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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 Specifications (TS) 3.8.1 (AC Sources - Operating) and 3.7.8 (Nuclear Service Water System (NSWS))

Attached is the written documentation of the background and technical information supporting the Catawba Unit 1 Notice of Enforcement Discretion (NOED) request. This information was discussed with the NRC staff in a telephone conference call on November 19, 1999.

As discussed in detail in Attachment 1, Catawba is requesting discretion from enforcing TS Limiting Condition for Operation (LCO) 3.8.1 as it pertains to Required Action B.4. This Required Action applies to the case of one diesel generator (DG) inoperable. Catawba is also requesting discretion from enforcing TS LCO 3.7.8 as it pertains to Required Action A.1. This Required Action applies to the case of one NSWS train inoperable. At present, Catawba is engaged in repair efforts on DG 1B and the Completion Times for the above Required Actions expire on November 19, 1999 at 0415 hours. Necessary repair and subsequent testing activities will not be completed by November 19, 1999 at 0415 hours; therefore, this NOED request is being submitted. As shown in the attached justification, Duke Energy maintains that granting of discretionary enforcement in this case does not present an unreasonable risk to nuclear safety.

This request for enforcement discretion was approved by the Catawba Plant Operations Review Committee (PORC) on November 18, 1999.

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

Very truly yours,

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Attachment

LJR/s

xc (with attachment):

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Attachment 1
Catawba Nuclear Station, Unit 1
Request for Enforcement Discretion
TS 3.8.1 (AC Sources - Operating)
TS 3.7.8 (Nuclear Service Water System (NSWS))

Duke Energy hereby requests that the NRC grant discretion in enforcing TS LCO 3.8.1 relative to compliance with the 72-hour Completion Time of Required Action B.4, and TS LCO 3.7.8 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 repair DG 1B. DG 1B was declared inoperable on November 16, 1999 at 0415 hours to perform various maintenance activities. Problems with the DG were discovered upon returning it to service. Catawba is presently engaged in correcting a problem with the DG control circuitry. Necessary repair and subsequent testing activities will not be completed by November 19, 1999 at 0415 hours. Duke Energy is requesting that the Completion Times of the above Required Actions be extended from the current 72 hours by an additional 48 hours, for a total of 120 hours, so that this work can be completed. The inoperable DG 1B results in the inoperability of associated NSWS Pump 1B. Hence, it is necessary to request enforcement discretion for both TS. The basis for this request is delineated in the discussion below.

1. TS violated

Catawba is requesting enforcement discretion from TS LCO 3.8.1. This LCO governs AC Sources - Operating for Modes 1, 2, 3, and 4. LCO 3.8.1 requires in part that two DGs be operable. Condition B for this LCO states that with one DG inoperable, the DG must be restored to operable status within 72 hours, in addition to the other Required Actions that must be performed. Condition G states that with the Required Action and associated Completion Time of Condition B not met, the unit must be in Mode 3 within 6 hours and in Mode 5 within 36 hours.

Because the inoperability of DG 1B results in the inoperability of associated NSWS Pump 1B, Catawba is also requesting enforcement discretion from TS LCO 3.7.8. This LCO governs the NSWS for Modes 1, 2, 3, and 4. LCO 3.7.8 requires that two NSWS trains be operable. Condition A for this LCO states that with one NSWS train inoperable, the NSWS 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 36 hours.

2. Circumstances surrounding the situation

At Catawba, a dedicated DG is utilized as the standby emergency power source for each 4160-volt emergency bus. DGs 1A and 1B are dedicated to busses ETA and ETB, respectively. The DGs will start automatically on a safety injection signal or on a bus loss of voltage or degraded voltage signal. Loads will be automatically connected to the bus as required by the respective load sequencer. In parallel operation (i.e., with the DG paralleled to the grid), the electronic governor controls generator load or real output power (watts), and the voltage regulator controls power factor and reactive power output (VARs) from the generator. The speed control is used to increase generator load, and the voltage control is used to increase or decrease reactive power output.

The speed control consists of two pushbuttons used to control the magnitude of the output signal from the Digital Reference Unit (DRU). The DRU provides a reference signal to the electronic governor. In parallel operation, the magnitude of the DRU reference signal determines the generator load (watts). The electronic governor monitors generator output voltage and current to calculate generator load. Based on generator load and the DRU reference signal, the electronic governor provides a signal to the hydraulic actuator in the mechanical governor to control the amount of fuel supplied to the engine and, thus, maintain constant generator load.

The voltage control consists of two pushbuttons used to control a motor-operated potentiometer (MOP). The MOP supplies a reference signal to the voltage regulator. In parallel operation, the magnitude of the MOP reference signal determines the power factor and reactive power output (VARs) from the generator. The voltage regulator monitors generator output voltage and current to calculate reactive power output. Based on the reactive power output and the MOP reference signal, the voltage regulator increases or decreases the generator field excitation to control power factor and reactive power output.

A brief synopsis of events related to the DG 1B issue is indicated below:

Date/Time	Event Description
11/16/99 (Tuesday) 0415	DG 1B was declared inoperable for various maintenance activities. Part of these activities involved replacing the fuel rack heim joints.

1742	During running of DG 1B, the DG breaker tripped on overcurrent (50DGT relay) while attempting to load the DG from the 2500 kW plateau to the 4000 kW plateau. It was noted that DG 1B power was swinging about 200 kW at a load of 4000 kW.
2100	An observation was noted that the power swing could have been caused by a sticking fuel rack. Preparations were made to inspect the heim joints.
2230	The DG 1B heim joints were visually inspected for correct alignment and no problems were found.
11/17/99 (Wednesday)	
0240	The DG 1B operability performance test was completed. In order to complete a root cause evaluation of the failure, a decision was made to delay declaring the DG operable until Engineering had a chance to review the data from the test.
1209	Upon completion of the review of the data from the test, Engineering initiated a Failure Investigation Process (FIP) team.
1632	New heim joints were obtained from the warehouse and some were observed to have stiff joints. The FIP team surmised that one or more of the heim joints in DG 1B had stiff internals that eventually loosened during the DG load increase section of the operability performance test. A conservative decision was made to remove and reinspect the heim joints in DG 1B.
11/18/99 (Thursday)	
0300	The heim joint inspection was completed. Three heim joints were replaced. (One was replaced due to sluggish operation and two were replaced due to rough surfaces.)
0420	The DG 1B operability performance test was rerun. During the test, the DG breaker again tripped on overcurrent (50DGT relay) while the DG was being unloaded at the end of the

	test during power factor adjustments. The FIP team was called in to investigate.
1200	The FIP team believed that the probable cause of the 0420 DG trip was due to a faulty MOP in the DG control circuitry and also a sticking DG load/unload pushbutton.
2300	Following replacement of the MOP and DG load/unload pushbutton, DG 1B was again tested. The DG again tripped. A decision was made to request enforcement discretion.

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

There is minimal safety consequence associated with this request. Granting of enforcement discretion will not have any significant adverse safety impact, as DG 1A is fully operable and remains capable of fulfilling its design basis accident mitigation function. Catawba does not believe that the heim joint problem exists on DG 1A. When the heim joints were replaced on DG 1A, they were verified to be free of sticking problems by the successful completion of the performance test. The heim joints on DGs 2A and 2B are of a different design than those utilized on Unit 1. Therefore, the observed problem is limited to the heim joints on DG 1B. The problems with the MOP and the DG load/unload pushbutton are unique to DG 1B and are not considered common mode failure mechanisms. In August 1999, a failure occurred on DG 1A, which was attributed to a DRU. The DRU is in a different part of the DG control circuitry than the MOP and the DG load/unload pushbutton; therefore, there is no connection between the August 1999 event and this event.

Duke Energy has evaluated this NOED request from a probabilistic risk standpoint concerning the extended inoperability of DG 1B and has found that the incremental increase in risk would be acceptable. The evaluation has been performed with the assumption of no maintenance on the Standby Shutdown System, the Auxiliary Feedwater System, or the Nuclear Service Water System. The results indicate an increase in the core damage frequency over the base case probabilistic risk assessment results of 7.2E-07/day. For a two-day extension, this would result in an increase of 1.44E-06. This result is based on the assumption that the remaining DG is subject to a common failure mode. A failure to start probability of 0.1 was assumed. This is a conservative approach when addressing corrective maintenance.

If the remaining DG is assumed to be subject to the normally expected random failure rate (non-common mode), then the results indicate an increase in the core damage frequency of 2.9E-07/day, or an increase of 5.8E-07 for a two-day extension.

The increase in the core damage frequency is dominated by the risk from the turbine building flood initiator. This risk will be mitigated by controlling the work performed while the DG is out of service. This will reduce the likelihood of this initiator below the random occurrence rate.

The second large contributor to the increase is from the tornado initiator. The current weather conditions make the occurrence of a tornado in the next few days unlikely.

4. 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 DG work is in progress. Duke Energy has evaluated the consequences of this request from a probabilistic risk standpoint and the results were found to be acceptable. During the period covered by this request, all Train A 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 DG 1A inoperable, Unit 1 would then comply with the Required Action and Completion Time of Condition E of LCO 3.8.1.

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 DGs are 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 DG 1A. Also, this request was evaluated and found to be acceptable from a risk standpoint. 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 impacted. The risk implications of this request were evaluated and found to be acceptable.

5. 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.

6. Proposed compensatory measures

In conjunction with this request, Catawba has taken or will take the following compensatory measures:

- The continued operability of DG 1A will be ensured for the period during which the request is applicable. No work will be permitted on DG 1A while the NOED is in effect. Access to the DG 1A room will be prevented via physical means (e.g., sign, rope, as determined appropriate) while the NOED is in effect.
- The Standby Shutdown System will be maintained operable while the NOED is in effect. Operations has initiated action to review Standby Shutdown System activation plans. The Standby Shutdown System is designed to mitigate the consequences of certain postulated fire, security, and station blackout incidents by providing capability to maintain hot standby conditions and by controlling and monitoring vital systems from locations external to the main control room. The standby

makeup pump is part of the Standby Shutdown System design. The standby makeup pump provides for the capability to maintain reactor coolant pump seal integrity under conditions requiring Standby Shutdown System operation to preclude the possibility of a reactor coolant pump seal loss of coolant accident.

- No planned work on Train A safety related components or their supporting systems will be undertaken while the NOED is in effect. Presently, Nuclear Service Water Pump 1B is inoperable due to DG 1B being inoperable. The unit 1 Train B Containment Spray and Auxiliary Feedwater system components have been removed from service to support Unit 2 Train B Nuclear Water System operability as required by TS.
- No planned switchyard work will be undertaken while the NOED is in effect without it being previously discussed with the resident inspector. (The switchyard is normally kept locked when no activities are in progress.)
- Barriers to the transformer yard will be erected and maintained in place while the NOED is in effect.
- No planned maintenance work in the Unit 1 turbine building will be conducted while the NOED is in effect and access to the area will be limited as much as possible.
- Should any common mode failure mechanisms be detected on DG 1B during the remainder of the repair effort, DG 1A will be tested for common mode failures as required by TS.

7. Justification for the duration of the non-compliance

The duration of the non-compliance is limited to the time required to complete remaining maintenance activities and conduct required subsequent testing of DG 1B plus margin to accommodate unforeseen circumstances. Catawba is therefore requesting that the current 72-hour Completion Times be extended by an additional 48 hours to 120 hours. This will provide for adequate time to complete the activities. As stated in items 3 and 4, there is no safety significance or potential detriment to the health and safety of the public.

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 November 18, 1999.

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.

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.