TECHNICAL SPECIFICATION PAGES

and BASES CHANGES

Two power/flow maps are provided for Figures 3.2.6-1, 3.2.7-1, 3.2.8-1, and 3.4.1.1-1. The first map reflects the present Technical Specification power/flow map with the proposed changes superimposed for comparison and the second shows only the proposed power/flow map.

3/4.2.6 POWER/FLOW INSTABILITY

LIMITING CONDITION FOR OPERATION

3.2.6 Operation with THERMAL POWER/core flow conditions which lay in Region A of Figure 3.2.6-1 is prohibited.

APPLICABILITY: OPERATIONAL CONDITION 1, when THERMAL POWER is greater than ~~39%~~ of RATED THERMAL POWER and core flow is less than or equal to 45% of rated core flow.

ACTION:

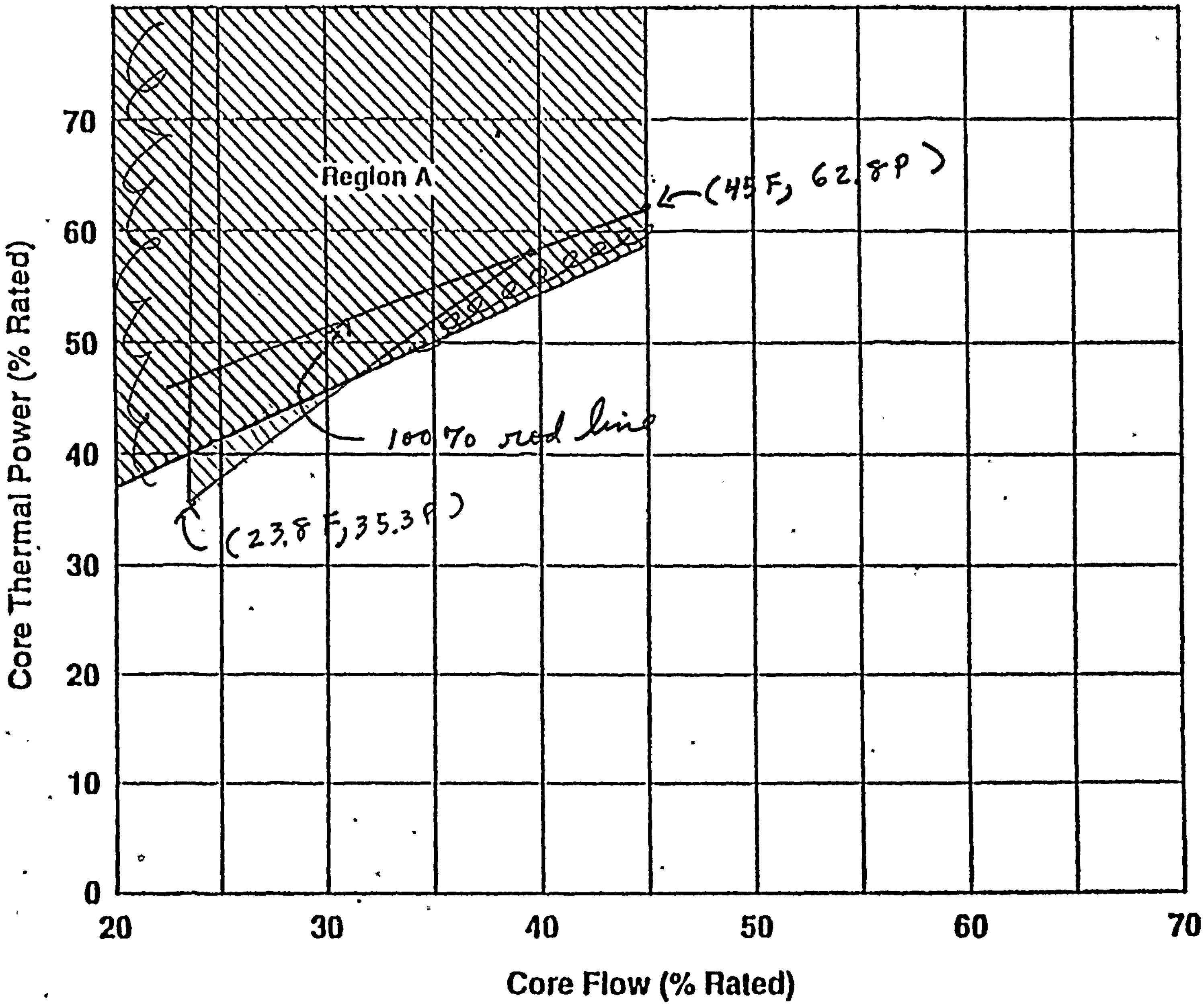
With THERMAL POWER/core flow conditions which lay in Region A of Figure 3.2.6-1, then as soon as practical, but in all cases within 15 minutes, initiate a MANUAL SCRAM.

SURVEILLANCE REQUIREMENTS

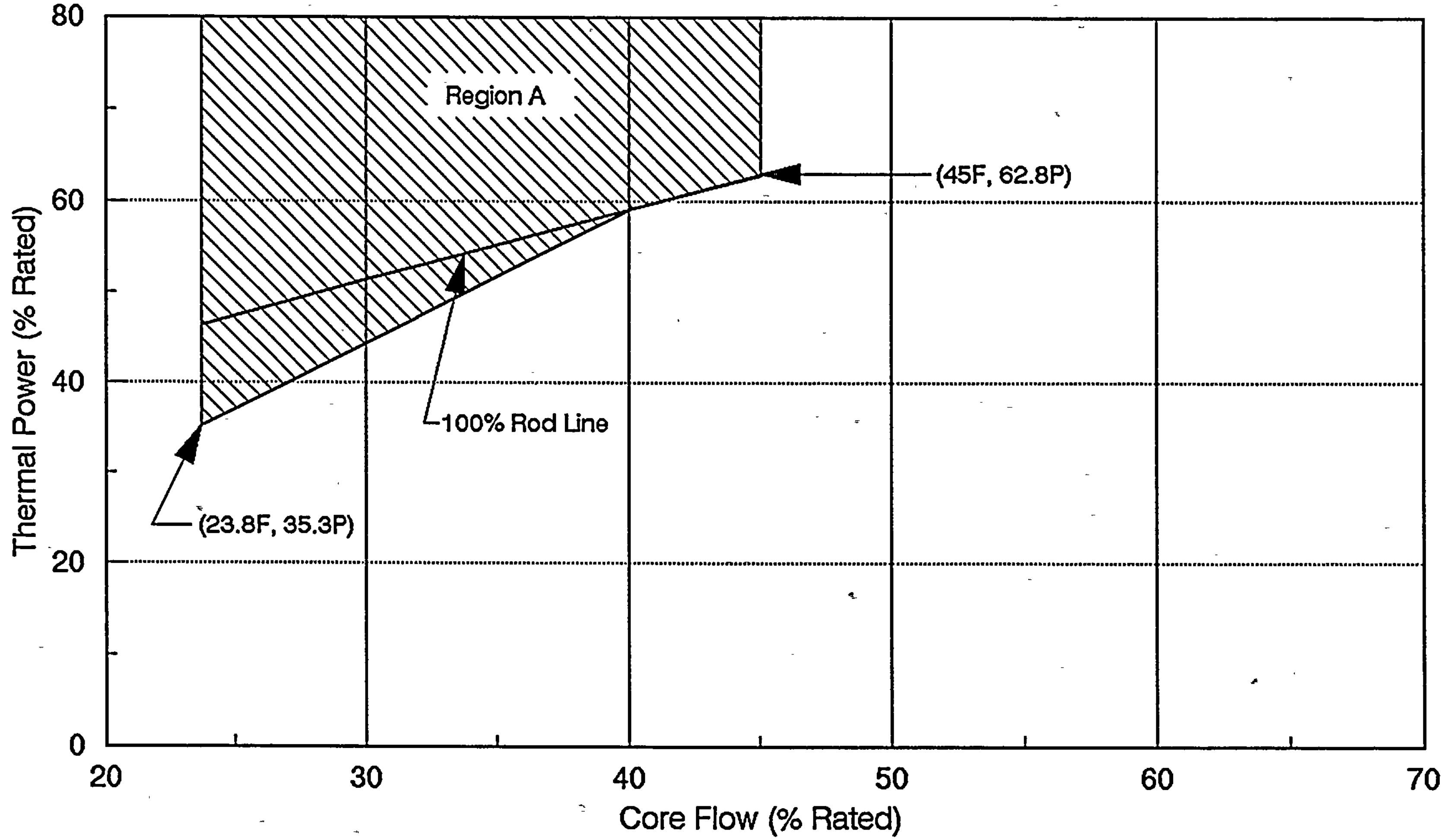
4.2.6 The THERMAL POWER/core flow conditions shall be verified to lay outside Region A of Figure 3.2.6-1 once per 24 hours when operating in the region of APPLICABILITY.

35.3%

Reviewer: Please note that this value comes directly from the proposed power-flow map 3.2.6-1.



Operating Region Limits of Specification 3.2.6
Figure 3.2.6-1



Operating Region Limits of Specification 3.2.6

Figure 3.2.6-1

3/4.2.7 STABILITY MONITORING - TWO LOOP OPERATION

LIMITING CONDITION FOR OPERATION

3.2.7 The stability monitoring system shall be operable* and the decay ratio of the neutron signals shall be less than .75 when operating in the region of APPLICABILITY.

APPLICABILITY: OPERATIONAL CONDITION 1, with two recirculation loops in operation and THERMAL POWER/core flow conditions which lay in Region C of Figure 3.2.7-1.

ACTION:

a. With decay ratios of any two (2) neutron signals greater than or equal to 0.75 .75 or with two (2) consecutive decay ratios on any single neutron signal greater than or equal to 0.75 .75:

As soon as practical, but in all cases within 15 minutes, initiate action to reduce the decay ratio by either decreasing THERMAL POWER with control rod insertion or increasing core flow with recirculation flow control valve manipulation. The starting or shifting of a recirculation pump for the purpose of decreasing decay ratio is specifically prohibited.

b. With the stability monitoring system inoperable and when operating in the region of APPLICABILITY:

As soon as practical, but in all cases within 15 minutes, initiate action to exit the region of APPLICABILITY by either decreasing THERMAL POWER with control rod insertion or increasing core flow with recirculation flow control valve manipulation. The starting or shifting of a recirculation pump for the purpose of exiting the region of APPLICABILITY when the stability monitoring system is inoperable is specifically prohibited. Exit the region of APPLICABILITY within one (1) hour.

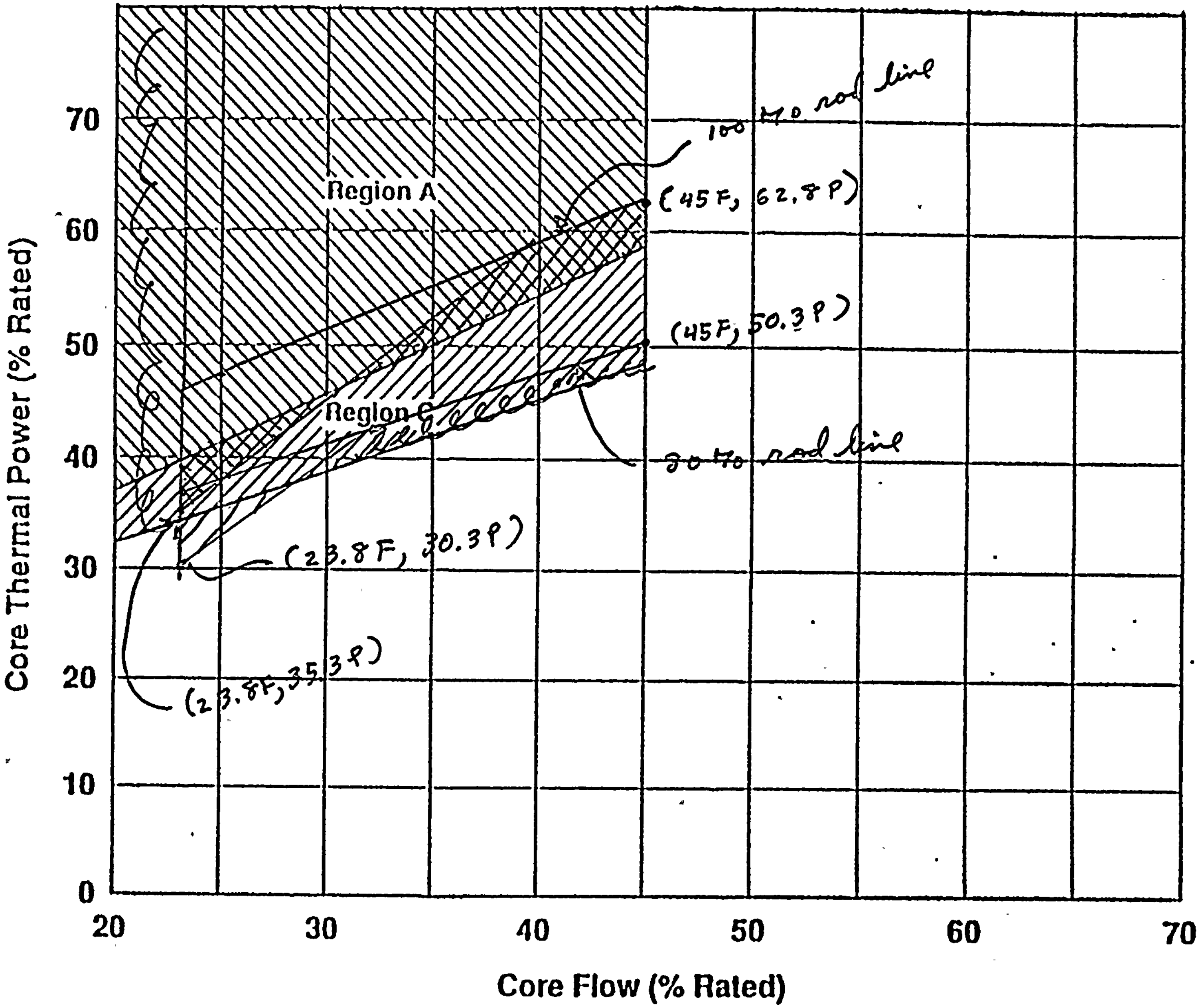
SURVEILLANCE REQUIREMENTS

4.2.7.1 The provisions of Specification 4.0.4 are not applicable.

4.2.7.2 The stability monitoring system shall be demonstrated operable* within one (1) hour prior to entry into the region of APPLICABILITY.

4.2.7.3 Decay ratio and peak-to-peak noise values calculated by the stability monitoring system shall be monitored when operating in the region of APPLICABILITY.

*Verify that the stability monitoring system data acquisition and calculational modules are functioning, and that displayed values of signal decay ratio and peak-to-peak noise are being updated. Detector levels A and C (or B and D) of one LPRM string in each of the nine core regions (a total of 18 LPRM detectors) shall be monitored. A minimum of four (4) APRMs shall also be monitored.



Operating Region Limits of Specification 3.2.7
Figure 3.2.7-1

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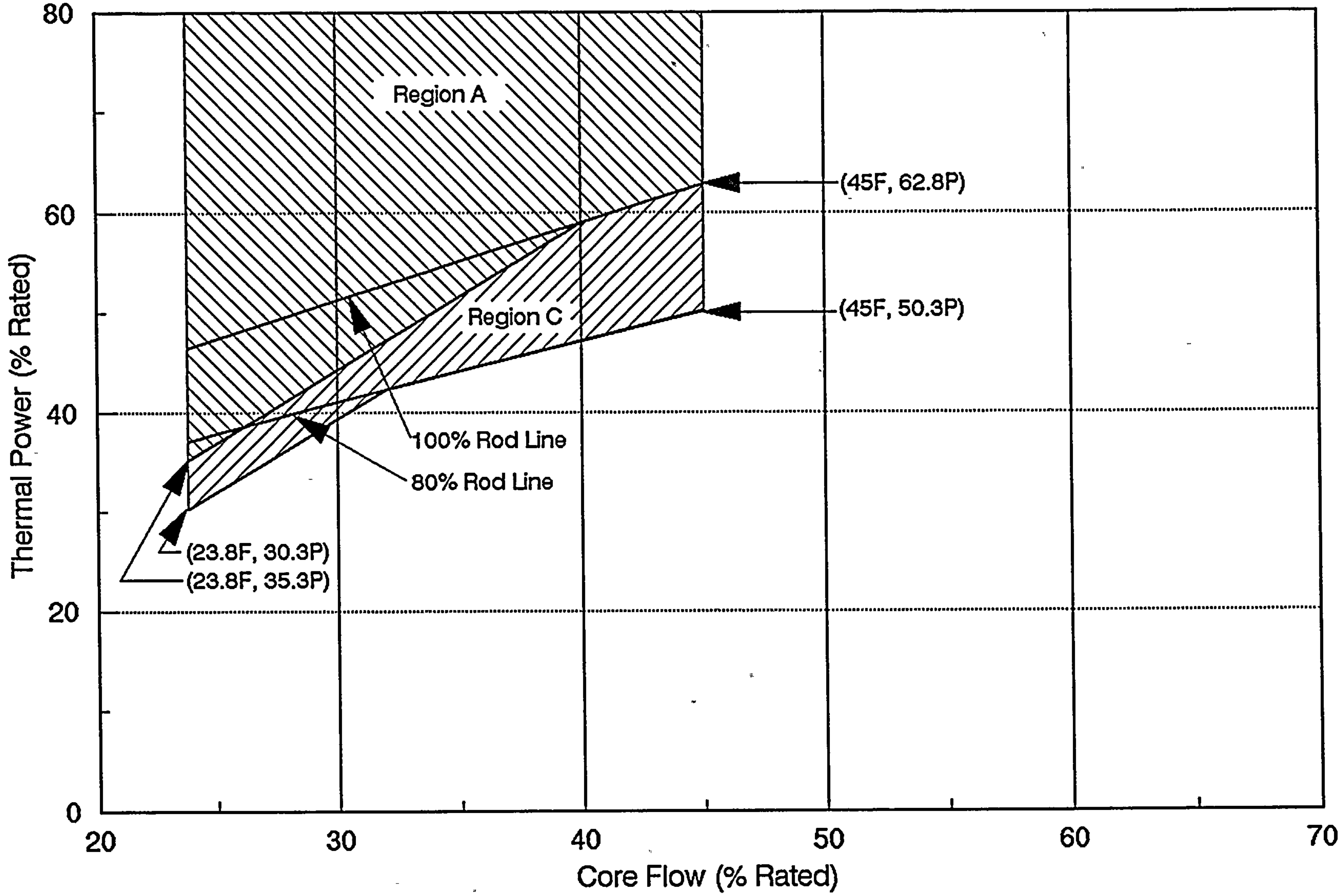


Operating Region Limits of Specification 3.2.7

Figure 3.2.7-1

3/4.2.8 STABILITY MONITORING - SINGLE LOOP OPERATION

LIMITING CONDITION FOR OPERATION

3.2.8 The stability monitoring system shall be operable* and the decay ratio of the neutron signals shall be less than .75 when operating in the region of APPLICABILITY.

APPLICABILITY: OPERATIONAL CONDITION 1, with one recirculation loop in operation and THERMAL POWER/core flow conditions which lay in Region C of Figure 3.2.8-1.

ACTION:

a. With decay ratios of any two (2) neutron signals greater than or equal to 0.75 .75 or with two (2) consecutive decay ratios on any single neutron signal greater than or equal to 0.75 .75:

As soon as practical, but in all cases within 15 minutes, initiate action to reduce the decay ratio by either decreasing THERMAL POWER with control rod insertion or increasing core flow with recirculation flow control valve manipulation. The starting or shifting of a recirculation pump for the purpose of decreasing decay ratio is specifically prohibited.

b. With the stability monitoring system inoperable and when operating in the region of APPLICABILITY:

As soon as practical, but in all cases within 15 minutes, initiate action to exit the region of APPLICABILITY by decreasing THERMAL POWER with control rod insertion. Exit the region of APPLICABILITY within one (1) hour.

SURVEILLANCE REQUIREMENTS

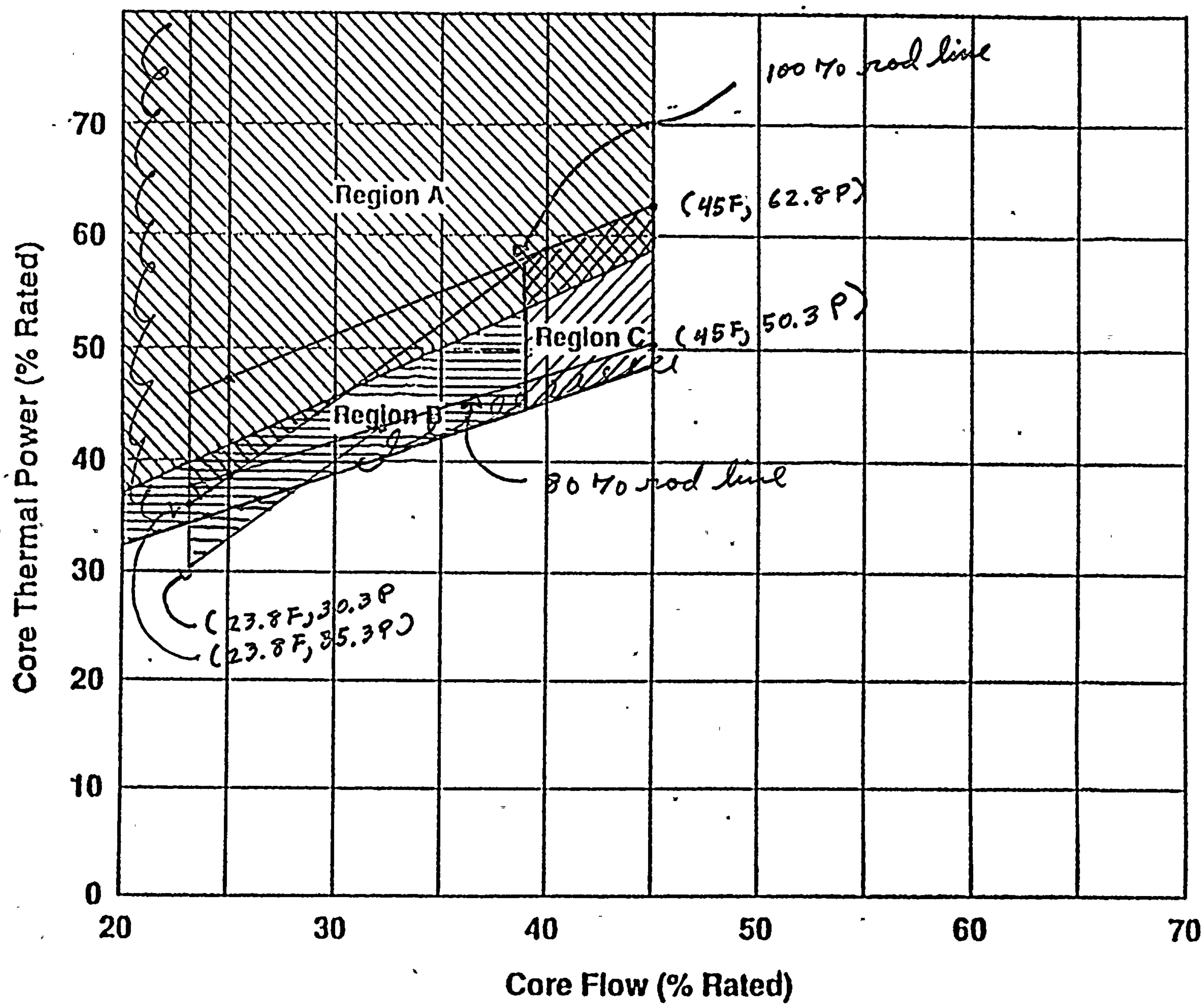
4.2.8.1 The provisions of Specification 4.0.4 are not applicable.

4.2.8.2 The stability monitoring system shall be demonstrated operable* within one (1) hour prior to entry into the region of APPLICABILITY.

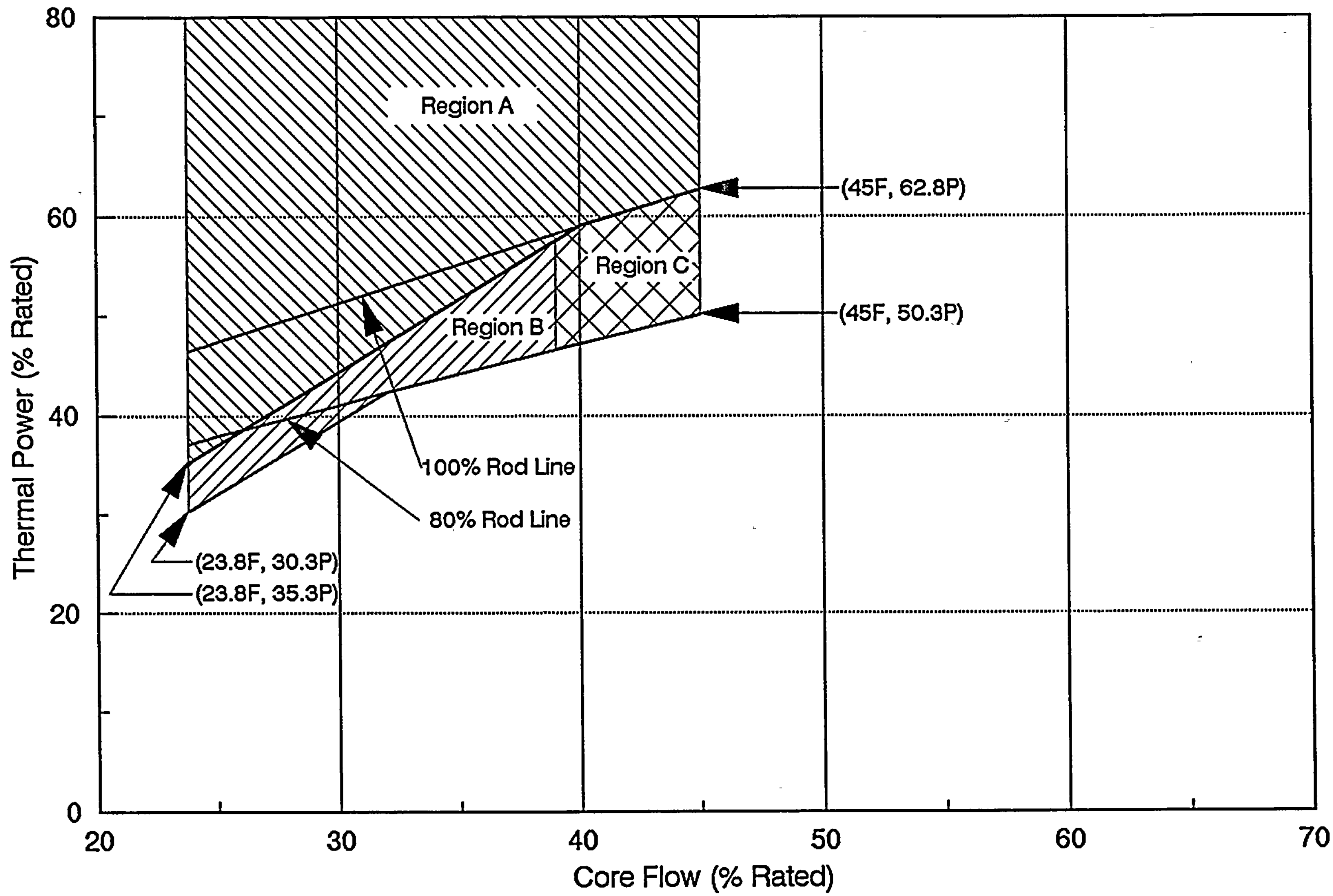
4.2.8.3 Decay ratio and peak-to-peak noise values calculated by the stability monitoring system shall be monitored when operating in the region of APPLICABILITY.

---

*Verify that the stability monitoring system data acquisition and calculational modules are functioning, and that displayed values of signal decay ratio and peak-to-peak noise are being updated. Detector levels A and C (or B and D) of one LPRM string in each of the nine core regions (a total of 18 LPRM detectors) shall be monitored. A minimum of four (4) APRMs shall also be monitored.

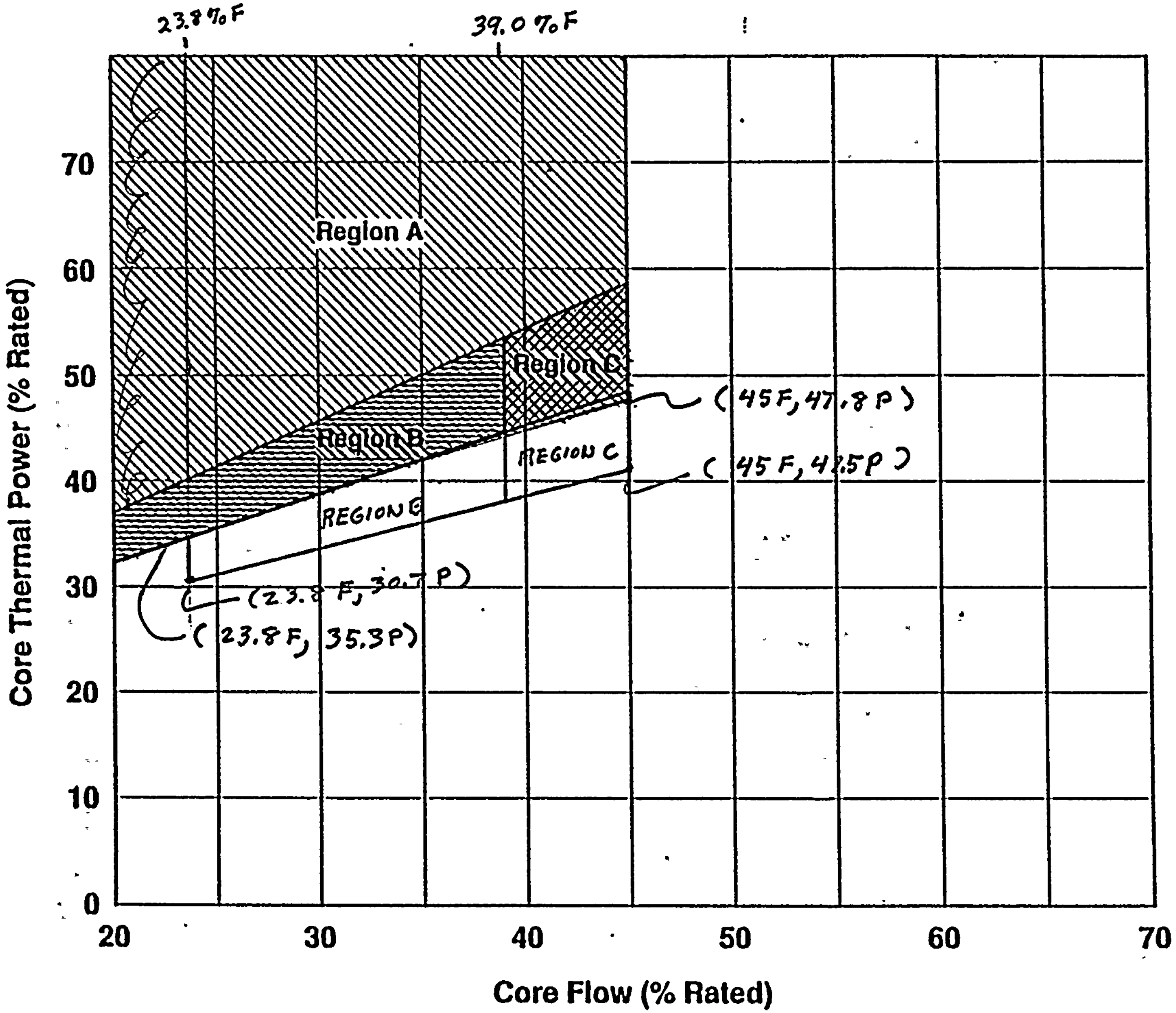


Operating Region Limits of Specification 3.2.8
Figure 3.2.8-1



Operating Region Limits of Specification 3.2.8

Figure 3.2.8-1



Operating Region Limits of Specification 3.4.1.1
Figure 3.4.1.1-1

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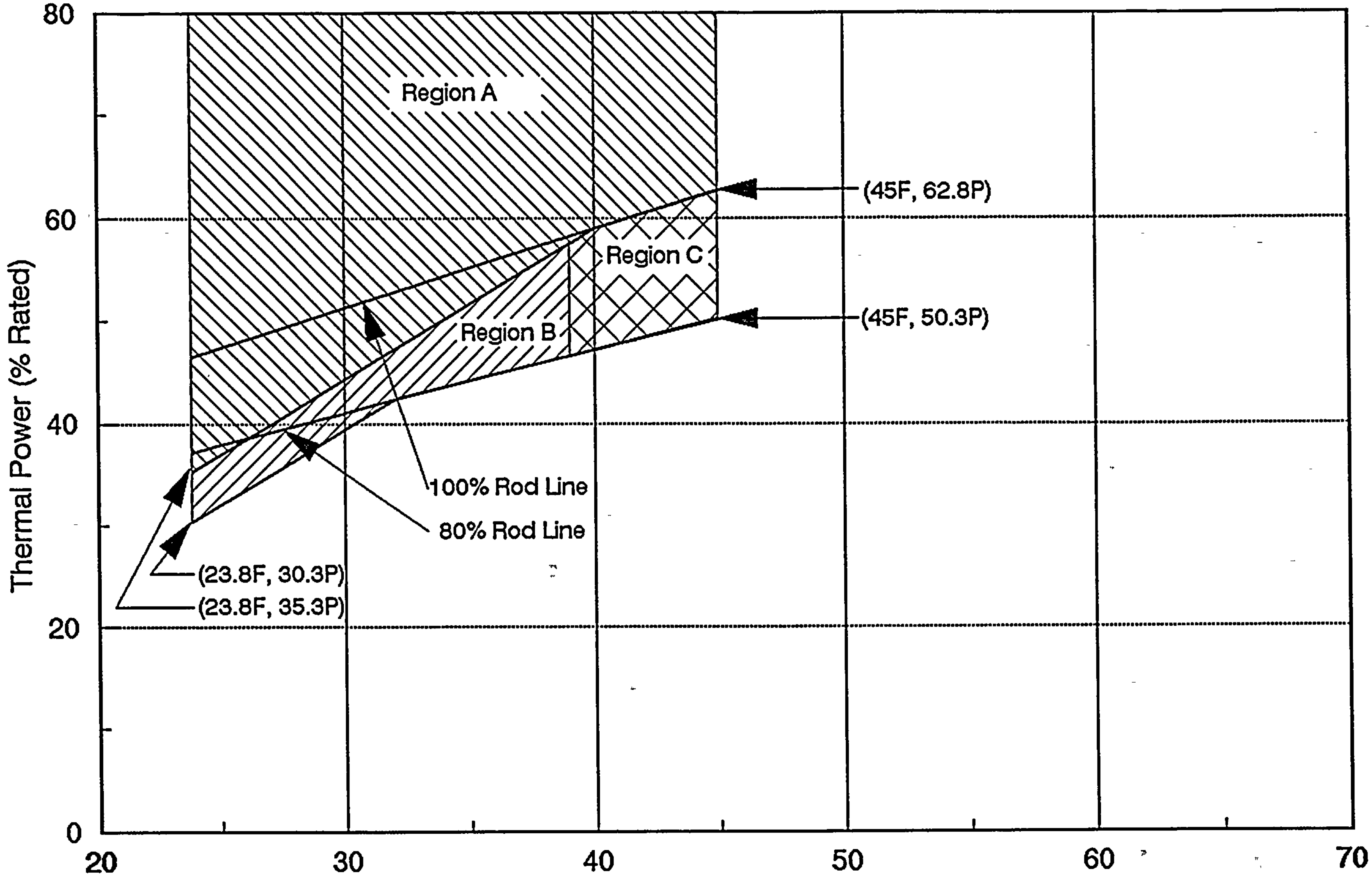

Operating Region Limits of Specification 3.4.1.1

Figure 3.4.1.1-1

slightly increasing the time required for the normal scram to suppress the flux.

3/4.2.4 LINEAR HEAT GENERATION RATE

This specification assures that the Linear Heat Generation Rate (LHGR) in any rod is less than the design linear heat generation even if fuel pellet densification is postulated.

3/4.2.6 POWER/FLOW INSTABILITY

~~At the high power/low flow corner of the operating domain, a small~~ probability of limit cycle neutron flux oscillations exists depending on combinations of operating conditions (e.g., power shape, bundle power, and bundle flow).

In February, 1984, GE issued SIL 380 addressing boiling instability and supplying several recommendations. In this SIL, the power/flow map was divided into several regions of varying concern. It also discussed the objectives and philosophy of "detect and suppress," coining the phrase.

The ANF topical report for COTRAN (XN-NF-691P) discusses boiling instability. The SER written on this topical (dated May 10, 1984) interprets the topical to require that the detect-and-suppress surveillance be used in regions which have code calculated decay ratios .75 or greater and that operation is forbidden in regions having calculated decay ratios of .9 and greater.

insert following pg.

The NRC Generic Letter 86-02 addressed both GE and ANF (then EXXON) stability calculation methodology and stated that due to uncertainties, General Design Criteria 10 and 12 could not be met using analytic procedures on a BWR 5 design. The letter espoused GE SIL 380 and stated that General Design Criteria 10 and 12 could be met by imposing the SIL 380 recommendations in operating regions of potential instability. The NRC concluded that regions of potential instability constituted calculated decay ratios of .8 and greater by the GE methodology and .75 and greater by the EXXON methodology.

Predicated on the SIL 380 endorsement, WNP-2 has divided the power/flow map on the following boundary lines:

1. 80% rod line
2 45% core flow line
3. 100% rod line
4. Natural Circulation flow line
5. Minimum Forced Circulation for normal recirculation lineup.

This division conforms to the SIL 380 recommendations. For LCO 3.2.6, the region of concern (Region A) is bounded by the more conservative of either the 100% rodline or a line defining a calculated decay ratio of 0.9, the natural circulation flow line, and the 45% core flow line. Calculated decay ratios ~~outside Region A must be less than 0.9. Operation in the region between the two~~

3/4.2.6 POWER/FLOW INSTABILITY

At the high power/low flow corner of the operating domain, a small probability of limit cycle neutron flux oscillations exists depending on combinations of operating conditions (e.g., power shape, bundle power, and bundle flow).

In 1984, GE issued SIL 380 addressing boiling instability and made several recommendations. In this SIL, the power/flow map was divided into several regions of varying concern. It also discussed the objectives and philosophy of "detect and suppress." The SIL recommends that REGION A be bounded by the 100% rod line and REGION C be bounded by the 80% rod line.

The NRC Generic Letter 86-02 discussed both the GE and SIEMENS (then EXXON) stability methodology and stated that due to uncertainties, General Design Criteria 10 and 12 could not be met using available analytical procedures on a BWR. The letter discussed SIL 380 and stated that General Design Criteria 10 and 12 could be met by imposing SIL 380 recommendations in operating regions of potential instabilities. The NRC concluded that regions of potential instability constituted decay ratios of 0.8 and greater by the GE methodology and 0.75 by the SIEMENS methodology which existed at that time.

SIEMENS Power Corporation has recently developed an improved stability computer code STAIF. A topical report (EMF-CC-074P) which describes the STAIF stability code and provides benchmarking against reactor data was submitted to the NRC in 1993. The NRC issued a SER approving the STAIF stability code for establishing stability boundaries on April 14, 1994. In the SER on STAIF the NRC stated the uncertainty in the STAIF code was 20%.

The STAIF stability code has been used to establish the stability region boundaries for WNP-2. The lower boundary of REGION A was defined to assure it bounds a decay ratio of 0.9. REGION C was conservatively defined to bound a decay ratio of 0.75.

The stability REGIONS A and B are shown in Figure 3.2.6-1. REGION A conforms to the recommendations of SIL 380 in that REGION A bounds a calculated decay ratio of 0.9. Operation in REGION A is prohibited. REGION C bounds a decay ratio of 0.75.

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~~flow lines and above the more conservative of either the 100% rodline or a line defining a calculated decay ratio of 0.9 is forbidden due to the potential for boiling instabilities.~~ Replaced by insert to page B 3/4 2-5

3/4.2.7 STABILITY MONITORING - TWO LOOP OPERATION

At the high power/low flow corner of the operating domain, a small probability of limit cycle neutron flux oscillations exists depending on combinations of operating conditions (e.g., rod patterns, power shape). To provide assurance that neutron flux limit cycle oscillations are detected and suppressed, APRM and LPRM neutron flux signal decay ratios should be monitored while operating in this region (Region C).

Stability tests at operating BWRs were reviewed to determine a generic region of the power/flow map in which surveillance of neutron flux noise levels should be performed. A conservative decay ratio of 0.75 was chosen as the basis for determining the generic region for surveillance to account for the plant to plant variability of decay ratio with core and fuel designs. This generic region has been determined to correspond to a core flow of less than or equal to 45% of rated core flow and a thermal power ~~greater than that corresponding to the 80% rodline.~~ at which the calculated decay ratio is less than 0.75.

Stability monitoring is performed utilizing the ANNA system. The system shall be used to monitor APRM and LPRM signal decay ratio and peak-to-peak noise values when operating in the region of concern. A minimum number of LPRM and APRM signals are required to be monitored in order to assure that both global (in-phase) and regional (out-of-phase) oscillations are detectable. Decay ratios are calculated from 30 seconds worth of data at a sample rate of 10 samples/second. This sample interval results in some inaccuracy in the decay ratio calculation, but provides rapid update in decay ratio data. A decay ratio of 0.75 is selected as a decay ratio limit for operator response such that sufficient margin to an instability occurrence is maintained. When operating in the region of applicability, decay ratio and peak-to-peak information shall be continuously calculated and displayed. A surveillance requirement to continuously monitor decay ratio and peak-to-peak noise values ensures rapid response such that changes in core conditions do not result in approaching a point of instability.

3/4.2.8 STABILITY MONITORING - SINGLE LOOP OPERATION

The basis for stability monitoring during single loop operation is consistent with that given above for two loop operation. The smaller size of the region of allowable operation, Region C, is due to a limit on the allowed flow above the 80% rodline. When operating above the 80% rodline in single loop operation, the core flow is required to be greater than 39%. Continuous operation in Region B is not permitted. Should Region B be entered the actions required by Technical Specification 3/4.4.1.1 are to be complied with.

CORE OPERATING LIMITS REPORT (Continued)

6.9.3.2 The analytical methods used to determine the core operating limits shall be those topical reports and those revisions and/or supplements of the topical report previously reviewed and approved by the NRC, which describe the methodology applicable to the current cycle. For WNP-2 the topical reports are:

1. ANF-1125(P)(A), and Supplements 1 and 2, "ANFB Critical Power Correlation," April 1990

2. Letter, R. C. Jones (NRC) to R. A. Copeland (ANF), "NRC Approval of ANFB Additive Constants for ANF 9x9-9X BWR Fuel," dated November 14, 1990

3. ANF-NF-524(P)(A), Revision 2 and Supplements 1 and 2, "Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors," November 1990

4. ANF-913(P)(A), Volume 1, Revision 1 and Volume 1, Supplements 2, 3 and 4, "COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analysis," August 1990

5. ANF-CC-33(P)(A), Supplement 2, "HUXY: A Generalized Multirod Heatup Code with 10 CFR 50, Appendix K Heatup Option," January 1991

6. XN-NF-80-19(P)(A), Volume 1, Supplements 3 and 4, "Advanced Nuclear Fuel Methodology for Boiling Water Reactors," November 1990

7. XN-NF-80-19(P)(A), Volume 4, Revision 1, "Exxon Nuclear Methodology Boiling Water Reactors: Application of the ENC Methodology to BWR Reloads," June 1986

8. XN-NF-80-19(P)(A), Volume 3, Revision 2, "Exxon Nuclear Methodology for Boiling Water Reactors THERMEX: Thermal Limits Methodology Summary Description," January 1987

9. XN-NF-85-67(P)(A), Revision 1, "Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel," September 1986

10. ANF-89-014(P)(A), Revision 1 and Supplements 1 and 2, "Advanced Nuclear Fuels Corporation Generic Mechanical Design for Advanced Nuclear Fuels Corporation 9x9-IX and 9x9-9X BWR Reload Fuel," October 1991

11. XN-NF-81-22(P)(A), "Generic Statistical Uncertainty Analysis Methodology," November 1983

12. NEDE-24011-P-A-~~5~~ 10-US, "General Electric Standard Application for Reactor Fuel," ~~April 1983~~ U.S. Supplement, March 1991

13. (See following page for insert)

13. EMF-CC-074(P)(A), "Volume 1 -- STAIF - A Computer Program for BWR Stability in the Frequency Domain, Volume 2 -- STAIF A Computer Program for BWR Stability in the Frequency Domain , Code Qualification Report", July 1994.

(insert to pg 6-21)

ATTACHMENT 4

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Request for Amendment to TS Power Uprate, Supplementary Information

I, J. V. PARRISH, being duly sworn, subscribe to and say that I am the Assistant Managing Director, Operations for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

Attached to Supply System letter G02-93-249 dated October 8, 1993, "WNP-2 Request for Amendment to Technical Specifications to Increase Licensed Power Level, Supplementary Information," were three replacement pages to General Electric document NEDC-32141P, "Power Uprate With Extended Load Line Limit Safety Analysis for WNP-2," Class III, dated June 1993 which are considered by their owner to contain proprietary information.

The affidavit executed by Mr. David J. Robare, Project Manager, Plant Licensing General Electric Company, dated July 8, 1993, which provides the basis on which it is claimed that NEDC-32141P should be withheld from public disclosure under the provisions of 10 CFR 2.790 was provided as an attachment to Supply System letter G02-93-180, dated July 9, 1993, "WNP-2 Request for Amendment to Technical Specifications to Increase Licensed Power Level." This affidavit is also applicable to the replacement pages provided in the October 8, 1993, Supply System letter.

The Washington Public Power Supply System treats the replacement pages to NEDC-32141P attached to Supply System letter G02-93-180 dated July 9, 1993, as proprietary information on the basis of statements by its owner. In submitting this information to the NRC in support of the "WNP-2 Request for Amendment to Technical Specifications to Increase Licensed Power Level," the Supply System requests that the replacement pages to NEDC 32141P attached to Supply System letter G02-93-180 dated July 9, 1993, be withheld from public disclosure in accordance with 10 CFR 2.790.

DATE 24 September, 1994

J. V. Parrish, Assistant Managing Director
Operations

On this date personally appeared before me J. V. PARRISH, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 24th day of September 1994.

Traci M. Hardy
Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennewick, Washington

My Commission Expires 8/9/95