12 hours.

#Detector levels A and C of one LPRM string per core octant plus detector levels A and C of one LPRM string in the center region of the core should be monitored.

Attachment 4
Page 2

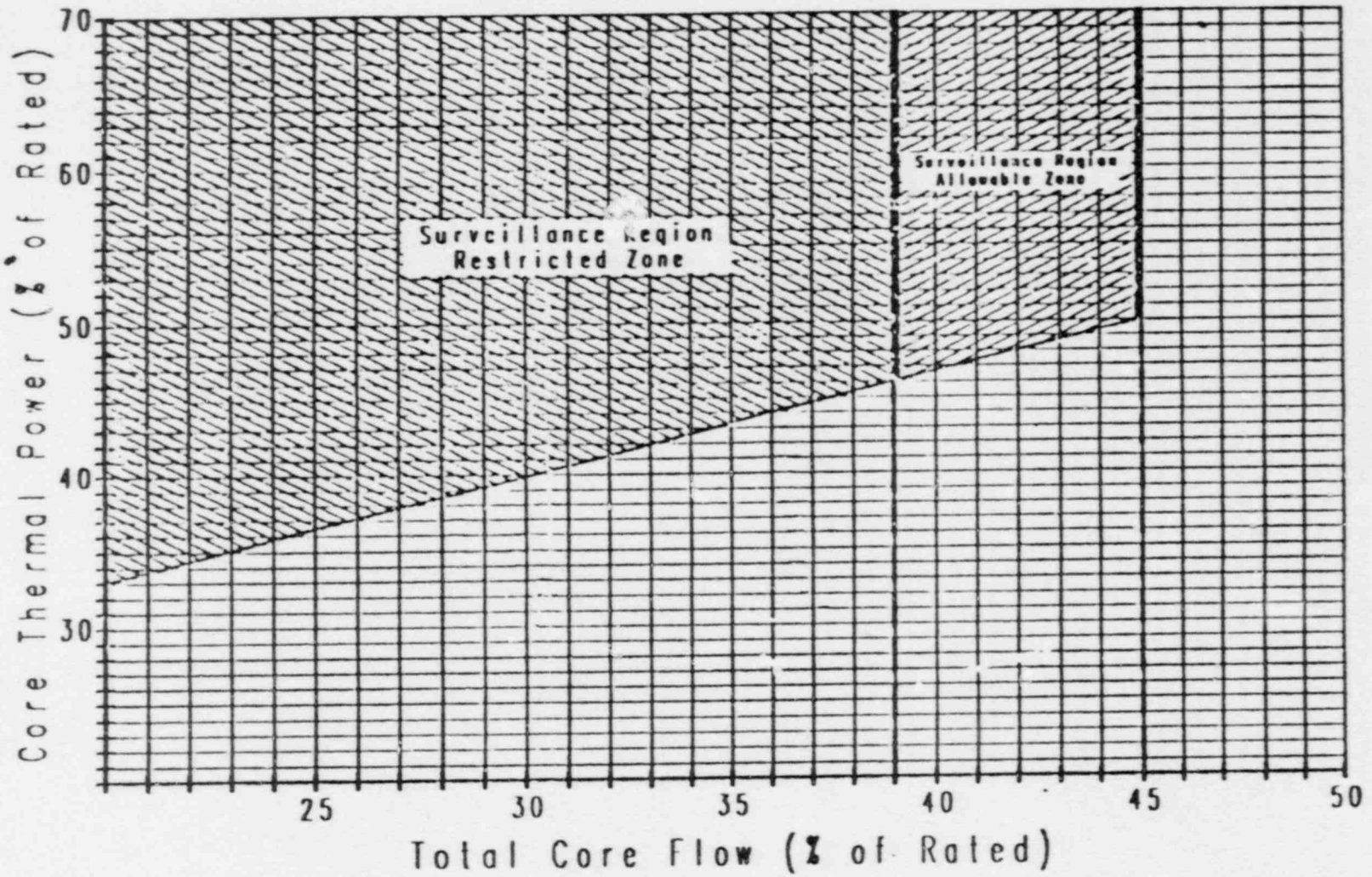

Figure 3.4.1.1-1

CORE THERMAL POWER (% OF RATED) VERSUS
TOTAL CORE FLOW (% OF RATED)