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May 10, 2003

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

Subject: Duke Energy Corporation
Catawba Nuclear Station, Unit 1
Docket Number 50-413
Notice of Enforcement Discretion (NOED) Request
Technical Specification (TS) 3.6.6 Containment Spray System (CSS)

This letter documents the background and technical information supporting the Catawba Unit 1 request for Notice of Enforcement Discretion (NOED) for TS 3.6.6. This information was discussed with the NRC staff in a telephone conference call on May 10, 2003.

As discussed in detail in Attachment 1, Catawba is requesting discretion from enforcing TS Limiting Condition for Operation (LCO) 3.6.6 as it pertains to Required Action A.1. This Required Action applies to the case of one CSS train inoperable. At present, Catawba is engaged in inspection and chemical cleaning efforts on CSS heat exchanger 1A and the Completion Times for the above Required Actions expire on May 11, 2003 at 0918 hours. Necessary chemical cleaning activities and subsequent testing will not be completed by May 11, 2003 at 0918 hours; therefore, this NOED request is being submitted. The details of the circumstances surrounding this NOED request are contained in Attachment 1. As shown in Attachment 1, Duke Energy maintains the granting of discretionary enforcement in this case is safety risk neutral and will not result in an undue risk to the safety and health of the public.

This request for enforcement discretion was approved by the Catawba Plant Operations Review Committee (PORC) on May 10, 2003.

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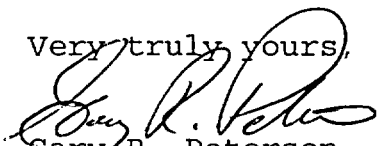
The requested duration of this enforcement discretion is 168 hours beginning at 0918 hours on May 11, 2003 and lasting until 0918 hours on May 18, 2003. Absent the exercise of enforcement discretion, TS 3.6.6 requires Unit 1 to be in HOT STANDBY by 1518 on May 11, 2003 and in COLD SHUTDOWN by 2118 on May 14, 2003.

Catawba understands that, if granted, the requested enforcement discretion is for the conditions described in this request. For any other conditions that would cause the CSS to become inoperable, the appropriate Technical Specification Required Action would apply.

Since this is a one-time request for less than 14 days, there is no Technical Specification amendment in follow-up to the request. This request was prepared in accordance with the NRC Staff guidance included in the NRC Inspection Manual Part 9900 Technical Guidance Operations - Notices of Enforcement Discretion (Issue Date 11/02/01) and Regulatory Issues Summary (RIS) 2001-20 dated 11/14/01.

Should you have any questions concerning this request, please call G.D. Gilbert at (803) 831-3231.

Very truly yours,



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Attachment

xc (with attachment):

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Attachment 1
Catawba Nuclear Station, Unit 1
Request for Enforcement Discretion
TS 3.6.6 Containment Spray System

Duke Energy hereby requests that the NRC grant discretion in enforcing TS LCO 3.6.6 relative to compliance with the 72-hour Completion Time of Required Action A.1 and allow the unit to remain in Mode 1 (Power Operation) until work is completed to inspect and clean the 1A containment spray system (CSS) heat exchanger. CSS heat exchanger 1A was declared inoperable on May 8, 2003 at 0918 hours for testing evolutions. During the testing the acceptance criteria of procedure PT/1/A/4400/009, "Cooling Water Flow Monitoring for Asiatic Clams and Mussels Quarterly Test" for the 1A CSS heat exchanger was not met. This procedure is used to verify that there is no flow blockage in the CSS heat exchanger and essential nuclear service water system (NSWS) piping. Operations performed Enclosure 13.5 of the procedure for the 1A CSS heat exchanger. The test method is done by measuring the pressure drop at a given flow and calculating a resistance factor. This resistance factor is compared against a "clean" resistance factor. The acceptance criteria for the 1A CSS heat exchanger is greater than or equal to 650. The test completed by Operations resulted in a resistance factor of 506 which did not meet the procedure acceptance criteria.

Engineering, Operations, and Maintenance investigated the cause of the lower than resistance factor in the 1A CSS heat exchanger. Necessary inspection, chemical cleaning and subsequent testing activities will not be completed by May 11, 2003 at 0918 hours. Duke Energy is requesting that the Completion Times of the above Required Actions be extended from the current 72 hours by an additional 168 hours, for a total of 240 hours, so that this work can be completed. The basis for this request is delineated in the discussion below.

1. TS that will be violated

Catawba is requesting enforcement discretion from TS LCO 3.6.6. This LCO governs the containment spray system for Modes 1, 2, 3, and 4. LCO 3.6.6 requires in part that two CSS trains be operable. Condition A for this LCO states that with one CSS train inoperable, the CSS train must be restored to operable status within 72 hours. Condition B states that with the Required Action and associated Completion Time of Condition A not met, the unit must be in Mode 3 within 6 hours and in Mode 5

within 84 hours.

2. Circumstances surrounding the situation

At Catawba, the Containment Spray System provides containment atmosphere cooling to limit post accident pressure and temperature in containment to less than the design values. Reduction of containment pressure and the iodine removal capability of the spray reduce the release of fission product radioactivity from containment to the environment, in the event of a Design Basis Accident (DBA).

The Containment Spray System consists of two separate trains of equal capacity, each capable of meeting the system design basis spray coverage. Each train includes a containment spray pump, one containment spray heat exchanger, spray headers, nozzles, valves, and piping. Each train is powered from a separate Engineered Safety Feature (ESF) bus. The refueling water storage tank (RWST) supplies borated water to the Containment Spray System during the injection phase of operation. In the recirculation mode of operation, containment spray pump suction is transferred from the RWST to the containment recirculation sump(s). When the containment spray system suction is from the containment recirculation sump, its associated heat exchanger receives NSWS flow for cooling.

The CSS heat exchangers are of the shell and U-tube design. Borated water from the RWST or Containment recirculation sump circulates through the tubes, while NSWS circulates through the shell. During normal operation the NSWS side of the CSS heat exchangers is maintained in wet lay-up condition with the NSWS side isolated and treated water recirculated through the heat exchanger to the extent practicable.

At Catawba, the residual heat removal (RHR) system has been designed to include a provision for diversion of a portion of the RHR pump flow from the low head injection path to auxiliary spray headers in the upper Containment volume. For this mode, the RHR pumps continue to supply recirculation flow from the Containment sump to the core via the safety injection and centrifugal charging pumps. The diversion of the RHR flow from the low head injection path to the auxiliary spray headers occurs only after the switchover to the recirculation mode and no earlier than 50 minutes after initiation of the LOCA

A brief synopsis of events related to the 1A CSS heat exchanger issue is presented below:

Date/Time	Event Description
5/1/03	Enclosure 13.2 of PT/1/A/4400/009 was performed to determine 1B CSS heat exchanger resistance factor. The 1B CSS heat exchanger resistance factor met the acceptance criteria.
5/08/03 0918	Operations declared the 1A CSS heat exchanger inoperable for routine testing evolutions.
5/08/03 ~1100	Operations commenced enclosure 13.5 of PT/1/A/4400/009 for the 1A CSS heat exchanger. During the performance of the test a resistance factor of 506 was calculated which did not meet the acceptance criteria of greater than or equal to 650.
5/08/03	Engineering, Operations, and Maintenance investigated the cause of the lower than normal resistance factor or the 1A CSS heat exchanger. An additional test was run on day shift which yielded a resistance factor of 566.
5/08/03	Trouble shooting activities included venting the 1A CSS heat exchanger, visual inspection of NSWS valves associated with the heat exchanger, samples from the heat exchanger, and blow down of the instrument lines.
5/08/03	An additional test was performed on night shift and yielded a resistance factor of 555.
5/09/03 ~0149	Another test was performed and yielded resistance factors of 609.
5/09/03 ~0600	The test was ran again with a different NSWS line up to determine if the test method affected the results. The resistance factor for this test was 610.
5/09/03	The 2A and 2B CSS heat exchangers were tested per PT/1/A/4400/009. The resistance factors for each heat exchanger passed the procedure acceptance criteria.

5/09/03 ~1318	Trouble shooting on the 1A CSS heat exchanger is complete and information has been obtained. Engineering is evaluating results.
5/09/03 ~1723	After further testing and evaluation, the decision was made to isolate the 1A CSS heat exchanger to gain access to the internals to determine the cause of fouling.
5/10/03 ~0141	The 1A CSS heat exchanger has been drained. Maintenance has cut and removed a 2 inch drain line to allow for inspection. The inspection revealed evidence of clam fouling. Engineering is evaluating the data. Maintenance is cutting an 18 inch NSWS line for removal to allow better access for inspection and chemical cleaning of the shell side of the 1A CSS heat exchanger.
5/10/03 ~0800	The 18 inch NSWS line has been cut and a section removed. Inspections are under way and initial results reveal some clam and debris fouling. Engineering is evaluating the results to determine the most effective cleaning method.
5/10/03 ~1200	Engineering has determined that chemical cleaning of the 1A CSS heat exchanger is the appropriate method. Engineering is working on the plan to implement the chemical cleaning.

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

Engineering has reviewed the events associated with the fouling of the 1A CSS heat exchanger and reviewed the past operating history of this heat exchanger as well as the other CSS heat exchangers. The NSWS supply header configuration is such that it tends to allow clams (that grow in the supply piping) or other piping debris to be show up in the Unit 1 components first. This is based on how the NSWS supply piping to the CSS heat exchangers comes off the main NSWS supply piping. Engineering has performed an analysis to determine the extent of condition for the CSS heat exchangers. Data from the operator aid computer (OAC) was reviewed following the test failure. Approximately 25 minutes after the test commenced, flow through the 1A CSS heat exchanger

started decreasing and continued to decrease for approximately one hour. At this time the heat exchanger was removed from service. Following this test the 1A CSS heat exchanger was placed back in service on three separate occasions and each time the flow decreased only slightly while the 1A CSS heat exchanger was in service. Engineering review of this information has concluded that the debris was most likely flushed into the heat exchanger when the heat exchanger was initially placed inservice on May 8, 2003.

The 1B CSS heat exchanger passed a similar test on May 1, 2003 with a resistance factor of 889. The Unit 2 A and B CSS heat exchangers each were tested on May 9, 2003. The resistance factor for the 2A CSS heat exchanger was 997 and for the 2B CSS heat exchanger it was 1143. The results show that the other CSS heat exchangers have a large margin to the acceptance criteria of a resistance factor of greater than or equal to 650.

Quantitative Analysis

Duke Energy has evaluated the effect of remaining at power for an additional 168 hours with the 1A CSS heat exchanger out of service using an Internal and External Events probabilistic risk assessment with average unavailabilities. The Containment Spray System has no impact on the calculated core damage frequency (CDF). The CSS is not included in the Level One PRA model. The CSS also has no significant impact on the calculated large early release frequency (LERF). At Catawba, LERF is dominated by sequences involving inter system loss-of-coolant-accidents (ISLOCAs) or pressure spikes due to hydrogen burns. It is unlikely that the CSS could handle the pressure spikes due to a hydrogen burn.

Compensatory Actions

A qualitative assessment of the risks that were not considered in the quantitative analysis resulted in the development of several compensatory measures. These will be implemented during the period of non-compliance with the Technical Specifications. They include:

The core damage frequency (CDF) at Catawba is dominated by the risk from the turbine building flood initiator. This risk will be mitigated by controlling the work performed on associated systems and increased turbine building rounds on Unit 1 and Unit 2 by Operations while the 1A CSS heat exchanger is out of service which will reduce the likelihood of this initiator below the random occurrence rate. This includes no discretionary maintenance performed on the Unit 1 or Unit 2 Condenser

Circulating Water System and Cooling Towers that would increase the probability of a turbine building flood. This action results in a reduction of risk.

No discretionary maintenance or testing on the offsite power system (switchyard) and maintaining operability of required offsite circuits. Limiting the performance of maintenance or testing on the offsite power system and maintaining offsite circuits operable reduces the likelihood of losing off site power and represents a reduction in risk.

Other Considerations

Additional qualitative considerations that were not considered previously resulted in the following observations.

Additionally, Catawba has replaced all of the reactor coolant pump seals with a newer model with the high temperature o-ring material. This material significantly reduces the probability of a reactor coolant pump seal LOCA following a loss of all seal cooling.

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 side by Operations personnel. This risk is averted by remaining at power.

The impact of a station blackout is deemed to be as severe at shutdown conditions as it is for at power conditions therefore the risk is neutral for remaining at power.

The frequency of two unit loss of off site power events will be lower during the period of this request since they are dominated by weather related events. The potential to recover power from the other unit is better than assumed in the quantitative analysis.

Large Late Releases

The CSS may have some impact on Large Late Releases. However, the impact of one CSS train unavailable is expected to be small. A qualitative assessment of the risks associated with late releases with containment sprays available resulted in the development of compensatory measures. These measures will be implemented during the period of non-compliance with the TS LCO as indicated below. They include:

- No maintenance will be performed on CSS Train 1B.

- No discretionary maintenance will be performed on emergency core cooling systems. This action will reduce the risk impact on late releases due to small and medium LOCAs.
- No discretionary maintenance will be performed on the instrument air systems. This action will reduce the risk impact on late releases due to loss of instrument air.

By limiting the performance of discretionary maintenance or testing there is improved defense-in-depth. This results in a reduction in risk.

Taking into consideration the proposed compensatory actions and other considerations noted above, it is concluded that the qualitative risk reduction offsets the quantitative risk assessment such that this request is overall safety and risk neutral and represents no net increase in radiological risk as a result of having the 1A CSS heat exchanger out of service for an additional 168 hours.

Based on the above discussion it has been determined that the requested period of non-compliance with the Technical Specifications of up to 168 hours will not present an undue risk to the plant or to the health and safety of the public.

4. Justification for the duration of the noncompliance

The duration of the noncompliance is limited to the time required to complete remaining maintenance activities and conduct required subsequent testing of the 1A CSS heat exchanger plus margin to accommodate unforeseen circumstances. These activities include cutting and removing an 18 inch section of NSWS piping to gain access to the shell side of the CSS heat exchanger for inspection and chemical cleaning. After the chemical cleaning evolution is complete the CSS system will be filled and vented. Post maintenance testing will be performed which includes performing PT/1/A/4400/009 to determine the resistance factor after chemical cleaning and performing a CSS heat exchanger heat balance test. Based on the results of these tests engineering will determine if a NSWS system flow balance is required. Catawba is therefore requesting that the current 72-hour Completion Times be extended by an additional 168 hours to 240 hours. This will provide for adequate time to complete the activities.

5. The basis for the licensee's conclusion that noncompliance 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. Relief from the applicable 72-hour Completion Times to support the remaining corrective maintenance and testing activities is preferable to the transient that would be incurred if Unit 1 were forced to shut down while the CSS heat exchanger work is in progress. Duke Energy has evaluated the consequences of this request and determined it to be risk neutral. During the period covered by this request, all Unit 1 Train B safety related components will continue to remain fully operable and capable of fulfilling their required safety functions. Should any unplanned adverse situation occur which renders the 1B CSS train inoperable, Unit 1 would then comply with the Required Action and Completion Time of Condition B of LCO 3.6.6 or TS 3.0.3 which ever is applicable.

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. Granting of this request will have no effect on accident probabilities, since the 1A CSS heat exchanger is not considered accident initiating equipment and no physical changes are being made to the plant which would impact accident probabilities. Granting of this request would not result in any adverse impact from the standpoint of availability or reliability of the 1B CSS train. The RHR capability for auxiliary containment spray will still be available to supplement any containment spray requirements during the recirculation phase of an accident. Also, this request was evaluated and found to be risk neutral. Therefore, there will be no significant increase in any accident consequences. 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. No changes are being made to the plant which will introduce any new accident causal mechanisms.

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 affected. The risk implications of this request were evaluated and found to be risk neutral.

6. The basis for the licensee's conclusion that the noncompliance 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

In conjunction with this request, Catawba has taken or will take the following compensatory measures during the period the NOED is in effect:

No discretionary maintenance will be performed on the Unit 1 Standby Shutdown System (SSS).

No discretionary maintenance will be performed on the Unit 1 Instrument Air (IA) System.

No discretionary maintenance will be performed on either train of the Unit 1 Emergency Core Cooling System (ECCS).

No discretionary maintenance will be performed on the Unit 1 and Unit 2 Nuclear Service Water System.

No maintenance will be performed on CSS Train 1B.

No discretionary maintenance will be performed on the Unit 1 or Unit 2 Condenser Circulating Water System or Cooling Towers that would increase the probability of a turbine building flood.

Operations will increase turbine building tours on Unit 1 and Unit 2.

No discretionary maintenance will be performed on the Unit 1 and Unit 2 emergency diesel generators.

No discretionary maintenance or testing on the off site power system (switchyard) will be performed, and offsite circuits will be maintained operable.

No discretionary maintenance will be performed on the Unit 1 Hydrogen Igniters.

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 May 10, 2003.

9. Which 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.

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. Catawba will return to compliance with the existing license requirement before the NOED expires.

11. Severe weather related or natural phenomena related NOEDs.

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