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DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards response to 850729 request for addl info re Tech Spec change request to provide addl operating margin between high & low pressurizer level & to allow manual blocking of reduced power trips,Permissions P-10 actuated.

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September 13, 1985

Mr. Harold R. Denton
Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Request for Additional Information: Low Pressurizer Water Level and Permissions P-10
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Mr. Denton:

The enclosure to this letter provides the additional information requested by the Staff in your July 29, 1985 letter.

The purpose of the technical specification change request was to provide additional operating margin between high and low pressurizer level and allow manual blocking of the reduced power trips when P-10 actuated.

As explained in the enclosure, there is no technical basis for the 12% minimum pressurizer level limit. During some transient conditions, pressurizer level has dipped below the lower limit. Since the 12% is arbitrary, reducing this limit can provide additional operating margin.

As illustrated in the enclosure, the P-10/P-7 issue is more complicated. The P-10 permissive allows the operator to block the reduced power trips and the P-7 permissive automatically unblocks the "at power" trips. P-7 is actuated by P-10. Since P-7 is required to actuate at $\leq$ 8.5% power, P-10 must actuate at $\leq$ 8.5% power. However, to be consistent with current accident analysis assumptions, the operators cannot manually block the reduced power trips until $\geq$ 10% power even though the permissive has been satisfied. The technical specification change would allow the operators to manually block the reduced power trips at $\geq$ 8.0% power or when the P-10 permissive is actuated.

Very truly yours,

Roger W. Kober

Roger W. Kober

Enclosure

xc: Mr. Jay Dunkleberger,
New York State Energy Office

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Request for Additional Information
Low Pressurizer Water Level and Permissive P-10

1. Request: Pressurizer Level

You state that the change in low pressurizer level setpoint from 12% to 10.6% .. does not increase .. The consequences of an accident." This would imply that safety analyses of anticipated operational occurrences and postulated accidents were originally analyzed assuming an initial pressurizer level of 12%, and that reanalysis with an initial level of 10.6% would not increase the consequences of the analyzed events. Confirm that this is the case. If not, specifically explain the basis for your statement if safety analyses were not performed at the lowest pressurizer level you are allowed to operate with while in hot shutdown or at power.

Response: Pressurizer low level is of interest only for transients where pressure decreases. The Reactor Coolant System (RCS) depressurization rate increases after the pressurizer empties. In general, a lower initial pressurizer water level will decrease the amount of time required to empty the pressurizer and shorten the time required to reach the low pressurizer pressure trip setpoint or the safety injection pressurizer pressure setpoint. Since accident analyses assume an initial pressurizer level that is higher than exists in the plant, a lower initial pressurizer water level in the plant is conservative with respect to the analysis.

The steam generator tube rupture analysis maximizes initial pressurizer water level to increase the time required for the pressurizer to empty which results in maintaining a high primary to secondary pressure differential and thus a larger break flow.

The steam break accident analysis is only slightly sensitive to initial pressurizer water level. The analysis uses nominal initial water level which is sometimes adjusted to produce better consistency between the systems code predictions and the more detailed power distribution code.

Since accident analysis does not use or is insensitive to low initial pressurizer water level, there is no technical basis for requiring a minimum level. In actuality the plant would not be operated with a pressurizer level below the heater cutout value of 10.6%; therefore, the low level was arbitrarily tied to this value of 10.6%.

2. Request: P-10 Permissive

You state that the proposed change in the P-10 setpoint from 10% to 8% shows, for the limiting accidents, the safety margin is not significantly reduced. Please provide additional information to support this statement. Specifically, describe which protection logic/systems are influenced by P-10, why the "limiting accidents" are considered limiting with regard to this change, and why these events were concluded to remain limiting for all modes of operation. Include a discussion of how different numbers of RCPs in operation (i.e., none, one, or two) might affect this conclusion.

Response: The proposed technical specification change would allow the reduced power trips to be manually blocked at 8.0% power versus 10.0% which is currently assumed in the accident analysis. The P-10 permissive only allows the trips to be manually blocked. It does not automatically block the trips.

The P-10 permissive allows the operators to manually block the reduced power trips and provides a signal which generates the P-7 permissive. The P-7 permissive automatically unblocks at power trips. Specifically P-10 allows manual blocking of the intermediate range rod stop, the intermediate range high flux trip and low setpoint of the power range high flux trip. P-7 automatically unblocks the following reactor trips: 2 loop low flow, reactor coolant pump bus undervoltage, reactor coolant pump bus under-frequency, pressurizer low pressure, and turbine trip with P-9. Since P-7 is generated by P-10 and P-7 automatically unblocks the above "at power trips" $\leq$ 8.5% power, P-10 setpoint must be $\leq$ 8.5% power. Therefore, the operator has the ability to manually unblock the reduced power trips at $\leq$ 8.5% power but must wait until the power is $\geq$ 10.0% to be consistent with the accident analysis assumptions. The proposed technical specification change would allow the operator to block the reduced power trips at $\geq$ 8.0% power, i.e., when the P-10 permissive is actuated.

The technical specification change only effects the power level at which the reduced power trips are blocked. Basically, these are trips associated with nuclear power. An accident initiated from < 10.0% power would be terminated by intermediate range high flux trip or low setpoint of power range high flux trip. An

accident initiated from ≥ 10.0% power would be terminated by power range high flux trip. The proposed change would move the break point to 8.0% power versus 10.0%. The most limiting transient initiated from low power levels in the Ginna Updated Final Safety Analysis Report (UFSAR) is the slow rod withdrawal from 10% power. Several slow rod withdrawals were run to determine the bounding reactivity insertion rate. Transients which result in greater than or less than the bounding reactivity insertion rate would produce a greater minimum DNBR. Therefore, the most limiting transient was determined. This transient was rerun from an initial power level of 8.0%. The resulting minimum DNBR was approximately 0.007 lower than the DNBR from 10.0% initial power. The minimum DNBR for the 10% rod withdrawal is significantly greater than that for the full power rod withdrawal. Therefore, the power level at which the reduced power trips are blocked can be reduced from 10.0% to 8.0%.

The above conclusion is not effected by the number of RCPs in operation. Since actuation of P-10 automatically actuates P-7, a reactor trip would be generated if less than 2 loops were in operation when the P-10 setpoint was reached. Therefore, manual blocking of the reduced power trips can only occur with 2 loops in operation.

3. Request: P-10 Permissions

The evaluation contained in Attachment B to the January 19, 1984 letter from John E. Maier to Harold R. Denton concluded: "Therefore, reducing P-10 to 8% has negligible effect on the Ginna Safety Analysis and the minimum DNBR for a RWA is unchanged." Confirm that this and other evaluations consider instrumentation errors and associated uncertainties in arriving at your conclusions. If instrument errors and uncertainties have not been considered, please discuss why you consider this acceptable and confirm that prior conclusions remain valid.

Response: The evaluation performed to reach the above conclusions is consistent with the evaluation presented in the Ginna UFSAR. Instrument errors and associated uncertainties are accounted for in the trip setpoint. Currently, the reduced power trips are blocked at 10% power. The limiting transient at 10% power yields approximately the same minimum DNBR as the transient started from 8.0%. Instrument errors and uncertainties applicable at 10% are also applicable at 8.0%. Therefore, the limiting transient initiated from

(10.0 ± x)% power would result in approximately the same minimum DNBR as the transient initiated from (8.0 ± x)% power. Also, the minimum DNBR for the limiting rod withdrawal from 8.0% power is substantially greater than that for the limiting rod withdrawal from full power. Our prior conclusions remain valid.

4. Request: Provide a discussion to resolve the following conflicts:

- o Latest FSAR for R. E. Ginna plant lists P-10 at 8% RTP yet January 19, 1984 letter from John E. Maier to Harold Denton indicates current plant value is 10% RTP.

- o R. E. Ginna plant technical specifications, page 2.3-4, item 2.3.2.1 currently lists P-10 at 8.5% RTP whereas Table 3.5-1, items 2 and 3 currently list P-10 at 10% RTP.

Response: The January 19, 1984 letter was incorrect in that it requested P-10 be reduced from 10% to 8%. In actuality P-10 is currently set at 8.0%. The January 19, 1984 letter should have elaborated that blocking the reduced power trips is a manual action that is currently done at ≥ 10.0% power. The technical specification change is to allow this manual action to occur when P-10 is actuated versus requiring the operator to wait until ≥ 10.0% power.

Technical Specification, page 2.3-4 item 2.3.2.1 states, "Remove bypass of "at power" reactor trips at high power...power range nuclear flux - ≤ 8.5% of rated power...". This statement refers to P-7 not P-10.

Technical Specification, Table 3.5-1 items 2 and 3 refer to the manual blocking of the reduced power trips.

The above is consistent with the current setpoints and operation of Ginna. P-7 is required to actuate at ≤ 8.5%. Since P-7 is basically a logic block on the output of P-10, P-10 is set to actuate at 8.0%. This provides the unblocking of at power reactor trips required by 2.3.2.1 at ≤ 8.5% and allows for the manual blocking of the reduced power trips which cannot be done by the operator until power is ≥ 10.0% to satisfy Table 3.5-1 items 2 and 3.

[illegible]