

December 5, 2001

LICENSEE : Duke Energy Corporation

FACILITIES: McGuire, Units 1 and 2, and Catawba, Units 1 and 2

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON SCOPING OF THE REACTOR COOLANT SYSTEM (SECTION 2.3.1), ENGINEERED SAFETY FEATURES (SECTIONS 2.3.2.7 and 2.3.2.8) AND AN AUXILIARY SYSTEM (SECTION 2.3.3.4)

On November 14, 2001, after the staff reviewed information provided in Sections 2.3.1, 2.3.2, and 2.3.3 of the license renewal application (LRA), a conference call was conducted between the NRC and Duke Energy Corporation to clarify information presented in the application pertaining to scoping of certain components in the reactor coolant system (RCS), the residual heat removal (RHR) system, the safety injection (SI) system, and the chemical and volume control system (CVCS).

The questions asked by the staff, as well as the responses provided by the applicant, are as follows:

2.3.1 Reactor Coolant System

1. Borated water leakage through the pressure boundary in pressurized water reactors (PWRs), and resulting borated water-induced wastage of carbon steel is a potential aging degradation for the components. Reactor vessel head lifting lugs are considered to be such components requiring aging management. However, if the components are currently covered under Boric Acid Wastage Surveillance Program, then it may not require additional aging management. It appears that the subject components were not discussed in the LRA, and therefore, the staff requests the applicant to verify whether the components are within the surveillance program; and if not, to provide an explanation.

The applicant indicated that lifting lugs are attached to a pressure boundary component. Pressure boundary components are referred to generically in Table 3.1-1 and are addressed in the first row of that table (page 3.1-5 or the LRA). The exterior surface of the pressure boundary component (which includes the lifting lugs) is subject to loss of material and managed by the Fluid Leak Management Program. The staff is satisfied with this response; however, the staff may issue a formal request for this information to provide the applicant an opportunity to include this information in their written response.

2. Some Westinghouse pressurizers are designed with seismic lugs, and valve support bracket lugs. The staff requests the applicant to verify whether such components exist in McGuire and Catawba plants; and if they do, then to explain why the subject components do not require an aging management review (AMR). Based on past license

renewal reviews, the staff believes that the subject components should be within scope requiring aging management, provided the pressurizers are designed with such components.

The applicant indicated that seismic lugs are addressed in Table 3.1-1 (first row on page 3.1-6). Seismic lugs are reactor vessel and pressurizer integral attachments that perform a support function. The applicant stated that valve support brackets are not used at Catawba or McGuire. Piping supports are used instead, and these components are addressed as nuclear steam supply system (NSSS) supports in Table 3.5-3 (fourth row on page 3.5-18) or as pipe supports (first row on page 3.5-21). The staff is satisfied with this response but may issue a formal request to provide the applicant an opportunity to submit a written response pertaining to the design use of piping supports in lieu of valve support brackets.

3. Page 5.4-43 of Catawba updated final safety analysis report (UFSAR), states that the head cooling spray nozzles are relied upon to cool the reactor vessel upper head at Catawba, and that this is a direct flow path between the downcomer region and the upper head region. In addition, the staff believes that the component performs the function of flow distribution, as reported by other Westinghouse plant applicants. The staff, however, notes that the subject components may not have been identified in the LRA to be within scope requiring aging management. Therefore, the staff requests the applicant to provide a justification as to why the intended safety functions of the component do not require it to be within the scope of license renewal. The staff understands from the past license renewal reviews of Westinghouse plants that such components should be in scope if a plant is designed with such components.

The applicant indicated that the head cooling spray nozzles are included as part of the core barrel assembly and is addressed in Table 3.1-1 (first row on page 3.1-18). The applicant indicated that the function to provide a passageway for the distribution of the reactor coolant flow to the reactor core is represented by Note 1, Item 3. The staff is satisfied with the information provided in the LRA and has no other questions on this item.

4. Based on past LRA reviews and on the information provided in McGuire and Catawba UFSAR, the staff believes that the flow downcomers (reactor vessel internals) should require aging management because the components provide structural and/or functional support for in-scope equipment. If the applicant believes otherwise, then the staff requests the applicant to provide the justification.

The applicant indicated that there is no flow downcomer component at Catawba or McGuire, but acknowledged that there is a downcomer(annulus) region between the core barrel and the reactor vessel wall. The staff identified the core barrel (first row on page 3.1-18) and the upper, lower and intermediate reactor vessel shell (pages 3.1-11 thru 3.1-12) in Table 3.1-1 and is satisfied with the information in the LRA. There are no other questions on this item.

5. Section 3.9.1.3, (on page 3.9-4) of the McGuire UFSAR, states that the diffuser plate was relied upon when performing the dynamic system load analyses for reactor internals at McGuire to determine the behavior of lower structures when subjected to loads.

Furthermore, based on past license renewal reviews of Westinghouse plants, the staff believes that the diffuser plate (provided there is one) should be within the scope requiring aging management because the component provides the safety function of structural and/or functional support for in-scope equipment, and/or provides flow distribution. Please confirm whether the subject component was identified to be within scope requiring aging management for McGuire. If not, explain why.

The applicant indicated that McGuire reactor vessel internals do not have diffuser plates. A generic analysis performed by Westinghouse demonstrated that this component was not necessary for dynamic load distribution or flow distribution. The applicant referred the staff to WCAP 14577, Revision 1A, page 2-42, to review a diagram of similar reactor vessel internals. The staff will consider this information, but may request additional information to confirm that diffuser plates are not installed in the McGuire reactor vessels, since the UFSAR indicates that they are installed and serve a function that appears to be within the scope of license renewal. In addition, the staff notes that the UFSAR should be update to reflect the as-built design of the reactor vessel internals.

6. Table 3.1-1 of the LRA identifies components for the steam generators that require AMR. The following components were not listed in the table: anti-vibration bars, stay rod, tube bundle wrapper, and tube support plates. Based on past LRA reviews and on the information provided in McGuire and Catawba UFSAR, the staff's view is that these components perform the intended safety function of providing structural and/or functional support for in-scope equipment and, therefore, should be within the scope of license renewal requiring aging management. Explain why these components are not identified in Table 3.1-1.

The applicant indicated that the components in question do not meet the license renewal rule's scoping criteria because they are secondary supports for steam generator tubes and are designed to prevent wear. A failure of these secondary supports would not cause a loss of safety function, but, over time, would result in vibration-induced tube wear. The staff will consider this response; however, the staff notes that the Generic Aging Lessons Learned (GALL) report specifies aging management of tube support lattice bars (page IV D1-10) and tube support plates (page IV D1-12). Although the GALL report's intended function is not to perform scoping reviews, the staff considers items such as the lattice bars and tube support plate to have one universal function. As such, the function of these components appears to be within the scope of license renewal. The staff may request additional information to determine if these components are relied upon for mitigating the effects (on steam generator tubes) of a main steam line break and or a seismic event.

2.3.2.7 Residual Heat Removal System

1. The Catawba UFSAR (page 5.4-48) states that, "a minimum number of charging auxiliary spray has been included in the piping analysis for inadvertent operation and for emergencies." Also the McGuire UFSAR (page 9.3-25), states that, "after the Residual Heat Removal System is placed in service and the reactor coolant pumps are shut down, further cooling of the pressurizer liquid is accomplished by charging through the auxiliary spray line." If these statements imply that the auxiliary spray is relied upon to

mitigate design-basis events, and/or to shut down the reactor, then the staff requests the applicant to explain why the spray head (the component which actually sprays the water) need not require aging management to prevent clogging of the spray holes, or any other aging related degradation over the extended period of operation.

The applicant indicated that the basis for not including the spray head in the scope of license renewal was because it does not perform a function that meets the scoping criteria. According to the applicant, the spray head is not relied upon to control RCS pressure during a design basis event. The staff will consider the information provided, but may request additional information to confirm that a spray pattern is not credited by the applicant for immediate pressure reduction during design basis events or regulated events listed in 10 CFR Part 54.4(a)(3).

2.3.2.8 Safety Injection System

1. The UFSARs for Catawba (page 6.2-46) and McGuire (page 17.1-2), state that screen assemblies and vortex suppressors are used in the containment sump which provides water for the emergency core cooling system (ECCS) recirculation phase, and one of the intended functions is to protect the ECCS pumps from debris and cavitation due to harmful vortex following an LOCA. The staff noted that the sump screens were identified in Table 3.5-1 (AMR results - Reactor Building); however, the vortex suppressors were not identified in the LRA to be within scope that requires an AMR. Please explain why.

The applicant indicated that vortex suppressors are part of the containment recirculation sump screen assembly, which is listed on page 2.4-3 of the LRA. The applicant also referred the staff to UFSAR Figures 6-111 (Catawba) and 6-196 (McGuire) for diagrams of the containment sump assemblies (including vortex suppressors). The staff reviewed page 2.4-3 of the LRA and confirmed that containment recirculation sump screen assembly is listed on that page. However, the staff noted that only containment recirculation sump screens are listed in the AMR results tables (specifically, Table 3.5-1 on page 3.5-9). As such, the staff will request additional information to completed its review of this item.

2.3.3.4 Chemical and Volume Control System

1. Chemical & Volume Control System (CVCS) flow diagram CN-1554-1.6 indicates that the piping from isolation valve 1NV145 to the inlet of the letdown heat exchanger is categorized as line listing 07 (Duke Class B, ASME Class 2). Portions of this line are highlighted to be within the scope of License Renewal. The staff requests that the applicant explain why a portion of the line including isolation valve 1NV145 to the inlet of the letdown heat exchanger is not within the scope of license renewal.

The applicant indicated that the referenced piping was within the scope of license renewal and noted that the drawing was in error. The staff is satisfied with this response and has no additional questions on this item.

2. Flow diagrams CN-1554-1.6 and CN-2554-1.6 indicate from the CVCS letdown line to and including valve 1NV152 and 2NV152 are line listing 19 (Duke Class B, ASME

Class 2). The staff requests that the applicant explain why these portions of the CVCS are not within the scope of license renewal.

The applicant indicated that the referenced piping was within the scope of license renewal and noted that the drawing was in error. The staff is satisfied with this response and has no additional questions on this item.

A draft of this telecommunication summary was provided to the applicant to allow them the opportunity to comment prior to the summary being issued.

/RA/

Rani L. Franovich, Project Manager
License Renewal Project Directorate
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos. 50-369, 50-370, 50-413, and 50-414

Attachment: As stated

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