

August 18, 2003

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555

Subject: Duke Energy Corporation  
Catawba Nuclear Station, Unit 2  
Docket Number 50-414  
Notice of Enforcement Discretion (NOED) Request  
Refueling Water Storage Tank (RWST) Level  
Instrumentation

Attached is the written documentation of the background and technical information supporting the Catawba Unit 2 NOED request that was discussed with the NRC staff in a telephone conference call on August 16, 2003.

As discussed in detail in Attachment 1, an extension of the time limit of Technical Specification (TS) 3.0.3 to be in Mode 3 is being requested in order to restore one of two RWST level channels which have recently failed due to an apparent lightning strike.

The details of the circumstances surrounding this NOED request are contained in Attachment 1. As shown in the attached justification, Duke Energy Corporation maintains that granting of a NOED in this case is in the best interest of nuclear safety.

This NOED request was approved by the Catawba Plant Operations Review Committee (PORC) on August 16, 2003.

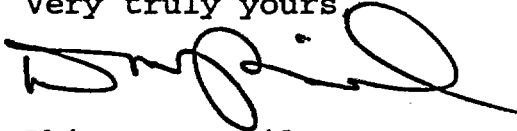
Subsequent to NRC verbal approval of this NOED request on August 16, 2003, one channel of RWST level instrumentation was returned to operable status, prior to expiration of the required time for Unit 2 to be in Mode 3. Therefore, the approved NOED was not actually utilized.

Should you have any questions concerning this information, please call L.J. Rudy at (803) 831-3084.

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U.S. Nuclear Regulatory Commission  
Page 2  
August 18, 2003

Very truly yours,



Dhiaa M. Jamil

Attachment

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Attachment 1  
Catawba Nuclear Station, Unit 2  
Request for Enforcement Discretion  
RWST Level Instrumentation

Duke Energy Corporation hereby requests that the NRC grant discretion in enforcing shutdown requirements of TS Limiting Condition for Operation (LCO) 3.0.3 and permit continued operation of Catawba Nuclear Station Unit 2, until 1453 hours on August 18, 2003, pending restoration of one of two inoperable channels of RWST level instrumentation. This would provide an additional 48 hours to complete the channel restoration prior to having to shut down and be in Mode 3 (Hot Standby). The basis for this request is delineated in the discussion below.

1. TS violated

TS 3.3.2 governs the Engineered Safety Feature Actuation System (ESFAS) Instrumentation. Table 3.3.2-1 delineates requirements for the ESFAS instrumentation. Function 7b governs the RWST level - low function. This function is applicable in Modes 1, 2, 3, and 4 and requires four channels of this instrumentation. Condition N states that with one channel inoperable, the channel must be placed in bypass within 6 hours or the unit must be in Mode 3 within 12 hours and in Mode 5 within 42 hours. There is no condition listed for more than one channel inoperable; therefore, TS 3.0.3 applies with more than one channel inoperable. TS 3.0.3 requires that action be initiated within 1 hour to place the unit, as applicable, in Mode 3 within 7 hours, in Mode 4 within 13 hours, and in Mode 5 within 37 hours.

2. Circumstances surrounding the situation

The RWST level channels provide indication to the operators of the water inventory in the RWST. These channels also provide the automatic swapover of the Residual Heat Removal (RHR) pumps suction source from the RWST to the containment sump on low level in the RWST. Normally, there are four channels operable to perform these functions. The swapover occurs when two out of four (2/4) level channels reach the low level setpoint.

On the morning of August 16, 2003, a severe thunderstorm occurred in the Catawba area. At 0753, during this thunderstorm, channels 1 and 3 of RWST level instrumentation were declared inoperable as a result of their failing high in response to an apparent lightning strike in the area. Both of the affected channels were placed in bypass and Unit 2 entered TS 3.0.3 at 0753. Placing the failed channels in bypass precluded an undesirable swap of the RHR pumps to a dry containment sump where they could be

damaged in the event of a subsequent Safety Injection signal. With only two operable channels, the redundancy of the system is reduced. Instead of the normal 2/4 logic, automatic swapover would occur on a 2/2 logic scheme. This reduction in the number of channels does not create an unsafe condition but does reduce the reliability of the system. A 2/2 logic scheme would result in the unit being unable to withstand a single failure of one of the two remaining channels.

Repair efforts commenced for the failed channels. The unit subsequently began a load reduction at 0850. Previous work histories associated with a similar event in 1998 were reviewed. Vent lines and circuit cards associated with the two channels' level transmitters were examined. (The problem was subsequently determined to be the circuit cards and two cards for each transmitter were replaced. Channel 1 was declared operable at 1357 and channel 3 was declared operable at 1715.)

3. The safety basis for the request, including the evaluation of the safety significance and potential consequences of the proposed action.

#### Quantitative Analysis:

Duke Energy Corporation performed a Probabilistic Risk Assessment (PRA) to assess the impact of the proposed NOED using measures defined in the EPRI PSA Applications Guide. The risk impacts of the proposed change to extend the TS 3.0.3 Completion Time related to the RWST level instrumentation inoperability were compared against the acceptance guidelines in the EPRI document. Duke Energy Corporation evaluated the risk significance of remaining at power an additional 48 hours to repair the RWST level instrumentation. The evaluation was performed using an Internal and External Events PRA.

The cumulative risk increase over the base case with two RWST level channels out of service using the model with average maintenance availabilities is  $7.4E-08$ .

#### Compensatory Actions:

A qualitative review of the dominant cut sets associated with the RWST level instrumentation inoperability analysis resulted in the following compensatory action that will be implemented during the time period that the NOED is in effect:

A dedicated operator will be available in the control room to monitor level indication on the two operable channels upon receipt of a Safety Injection signal. This operator will monitor

the RWST level channels for proper tracking by monitoring RWST level decrease and corresponding containment sump level increase during the injection phase of a loss of coolant accident. If automatic swapover does not occur, the dedicated operator will inform the control room Senior Reactor Operator (SRO) that manual swapover to the containment sump is required. This dedicated operator will also inform the control room SRO to perform a manual swapover if containment sump level reaches 4.5 feet, regardless of RWST level (only necessary if both of the operable RWST level channels were to fail).

Additionally, no other Unit 2 ECCS related components, trains, or systems will be removed from service for maintenance or testing during this time.

#### Additional Qualitative Considerations:

Additional qualitative considerations that were not considered previously resulted in the following observation:

Entry into and operation of shutdown cooling is not without risk as it involves significant plant manipulations and evolutions on both the primary and secondary sides by Operations personnel. This risk is averted by remaining at power.

#### LERF Considerations:

The Large Early Release Frequency (LERF) for Catawba is dominated by the interfacing systems loss of coolant accidents and some seismic events which result in a large containment isolation failure. The other internal events do not contribute to the LERF. Having the RWST level channels unavailable does not increase the frequency of these core damage states. The impact on LERF is therefore very small.

#### Conclusions:

There is no net increase in radiological risk for the proposed 48 hour extension based on the quantitative analysis with the compensatory actions noted above implemented. Granting of enforcement discretion will not have any adverse safety impact, as enforcement discretion is preferable from a safety standpoint to the transient that Unit 2 would incur if it were required to be placed in Mode 3 according to the requirements of TS 3.0.3.

Based on the above discussion it has been determined that the requested period of non-compliance with the TS of up to 48 additional hours will not present an undue risk to the plant or to the health and safety of the public.

4. The justification for the duration of the non-compliance.

The non-compliance will last until a third channel of RWST level instrumentation is restored to operable status. Catawba estimates that one channel can be restored to operable status within 48 hours, allowing for unforeseen contingencies. In the event that one channel cannot be restored within the 48 hour extension period, Unit 2 will be shut down per TS LCO 3.0.3. At present, Unit 2 is at 82% power and will remain at this power level until one channel of the failed instrumentation is restored to operable status.

5. The basis for the licensee's conclusion that non-compliance will not be of potential detriment to the public health and safety and that no significant hazard consideration is involved.

NRC granting of this request for enforcement discretion will not have any adverse consequences from the standpoint of public health and safety. The function provided by the system is still available. The remaining two channels are fully operable and will perform the safety function of the system. Duke Energy Corporation has evaluated this request from a probabilistic risk standpoint and the results were found to be acceptable.

There are no significant hazards considerations associated with this request for enforcement discretion. This is demonstrated as follows:

This request for enforcement discretion does not involve a significant increase in the probability or consequences of an accident previously evaluated. Extending the required time to be shut down in Mode 3 by an additional 48 hours will have no effect on accident probabilities or consequences. The remaining operable RWST level channels are fully capable of meeting their accident mitigating function, assuming no single failure.

This request for enforcement discretion does not create the possibility of a new or different kind of accident from any accident previously evaluated. No new accident causal mechanisms are created as a result of the NRC granting of this request for enforcement discretion. This request for enforcement discretion does not impact any plant systems that are accident initiators, since the RWST level channels provide an accident mitigation function as well as a monitoring function.

This request for enforcement discretion does not involve a significant reduction in a margin of safety. Margin of safety is related to the confidence in the ability of the fission product

barriers to perform their design functions during and following an accident situation. These barriers include the fuel cladding, the reactor coolant system, and the containment system. The performance of these fission product barriers will not be degraded by the NRC's granting of this request. No safety margins will be impacted. The risk implications of this request were evaluated and this request was found to be risk neutral on an overall basis.

6. The basis for the licensee's conclusion that the non-compliance will not involve adverse consequences to the environment.

This request for enforcement discretion will not result in any significant changes in the types, or significant increase in the amounts, of any effluents that may be released offsite. In addition, no significant increase in individual or cumulative occupational radiation exposures will be involved as a result of the request. Therefore, it can be concluded that the NRC's granting of this request for enforcement discretion will not involve any adverse consequences to the environment.

#### 7. Proposed compensatory measures

Although the two operable channels can still provide the safety function, compensatory measures will be implemented to provide assurance that the automatic swapover function will occur. A dedicated operator will be available in the control room to monitor level indication on the two operable channels upon receipt of a Safety Injection signal. This operator will monitor the RWST level channels for proper tracking by monitoring RWST level decrease and corresponding containment sump level increase during the injection phase of a loss of coolant accident. If automatic swapover does not occur, the dedicated operator will inform the control room SRO that manual swapover to the containment sump is required. This dedicated operator will also inform the control room SRO to perform a manual swapover if containment sump level reaches 4.5 feet, regardless of RWST level (only necessary if both of the operable RWST level channels were to fail).

Additionally, no other Unit 2 ECCS related components, trains, or systems will be removed from service for maintenance or testing during this time.

8. Statement that the request has been approved by the facility organization that normally reviews safety issues.

This request was reviewed and approved by the Catawba Plant Operations Review Committee in a special meeting on August 16, 2003.

9. How one of the NOED criteria for appropriate plant conditions specified in Section B is satisfied.

This request is intended to avoid an undesirable unit shutdown transient as a result of requiring compliance with the TS and, thus, minimize potential safety consequences and operational risks. Approval of this request will avoid a shutdown of Catawba Unit 2, by allowing continued operation during restoration and testing of one channel of RWST level instrumentation.

10. If a follow-up license amendment is required, the NOED request must include marked-up TS pages showing the proposed TS changes.

No follow-up license amendment is required in conjunction with this NOED request.

11. For severe weather or other natural phenomena related NOEDs, the request must be sufficiently detailed for the staff to evaluate the likelihood that the event could affect the plant, the capability of the ultimate heat sink, onsite and offsite emergency preparedness status, access to and from the plant, acceptability of any increased radiological risk to the public, and the overall public benefit.

This NOED is not a severe weather or natural phenomena related NOED.