3/4.2.3 RCS FLOW RATE AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

LIMITING CONDITION FOR OPERATION

3.2.3 The combination of indicated Reactor Coolant System (RCS) total flow rate and R_1, R_2 shall be maintained within the region of allowable operation shown on Figure 3.2-3 for 3 loop operation.

Where:

a. $R_1 = \dfrac{F^N_{\Delta H}}{1.49\,[1.0 + 0.2\,(1.0 - P)]}$,

b. $R_2 = \dfrac{R_1}{[1\text{-}RBP(BU)]}$,

c. $P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$,

d. $F^N_{\Delta H}$ = Measured values of $F^N_{\Delta H}$ obtained by using the movable incore detectors to obtain a power distribution map. The measured values of $F^N_{\Delta H}$ shall be used to calculate R since Figure 3.2-3 includes measurement uncertainties of ~~1.75%~~ 2.4% for flow and 4% for incore measurement of $F^N_{\Delta H}$, and

e. RBP (BU) = Rod Bow Penalty as a function of region average burnup as shown in Figure 3.2-4, where a region is defined as those assemblies with the same loading date (reloads) or enrichment (first core).

APPLICABILITY: MODE 1.

ACTION:

With the combination of RCS total flow rate and R_1, R_2 outside the region of acceptable operation shown on Figure 3.2-3:

a. Within 2 hours either:

1. Restore the combination of RCS total flow rate and R_1, R_2 to within the above limits, or

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER and reduce the Power Range Neutron Flux - High trip setpoint to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

See New Figure Based on 2.4% Measurement Uncertainties

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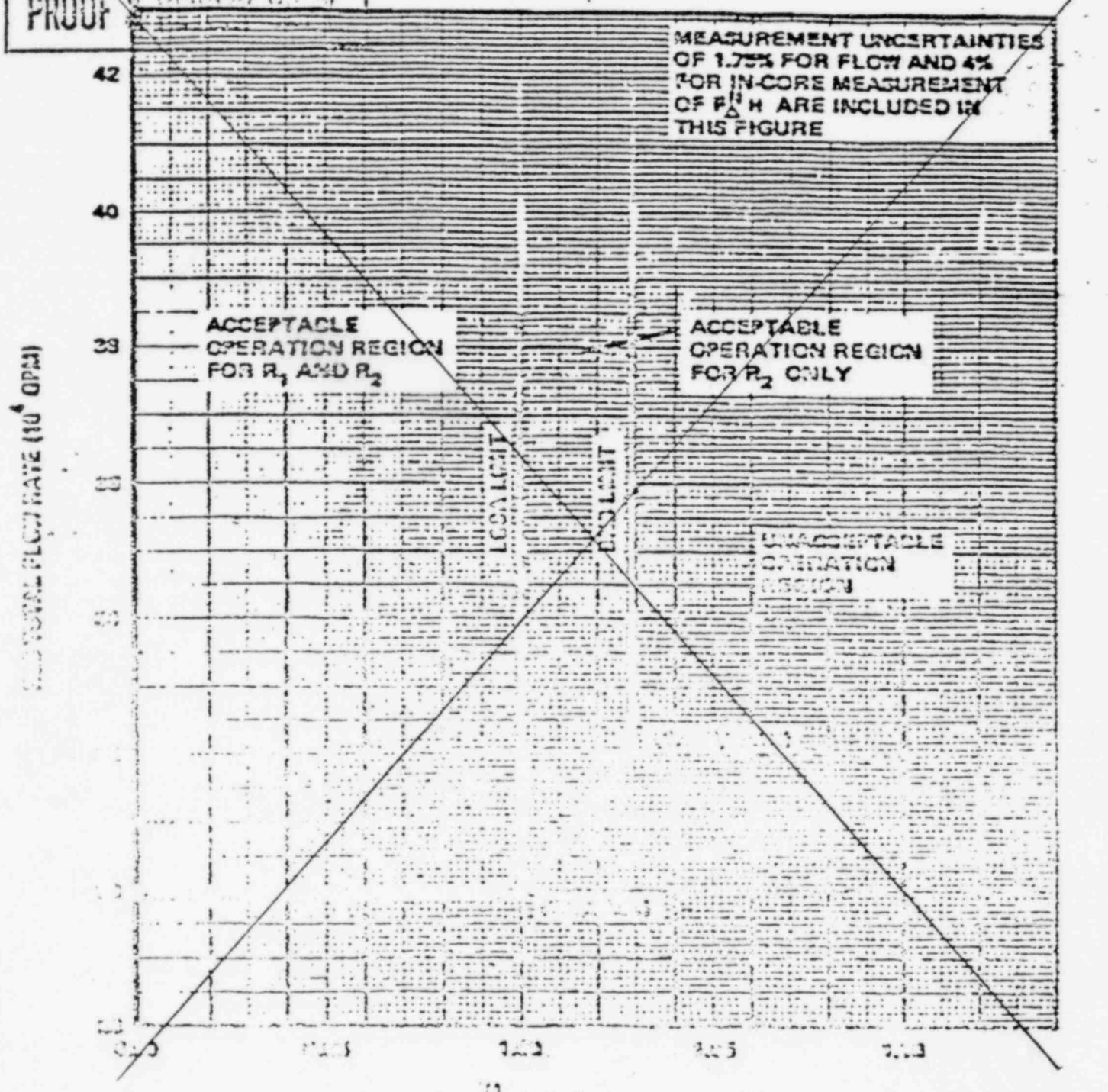

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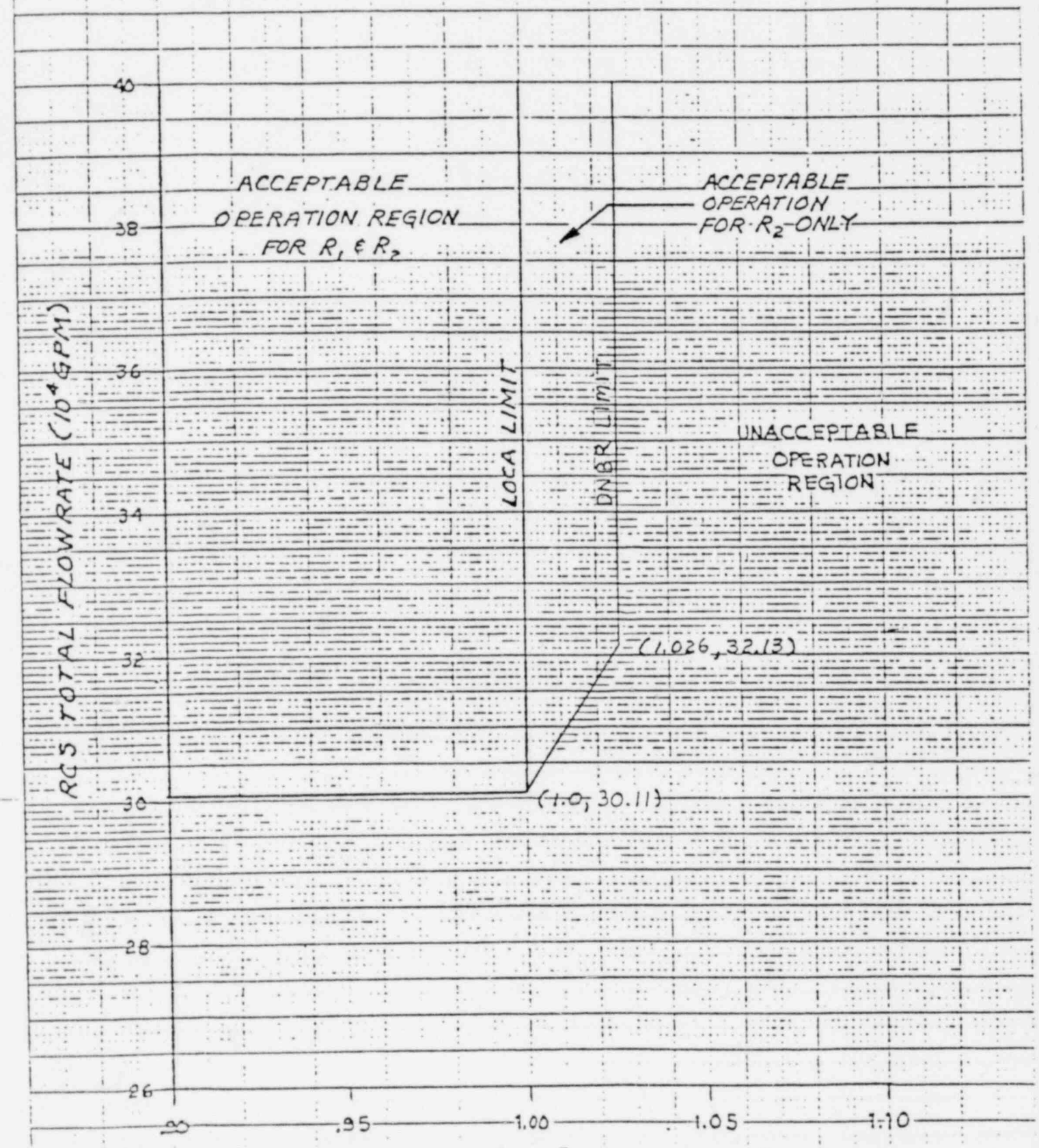
FIGURE 1 RCS FLOW RATE VERSUS R

MEASUREMENT UNCERTAINTIES OF 2.4 % FOR FLOW AND 4.0% FOR INCORE MEASUREMENT OF $F^N_{\Delta H}$ INCLUDED



$R_1 = F^N_{\Delta H} / 1.49 [1.0 + 0.2(1.0 - P)]$

$R_2 = R_1 / [1.0 - RBP(BU)]$

SURVEILLANCE REQUIREMENTS

4.6.1.3 Each reactor building air lock shall be demonstrated OPERABLE:

a. Within 72 hours following each closing, except when the air lock is being used for multiple entries, then at least once per 72 hours, by verifying that the seal leakage rate is less than or equal to 0.01 L_a when the volume between the door seals is pressurized to greater than or equal to 8.0 psig for at least ~~30 seconds.~~ 3 minutes

b. By conducting overall air lock leakage tests at not less than P_a, 47.1 psig, and verifying the overall air lock leakage rate is within its limit:

1. At least once per 6 months#, and

2. Prior to establishing CONTAINMENT INTEGRITY when maintenance has been performed on the air lock that could affect the air lock sealing capability.*

c. At least once per six months by verifying that only one door in each air lock can be opened at a time.

d. At least once per 6 months,# by verifying that the seal leakage rate is less than or equal to 0.01 L_a when the volume between the handwheel shaft seals is pressurized to greater than or equal to 8.0 psig for at least 3 minutes.

#The provisions of Specification 4.0.2 are not applicable.
* Exemption to Appendix J of 10 CFR 50.

REFUELING OPERATIONS

3/4.9.11 SPENT FUEL POOL VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.11 Two independent spent fuel pool ventilation ~~sub~~ systems shall be OPERABLE~~, with at least one sub-system in operation.~~

APPLICABILITY: Whenever irradiated fuel is in the spent fuel pool.

ACTION:

a. With one spent fuel pool ventilation ~~sub~~ system inoperable, fuel movement within the spent fuel pool ~~or crane operation with loads over the spent fuel pool~~ may proceed provided the OPERABLE spent fuel pool ventilation ~~sub~~ system is capable of being powered from an OPERABLE emergency power source and is in operation~~, and discharging through at least one train of HEPA filters and charcoal adsorbers.~~

~~b. With no spent fuel pool ventilation sub-system OPERABLE, suspend all operations involving movement of fuel within the spent fuel pool, or crane operation with loads over the spent fuel pool.~~

b. The provisions of Specification 3.0.4 are not applicable.

3.0.3 and

SURVEILLANCE REQUIREMENTS

4.9.11 The above required spent fuel pool ventilation ~~sub~~ systems shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that each ~~sub~~ system operates for at least 15 minutes.

b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:

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REFUELING OPERATIONS

3/4.9.11 SPENT FUEL POOL VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.9.11.2 ~~Two independent~~ At least one spent fuel pool ventilation ~~sub-~~system~~s~~ shall be ~~OPERABLE with at least one sub-system~~ in operation.

APPLICABILITY: Whenever irradiated fuel is being moved in the spent fuel pool.

ACTION:

~~a. With one spent fuel pool ventilation sub-system inoperable, fuel movement within the spent fuel pool or crane operation with loads over the spent fuel pool may proceed provided the OPERABLE spent fuel pool ventilation sub-system is capable of being powered from an OPERABLE emergency power source and is in operation and discharging through at least one train of HEPA filters and charcoal adsorbers.~~

a. ~~b.~~ With no spent fuel pool ventilation ~~sub-~~system operating ~~OPERABLE~~, suspend all operations involving movement of fuel within the spent fuel pool ~~or crane operation with loads over the spent fuel pool.~~ until a spent fuel pool ventilation system is restored to operation.

b. c. The provisions of Specification 3.0.4 are not applicable. 3.0.3 and

SURVEILLANCE REQUIREMENTS

4.9.11.2 The above required spent fuel pool ventilation ~~sub-~~system~~s~~ shall be ~~demonstrated OPERABLE:~~ verified to be operating at least once per 12 hours.

~~a. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that each sub-system operates for at least 15 minutes.~~

~~b. At least once per 18 months or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the system by:~~

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HEAT FLUX HOT CHANNEL FACTOR and RCS FLOWRATE and NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR (Continued)

c. The control rod insertion limits of Specifications 3.1.3.5 and 3.1.3.6 are maintained.

d. The axial power distribution, expressed in terms of AXIAL FLUX DIFFERENCE, is maintained within the limits.

$F^N_{\Delta H}$ will be maintained within its limits provided conditions a. through d. above are maintained. As noted on Figures 3.2-3 and 3.2-4, RCS flow rate and $F^N_{\Delta H}$ may be "traded off" against one another (i.e., a low measured RCS flow rate is acceptable if the measured $F^N_{\Delta H}$ is also low) to ensure that the calculated DNBR will not be below the design DNBR value. The relaxation of $F^N_{\Delta H}$ as a function of THERMAL POWER allows changes in the radial power shape for all permissible rod insertion limits.

R_1, as calculated in 3.2.3 and used in Figure 3.2.3, accounts for $F^N_{\Delta H}$ less than or equal to 1.49. This value is used in the various accident analyses where $F^N_{\Delta H}$ influences parameters other than DNBR, e.g., peak clad temperature and thus is the maximum "as measured" value allowed. R_2, as defined, allows for the inclusion of a penalty for rod bow on DNBR only. Thus knowing this "as measured" values of $F^N_{\Delta H}$ and RCS flow allows for "tradeoffs" in excess of R equal to 1.0 for the purpose of offsetting the rod bow DNBR penalty.

When an F_Q measurement is taken, an allowance for both experimental error and manufacturing tolerance must be made. An allowance of 5% is appropriate for a full core map taken with the incore detector flux mapping system and a 3% allowance is appropriate for manufacturing tolerance.

The radial peaking factor $F_{xy}(Z)$ is measured periodically to provide assurance that the hot channel factor, $F_Q(Z)$, remains within its limit. The F_{xy} limit for Rated Thermal Power (F^{RTP}_{xy}) as provided in the Radial Peaking Factor Limit Report per specification 6.9.1.14 was determined from expected power control maneuvers over the full range of burnup conditions in the core.

When RCS flow rate and $F^N_{\Delta H}$ are measured, no additional allowances are necessary prior to comparison with the limits of Figures 3.2-3 and 3.2-4. Measurement errors of ~~1.75%~~ 2.4% for RCS total flow rate and 4% for $F^N_{\Delta H}$ have been allowed for in determination of the design DNBR value.

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