

JAMES R MORRIS Vice President

Catawba Nuclear Station 4800 Concord Road / CN01VP York, SC 29745-9635

803 831 4251 803 831 3221 fax

January 2, 2008

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

Subject:

Duke Power Company, LLC d.b.a. Duke Energy Carolinas, LLC Catawba Nuclear Station, Unit 1 Docket Number 50-413

Response to a Request for Additional Information (RAI) Concerning the Proposed Change to Technical Specification (TS) 3.5.2, Emergency Core Cooling System (ECCS) - Operating and TS 3.7.12, Auxiliary Building Filtered Ventilation Exhaust System (ABFVES)

Please find the Duke Energy Carolinas (Duke) response to a Request for Additional Information (RAI) concerning the proposed license amendment request (LAR) for a one-time limited duration extension of the Technical Specification 3.5.2 Required Action Completion Time associated with the 1B centrifugal charging pump (CCP) and TS 3.7.12 associated with the Auxiliary Building Filtered Ventilation Exhaust System (ABFVES). This LAR was originally submitted by a Duke letter to the NRC dated January 1, 2008. Attachment 1 of this document contains the responses to the RAI questions received via the teleconferences on January 2, 2008. Attachment 2 contains the list of regulatory commitments as result of this request. This list supersedes the list of the January 1, 2008 letter.

Should you have any questions concerning this information, please call A. P. Jackson at (803) 831-3742.

Very truly yours,

James R. Morris

Attachments

APJ/s

Aooz

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James R. Morris affirms that he is the person who subscribed his name to the foregoing statement, and that all the matters and facts set forth herein are true and correct to the best of his knowledge.

James R. Morris, Site Vice President

1/2/08 Date Subscribed and sworn to me:

anthone (. ()adeso Notary Public

My commission expires:

7/2 Date



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xc (with attachments):

Victor M. McCree (Acting), Region II Administrator U.S. Nuclear Regulatory Commission Sam Nunn Atlanta Federal Center, 23 T85 61 Forsyth St., SW Atlanta, GA 30303-8931

J. F. Stang, Jr., Senior Project Manager (CNS & MNS) U. S. Nuclear Regulatory Commission 11555 Rockville Pike Mail Stop 8 G9A Rockville, MD 20852-2738

A. T. SabischSenior Resident InspectorU. S. Nuclear Regulatory CommissionCatawba Nuclear Station

S. E. Jenkins, Manager Division of Radioactive Waste Management Bureau of Land and Waste Management Department of Health and Environmental Control 2600 Bull Street Columbia, SC 29201

ATTACHMENT 1

RESPONSES TO THE REQUEST FOR ADDITIONAL INFORMATION CATAWBA NUCLEAR STATION, UNIT 1

1. Please confirm that the repair of the 1B CCP will only cause Train B high head centrifugal charging subsystem to be inoperable. That is, the operation of ECCS Train B's intermediate head safety injection system and the low head residual heat removal subsystem will be unaffected by the repairs.

Response:

Catawba is configured such that the repair activities associated with the 1B CCP will be completed without affecting the 1B intermediate head safety injection and the 1B residual heat removal subsystems.

2. The proposed change to the TS states that, "the Completion Time that the 1B ECCS train can be inoperable... up to a total of 240 hours." Please explain why the proposed TS authorize all subsystem to be inoperable and confirm that the operability of the other 1B ECCS subsystems is not included in the extended CT.

Response:

The proposed change to TS 3.5.2 was developed to allow only the 1B CCP to be inoperable during the time of extended operation beyond the initial 72 hours. It was not intended to cover the other 1B ECCS subsystems. The risk evaluation to support this proposed change did not evaluate the 1B ECCS subsystems as being inoperable during the extended operation beyond 72 hours. Therefore, Catawba has revised the Regulatory Commitments included in Attachment 4 of our January 1, 2008 letter. The revised Regulatory Commitments are included in this letter as Attachment 2.

Attachment 1 Page 1 of 3 3. Please confirm that failure or inoperability of the ABFVES caused by breaching the ECCS pump room cooling pressure boundary does not affect the operability of any equipment in the room or any equipment modeled in the PRA. That is, the ABFVES does not provide any pressure or heat removal functions to any ECCS equipment or other equipment modeled in the PRA.

Response:

The Auxiliary Building Filtered Ventilation Exhaust System is only credited in accident scenarios for maintaining negative pressure in the ECCS pump rooms and 522 elevation pipe chase, thereby ensuring that potentially contaminated air exiting these rooms is exhausted through High Efficiency Particulate Air (HEPA) and Carbon Filters prior to being released through the Unit Vent. No credit is taken for cooling during these scenarios. Safety-Related equipment in these areas is qualified for post-accident environmental conditions.

4. It appears that pump 2A still has the old shaft and may therefore also have an increased likelihood of failure due to common cause. Please confirm that CCP pump 2A is not relied upon or otherwise credited in the Unit 1 PRA.

Response:

The charging systems at Catawba are not shared between the units. The Unit 2 CCPs are not modeled or credited in the Unit 1 PRA.

5. Page 10 of 20 indicates that there were no CCP failure events in the cut-sets for LERF in the base model. Please confirm that, after logically reducing the PRA after assigning the 1B pump a failure probability of 1.0 (top of page 15 of 20), LERF cut-set containing the event were obtained, or otherwise explain how the delta LERF estimate was obtained.

Response:

The base case CDF is 1.9E-05/rx-yr. The base case LERF is 1.2E-06/rx-yr. The model was resolved with the 1B CCP train maintenance event set to 1.0. The conditional CDF is 1.9E-05/rx-yr. The conditional LERF is 1.2E-06/rx-yr.

Within two significant figures, the conditional CDF and LERF are identical to the base case CDF and LERF. This result implies that the delta is less than 1E-06/rx-yr for CDF and 1E-07/rx-yr for LERF.

Attachment 1 Page 2 of 3 To get a better understanding of the actual delta, cut sets containing the 1B CCP train maintenance event were separated from all other cut sets for both the base case and the conditional case. For the base case, the CDF with only the 1B CCP train maintenance is 8.2E-10/rx-yr and the LERF is 0.0E+00/rx-yr. A zero value for LERF indicates that the base case LERF cut sets did not contain the 1B CCP train maintenance event. However, the conditional case did contain cut sets with the 1B CCP train maintenance event. The CDF for the conditional case is 1.3E-07/rx-yr and the LERF is 1.1E-09/rx-yr.

The delta CDF and delta LERF are obtained by subtracting the base case values from conditional values (e.g., 1.3E-07 - 8.2E-10 for CDF). The delta is essentially the conditional values of 1.3E-07/rx-yr for CDF and 1.1E-09/rx-yr for LERF.

6. Please evaluate quantitatively or qualitatively the contribution to the change in risk from Seismic events which are excluded from your reported estimates.

Response:

The impact to the seismic CDF was also considered. Significantly rugged components and structures were screened out of the seismic analysis due to their low probability of failure. Among these components and structures were the CCP pumps and all qualified piping and valves. Thus, only random failures of the CCP pumps are considered to be probabilistically credible. In the seismic model, both CCP trains were conservatively set to fail. The resulting computer analysis indicated no increase over the base line seismic CDF. These results were expected since the dominant seismic cut sets involve a loss of power with a loss of SSHR. A majority of the sequences involve a loss of off-site power with corresponding diesel hardware or circuitry failures.

The current annual seismic CDF has been determined to be 1.1E-05 / yr. Given that the seismic PRA computer code truncates contributions to the seismic CDF less than 0.01%, the increase in seismic CDF would be no higher than ~ 1E-09 / yr. Therefore, the increase in seismic CDF due to one CCP pump out of service over the extended LCO is assumed to be negligible for the requested 7 day extension.

LERF is not modeled in the current seismic PRA. However, since the overall increase in CDF risk for a year (~1.0E-09/rx-yr) is less than the ICLERP (5.0E-08) criteria, the seismic Large Early Release risk is insignificant for the requested 7 day extension.

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ATTACHMENT 2

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Catawba in this document, for the duration of the extension. Any other statements made in this licensing submittal are provide for informational purposes only and are not considered to be regulatory commitments. Please direct any questions you may have in this matter to R.D. Hart at (803) 831-3622.

Regulatory Commitment	Due Date
Specific components and trains have been identified that	January 3, 2008
are not to be taken out of service on the affected unit.	
These are: 1A Charging Train, 1A Component Cooling,	
1A Nuclear Service Water, the drinking water backup	
cooling to the 1A Charging Train, the 1A 4160 volt bus	
and the Unit 1 standby shutdown facility.	
In addition to the list above, the following equipment is	January 3, 2008
not to be taken out of service on the affected unit: 1B	
safety injection pump, 1B residual heat removal pump	·
and the 1B 4160 volt bus.	
Any minor leakage present in the room will be compared	January 3, 2008
to new revised limits of 0.25 GPM established to ensure	
that the dose analysis for containment sump fluid leakage	
outside of the ECCS pump room areas is maintained well	
below Regulatory and Licensing limits. If leakage	
values exceed the new limit, the ventilation boundary	
integrity will be reestablished in accordance with the	
Hazard Barrier Manual requirements. During this	
period, if a reactor trip or safety injection were to occur	
on Unit 1, the ventilation boundary will be reestablished	
as required by the Hazard Barrier Manual.	
Catawba will implement enhanced ECCS pump room	January 3, 2008
area leakage checks for the duration of the 1B CCP	
repair activities.	
Since Unit 1 is in Mode 1, testing of the replacement 1B	First Outage of sufficient duration which facilitates full
CCP rotating element over the range of the entire pump	flow testing
curve cannot be performed at this time, and must be	
delayed until the first outage opportunity which	
facilitates full flow testing.	
In addition to the above actions, as a prudent measure,	January 3, 2008
Catawba will not allow any discretionary maintenance on	
switchyard components, the 1A & 1B emergency diesel	
generators, and the transformers that feed the 1A & 1B	
4160 volt busses.	
Catawba will perform a detailed cause evaluation of this	August 1, 2008
failure of the 1B CCP. This cause evaluation will	
include a review of pertinent information from previous	
failures of this pump; system configuration and operating	
history associated with this pump; shaft material; and	
pertinent industry operating experience. Catawba will	· · ·
present the cause evaluation and proposed corrective	
actions to the NRC staff.	

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