

NRR-DMPSPEm Resource

From: Mahoney, Michael
Sent: Friday, March 09, 2018 11:01 AM
To: Carrie Wilson
Cc: Cecil Fletcher
Subject: Request for Additional Information - Catawba Nuclear Station, Units 1 and 2 - NSWS Return Pond Header LAR (CACs MG0245 and MG0246, EPID L-2017-LLA-0297)

Carrie,

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated September 14, 2017 (Agencywide Documents Access Management System (ADAMS) Accession No. ML17261B255), Duke Energy, (the licensee), requested changes to the Technical Specifications (TSs) for Catawba Nuclear Station, Units 1 and 2 (Catawba). The license amendment request (LAR) proposes changes to TS 3.7.8, "Nuclear Service Water System," to add a new condition to allow Single Pond Return Header Operation of the NSWS with a 30-Day Completion Time.

The NRC staff has reviewed the application and, based upon this review, determined that additional information is needed to complete our review. Please provide a response on the docket within 60 days of this correspondence.

Request for Additional Information (RAI)-01

The Code of Federal Regulations, 10 CFR 50.36(c)(2)(i) states that technical specification limiting conditions for operation (LCOs) are the lowest functional capability or performance levels of equipment required for safe operation of the plant. It further requires that when an LCO is not met the licensee shall shut down the reactor or follow any remedial action permitted by the technical specification until the condition can be met.

In other words, when an LCO cannot be met (the SSC is inoperable) then the CONDITION statement that reflects the inoperability is entered and the REQUIRED ACTION (remedial action) is taken within the required COMPLETION TIME until the condition is met. In the case of when Catawba's LCO 3.7.8 is not met, which requires "Two NSWS trains to be OPERABLE," (i.e., one NSWS train is inoperable) the appropriate CONDITION is entered. If a portion of an NSWS train is inoperable, then the train is inoperable. In the TS Bases markups for proposed CONDITION D to TS 3.7.8, (and in the Bases for existing CONDITION B), it is stated that, "...with the Pond return header that is taken out of service...each NSWS train is considered OPERABLE...While the NSWS is operating in the single Pond return header alignment, an NSWS train is considered OPERABLE during MODES 1, 2, 3, and 4 when:

- a. The associated train related NSWS pumps are OPERABLE; and
- b. The associated piping (except for the Pond return header that is taken out of service), valves, and instrumentation and controls required to perform the safety related function are OPERABLE."

It is believed by the NRC staff that there is no need to "consider a train OPERABLE," particularly when it is in fact not OPERABLE. It is not correct and is confusing. If the train is (considered) OPERABLE then it is not in a TS CONDITION of inoperability. This concept of "Considering a train OPERABLE," when it in fact is not, is used "to prevent cascading inoperability to NSWS cooled components that have a less than 30 day CT." While it is logical that support systems would have shorter or identical COMPLETION TIMES than the supported systems, nowhere is it required that this is so. In fact, LCO 3.0.6 which precludes cascading to TS supported systems when entering a TS support system, as long as a loss of function does not exist, does not mention the COMPLETION TIMES of TS support systems versus those of the TS supported system. Since the proposed CONDITION D and corresponding extended CT, if approved, would be available only for a limited time and is

supported by a PRA, a longer temporary extended CT for the support system (i.e. NSWS) as compared to the normal CT of the supported systems (i.e. EDG and CCW) can be justified and thus take advantage of the non-cascading process of TS 3.0.6. The concept of "Considering a train OPERABLE," is not reflected in LCO 3.7.8; and TS 3.7.8 functions correctly without this concept. If it is felt necessary to address the issue of not cascading, it can be addressed in the Bases and justified in the LAR.

Explain the concept of "Considering a train OPERABLE," when it in fact is not operable, as it is described in the TS BASES markups (both the discussions for Conditions B and D).

RAI-02

American Nuclear Society (ANS) 51.1, "Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants," which replaced ANSI 18.2, and SECY-77-439, "Single Failure Criterion," (ADAMS Accession ML060260236) both of which are referenced in NUREG-0800 Standard Review Plan Chapter 15.0, "Introduction-Transient and Accident Analysis," and ANSI/ANS-58.9, "Single Failure for Light Water Reactor Safety-Related Fluid Systems," each specify, "spurious action of a powered component originating within its actuation or control system shall be regarded as an active failure unless specific design features or operating restrictions preclude spurious action."

RG 1.177, "An Approach For Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," states that the licensee should consider whether potential compensatory measures could be taken to offset any negative impact from the proposed change.

The licensee stated in section 3.2.1.7 of the LAR:

As part of the requirements for entry into NSWS Single Pond Return Header Operation, the NSWS will be pre-aligned to the SNSWP. This configuration removes the possibility of an active failure that could prevent one of the NSWS pump pits from being aligned to the SNSWP. This therefore prevents the complete loss of one pit on a single active failure. The next most limiting active failure would be failure of an EDG to start which would include loss of the associated NSWS Pump.

However, spurious opening or closing of a motor operated valve is considered an active failure. Therefore, the spurious closing of either 1RN3A or 1RN4B is a possible active failure.

What actions are necessary to either prevent a spurious closing of 1RN3A or 1RN4B or satisfactorily bring both units to safe shutdown after a DBA and a spurious closing of 1RN3A or 1RN4B when in the Single Pond Return header lineup?

RAI-03

Catawba's Final Updated Safety Analysis Report (UFSAR), Section 9.3.4.2.3.1, "Charging Pumps":

In order to improve the total core damage frequency, backup cooling was provided to Centrifugal Charging Pump (CCP) 1A per NSM CN-11389/00 and 2A per NSM CN-21389/00. The Probabilistic Risk Assessment (PRA) for Catawba Nuclear Station that a "Loss of KC" event and a "Loss of RN" event are significant contributors to an NC pump seal LOCA.....The backup cooling water to CCP 1A (2A) is supplied by a non-safety-related four inch YD System Header in the Auxiliary Building on the 543' - 00" Elevation.

Postulated flow blockage as shown on Figures 3-3 and 3-6 where flow is blocked to the only available RN Return Header show scenarios where there is a total loss of NSWS until the NSWS is realigned to discharge to Lake Wylie.

Do the recovery actions stated on Figures 3-3 and 3-6 provide cooling to reactor coolant (NC) pump seals to prevent NC pump seal LOCA? Explain

RAI-04

RG 1.177, "An Approach For Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," describes methods acceptable to the NRC staff for assessing the nature and impact of proposed TS changes by considering engineering issues and applying risk insights. Licensees submitting risk information (whether on their own initiative or at the request of the staff) should address each of the principles of risk-informed regulation discussed in this regulatory guide. Licensees should identify how chosen approaches and methods (whether they are quantitative or qualitative, traditional or probabilistic), data, and criteria for considering risk are appropriate for making the necessary decision.

The licensee states in Section 2.4 of the LAR: "This requested condition will be entered for preplanned maintenance and inspections only. It is anticipated that entry into the condition should not be required more often than once per year, per train."

The licensee used this information as described above in their PRA quantitative analysis, yet the LAR does not limit the amount of time per 12-month period when the licensee can enter the proposed condition.

The licensee is requested to provide additional information that limits entry into this condition to 60 days per 12-month period.

Once this email is added to ADAMS, I will provide the accession number for your reference.

Thanks
Mike

Michael Mahoney

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Return Notification: No
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