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August 29, 1984

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

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

Attached to Facility Operating License NPF-24 for Catawba Unit 1, which was issued on July 18, 1984, is a set of proposed license conditions for a low power license. Proposed License Condition 19, Upgrade Emergency Operating Procedures, I.C.1, requires that Duke Power Company submit a report identifying the safety-significant deviations in the Plant Specific Technical Guidelines from NRC-approved generic technical guidelines and provide justification for these deviations.

A description of these deviations was submitted for NRC review by letters dated June 18 and July 25, 1984. On August 21, 1984 representatives from Duke Power Company met with the NRC Staff to discuss these submittals. As a followup to that meeting and in response to SSER-2, Section 13.5.2(1), additional information is provided in Attachment 1. Attachment 2 provides a response to SSER-2, Section 13.5.2(2).

Very truly yours,

Hal B. Tucker

Hal B. Tucker

ROS:slb

Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
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NRC Resident Inspector
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ATTACHMENT 1

SUPPLEMENTARY INFORMATION REGARDING SSER 2 SECTION 13.5.2(1)

DEVIATIONS FROM GENERIC EMERGENCY RESPONSE GUIDELINES

1. Clarification of Statement in July 25, 1984 Submittal

In Section II, "Plant Specific Design Deviations" under the subsection entitled "Setpoints", the following statement was made.

"The plant-specific setpoints in the EPGs have, in some cases, been modified based on safety or operational concerns with the generic setpoint bases."

A re-evaluation of the bases for plant specific setpoint deviations has not identified any "safety concerns" with respect to the generic setpoint bases. Some plant specific setpoints include additional margin, however the generic setpoints and setpoint bases are adequate.

2. Deviation 7 Basis

The following is provided to clarify guidelines with respect to steaming a ruptured steam generator as previously submitted.

The generic and plant-specific guidelines both emphasize avoiding unnecessary steaming of a ruptured steam generator. Anytime steaming is necessary the steam dumps to condenser are utilized prior to steaming to the atmosphere. If the condenser is unavailable, then ES-3.2, SGTR Alternate Cooldown Using Backfill, would be used to cool down and depressurize a ruptured steam generator in order to avoid steaming to atmosphere.

If it was necessary to steam to atmosphere, then the guidelines require that an evaluation be performed prior to steaming in order to assess the offsite dose consequences. The health physics staff would first sample the ruptured generator. Based on this sample a steaming rate limit would be calculated. This limit is based on 10 CFR 20 dose limits. Steaming would then be controlled to ensure that these limits would not be exceeded.

3. Deviation 27 Basis

In addition to the bases documented in the July 25, 1984 submittal and as discussed in the August 21, 1984 meeting, the following justification for utilizing the diesel generator sequencer during the recovery from a loss of all station AC power is provided.

The basis for manual loading of the diesel generators as described in the generic ERGs can be summarized as follows:

1) Prevent overloading of the power source.
2) Ensure correct valve alignments prior to starting pumps.

3) Protect RCP seals from thermal shock.
4) Pump operability concerns caused by high ambient temperatures in pump rooms due to interruption of HVAC.

Each of these concerns is not applicable to Catawba based on plant specific design differences as follows:

1) The diesel generator load sequencer is designed to apply loads in a manner which prevents momentary overloading. Loading is applied using an accelerated sequence provided that bus voltage and speed have recovered to 92.5% and 98%, respectively, between load groups. If these conditions do not exist prior to an elapsed time associated with each load group, then that load group would be applied based on the elapsed time of the committed sequence. Also, loads are not applied if the diesel generator speed is less than 44%. This plant specific design feature ensures than the power source is not overloaded.

2) Proper valve alignment is ensured by the load sequence since required valves are powered in Load Group 1. With an SI signal present these valves will align automatically before the respective pumps are started in subsequent load groups. Proper valve alignment can be rapidly confirmed using the valve position status on the monitor light panels, another plant specific design feature.

3) Thermal shocking the reactor coolant pump seals by restoring seal injection flow automatically on AC power recovery is not a concern at Catawba. The SSF provides early recovery of RCP seal injection, so that subsequent recovery of normal seal injection will not cause a thermal shock. Also, an operator is dispatched to locally isolate normal seal injection as part of the loss of all AC power procedure. The plant specific capabilities of the SSF justify this deviation.

4) A plant specific review has concluded that major pumps at Catawba are not impacted by high ambient temperature following a loss of HVAC.

4. Deviation 28 Basis

In addition to the bases documented in the July 25, 1984 submittal and as discussed in the August 21, 1984 meeting, the following justification for initiating feed and bleed cooling is provided.

Catawba has two plant specific design features that enhance the plant response to initiating feed and bleed. The UHI accumulator is an additional source of injection water that may be available and would inject following RCS depressurization. Also, the capacity of the three pressurizer PORVs (3 x 210,000 lb/hr) is greater than the capacity assumed in the generic analyses that are the bases for the generic guidelines. The guidelines will be revised to ensure that safety injection will increase prior to RCS depressurization by initiation of feed and bleed below 1200°F.

5. Deviation 31 Basis (Restatement of previously submitted bases)

Duke Power maintains the position that the need to restrict reactor vessel head venting operations to controlled periodic intervals, rather than allow continuous venting under certain conditions, is not warranted. The basis of this position is that periodic interval venting is only necessary if the venting operation will result in a significant volume of hydrogen being released into the containment. Under conditions where a significant volume of hydrogen exists in the RCS, Duke will only vent using controlled periodic intervals based on specific measured parameters, consistent with the generic guidelines. It is our contention that a significant volume of hydrogen can only exist in the RCS following a severe ICC event. Based on the training received and the lessons learned following the TMI accident, we have a very high level of confidence that an ICC event cannot go undetected by the operators. If ICC symptoms have been observed then the generic venting guidelines are followed.

The option to continuously vent the vessel head should be available to the operator if ICC conditions have not been observed, because otherwise there is no technical basis for such restrictions. This method would be utilized for venting a steam void if the alternate void mitigation approaches of repressurization/condensation or RCP restart proved unsuccessful. Interruption of continuous venting under these circumstances would perturb RCS inventory control and force the operator to cycle venting activities. An unnecessary burden is placed on the operator with no technical basis or safety benefit.

6. RVLIS Upper Range Utilization Basis

The following supplements justification provided in the July 25, 1984 submittal and in the August 21, 1984 meeting.

The utilization of RVLIS in the Catawba guidelines ensures that the required control room indication of vessel level with RCPs off, and RCS void fraction with RCPs on exists. The RVLIS lower range (0-64%) and upper range (64-120%) provide a contiguous indication of the collapsed liquid level in the vessel. The RVLIS dynamic head range monitors RCS void friction between the vessel bottom and the hot leg with one or more RCPs running.

Utilization for the RVLIS upper range with RCPs on has not been undertaken for several reasons. The existence of a vessel head void with any RCPs running confirms that the void must be noncondensible, since a steam void would be condensed by the upper head spray nozzles. The mode of concern is therefore only applicable to noncondensible voids. Also, the impact of the status of each RCP on the RVLIS indication significantly complicates its usage, as is necessary when the RVLIS dynamic head range is checked. No operating data relevant to the mode of concern (noncondensible head void with RCPs on) is available to validate system performance and setpoints. It is also very unlikely that the operating mode of concern can occur, since it requires a severe inadequate core cooling event to occur and operating RCPs. In that case the RVLIS dynamic head range would monitor RCS void fraction as the indication of adequate RCS inventory. Any potential use of the RVLIS upper range would only occur during long term

recovery from a severe ICC event, and such usage at that time would be directed from the Technical Support Center.

7. Addition to RVLIS Setpoint List (pg. 34 of 8/21/84 meeting handout)

A RVLIS lower range setpoint of 43% is used in the Core Cooling CSF Status Tree. This setpoint represents a collapsed liquid level at the midplane of the core plus instrument errors. This setpoint is 2½ feet higher than the recommended generic setpoint and was selected in order to provide additional margin to inadequate core cooling and to allow additional response time for operator action.

8. Addition to Subcooling Margin Setpoint List (pg. 44 of 8/21/84 meeting handout)

A subcooling margin of greater than 0°F is used as a criterion for isolating the UHI and cold leg accumulators when it has been determined that injection is not required. The generic guidelines use a 50°F margin in some guidelines and do not check subcooling in other guidelines where cold leg accumulators are isolated. Subcooling is not checked in the generic guidelines when it is implicit based on the status of the plant at that location in a guideline. The plant specific setpoint ensures that the RCS is subcooled and that RCS inventory is adequate. Isolation is necessary to prevent thermal shocking of RCS components due in particular to the UHI accumulator, and also to ensure that the accumulator nitrogen cover gas is not injected.

9. Correction to Hydrogen Igniters Operation (pg. 17 of 8/21/84 meeting handout)

The Emergency Hydrogen Mitigation System (igniters) can be remotely energized from the control room rather than locally as previously stated.

10. Hydrogen Purge System

Purging containment in order to limit the long term post-LOCA buildup of hydrogen has been included in the guidelines in order to be consistent with FSAR Section 6.2.5.3.2. As stated in the FSAR, purging will not be required unless both recombiners fail. It is not expected that purging will be utilized under any condition to reduce hydrogen concentration, however as part of the licensing basis it is included. Purging, if performed, would be initiated when the containment hydrogen concentration increased to 3.5%, and used to control the concentration to between 3-3.5%. The dose consequences as a result of purging have not been calculated since at least one recombiner train is available including the assumption of a single failure. An evaluation of offsite doses is required by procedure prior to initiating purging. This evaluation would be performed by the Technical Support Center and would weigh the risks of excessive hydrogen concentrations in containment versus the dose consequences. A dose calculation is available for such situations.

Attachment 2

SER SUPPLEMENT NO. 2 RESPONSES

P. 13-6 through 13-7

Item 2(a) i, (ii) The Licensed Operators at Catawba received 7 to 8 weeks of EOP Training including classroom, simulator and walk throughs in the plant. All EOP's were exercised by all Control Room Operators during the procedure walk-through training at Catawba. Only selected major events were performed on the simulator due to modeling limitations. The events covered during the simulator program included:

Rx Trip
SGTR
Steam Line Break
LOCA
Loss of ALL AC Power

Item 2(a) iii Verbal critiques of each operator were made by simulator instructors observing and each group of operators were required to meet an acceptable level of performance for each scenario before completing the training. Documentation is available through attendance sheets and instructor guidelines listing critique activity.

Item (b) The verification and validation process included walk throughs of the entire procedure network so that all EOP's were included in the process. Since it is impractical to cover every possible combination of failures during walk thrus, scenarios were used which ensured that each EOP was entered and used in its entirety. The Technical Accuracy Verification process performed by Rx Safety ensures that multiple failures simultaneous and sequential are adequately covered in the EOP network. In addition comments from both classroom and simulator training session were incorporated into the EOP's.

Item (c) These two caution statements in the Writer's Guide have been corrected so that they are worded in a passive manner. Additional guidance will be added to the Writer's Guide to determine if a caution statement should actually be made into a step which we feel is the real intent of the "action statement" criterion.

Item (d) The Writer's Guide will be revised to include a statement that cautions should be written so that they can be read completely without interruption by intervening steps or page turning.

Item (e) The Writer's Guide will be revised to include additional guidance on the preparation of figures and tables.

SER SUPPLEMENT NO. 2 RESPONSES (contd.)

Item (f)

Each Unit 2 EOP will be included in the Verification process for Written Correctness (to ensure Writer's Guide Consistency) and as a minimum the one-man walk through in the Control Room to ensure equipment availability, design, labeling or location differences are adequately addressed. Operators licensed on Unit 2 will be trained on the differences between the two Units prior to receiving their license.