DOCUMENT NO. 84

From: Rani Franovich
To: Bob Gill
Date: 11/2/01 2:28PM
Subject: Question on B.3.7 Containment Inservice Inspection Plan - IWE

Bob,
The following is a question and, to the best of my recollection and ability to interpret my notes, Duke's response. Let's talk about this Monday...
Thanks-
Rani

B.3.7 Containment Inservice Inspection Plan - IWE

Q Under element {Parameters monitored or Inspected}, you explicitly exclude monitoring or inspection of Category E-B, E-D, E-F, and E-G of Table 2500-1 of Subsection IWE from Containment Inservice Inspection Plan - IWE. Please provide a summary of the alternatives that you have instituted to ensure the aging management of the pressure-retaining containment components covered by these Categories.

A The applicant indicated that an exemption request (TS change?) was submitted to the NRC on March 1, 2001, to the requirements of Appendix J. The applicant referred the staff to that exemption request for an explanation of the alternatives that have been instituted at Catawba (what about McGuire?) to ensure the aging management of the pressure-retaining containment components covered by Categories E-B, E-D, E-F, and E-G of Table 2500-1 of Subsection IWE from Containment Inservice Inspection Plan - IWE.

From: Rani Franovich
To: Bob Gill
Date: 11/5/01 2:42PM
Subject: Conference Call Summary - Containment Systems

Bob,
Please review the attached summary of our call on October 11 to discuss questions about containment systems and let me know if any changes are needed.
Thanks-
Rani

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 CONTAINMENT SYSTEMS

On October 11, 2001, after the NRC (the staff) reviewed information provided in Chapter 2 of the license renewal application (LRA), conference calls were conducted between the staff and Duke Energy Corporation (the applicant) to clarify information presented in the application pertaining to the scoping of structures and components in the containment isolation system, containment air return exchange and hydrogen skimmer system, and the containment spray system. Participants in the conference call are provided in an attachment.

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

2.3.2.2 Containment Isolation System

1. Containment Hydrogen Sample and Purge System (Catawba only): the staff questions whether any parts of this system are being relied upon to provide post-accident hydrogen concentration samples on which the decision to operate the hydrogen recombiners would be based. If applicable, please justify why the parts of the system relied upon for hydrogen monitoring are not within the scope of license renewal according to 10 CFR 54.4(a)(2).

   The applicant indicated that safety-related hydrogen analyzers are used to obtain hydrogen concentration sample, are part of the post accident containment sample system, and are not part of the containment hydrogen sample and purge system. The safety-related hydrogen analyzers are relied upon for determining when to energize hydrogen recombiners. The applicant referred the staff to UFSAR Table 1-11, page 12 of 33, for a description of the safety-related hydrogen analyzers. The applicant also referred the staff to TS 3.3.3 to understand the requirement governing these components. The applicant indicated that the safety-related hydrogen analyzers are within the scope of license renewal but not subject to an aging management review (except for the tubing that conveys the sample outside of containment to the analyzers) because they are active. The staff will consider this information but may request additional information to confirm that the containment hydrogen sample and purge system does not include post accident hydrogen analyzers that are used to determine when to energize hydrogen recombiners.

2. Containment Ventilation Cooling Water System, drawing MCFD-1604-03.00, grid location E-7: the staff questions why valve 1RV0037 is not Within the scope of license renewal. Please justify why this valve is not considered to be a pressure boundary.

   The applicant indicated that the drawing was in error and that the piping segment in question is actually Class F piping and within the scope of license renewal.

3. Containment Ventilation Cooling Water System, drawings MCFD-1604-03.00 & MCFD-2604-03.00, grid locations J-9 through D-9: though aware of the piping class break, the staff seeks the underlying basis justifying why this in-core instrument room line is not Within the scope of license renewal. This piping appears to function as a pressure boundary, and the staff additionally notes that a similar, adjacent piping line is Within the scope of license renewal.

   The applicant indicated that the drawing was correct and confirmed that the piping segment in question is Class G piping and, as such, is not within the scope of license renewal. The applicant stated that the adjacent line to the piping segment in question is Class F piping that is in scope because of its potential for adversely affecting a safety-related component's ability to perform its intended function. However, no such potential exists for the Class G piping segment in question.

4. Conventional Chemical Addition System, drawing MCFD-2617-01.00: the staff questions why the four 3/4" Class B piping lines are not Within the scope of license renewal up through the upstream check valves. The valves and piping appear to function as a pressure boundary, and the LRA further states that all Class B piping and components are Within the scope of license renewal.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

5. Ice Condenser Refrigeration System, Table 3.2-2, AMR Results, pg. 3.2-16 of the LRA: the staff questions why the third "Pipe" entry from the top (which is carbon steel and has the reactor building as an external environment) is not identified as susceptible to Loss of Material and subject to the Fluid Leak Management Program and the Inspection Program for Civil Engineering Structures and Components. This finding appears to be inconsistent with the LRA's treatment of similar or identical materials and components.

   The applicant indicated that the piping referred to in Table 3.2-16 was part of a drain line from the ice condenser to the containment sump. The piping segment in question is downstream of the last check valve and has no intended function. The staff questioned why the piping, if it had no intended function, was within the scope of license renewal. The applicant indicated that it would pursue this question further. As such, the staff may request additional information to complete its review.

6. Makeup Demineralized Water System, drawing CN-2556-2.0, grid location K-4: the staff questions why the Class F piping is not Within the scope of license renewal up to the

downstream check valve. Please justify why this piping is not considered to be a pressure boundary.

The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

7. Steam Generator Blowdown Recycle System, drawing MCFD-2580-01.00, grid location G-4: the staff questions why the 3/4" line is not Within the scope of license renewal up through the globe valve. Please justify why the piping and valve are not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

8. Steam Generator Blowdown Recycle System, drawing MCFD-2580-01.00, grid location D-4: the staff questions why the 1" line is not Within the scope of license renewal up through the globe valve. Please justify why the piping and valve are not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

9. Steam Generator Blowdown Recycle System, drawing MCFD-2580-01.01, grid location K-6: the staff questions why the 1" line is not Within the scope of license renewal up through the globe valve. Please justify why the piping and valve are not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

10. Steam Generator Blowdown Recycle System, drawing CN-1580-1.0, grid location C-3: the staff questions why the 2" BW system line is not Within the scope of license renewal. Please justify why this piping line is not considered to be a pressure boundary.

    The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

2.3.2.3 Containment Air Return Exchange & Hydrogen Skimmer System

1. Drawings MC-1557-1.0, MC-2557-1.0, CN-1557-1.0, CN 2557-1.0: the staff questions whether the Class H piping in the hydrogen skimmer part of the system, which is not highlighted as Within the scope of license renewal, is essentially all embedded in concrete.

   The applicant confirmed that all of the Class H piping that was not highlighted as within the scope of license renewal is embedded in concrete.

2. Drawings MC-1557-1.0, MC-2557-1.0, CN-1557-1.0, CN 2557-1.0: regardless of whether or not it is embedded in concrete, based on the scoping requirements of 10 CFR 54.4(a)(1)(iii), the staff questions why the piping in the hydrogen skimmer part of the system is not essentially all Within the scope of license renewal.

   The applicant indicated that a failure of the Class H piping would not cause a loss of the intended function because the flow path required to accomplish the intended function would be provided by the concrete in which the piping is embedded. The applicant further stated that the concrete is part of the containment structure, which is safety-related structure, within the scope of license renewal, and subject to an aging management review.

3. Drawings MC-1557-1.0, MC-2557-1.0: the staff questions why the ductwork between the containment air return fans and dampers is not Within the scope of license renewal. Please justify why it is not considered to be a pressure boundary. The staff additionally notes that on drawings CN-1557-1.0 and CN 2557-1.0, the (apparently) analogous ductwork is Within the scope of license renewal.

   The applicant indicated that, for McGuire, the dampers are QA1, safety-related, and within the scope of license renewal as noted by the highlighting on the refererenced drawings. The ductwork, however, is QA4. As such, only the hangers are within the scope of license renewal because of their function to hold up the ductwork in a seismic event. That is why the MNS drawings are not highlighted for the ductwork between the dampers. The applicant stated that a high energy line break is not a concern for this ductwork (i.e. a failure of the ductwork is not likey). As such, it is not Class F piping within the scope of license renewal. For Catawba, both the ductwork and dampers are QA1 safety-related. The drawings are correctly highlighted. Table 3.2-3 is correct as written and reflects the current design of each station.

   The staff will consider the information provided. However, additional information may be requested so that the staff can determine if a failure of the McGuire ductwork between the safety-related dampers would impair the safety-related function provided by the containment air return sub-system.

4. For McGuire only, the staff questions whether the containment sample blower, represented on McGuire flow diagram MC-1557-1, is being relied upon to provide post-accident hydrogen concentration samples on which the decision to operate the hydrogen recombiners would be based. If applicable, please justify why the parts of the system relied upon for hydrogen monitoring are not Within the scope of license renewal according to 10 CFR 54.4(a)(2).

   The applicant indicated that the containment sample blower (McGuire only) is not used to sample the containment atmosphere to determine when to energize the hydrogen recombiners. The applicant indicated that separate, safety-related hydrogen analyzers are used to obtain hydrogen concentration samples and are part of the post accident containment sample system. The safety-related hydrogen analyzers are relied upon for determining when to energize hydrogen recombiners. The applicant referred the staff to

UFSAR Table 1-6, page 14 of 36, for a description of the safety-related hydrogen analyzers. The applicant also referred the staff to TS 3.3.3 to understand the requirement governing these components. The applicant indicated that the safety-related hydrogen analyzers are within the scope of license renewal but not subject to an aging management review (except for the tubing that conveys the sample outside of containment to the analyzers) because they are active. The staff will consider this information but may request additional information to confirm that the containment hydrogen sample and purge system does not include post accident hydrogen analyzers that are used to determine when to energize hydrogen recombiners.

2.3.2.4 Containment Spray System

1. Drawing MCFD-1563-01.00, grid location C-12: the staff questions why the 12" blind-flanged line is not Within the scope of license renewal. Please justify why it is not considered to be a pressure boundary.
   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

2. Drawing MCFD-2563-01.00, grid location C-2: the staff questions why the 8" end-capped line is not Within the scope of license renewal. Please justify why it is not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

3. Drawing MCFD-2563-01.00, grid location C-5: the staff questions why the 4" end-capped line is not Within the scope of license renewal. Please justify why it is not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

4. Drawing MCFD-2563-01.00, grid location G-4: the staff questions why the 1" line is not Within the scope of license renewal up through the globe valve. Please justify why the piping and valve are not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

5. Drawing MCFD-2563-01.00, grid location J-2: the staff questions why the 8" end-capped line is not Within the scope of license renewal. Please justify why it is not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

2.3.2.5 Containment Valve Injection Water System

1. Drawing CN-1569-1.0, grid locations C-1 & C-2: the staff questions why segments of the piping lines near check valves 1NW101 and 1NW98 are not Within the scope of license renewal. Please justify why the piping is not considered to be a pressure boundary.

   The applicant indicated that a highlighting error had been made on the drawing and that the piping segment in question was within the scope of license renewal.

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

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

Attachments: As stated

cc w/attachments: See next page

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

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

Attachments: As stated

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Division of Regulatory Improvement Programs
COVER PAGE

DATE: October 9, 2001

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON FIRE PROTECTION SYSTEMS

ORIGINATOR: R. Franovich

SECRETARY: S. Chey

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ADAMS ACCESSION NUMBER: **ML** DATE ENTERED: / /01

FORM 665 ATTACHED and filled out: **YES NO**

COMMITMENT FORM ATTACHED: **YES NO**

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OCTOBER 11, 2001

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Bob Gill

Attachment

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: <RLF2@nrc.gov>
Date: 11/5/01 11:21AM
Subject: NRC Question and Response

Containment ISI - IWE
----- Forwarded by Robert L Gill Jr/Gen/DukePower on 11/05/2001 11:20 AM

Debra V Keiser
11/05/2001 11:18 AM

To: Robert L Gill Jr/Gen/DukePower@DukePower
cc:
bcc:
Subject: NRC Question and Response

----- Forwarded by Debra V Keiser/Gen/DukePower on 11/05/2001 11:18 AM

Mark J Ferlisi
11/05/2001 10:04 AM

To: Debra V Keiser/Gen/DukePower@DukePower
cc:
bcc:
Subject: NRC Question and Response

Debbie: The following is a response that can be used to respond to the question submitted by Rani Franovich to Bob Gill on 11/02/01:

1. Category E-B (Pressure Retaining Welds) and E-F (Pressure Retaining Dissimilar Metal Welds) Examinations are excluded from our Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is 10CFR50.55a(b)(2)(ix)(C) and SECY-96-080, which states "The NRC concludes that requiring these inspections is not appropriate. There is no evidence of problems associated with welds of this type in operating plants."

2. Category E-D, Item E5.10 (Seals) and Item E5.20 (Gaskets) examinations are excluded from our Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is documented in Duke Energy Corporation Request for Relief Serial No. 98-GO-001, approved by SER submitted by NRC letter dated September 3, 1998. Alternative examinations to be performed are as follows:

   "The leak-tightness of containment pressure retaining seals and gaskets will be verified by leak rate testing in accordance with 10 CFR 50, Appendix J, as required by Technical Specifications."

Category E-D, Item E5.30 (Moisture Barriers) are NOT excluded from our Inservice Inspection Plan for McGuire and Catawba.

3. Category E-G, Item E8.20 (Bolt Torque or Tension Tests for Bolted Connections) are excluded from our Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is documented in Duke Energy Corporation Request for Relief Serial No. 98-GO-002, approved by SER submitted by NRC letter dated November 24, 1998. Alternative examinations to be performed are as follows:

(1) Bolted connections shall receive a visual, VT-1 examination in accordance with requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10, and

(2) A local leak rate test shall be performed on all containment penetrations, airlocks, and other pressure retaining bolted connections in accordance with 10 CFR 50, Appendix J.

Category E-G, Item E8.10 (Bolted Connections Visual, VT-1) are NOT excluded from our Inservice Inspection Plan for McGuire and Catawba.

Mark J. Ferlisi, P.E.
Duke Energy Corp.
(704) 382-3923
(704) 382-3993 FAX

From: Rani Franovich
To: Bob Gill
Date: 11/6/01 10:49AM
Subject: Fwd: M. Razzaque's memo

Bob,
Attached are questions on the Reactor Coolant System. Sorry I let this slip yesterday - I got busy on something else and forgot to send it. Please forward it to Mary for me. Can you propose a date and time for a phone call?
Thanks-
Rani

From: Joyce Harris
To: Rani Franovich
Date: 11/5/01 9:01AM
Subject: M. Razzaque's memo

Attached is M. Razzaque's memo from Wordperfect.

October 22, 2001

MEMORANDUM TO: Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

FROM: Ralph Caruso, Chief /RA/
BWR Systems & Nuclear Performance Section
Reactor System Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

SUBJECT: RAI ON McGUIRE UNITS 1 & 2 AND CATAWBA UNITS 1 & 2
LICENSE RENEWAL APPLICATION

Requests for Additional Information (RAI) on the License Renewal Application (LRA) for McGuire Units 1 & 2, and Catawba Units 1 & 2, submitted by the Duke Energy Corporation (Duke), are identified in the Attachment. These RAIs include the Reactor Coolant Systems (Section 2.3.1), Engineered Safety Features Systems (Section 2.3.2), and Auxiliary Systems (Section 2.3.3) in the LRA that address license renewal scoping aspects.

Attachment:
As stated

cc: G. Holahan

Contact: M. Razzaque, SRXB/DSSA
415-2882

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ATTACHMENT

RAIs ON SCOPING FOR LICENSE RENEWAL APPLICATION (LRA) FOR
McGUIRE UNITS 1 & 2, AND CATAWBA UNITS 1 & 2

REACTOR COOLANT SYSTEMS (RCS)

RAI - 2.3.1 - RCS - 1

Borated water leakage through the pressure boundary in 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.

RAI - 2.3.1 - RCS - 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 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.

RAI - 2.3.1 - RCS - 3

Page 5.4-43 of Catawba 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.

RAI - 2.3.1 - RCS - 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.

RAI - 2.3.1 - RCS - 5

Sec. 3.9.1.3, page 3.9-4 of 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 Westinghoue 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.

RAI - 2.3.1 - RCS - 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. 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:

Anti-vibration bars, stay rod, tube bundle wrapper, and tube support plates.

ENGINEERED SAFETY FEATURES (ESF) SYSTEMS

RAI - 2.3.2 - ESF - 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.

RAI - 2.3.2 - ESF - 2

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 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.

AUXILIARY (AUX) SYSTEMS

RAI - 2.3.3 - AUX - 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.

RAI - 2.3.3 - AUX - 2

CVCS 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.

From: Rani Franovich
To: Bob Gill
Date: 11/6/01 3:17PM
Subject: Fire Protection System AMP Questions

Bob,
The Fire Protection System AMP Questions are as follows:

SECTION B.3.12 - FIRE PROTECTION PROGRAM

1. The application states in Sections B.3.12.1, " Fire Barrier Inspections" and B.3.12.2, " Mechanical Fire Protection Components" that no preventive actions are taken to prevent aging effects or to mitigate aging degradation. Provide your justification for this course of action in light of the fact that operating experience at Catawba/ McGuire indicates that degradation and wall thinning in piping has been observed to the extent that sections of the piping were replaced due to leakage.

2. Describe the inspection procedures which permit the timely detection of cracking/delamination and separation of the fire barrier penetration seals. The application states in the acceptance criteria that, "separation from wall and through-holes shall not exceed limits as specified in the procedure." Indicate what these limits are and what is the basis for their selection.

3. The application states in Section B.3.12.2, "Mechanical Fire Protection Component Tests and Inspections-Monitoring and Trending", of the LRA that a sample of sprinklers are either inspected or replaced after 50 years of operation. Describe the basis for the sampling process. Also, provide the rationale for either inspection or replacement of only some of the sprinklers after 50 years of operation. In addition, with regard to the monitoring and trending activities, provide the following information:

Fouling of hose station valves and sprinklers are managed by flow tests and flushes which are governed by Selected Licensee Commitment 16.9.1(a)(iii) at Catawba and Testing Requirement (TR) 16.9.1.3 at McGuire. What are the differences between these two requirements?

The integrity of the sprinkler branch lines is assured by sprinkler system flow tests which are governed by Selected Licensee Commitment TR 16.9-2(a)(iv)(1) at Catawba. This test is not governed by Selected Licensee Commitment at McGuire, but is performed to satisfy a specific plant procedure. Specify the governing requirements for this test at McGuire and how these requirements differ from those at Catawba, and why.

Explain the basis for the sample disassembly inspection program for managing the fouling of sprinkler branch lines.

4. The acceptance criteria for visual inspection of sprinklers do not contain any requirements for restraining excessive displacement at damaged or malfunctioning pipe hangers. Such requirements seem to be particularly significant for those piping runs where operating experience indicates that fouling has been detected and sections of piping have been replaced due to pinhole leaks. Indicate whether or not requirements exist to limit excessive displacement of sprinkler piping due to degraded hangers. If they do exist, state those requirements.

Just let me know when we can have a call with the reviewer to discuss them.
Thanks-
Rani

From: Rani Franovich
To: Bob Gill
Date: 11/14/01 7:54AM
Subject: RAIs on Ventilation Systems

Bob,
The attached came in late last week. Looks like there are many questions, so we'll set up a call when your folks have had time to review them.
Thanks-
Rani

November 8, 2001

MEMORANDUM TO: Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Reactor Program Management

FROM: Harold Walker, Acting Chief/**RA**/
Containment Systems Section
Plant Systems Branch
Division of Systems Safety and Analysis

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - LICENSE RENEWAL APPLICATION (LR) REGARDING VENTILATION SYSTEMS AT MCGUIRE AND CATAWBA NUCLEAR STATION UNITS 1 AND 2(TAC NOS. MB2027, MB2028, MB2037,and MB2038)

By letter dated June 13, 2001, Duke Power submitted, for the NRC's review, an application pursuant to 10CFR Part 54 to renew the operating license for McGuire Units 1 & 2 and Catawba Units 1 & 2. The NRC staff is reviewing the information contained in the LR and has identified in the Attachment areas where a request for additional information is needed to satisfactorily complete the safety review. Specifically, the questions from the Plant Systems Branch (SPLB) review of the application relate to the following plant systems:

- Annulus ventilation system
- Auxiliary building ventilation system
- Containment ventilation system
- Control area ventilation system
- Diesel building ventilation system
- Fuel handling building ventilation system
- Miscellaneous structures ventilation system
- Nuclear service water pump structure ventilation system
- Turbine building ventilation system

SPLB considers our efforts under the referenced TAC numbers as continuing.

Docket Nos: 50-369
50-370
50-413
50-414

Attachment: As stated

Contact: V. Klco, SPLB/DSSA/NRR
301-415-8348

November 8, 2001

MEMORANDUM TO: Christopher I. Grimes, Chief
License Renewal and Standardization Branch
Division of Reactor Program Management

FROM: Harold Walker, Acting Chief/**RA/**
Containment Systems Section
Plant Systems Branch
Division of Systems Safety and Analysis

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - LICENSE RENEWAL APPLICATION (LR) REGARDING VENTILATION SYSTEMS AT MCGUIRE AND CATAWBA NUCLEAR STATION UNITS 1 AND 2(TAC NOS. MB2027, MB2028, MB2037,and MB2038)

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- Nuclear service water pump structure ventilation system
- Turbine building ventilation system

SPLB considers our efforts under the referenced TAC numbers as continuing.

Docket Nos: 50-369
50-370
50-413
50-414

Attachment: As stated

Contact: V. Klco, SPLB/DSSA/NRR
301-415-8348

DISTRIBUTION: ADAMS SPLB r/f HWalker VKlco RFranovich RArchitzel
JRaval RElliott

DOCUMENT NAME: DUKE RAI.WPD

OFFICE	SPLB:DSSA:NRR		ASC:SPLB:DSSA							
NAME	VKlco:bw		HWalker							
DATE	11/08/01		11/08/01		/ /01		/ /01		/ /01	

OFFICIAL RECORD COPY

Attachment

Request for Additional Information
Office of Nuclear Reactor Regulation
Division of Systems Safety and Analysis
Plant Systems Branch

Duke Power Company License Renewal Application
Ventilation Evaluation
McGuire Nuclear Station Units 1 & 2
Catawba Nuclear Station Units 1 & 2
Docket Nos. 50-369, 50-370, 50-413, 50-414

Note: All flow diagram references in this request for additional information (RAI) relate to the Duke Power McGuire and Catawba unit series of drawings provided in the application.

2.3.2.1 Annulus Ventilation System (VE)

RAI 2.3.2.1-1: Components identified on the VE system flow diagrams referenced in Section 2.3.2.1 of the license renewal application (LR) or within scope based on intended function are not included in Table 3.2-1 of the LR. Table 3.2-1 of the LR lists the components subject to an AMR for the VE system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.2-1 of the LR. If a component is not considered subject to and AMR, provide a justification for its exclusion.

- Fan housings are highlighted on McGuire VE flow diagrams (MC-1577-1, H11, G11), (MC-2564-1, I7, F7), (MC-2577-1, G12, F12).
- McGuire and Catawba damper housings meeting the intended function of ventilation pressure boundaries are not identified on either VE flow diagrams or Table 3.2-1 of the LR.
- Return air grilles are specifically highlighted on a McGuire VE system flow diagram (MC-1577-1, D5, D9).
- Supply and return ventilation air grilles are shown highlighted on the McGuire and Catawba VE flow diagrams identified in Section 2.3.2.1 of the application.
- Wire mesh is identified on the McGuire system flow diagrams (MC-1564-1, H5), (MC-2564-1, H5).

RAI 2.3.2.1-2: McGuire and Catawba air flow monitors identified in Table 3.2-1 of the LR as within the scope of license renewal are not highlighted on the VE system flow diagrams

referenced in Section 2.3.2.1 of the LR. Table 3.2-1 of the LR lists the components subject to an AMR for the VE system. Identify whether the identified air flow monitors are subject to an AMR, and if so, provide the relevant information to clarify the discrepancy between the table and diagrams in order to complete Table 3.3-1 of the LR. If air flow monitors are not considered subject to an AMR, provide a justification for their exclusion.

RAI 2.3.2.1-3: Clarify whether sealant materials used to maintain the annulus between containment and the reactor building at a negative pressure are included in the scope of the LR and subject to an AMR. In particular, provide information on sealant material use in the McGuire modification to containment personnel access hatches and pipes penetrations installed to remove potential bypass leak paths. If included in the LR, provide the relevant information to complete Table 3.2-1 of the application. If the sealants are not considered subject to an AMR, provide justification for their exclusion.

RAI 2.3.2.1-4: Associated ductwork components are not identified as within scope of license renewal or subject to an aging management program. Associated ductwork components include passive items corresponding to ductwork turning vanes, component flexible connections, and ductwork test connections. Identify whether these passive components are subject to an AMR, and if so provide relevant information about the components to complete the aging management review result tables. If a component is not considered subject to an AMR, provide a justification for its exclusion.

RAI 2.3.2.1-5: Based on information submitted in the application, an intended function of the McGuire VE system is to prevent leakage of radioisotopes following a LOCA, while the intended function of the Catawba VE system is to limit operator and site boundary doses following a DBA to within the guidelines specified in 10CFR100. Specifically, the McGuire VE system does not call for conformance with the guidelines of 10CFR100 limits in the application. Clarify the differences between intended functions for these VE systems.

2.3.3.1 Auxiliary Building Ventilation System (VA)

RAI 2.3.3.1-1: Components identified on the auxiliary building ventilation system flow diagrams referenced in Sections 2.3.3.1 and 2.1.2.1.4 of the LR or within the scope of license renewal based on intended function are not included in Table 3.3-1 of the LR. Table 3.3-1 of the LR lists the components subject to an AMR for the auxiliary building ventilation system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.3-1 of the LR. If a component is not considered subject to and AMR, provide a justification for its exclusion.

- Fan housings are highlighted on McGuire (MC-1577-1, H11, G11), (MC-1577-2, F2, F13, H2, H13), (MC-2577-1, G12, F12) and Catawba (CN-1577-1.2, F3, F5, F10, F12), (CN-1577-1.8, H9, H12, K9, K12) auxiliary building ventilation system flow diagrams.

- McGuire and Catawba damper housings meeting the intended function of ventilation pressure boundaries are not identified on either VA flow diagrams or Table 3.3-1 of the LR.

- McGuire radiation monitors meeting the intended function of ventilation pressure boundaries are not highlighted on either VA flow diagrams (MC-1577-1, H10), (MC-2577-1, G9) or identified in Table 3.3-1 of the LR.
- Smoke detectors are identified on Catawba VA flow diagrams (CN-1577-1.0, H3, H6, H9, H11).
- Supply and return air grilles are identified on McGuire (MC-1577-1, D5, D9), (MC-2577-1, C4, D9) and Catawba flow diagrams (CN-1577-1.8, G11, G14, I11, I14, J11, J14, L11, L14).
- Moisture eliminators are identified on Catawba flow diagrams (CN-1577-1.3, J2, J7, J8, J13).
- Instrument line highlight conventions are stated in Section 2.1.2.1.4 of the LR, but tubing is not identified as subject to an AMR in Table 3.3-1 of the LR. Tubing is identified in other ventilation aging management review results tables in the application.

RAI 2.3.3.1-2: Components identified in Section 2.3.3.1 of the LR and in Table 3.3-1 of the LR as within the scope of license renewal are not included in the referenced VA flow diagrams. Table 3.3-1 of the LR lists the components subject to an AMR, and if so, provide the relevant information about the components to coordinate between the table and drawings and complete Table 3.3-1 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- Air flow sensors identified in Table 3.3-1 of the LR are not highlighted on either McGuire or Catawba VA system flow diagrams.
- The ductwork connection from the VA system to Catawba's unit vent is shown within scope and highlighted (CN-1577-1.2, F11) but is not highlighted on the Catawba interface drawing to the unit vent (CN-2577-3.0, E7).

RAI 2.3.3.1-3: Three VA system flow diagram drawings referenced in Section 2.3.3.1 of the LR were not included in the package provided by the applicant for the McGuire unit (MC-1577-4, MC-1577-5, and MC-1577-9). Further review indicates the referenced drawings were deleted from the McGuire license renewal drawing index. Identify if the referenced drawings are still part of the application package and will be submitted in the future or they are not currently considered as application reference drawings.

RAI 2.3.3.1-4: Sealant materials are not identified as being within the scope of license renewal and its component category is not included in Table 3.3-1 of the LR. Verify whether the sealant materials are used to control the unfiltered out-leakage to the outside environment. Provide justification for the exclusion of the sealant materials or provide information about the sealants to complete Table 3.3-1 of the LR.

RAI 2.3.3.1-5: Associated VA ductwork components are not identified in Section 2.3.3.1 of the

LR as within scope of license renewal or subject to an aging management program. Associated ductwork components include passive items relating to ductwork turning vanes, component flexible connections, and ductwork test connections. Identify whether these passive components are subject to an AMR, and if so provide relevant information about the components to complete the aging management review result tables. If a component is not considered subject to an AMR, provide a justification for its exclusion.

2.3.3.7 Containment Ventilation System

No RAIs were generated for the containment ventilation system.

2.3.3.8 Control Area Ventilation System (VC)

RAI 2.3.3.8-1: Components identified on VC system flow diagrams referenced in Section 2.3.3.8 of the LR as being within the scope is not included in Table 3.3-11 of the LR. Table 3.3-11 lists the components subject to an AMR for the VC system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.3-11 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- Fan housings are highlighted on McGuire (MC-1577-1, H11, G11), (MC-1578-1, I6, G7, E6), (MC-1578-3, B8, C9), (MC-1578-4, C2, C9, E2, E9, I2, I9, K2, K9) and Catawba (CN-1578-1, E10, H10) VC system flow diagrams.

- Air handling unit housings are highlighted on McGuire (MC-1578-1, H10, E10), (MC-1578-1.1, I8, D8) and Catawba (CN-1578-1, H7, E7), (CN-1578-1.1, I5, I10), (CN-1578-1.3, C4, C10, E4, E10, H4, H10, K4, K10) VC system flow diagrams.

- McGuire and Catawba damper housings meeting the intended function of ventilation pressure boundaries are not identified on either VC system flow diagrams or Table 3.3-11 of the LR.

- Radiation monitors are highlighted on a McGuire VC system flow diagram (MC-1578-1, I1, F1). Radiation monitors are shown but not highlighted on a Catawba VC system flow diagram (CN-1578-1, J13, C13).

- McGuire and Catawba ventilation supply and return air grilles are highlighted on VC system flow diagrams identified in Section 2.3.3.8 of the LR.

- Moisture eliminators and pre-filters are highlighted on a Catawba VC flow diagram (CN-1578-1, E12, H12).

RAI 2.3.3.8-2: Components identified in Section 2.3.3.8 and in Table 3.3-11 of the LR as being within the scope are not included in the referenced VC flow diagram drawings. Table 3.3-11 lists the components subject to an AMR for the VC system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to coordinate between the table and drawings and complete Table 3.3-11 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- Air handling unit heat exchanger shells and pre-filters are not highlighted to indicate they are within license renewal scope on a McGuire VC system flow diagram (MC-1578-4, K2, K8, I2, I8, E2, E8, C2, C8).

- Orifices identified in Table 3.3-11 of the LR are not highlighted on McGuire VC system flow diagrams.

RAI 2.3.3.8-3: Describe the areas that constitute the main control room envelope for the McGuire and Catawba nuclear station units. Verify that all VC system components inside the main control room envelope relied on to perform safety-related cooling and filtration functions in order to maintain the control room habitable are identified. Components inside the main control room envelope such as air handling units, fan coil units with their associated ductwork, fire dampers, control valves, air intake, exhaust fan with purge ductwork, and transfer grilles are to be identified within the scope of the LR and subject to an AMR on the control area ventilation flow drawings and in Table 3.3-11 of the LR. If any component is not considered subject to an AMR, provide a justification for its exclusion.

RAI 2.3.3.8-4: Clarify whether sealants used to maintain the main control room envelope at positive pressure with respect to the adjacent area are included in the scope of the application and subject to an AMR. If within scope, provide the relevant information to complete Table 3.3-11 of the LR. If the sealants are not considered subject to an AMR, provide a justification for their exclusion.

RAI 2.3.3.8-5: The design basis function of radiation, chlorine, and smoke detection monitors is stated in each plant's UFSAR.

McGuire's Section 7.6.10.1.2 of the UFSAR states, "Isolation of the outside air intakes is initiated manually following either high radiation or high chlorine concentration alarms. High smoke level in the discharge duct of the control room AHU or the control room area AHU stops the AHU with the high smoke level. A smoke purge fan with manual controls is provided to clear the control room of smoke."

Catawba's Section 9.4.1.1 of the UFSAR states, "Each outside air intake location is monitored for the presence of radioactivity, chlorine, and products of combustion. Automatic isolation of an outside air intake occurs upon indication of high chlorine concentration. Should a high radiation level or smoke concentration level be detected in the intake, station procedure directs the operator to manually close the most contaminated intake."

However, the radiation, chlorine, and smoke detection monitors are not consistently highlighted on the VC flow diagrams or Table 3.3-11 of the LR (Refer to RAI 2.3.3.8-1 concerning radiation monitors). These monitors are not mentioned in Section 2.3.3.8 of the LR relative to scope and an AMR. Provide the relevant information about the radiation, chlorine, and smoke detection monitors to complete Table 3.3-11 in the LR. If the monitors are not subject to an AMR, provide exclusion justification.

RAI 2.3.3.8-6: Associated VC system ductwork components are not identified in Section 2.3.3.8 of the LR as within scope or subject to an aging management program. Associated ductwork components include passive items correlating to ductwork turning vanes, component flexible connections, duct heater housing, and ductwork test connections. Identify whether these control area ventilation passive components are subject to an AMR, and if so provide relevant information about the components to complete the aging management review result tables. If a component is not considered subject to an AMR, provide a justification for its exclusion.

2.3.3.10 Diesel Building Ventilation System (VD)

RAI 2.3.3.10-1: Components identified on the VD system flow diagrams referenced in Sections 2.3.3.10 as within scope based on intended function are not included in Table 3.3-13 of the LR. Table 3.3-13 of the LR lists the components subject to an AMR for the VD system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.3-13 of the LR. If a component is not considered subject to and AMR, provide a justification for its exclusion.

- VD fan housings are highlighted on flow diagrams for McGuire (MC-1579-1, C6, E6, G6, H6, J6, K6), (MC-2579-1, C6, E6, G6, H6, J6, K6) and Catawba (CN-1579-1, C6, D6, F6, G6, I6, K6). It is noted that Catawba unit 2 VD fan housings are not highlighted (CN-2579-1, C6, D6, F6, G6, I6, K6). The VD fan housing highlighting on flow diagrams is inconsistent.

- McGuire duct heater housings are highlighted on unit 1 flow diagram (MC-1579-1, E7, J8) and not highlighted on McGuire unit 2 flow diagrams (MC-2579-1, E8, J8).

- Ventilation supply grilles are highlighted on both McGuire (MC-1579-1 in 58 locations) and on Catawba (CN-2579-1, B9, D9, F9, G9, I9, K9) flow diagrams.

RAI 2.3.3.10-2: Components classified in Section 2.3.3.10 and Table 3.3-13 of the LR as being within scope is not included in the referenced VD flow diagram. Table 3.3-13 lists the components subject to an AMR for the VD system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to coordinate between the table and drawings and complete Table 3.3-13 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- McGuire and Catawba valve housings are not highlighted on VD flow diagram drawings.

- Pipe (McGuire only) is not highlighted on VD flow diagrams.

- Catawba unit 1 VD inlet ductwork (CN-1579-1) is highlighted with a single LR flag. VD inlet ductwork at McGuire (MC-1579-1, 1E, 1J), (MC-2579-1, 1E, 1J) and Catawba unit 2 (CN-2579-1, 10 locations) is highlighted with double LR flags. Resolve this inconsistency.

2.3.3.20 Fuel Handling Building Ventilation System (VF)

RAI 2.3.3.20-1: Components identified on the VF system flow diagrams referenced in Sections 2.3.3.20 of the LR or within scope based on intended function are not included in Table 3.3-28 of the LR. Table 3.3-28 of the LR lists the components subject to an AMR for the VF system. Identify whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.3-28 of the LR. If a component is not considered subject to and AMR, provide a justification for its exclusion.

- Fan housings are highlighted on VF flow diagrams for McGuire (MC-1577-1,H11, G11), (MC-1577-3, K12, J12), (MC-2577-1, G12, F12), (MC-2577-3, K12, J12) and Catawba (CN-1577-2.0, K6, K13, C6, C13), (CN-2577-2.0, K6, K13, D6, D13).

- Ventilation damper housings are highlighted on McGuire a VF flow diagram(MC-2577-1, H11, F10).

- Radiation monitors are highlighted on McGuire VF flow diagrams (MC-1577-3, K8) and (MC-2577-3, K8).

- Section 2.3.3.20 of the application and its referenced UFSAR sections identified a design basis purpose of controlling airborne radioactivity in the fuel pool area following a postulated fuel handling accident. The "filtration" intended function required to meet this application goal is not identified in Table 3.3-28 of the application.

- Smoke detectors are highlighted on Catawba VF flow diagrams (CN-1577-2.1, G4) and (CN-2577-2.1, G4).

- Return air grilles are highlighted on VF flow diagrams for McGuire (MC-1577-1, D4,D9), (MC-2577-1, C4, D8), (MC-1577-3, 14 locations), (MC-2577-3, 12 locations) and Catawba (CN-1577-2.0, 8 locations), (CN-2577-2.0, 8 locations).

- A transfer damper is highlighted on a Catawba VF flow diagram (CN-2577-2.0, J5).

RAI 2.3.3.20-2: Components identified in Section 2.3.3.20 and in Table 3.3-28 of the LR as being within scope are not included in the referenced VF flow diagrams. Table 3.3-28 lists the components subject to an AMR for the VF system. Identify whether the following components are subject to an AMR. Provide the relevant information concerning the components to allow completion of flow diagrams and Table 3.3-28 in the LRA. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- McGuire and Catawba air flow monitors are not highlighted on a VF system flow

diagram.

- A filter housing located on a McGuire VF system flow diagram is not highlighted (MC-1577-3, J10).

- McGuire and Catawba valve housings are not highlighted on any VF system flow diagram.

2.3.3.25 Miscellaneous Structures Ventilation System (VK)-Catawba Only

No RAIs were generated for the miscellaneous structures ventilation system.

2.3.3.29 Nuclear Service Water Pump Structure Ventilation System (VZ)-Catawba Only

RAI 2.3.3.29-1: Components identified in Section 2.3.3.29 of the LR and Section 7.6.21.1 of the Catawba UFSAR as being within scope is not included in Table 3.3-38 of the LR. Table 3.3-38 of the LR lists the components subject to an AMR for the VZ system. Identify whether the following components are subject to an AMR, and if so, provide the relevant component information to complete Table 3.3-38 of the LR. Provide a justification for exclusion if a component is not considered subject to an AMR.

- VZ system full capacity fans are identified as safety class in Section 7.6.21.1 of the Catawba UFSAR, but the fan housings are not identified in Table 3.3-38.

- Supply grilles are highlighted on the Catawba VZ system flow diagram (CN-1557-2.0, 12 locations).

- Birdscreens are highlighted on the Catawba VZ system flow diagram (CN-1557-2.0, J2, J12).

RAI 2.3.3.29-2: Valve housings identified in Table 3.3-38 of the LR as being within scope is not included in the Catawba VZ system flow diagram. Table 3.3-38 lists the components subject to an AMR for the VZ system. Identify whether the following components are subject to an AMR. If so, provide the relevant information about the components to coordinate between the table and drawings and complete Table 3.3-38 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

2.3.3.37 Turbine Building Ventilation System (VO)-McGuire Only

RAI 2.3.3.37-1: Components identified on McGuire VO system flow diagram MC-1614-4 and in Section 2.3.3.37 of the LR as being within scope are not included in Table 3.3-46 of the LR. Table 3.3-46 lists the components subject to an AMR for the McGuire VO system. Identify

whether the following components are subject to an AMR, and if so, provide the relevant information about the components to complete Table 3.3-46 of the LR. If a component is not considered subject to an AMR, provide a justification for its exclusion.

- Ventilation fan housings are highlighted on the McGuire flow diagram (MC-1614-4, J5, J11, H11, G9).
- Damper housings are highlighted on the McGuire flow diagram (MC-1614-4, K5, G8, G11, E11, D11).
- Duct heater housings are highlighted on the McGuire flow diagram (MC-1614-4, J7, H7).
- A ventilation pre-filter housing is highlighted on the McGuire flow diagram (MC-1614-4, I5).
- Ventilation supply air grilles are highlighted on the McGuire flow diagram (MC-1614-4, J7, I8, H8, H7).

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: "Rani Franovich" <RLF2@nrc.gov>
Date: 11/15/01 12:48PM
Subject: Re: Plant EFPY

Rani,
I have forwarded your request to my plant contacts and will send whatever I receive in response.

"Rani Franovich" <RLF2@nrc.gov> 11/15/2001 08:30 AM

To: <rlgill@duke-energy.com>
cc: "Lambros Lois" <LXL1@nrc.gov>
bcc:
Subject: Plant EFPY

Bob,
I have a request from a reviewer who wants to know what the current EFPY values are for the 4 Duke units (Catawba and McGuire). Can you provide that to us or refer us to some docketed correspondence that contains that information?
Thanks-
Rani

From: Rani Franovich
To: Bob Gill
Date: 11/15/01 2:17PM
Subject: October 11 Conference Call Summary - AMPs for Structures

Hi Bob,
Please share the attached conference call summary with Debbie and Sing-Chu (check the spelling for me on the List of Attendees). Would like to get this out tomorrow, if possible. If not, it is late already and can wait until Monday.
Thanks a bunch-
Rani

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 AGING MANAGEMENT PROGRAMS FOR STRUCTURES

On October 11, 2001, after the staff reviewed information provided in Appendix B 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 aging management programs for structures. Participants in the conference call are provided in an attachment.

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

B.3.2 Battery Rack Inspections

1. In Section B.3.2 of the LRA, the applicant stated that the parameters to be inspected in the battery rack inspection program include the visual examination of the battery racks for physical damage or abnormal detection, including the loss of material. This is appropriate for the inspections of the battery rack itself. However, inadequate anchor bolts of the battery racks may lead to loss of battery rack intended function. Consequently, the staff requests that the applicant provide a description of how to conduct the inspections of battery rack anchor bolts to ensure that loss of material of the anchorages does not prevent the battery racks from performing their intended functions.

   The applicant indicated that a station procedure is used to inspect for loss of material of the battery racks and all attendant sub-components (including anchor bolts). The staff may request additional information to determine the acceptability of guidance provided in station procedures for identifying and correcting aging effects associated with the battery rack anchorage bolts.

2. The acceptance criterion for the battery rack inspections program is "no visual indication of loss of material." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that Table 18-1 in the Catawba and McGuire UFSAR Supplements provides cross-references for UFSAR and Improved Technical

Specifications (ITS) for each of the aging management programs. The applicant indicated that, for Battery Rack Inspections, ITS Surveillance Requirement 3.8.4.4 and Selected Licensee Commitments 16.7-9.2 and 16.7-9.4 provide the acceptance criteria for these inspections. The staff reviewed these requirements and concluded that an acceptable level of detail was provided to support a staff conclusion about the adequacy of this aging management program. The staff is satisfied with this response from the applicant and has no additional questions on this issue.

B.3.7 Containment Inservice Inspection Plan - IWE

1. Based on the degradations described in "Operating Experience," and the fact that you plan to inspect and monitor the coated surfaces for evidences of flaking, blistering, etc., provide justification why you would not consider "coating" as part of the preventive action program, under the element "Preventive Action."

   The applicant indicated that coatings were not credited for managing the aging of the containment structure. Other aging management programs (IWE, IWL and Appendix J) are relied upon for monitoring the aging of containment. The staff is satisfied with this response from the applicant and has no additional questions on this issue.

2. Under the element, Parameters Monitored or Inspected, you explicitly exclude monitoring or inspection of Category E-B, E-D, E-F, and E-G of Table 2500-1 of Subsection IWE from *Containment Inservice Inspection Plan - IWE*. Please provide a summary of the alternatives that you have instituted to ensure the aging of the pressure-retaining containment components covered by these Categories is or will be effectively managed.

   The applicant indicated that Category E-B (Pressure Retaining Welds) and E-F (Pressure Retaining Dissimilar Metal Welds) Examinations are excluded from their Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is 10CFR50.55a(b)(2)(ix)(C) and SECY-96-080, which states "The NRC concludes that requiring these inspections is not appropriate. There is no evidence of problems associated with welds of this type in operating plants."

   The applicant indicated that Category E-D, Item E5.10 (Seals) and Item E5.20 (Gaskets) examinations are excluded from their Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is documented in Duke Energy Corporation Request for Relief, Serial No. 98-GO-001, approved by SER submitted by NRC letter dated September 3, 1998. Alternative examinations to be performed are as follows: "The leak-tightness of containment pressure retaining seals and gaskets will be verified by leak rate testing in accordance with 10 CFR 50, Appendix J, as required by Technical Specifications." The applicant also stated that Category E-D, Item E5.30 (Moisture Barriers) is NOT excluded from their Inservice Inspection Plan for McGuire and Catawba.

   The applicant indicated that Category E-G, Item E8.20 (Bolt Torque or Tension Tests for Bolted Connections) is excluded from their Inservice Inspection Plan for McGuire and Catawba. The basis for excluding these examinations is documented in Duke Energy

Corporation Request for Relief Serial No. 98-GO-002, approved by SER submitted by NRC letter dated November 24, 1998. Alternative examinations to be performed are as follows: (1) bolted connections shall receive a visual, VT-1 examination in accordance with requirements of Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item No. E8.10, and (2) a local leak rate test shall be performed on all containment penetrations, airlocks, and other pressure retaining bolted connections in accordance with 10 CFR 50, Appendix J. The applicant also stated that Category E-G, Item E8.10 (Bolted Connections Visual, VT-1) is NOT excluded from their Inservice Inspection Plan for McGuire and Catawba.

The staff will take this information into consideration, but may request additional information to complete its review of this item.

3. Please summarize the suspect areas that you have identified as requiring augmented inspection (as per IWE-1240) during the current inspection interval of *Containment Inservice Inspection Plan - IWE* (e.g., steel surface areas behind the ice-baskets). Also, summarize the areas subject to Category E-C examination and your plans to continue these examinations during the extended period of operation. Please provide this summary for McGuire (Units 1 and 2) and Catawba (Units 1 and 2).

   The applicant indicated that some areas (e.g. shell areas where corrosion had been discovered earlier) had been identified for augmented inspections. The staff will consider the information provided by the applicant but may request additional information to complete its review of this item.

B.3.8 Containment Leak Rate Testing Program

1. In the introductory part (i.e. prior to the discussion of the ten elements) of Section B.3.8, you exclude Type C testing from this test program. However, in order to satisfy the Surveillance Requirement SR 3.6.1.2 of the plant Technical Specification (and as described under the "Acceptance Criteria" element of this program), you will be conducting Type C testing under this program. Provide justification for excluding Type C testing from this program. For the purpose of computing the cumulative leakages for Type B and Type C testing, if you are conducting different tests for different isolation valve categories, please summarize the methods used and the way you would compute the cumulative leakage during the extended period of operation.

   The applicant indicated that Type B and Type C leak rate testing is performed as require by 10 CFR Part 50, Appendix J. Additionally, it is used to compute cumulative leakage. However, since these tests demonstrate the performance of active components (valve disks/seats of containment isolation valves), Duke does not credit these tests for the aging management (or monitoring) of valves. The staff is satisfied with this response from the applicant and has no additional questions on this issue.

2. Under "Preventive Action" element, you state, "No actions are taken as part of this program to prevent aging effects or mitigate aging degradation." For the pressure retaining penetrations with resilient seals, the staff understands that you will be

conducting a visual examination of the seals and gaskets to look for wear, tears and degradation before Type B and Type C tests are conducted (or under IWE Program, B.3.7 of this LRA), where applicable. Please state why you would not characterize such actions as preventive actions for managing the aging of these components during the period of extended operation.

The applicant indicated that the Containment Leak Rate Testing Program is a condition monitoring program, not an aging management program. As such, it is credited for revealing degradation rather than preventing it. Therefore, the "Preventive Action" is not applicable. The staff is satisfied with this response from the applicant and has no additional questions on this issue.

B.3.10 Crane Inspection Program

1. The acceptance criterion for the crane inspection program is "no unacceptable visual indication of loss of material." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that engineering judgement is applied to assess the severity of the observed degradations and determine if corrective action is necessary. The applicant and the staff agreed that additional information will be needed for the staff to complete its review of this item.

B.3.12 Fire Protection Program, B.3.12.1 Fire Barrier Inspections

1. Describe the inspection procedures that permit the timely detection of cracking/delamination and separation of the fire barrier penetration seals. The application states in the acceptance criteria that "separation from wall and through-holes shall not exceed limits as specified in the procedure." Indicate what these limits are and the basis for their selection.

   The applicant indicated that this inspection is governed by Selected Licensee Commitment (SLC) 16.9-5. The staff reviewed the SLC and determined that insufficient detail was provided to enable them to complete its review of this issue. The applicant and the staff agreed that additional information pertaining to the inspection of fire barrier penetration seals and associated acceptance criteria is needed for the staff to complete its review of this item.

B.3.13 Flood Barrier Inspection

1. The acceptance criterion for the flood barrier inspection program is "no unacceptable visual indication of cracking and change in material properties of elastomeric flood seals that would result in loss of intended function." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that engineering judgement is applied to assess the severity of

the observed degradations and determine if corrective action is necessary. The applicant and the staff agreed that additional information will be needed for the staff to complete its review of this item.

B.3.18 Ice Condenser Inspections

1. The acceptance criterion for the ice condenser inspections program is "no unacceptable visual indication of loss of material of the ice baskets that would prevent the ice condenser from performing its intended function." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that Table 18-1 of the McGuire FSAR Supplement references FSAR Supplement Section 18.2.14 and Improved Technical Specification (ITS) Surveillance Requirement (SR) 3.6.12 for this aging management program (AMP). Similarly, Table 18-1 of the Catawba FSAR Supplement references FSAR Supplement Section 18.2.14 and Technical Specification Surveillance Requirement 3.6.12 for this AMP. The staff reviewed the information provided in these references and concluded that the details and criteria provided therein constituted adequate acceptance criteria. The staff is satisfied with this response from the applicant and has no additional questions on this issue.

B.3.21 Inspection Program for Civil Engineering Structures and Components

1. Under the section entitled "Monitoring & Trending", the application states that inspectors are qualified by appropriate training and experience. Also under the section entitled "Acceptance Criteria", the application states that the severity of the observed degradation is evaluated by an accountable engineer. State the qualifications as well as the required training and experience for the inspectors and accountable engineer.

   The applicant indicated that an inspector performing this AMP would be a registered Professional Engineer with experience. The staff will consider the information provided, but may request additional information to complete its review of this AMP.

2. The acceptance criteria for the inspection program for civil engineering structures and components are "no unacceptable visual indication of loss of material, cracking or change of material properties of concrete, and loss of material for steel, as identified by the accountable engineer." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that a registered Professional Engineer would apply engineering judgement to assess the severity of the observed degradations and determine if corrective action is necessary. The applicant and the staff agreed that additional information will be needed for the staff to complete its review of this item.

B.3.30 Standby Nuclear Service Water Pond (SNSWP) Dam Inspection

1. Section B.3.30 of the LRA has referenced an independent consultant's inspection of the SNSWP Dam at McGuire; however, no reference has been made to such inspection at Catawba. Provide the results of any independent consultant's inspection at Catawba.

   The applicant indicated that NRC inspections of the Catawba SNSWP dam have been documented in NRC inspection reports that are available to the staff to review. The applicant also indicated that Table 18-1 of the Catawba and McGuire FSAR Supplements references ITS SR 3.7.8.3 for this aging management program. The staff is satisfied with this response and has no additional questions on this item.

2. Provide the qualifications of the "accountable engineer" who will (1) evaluate the performance of the SNSWP Dam (as reflected by the results of settlement monitoring and foundation pore pressure monitoring, etc.), and (2) recommend the needed repairs for the continued service of the Dam.

   The applicant indicated that a registered Professional Engineer will apply engineering judgement to evaluate the performance of the SNSWP Dam and 2 recommend the needed repairs for the continued service of the Dam. The applicant and the staff agreed that additional information will be needed for the staff to complete its review of this item.

3. The acceptance criteria for the standby nuclear service water pond dam inspection program are "no visual indications of abnormal degradation, vegetation growth, erosion, or excessive seepage that would affect the Standby Nuclear Service Water Pond Dam operability." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant reiterated that Table 18-1 of the Catawba and McGuire FSAR Supplements references ITS SR 3.7.8.3. The staff reviewed the test requirements associated with ITS SR 3.7.8.3 and determined that the surveillance requirements were not sufficiently detailed to enable the staff to determine the adequacy of the acceptance criteria. The staff will request additional information to complete its review of this item.

B.3.33 Technical Specification SR 3.6.16.3 Visual Inspection

1. The only detection of age-related degradation under technical specification SR 3.6.16.3 is by visual inspection. Areas of inspection include the walls and dome of the concrete Reactor Building. Explain how the inspections are conducted to be effective in areas that are many feet above the floor (monitoring & trending). Are there cranes or catwalks that allow close visual access to key areas to be inspected? Are visual enhancements such as binoculars used to increase the effectiveness of the inspections?

   The applicant indicated that visual inspections are performed from annulus stiffening rings, located at 10-foot intervals along the interior wall of the (containment vessel or reactor building?). The applicant also indicated that ladders are used to access the exterior containment dome, and binoculars are used to visually inspect the exterior containment walls. The staff will consider this information but may request additional information to complete its review.

2. In areas where leaching is observed on the Reactor Building dome or walls, a potential related consequence is that corrosion of rebar may be occurring. Is degradation of the rebar considered a credible concern with respect to parameters monitored or inspected, detection of aging effects? If so, what actions are taken to assess the status of the rebar (with respect to "monitoring and trending" and "acceptance criteria")?

   The applicant indicated that operating experience at Catawba and McGuire indicates that this is not a credible concern. The staff will consider this information, but may request additional information to complete its review of LRA Section 3.5, Aging Management of Containments, Structures, and Component Supports.

3. The scope of Technical Specification SR 3.6.16.3 involves inspections of "accessible surfaces" (monitoring & trending). Are there areas of the reactor building considered inaccessible that may be subject to age-related degradation? Where are these areas? What practical methods might be applied to inspect some or all of the inaccessible areas, perhaps on a less frequent schedule than is required under SR 3.6.16.3?

   The applicant indicated that the inaccessible areas of the reactor building are below grade, which is defined on page 3.5-2 of the LRA. According to this definition, portions of below grade structures are exposed to back fill and groundwater. The groundwater is not aggressive at either Catawba or McGuire as a function of pH ranges, chloride concentration and sulfate concentration. The applicant stated that, since inaccessible surfaces are exposed to the same environment as accessible areas, there is no need to perform inspections of these inaccessible areas. The applicant also referenced page II A1-7 of the Generic Aging Lessons Learned report to demonstrate that inspection of inaccessible areas was not warranted. The staff will consider the information provided by the applicant, but may request additional information to confirm that below-grade chemistry is periodically monitored to demonstrate that the below-grade environment is not aggressive.

4. The acceptance criteria for the Technical Specification SR 3.6.16.3 visual inspection program are "based on visual indication of structural damage or degradation. For concrete, the acceptance criterion is no unacceptable indication of change in material property due to leaching." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant and the staff agreed that additional information will be needed for the staff to complete its review of this item.

B.3.35 Underwater Inspection of Nuclear Service Water Structures (EMEB/Pichumani)

1. Provide the qualifications of the "accountable engineer" who will be responsible for determining the need for repairs of the NSW structures and components at both Catawba and McGuire.

   The applicant and staff agreed that additional information is needed for the staff to complete its review of this item.

2. The acceptance criteria for the underwater inspection of nuclear service water structures are "no visual indications of (1) loss of material for steel components and (2) loss of material and cracking for concrete components, as determined by the accountable engineer." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that additional information can be provided to the staff so that they can completeits review of 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.

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

cc w/attachment: See next page

2. The acceptance criteria for the underwater inspection of nuclear service water structures are "no visual indications of (1) loss of material for steel components and (2) loss of material and cracking for concrete components, as determined by the accountable engineer." Describe the criteria for (1) assessing the severity of the observed degradation, and (2) determining whether or not corrective action is necessary.

   The applicant indicated that additional information can be provided to the staff so that they can completeits review of 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.

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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Division of Regulatory Improvement Programs
COVER PAGE

DATE: November 13, 2001

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON AGING MANAGEMENT PROGRAMS FOR STRUCTURES

ORIGINATOR: R. Franovich

SECRETARY: S. Chey

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ADAMS ACCESSION NUMBER: **ML** DATE ENTERED: / /01

FORM 665 ATTACHED and filled out: **YES NO**

COMMITMENT FORM ATTACHED: **YES NO**

McGuire & Catawba Nuclear Stations, Units 1 and 2

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OCTOBER 11, 2001

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Pei-Ying Cheng

Hansraj Ashar

John Ma

Duke Energy Corporation Participants

Greg Robison

Bob Gill

Debra Keiser

Sing-Chu

Mark Furleise

Attachment

From: Rani Franovich
To: Robert L Gill Jr
Date: 11/15/01 4:47PM
Subject: Re: Response to Air Systems RAIs

Okay. Thanks, Bob. This works pretty well, I think.
Rani

>>> "Robert L Gill Jr" <rlgill@duke-energy.com> 11/15/01 04:45PM >>>

Rani,

Here is the initial Duke response to the 4 Air / Nitrogen System RAIs sent on 11/14

1. The drawings indicate that the piping is either Class B (Containment Isolation) or Class F (system interaction). Reviewer may want to review the scoping methodology in the LRA as well as the drawings.

2. Please refer this question to the Part 50 PMs for their consideration. License renewal is not involved with updating this portion of the FSARs.

3. The second sentence is an incorrect read of the statements made in LRA Section 2.3.3.26. The portion of the nitrogen system within scope is Class F to preclude postulated failures. Reviewer should review the scoping methodology discussed in the LRA.

4. Duke suggests that this question should be sent formally.

After you discuss these with the reviewer, we can discuss further if necessary.

Bob

"Rani Franovich" <RLF2@nrc.gov> 11/14/2001 10:57 AM

To: <rlgill@duke-energy.com>
cc:
bcc:
Subject: More RAIs

Bob,
Attached are preliminary questions on control air systems and leaik before break analysis. We'll settle on a conference call once you and your folks have had a chance to review the questions.

Thanks-
Rani

(See attached file: Catawba-McGuire LRA RAI's.wpd)(See attached file: MCGUIREC.WPD)

From: Rani Franovich
To: Bob Gill
Date: 11/15/01 3:30PM
Subject: More RAIs

Bob,
Attached is a file of RAIs on Section 4.6 (Containment Liner Plate, Metal Containments, and Penetration Fatigue Analysis) of the Application.
Have a safe trip to Greensboro - will talk with you Monday.
Rani

REQUEST FOR ADDITIONAL INFORMATION

McGuire Units 1 and 2. Catawba Units 1 and 2.

4.6 CONTAINMENT LINER PLATE, METAL CONTAINMENTS, AND PENETRATION FATIGUE ANALYSES

4.6.1 Section 4.6.2 "Metal Containments" refers to Section 3.9.2.8 of the McGuire UFSAR and Section 3.4.2.4 of the Catawba UFSAR. These sections state that mechanical penetrations are treated as fabricated piping assemblies meeting the requirements of ASME Section III Section NC, and are assigned the same classification as the piping system that includes the assembly. Table 3.5 of the UFSAR indicates that the applicable code design criteria for Duke Class A piping is ASME Section III, Class 1, 1971. Provide justification for designing the Duke Class A piping containment mechanical penetrations, including the bellows, to the requirements of ASME Section III, Subsection NC.

4.6.2 Provide detailed justification why a fatigue TLAA was not required for the steel containment vessel, as stated in Section 4.6.2, for loadings resulting from operating transients, peak containment internal pressure resulting from the design basis LOCA, design basis SSE, and leakage rate testing, in addition to the loading resulting from the transient expansions of the bellows.

4.6.3 Sections 4.6.3.1 "McGuire Design and Time-Limited Aging Analysis Evaluation" and 4.6.3.2 "Catawba Design and Time-Limited Aging Analysis Evaluation," refer to cracking as an aging effect which could result from cyclic fatigue, requiring fatigue management of the penetration bellows for the period of extended operation. "The Containment Leak Rate Testing Program," discussed in Section B.3.8, has been identified as the program that manages cracking of the bellows. The element, "McGuire Operating Experience," in Section B.3.8 states that several leaking penetration bellows were identified after twenty years of operation, and that some are currently cracked but the test leakages are within Technical Specification limits.

a. For the McGuire and the Catawba plants, provide the number of bellows where leaking cracks have been found, and the number of bellows that have been replaced, since the beginning of operation of these plants.

b. For the McGuire and the Catawba plants, provide the number of Duke Class A and Class B bellows that are currently cracked.

c. Table 3.5-1 "Aging Management Review Results," indicates that the function of the bellows and mechanical penetrations is to provide a pressure boundary and/or fission product barrier. Provide justification for operating with cracked bellows during the period of current operation and the proposed period of extended operation.

4.6.4 Section 4.6.3.1 indicates that the vendors of the bellows performed cyclic life evaluations and stated that the life of the bellows is well beyond what the bellows would see during normal operation in 40 years of plant operation. Provide the root cause of bellows

cracking as a result of fatigue failure within 20 years from the start of plant operation, well short of the vendor calculated bellow lives.

4.6.5 In Sections 4.6.3.1 "McGuire Design and Time-Limited Aging Analysis Evaluation" and 4.6.3.2 "Catawba Design and Time-Limited Aging Analysis Evaluation," provide the basis for the concluding that Criterion (4) of §54.3 is not met, i. e., the determination that the penetration bellows fatigue analyses at the McGuire and Catawba plants are not relevant in making any safety determination. Explain this statement since cracked bellows have been found at McGuire and Catawba, and the function of the bellows is to act as a pressure and fission barrier.

From: Rani Franovich
To: Bob Gill; Clifford Munson
Date: 11/16/01 8:03AM
Subject: Conference Call Summary on ISI Plan

Cliff and Bob,
Please review the attached summary and share with your contractor/team. Comments by COB Monday, November 19, would be greatly appreciated. See ya-
Rani

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 THE INSERVICE INSPECTION PLAN

On October 15, 2001, after the NRC (the staff) reviewed information provided in Appendix B of the license renewal application (LRA), a conference call was conducted between the staff and Duke Energy Corporation (the applicant) to clarify information presented in the application pertaining to aging management programs for structures. Participants in the conference call are provided in an attachment.

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

B.3.20 Inservice Inspection Plan

1. The LRA states that the inservice inspection plan includes the following inspections and activities: (1) ASME Section XI, Subsections IWB and IWC (secondary side of steam generators) inspections, (2) ASME Section XI, Subsection IWF inspections, (3) small bore piping, and (4) McGuire Unit 1 cold leg elbow. It is not clear if the inservice inspection plan also includes Class 2 components other than those associated with the secondary side of steam generators. Describe what inservice inspection and or augmented inspection programs are being credited to manage aging effects in the remaining Class 2 components and their integral attachments (scope).

   The applicant indicated that the Inservice Inspection Plan was not credited for managing the aging of any Class 2 or Class 3 components. Other aging management programs (e.g. Chemistry Control Program, Inspection Program for Civil Engineering Structures and Components, and Fluid Leak Management Program) will be used to manage the aging of these components because they will be capable of detecting degradation (loss of material) such that corrective actions can be taken before failures occur. The applicant states that the Inservice Inspection Plan would reveal only failures. As such, the alternative plans would allow for the detection of degradation and implementation of corrective actions before a failure is incurred. The staff is satisfied with this response and has no additional questions on this item.

2. The inservice inspection plan in the LRA does not address Class 3 pressure retaining components and associated integral attachments. Describe what inservice inspection

and or augmented inspection programs are being credited to manage the aging effects of Class 3 components and their integral attachments.

The applicant provided the same rationale in response to this question that was provided for the first question. The staff is satisfied with this response and has no additional questions on this item.

3. The LRA states (scope) that all Class 1 pressure-retaining components and their integral attachments are included in the scope of the ASME Section XI, Subsections IWB and IWC Inspections. The ASME Section XI inspection scope for Class1?? pressure-retaining components and their integral attachments are not included in ASME Section XI, Subsection IWC. Is it Duke's intent to include all Class 2 pressure retaining components and their integral attachments in the inservice inspection plan? If so, this appears to be in conflict with the statements referred to in question 1.

   The applicant indicated that aging management of Class 2 components associated with the steam generators only is governed by the inservice inspection plan. The staff is satisfied with this response and has no additional questions on this item.

4. In B.3.20.1 (parameters monitored or inspected) the LRA states that Class 1 component welds, integral attachments, piping welds, bolted closures and supports as well as the Class 2 pressure boundary portions of the steam generators (welds and welded attachments) are inspected for cracking and loss of material but fails to address the remaining Class 2 pressure boundary components and integral attachments. Describe what parameters or indicators will be monitored or inspected in the remaining Class 2 pressure retaining components and integral attachments in order to detect the presence of aging effects.

   The applicant provided the same rationale in response to this question that was provided for the first question. The staff is satisfied with this response and has no additional questions on this item.

5. The LRA states that the risk-informed process used to select piping elements for inspection is consistent with all Class 1 piping (i.e., large bore, small bore and socket welds) with an internal diameter greater than 3/8-inch NPS. Describe how the results of the risk-informed evaluations will be integrated into the inservice inspection plan regarding parameters monitored or inspected, detection of aging effects, and monitoring and trending.

   The applicant indicated that the risk-informed methodology was established in WCAP 14572 and described in a relief request submitted to the staff on June 1, 2001, for McGuire Unit 1. The staff will review these documents and determine if additional information is needed to complete their review of 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.

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

cc w/attachment: See next page

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

Rani L. Franovich, Project Manager
License Renewal Project Directorate
Division of Regulatory Improvement Programs
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Docket Nos. 50-369, 50-370, 50-413, and 50-414

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DATE: November 14, 2001

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON THE INSERVICE INSPECTION PLAN

ORIGINATOR: R. Franovich

SECRETARY: S. Chey

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ADAMS ACCESSION NUMBER: **ML** DATE ENTERED: / /01

FORM 665 ATTACHED and filled out: **YES** **NO**

COMMITMENT FORM ATTACHED: **YES** **NO**

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OCTOBER 15, 2001

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Rani Franovich

Clifford Munson

Duke Energy Corporation Participants

Greg Robison

Bob Gill

Mary Hazeltine

Debra Keiser

Mike Semmler

Attachment

From: Rani Franovich
To: Bob Gill
Date: 11/16/01 11:13AM
Subject: RAIs on Section 3.2, AMR of ESFs

Bob,
The file of RAIs is attached. There are just a few. One of them (RAI 3.6) can porbably be eliminated, 3.2 needs a basis. I'll work with George on those two.
Thanks-
Rani

Engineered Safety Features RAIs

RAI 3.2 The application does not define any of the aging effect listed in Tables 3.2-1 through 3.2-8. Paragraph 3.2.1, Aging Management Review Results Tables, Column 5 states that aging effects identification process is consistent with the process used in Oconee Nuclear Station. The Oconee application defined each aging effect in its Appendix C. Is the McGuire/Catawba LRA referencing Oconee's application for definition of aging effects?

RAI 3.2.2 In Table 3.2-2, on page 3.2-22, the applicant specifies the Fluid Leak Management Program and the Inspection Program for Civil Engineering Structures and Components as the aging management programs (AMPs) for carbon steel valve bodies. However, on page 3.2-23, the applicant specifies only the Inspection Program for Civil Engineering Structures and Components as the AMP for carbon steel valve bodies. The staff requests that the applicant provide information that explains the difference between these review results. (A. Smith)

RAI 3.2.6 In Table 3.2-6, on page 3.2-36, the applicant identifies cracking as an aging effect for stainless steel in a borated water environment. However, on page 3.2-37, the applicant identifies only loss of material for carbon steel in the same environment. The staff requests that the applicant provide information supporting the exclusion of cracking as an aging mechanism for carbon steel in the borated water environment.

RAI 3.2.7 In Table 3.2-7, you identify that the internal surfaces of the carbon steel residual heat removal (ND) heat exchanger (HX) shells and ND pump seal water HX shells are both exposed to treated water environments. Clarify either by reference to appropriate information in the application or by discussion why cracking is identified as an applicable aging effect for the ND HX shells but not for the ND pump seal water HX shells. (J. Medoff)

RAI 3.2.8 In Table 3.2-8, you identify that the external surfaces of some of the carbon steel piping and valve bodies in the safety injection (NI) systems are exposed to sheltered air environments. Clarify either by reference to appropriate information in the application or by discussion why loss of material is identified as an applicable aging effect for the carbon steel NI piping that is exposed sheltered air but not for the carbon steel NI valve bodies that are exposed to the same environment. (J. Medoff)

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: "Rani Franovich" <RLF2@nrc.gov>
Date: 11/19/01 8:18AM
Subject: LBB Questions

Rani,
The second LBB question concerns providing a comparison between data in two documents - WCAP-10456 and NUREG-6177. The WCAP is proprietary and I was wondering if NRC could find it in its library. This document was used by Westinghouse NSSS plants back in the eraly 1980's to initially address LBB and I'm sure it was provided to the NRC for review. The LBB question for MNS/CNS might be answerable by the reviewer if he had both of these documents to look at. Please advise.
Bob

"Rani Franovich" <RLF2@nrc.gov> 11/14/2001 10:57 AM
To: <rlgill@duke-energy.com>
cc:
bcc:
Subject: More RAIs

Bob,
Attached are preliminary questions on control air systems and leaik before break analysis. We'll settle on a conference call once you and your folks have had a chance to review the questions.
Thanks-
Rani

(See attached file: Catawba-McGuire LRA RAI's.wpd)(See attached file: MCGUIREC.WPD)

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: "Rani Franovich" <RLF2@nrc.gov>
Date: 11/15/01 4:46PM
Subject: Response to Air Systems RAIs

Rani,

Here is the initial Duke response to the 4 Air / Nitrogen System RAIs sent on 11/14

1. The drawings indicate that the piping is either Class B (Containment Isolation) or Class F (system interaction). Reviewer may want to review the scoping methodology in the LRA as well as the drawings.

2. Please refer this question to the Part 50 PMs for their consideration. License renewal is not involved with updating this portion of the FSARs.

3. The second sentence is an incorrect read of the statements made in LRA Section 2.3.3.26. The portion of the nitrogen system within scope is Class F to preclude postulated failures. Reviewer should review the scoping methodology discussed in the LRA.

4. Duke suggests that this question should be sent formally.

After you discuss these with the reviewer, we can discuss further if necessary.

Bob

"Rani Franovich" <RLF2@nrc.gov> To: <rlgill@duke-energy.com>
cc:
bcc:
Subject: More RAIs
11/14/2001 10:57 AM

Bob,
Attached are preliminary questions on control air systems and leaik before break analysis. We'll settle on a conference call once you and your folks have had a chance to review the questions.
Thanks-
Rani

(See attached file: Catawba-McGuire LRA RAI's.wpd)(See attached file:

MCGUIREC.WPD)

RAI's Catawba/McGuire LRA

1. There is insufficient information given in the application and UFSAR to assess the Catawba instrument air system. Specifically, there is no information provided which discusses the safety related nature or support role to any safety related functions the system has nor is sufficient information provided to ascertain that the system does not support any safety related function. Please provide the design basis document and a readable simplified schematic drawing for the system and any other narrative information which will provide this.

2. The McGuire nitrogen system is safety-related. The Catawba nitrogen system supports safety-related functions. This system is not included in either the McGuire or Catawba UFSAR. Consider including a new section in the next revision of both UFSARs that addresses the nitrogen system.

3. There is insufficient information given in the application to assess the Catawba nitrogen system. The application does indicate that "certain safety-related functions" are supported by the nitrogen system. What are these safety-related functions?

4. License Renewal Application paragraph 2.1.1.2.1 states that some Duke Class G (nonsafety-related) components may be relied upon to remain functional during and following design basis events. Nuclear Service Water flow diagram CN-1574-1.5, Note 16, indicates that buried Class G piping from the auxiliary building to isolation valves 1RL054 and 1RL062 is seismically designed. It is not discernable from the flow diagram that this piping is within scope. Is this Duke Class G piping within the scope of license renewal?

RAI Regarding Leak-Before-Break Analyses for the License Renewal Application by Mcguire, Units 1 and 2 and Cataba, Units 1 and 2

(1) For the primary loop piping of the reactor coolant system for both units, the licensee should identify the welds along the piping that was fabricated from Alloy 82/182 weld material. Licensee should explain why, given the Summer main coolant loop weld cracking event, that they feel that the subject line at their facility will continue to meet the underlying requirements for the application of leak-before-break (LBB) into the license renewal period. In particular the licensee should address the "criteria" from NUREG-1061, Vol. 3, which suggests that no active degradation mechanism (mechanism that would undermine the assumption of the LBB analysis) can be present in the primary loop piping which is under consideration for LBB. The draft Standard Review Plan (DSRP) 3.6.3 which would have permitted lines subject to a potentially active degradation mechanism (like IGSCC) to be considered for LBB application provided that two mitigating actions/programs were in place (like residual stress improvement and hydrogen water chemistry) to address the potentially active degradation mechanism. As part of the above mentioned effort, the applicant should commit to implementing the resolutions from the ongoing NRC/Industry program on Alloy 82/182 weld material to ensure the validity of the LBB analyses at McGuire, Units 1 and 2 and Cataba, Units 1 and 2 during the license renewal period.

(2) On page 4.7-2, it was stated that the lower bound data in WCAP-10456 was compared to the lower bound data in NUREG-6177 and found to be comparable. Provide this comparison.

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: <RLF2@nrc.gov>
Date: 11/19/01 11:18AM
Subject: Re: Conference Call Summary on ISI Plan

Just one other comment - ISI IWF was credited for managing Class 1, 2, and 3 piping and component supports.
(Note: Civil Inspection and Fluid Leak Management are also credited.)
----- Forwarded by Robert L Gill Jr/Gen/DukePower on 11/19/2001 11:15 AM -----

Robert L Gill Jr
11/19/2001 09:58 AM

To: "Rani Franovich" <RLF2@nrc.gov>
cc: Gregory D Robison/Gen/DukePower@DukePower
bcc:
Subject: Re: Conference Call Summary on ISI Plan(Document link: Robert L Gill Jr)

Here are some comments -

The first paragraph, 4th line down, should read "... pertaining to the Inservice Inspection Plan." Not "aging management programs for structures."

Question #1, 2nd paragraph, 8th line should read: "As such, the credited aging management programs..." They are not alternatives, they are the way to manage aging.

Question #3, lines 5 and 6, seems to be poorly worded. Clearly Class 2 pressure retaining components and their integral attachments are in the ISI Plan. However, only the ISI Plan inspections required for the steam generators are credited for license renewal. Staff could revise the sentence on line 6 to read: "...components and their integral attachments in the inservice inspection plan as credited for license renewal?"

Question #5, The correct date is June 26, 2001 and the request for relief in fact applies to both Units 1 and 2.

"Rani Franovich" <RLF2@nrc.gov>
11/16/2001 08:03 AM

To: <rlgill@duke-energy.com>, "Clifford Munson" <CGM1@nrc.gov>
cc:
bcc:
Subject: Conference Call Summary on ISI Plan

Cliff and Bob,
Please review the attached summary and share with your contractor/team. Comments by COB Monday, November 19, would be greatly appreciated. See ya-
Rani

(See attached file: Conference Call Summary Oct 15 01 - Inservice Inspection Program.wpd)

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 THE INSERVICE INSPECTION PLAN

On October 15, 2001, after the NRC (the staff) reviewed information provided in Appendix B of the license renewal application (LRA), a conference call was conducted between the staff and Duke Energy Corporation (the applicant) to clarify information presented in the application pertaining to aging management programs for structures. Participants in the conference call are provided in an attachment.

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

B.3.20 Inservice Inspection Plan

1. The LRA states that the inservice inspection plan includes the following inspections and activities: (1) ASME Section XI, Subsections IWB and IWC (secondary side of steam generators) inspections, (2) ASME Section XI, Subsection IWF inspections, (3) small bore piping, and (4) McGuire Unit 1 cold leg elbow. It is not clear if the inservice inspection plan also includes Class 2 components other than those associated with the secondary side of steam generators. Describe what inservice inspection and or augmented inspection programs are being credited to manage aging effects in the remaining Class 2 components and their integral attachments (scope).

   The applicant indicated that the Inservice Inspection Plan was not credited for managing the aging of any Class 2 or Class 3 components. Other aging management programs (e.g. Chemistry Control Program, Inspection Program for Civil Engineering Structures and Components, and Fluid Leak Management Program) will be used to manage the aging of these components because they will be capable of detecting degradation (loss of material) such that corrective actions can be taken before failures occur. The applicant states that the Inservice Inspection Plan would reveal only failures. As such, the alternative plans would allow for the detection of degradation and implementation of corrective actions before a failure is incurred. The staff is satisfied with this response and has no additional questions on this item.

2. The inservice inspection plan in the LRA does not address Class 3 pressure retaining components and associated integral attachments. Describe what inservice inspection

and or augmented inspection programs are being credited to manage the aging effects of Class 3 components and their integral attachments.

The applicant provided the same rationale in response to this question that was provided for the first question. The staff is satisfied with this response and has no additional questions on this item.

3. The LRA states (scope) that all Class 1 pressure-retaining components and their integral attachments are included in the scope of the ASME Section XI, Subsections IWB and IWC Inspections. The ASME Section XI inspection scope for Class1?? pressure-retaining components and their integral attachments are not included in ASME Section XI, Subsection IWC. Is it Duke's intent to include all Class 2 pressure retaining components and their integral attachments in the inservice inspection plan? If so, this appears to be in conflict with the statements referred to in question 1.

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   The applicant indicated that the risk-informed methodology was established in WCAP 14572 and described in a relief request submitted to the staff on June 1, 2001, for McGuire Unit 1. The staff will review these documents and determine if additional information is needed to complete their review of 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.

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

cc w/attachment: See next page

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Rani L. Franovich, Project Manager
License Renewal Project Directorate
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Division of Regulatory Improvement Programs
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DATE: November 14, 2001

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON THE INSERVICE INSPECTION PLAN

ORIGINATOR: R. Franovich

SECRETARY: S. Chey

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FORM 665 ATTACHED and filled out: **YES** **NO**

COMMITMENT FORM ATTACHED: **YES** **NO**

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To: Bob Gill
Date: 11/19/01 1:56PM
Subject: Fwd: Re: Duke LRA, B.3.36, Waste Gas System Inspection Program

Bob,
The following questions are on AMP B.3.36, Waste Gas System Inspection Program.

B.3.36 Waste Gas System Inspection (EMEB/Jain)
(Cliff, these questions will be deleted from this conference call summary, since they were never discussed. However, they should be discussed during a separate conference call, date to be determined.)

1. In section B.3.36 of the LRA, under Monitoring & Trending:

(a) The applicant stated that the waste gas system inspection will use a volumetric technique to inspect four sets of material/environment combinations. Describe the four sets of material/environment combinations. Also, describe is there more here?

(b) The applicant stated that the selection of the specific areas for inspection for the above material/environment combinations will be the responsibility of the system engineer. Discuss the selection criteria that will be used by the system engineer for the inspection of the specific areas.

(c) In items (1) through (4), the applicant described the inspection criteria for cases where no parameters are known that would distinguish the susceptible locations at each site. Describe the inspection criteria, including the sample size, that will be used for those cases where the parameters are known that would distinguish the susceptible locations at each site.

2. The acceptance criteria for the waste gas system inspection program are "no unacceptable loss of material or cracking that could result in a loss of the component intended function(s) as determined by engineering evaluation." Describe the criteria for (1) assessing the severity of the observed degradations and (2) determining whether corrective action is necessary.

Please share these with Mike and Rounette and le me know if we can discuss them with the reviewer next week (the 27th, 28th or 29th). Thanks a bunch-
Rani

From: Bhagwat Jain
To: Rani Franovich
Date: 11/19/01 10:25AM
Subject: Re: Duke LRA, B.3.36, Waste Gas System Inspection Program

I am available next week on 27,28, and 29.

>>> Rani Franovich 11/19/01 10:08AM >>>
BP,
We failed to ask your questions on the Waste Gas System Inspection during our October 25 conference call with the applicant. I would like to arrange for a separate call. When are you available this week and next week?
Rani

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: <RLF2@nrc.gov>
Date: 11/19/01 3:38PM
Subject: Comments on 10/11 Conference Call Summary

Attached are Duke comments on the subject draft telecon summary.
----- Forwarded by Robert L Gill Jr/Gen/DukePower on 11/19/2001 03:36 PM

Debra V Keiser
11/19/2001 01:12 PM

To: Robert L Gill Jr/Gen/DukePower@DukePower
cc:
bcc:
Subject: Comments on 10/11 Conference Call Summary

(See attached file: Comments on Conference Call Summary-10-11.doc)

Comments on Conference Call Summary
October 11, 200 – Aging Management Programs for Structures

B.3.2 Battery Rack Inspections

Question 1, third sentence – change "inadequate" anchor bolts to "degraded" anchor bolts.

Question 2, response – The ITS and SLC numbers are for Catawba only. The references for MNS are ITS Surveillance Requirement 3.8.4.3 and Selected Licensee Commitments 16.8.3.3, 16.9.7.12 and 16.9.7.17.

B.3.8 Containment Leak Rate Testing Program

Question 1, response – change "require" in first sentence to "required". Change second sentence to read, "However, since the Type C tests demonstrate……".

Question 2, response – change first sentence to read "The applicant indicated that the visual examination performed as part of the Containment Leak Rate Testing Program is a condition monitoring program." Delete the part of the sentence that states "not an aging management program."

B.3.30 Standby Nuclear Service Water Pond (SNSWP) Dam Inspection

Question 1, response – Insert as first two sentences, "The applicant indicated that the independent consultant inspection at McGuire is required by the state. No independent consultant inspection is required at CNS."

Question 1, response – the (SR) 3.7.8.3 is for MNS only, Table 18-1 of the FSAR Supplement incorrectly states the same number for CNS. The number for CNS should be (SR) 3.7.9.3.

Question 2, response – please add "(1)" in front of evaluate and change "2" to "(2)".

B.3.33 Technical specification SR 3.6.16.3 Visual Inspection

Question 1, response – delete the first sentence of response and add the following two sentences as intro, "The applicant indicated that visual inspections of the interior surface of the concrete Reactor Building are performed in the annulus space between the exterior of the steel containment vessel and the concrete. Containment vessel stiffening rings are located at 10-feet intervals along the exterior of the steel containment vessel and act as a platform for the inspectors to stand on while examining the concrete surface. The applicant also indicated….."

Question 3, response – change the entire response to read, "The applicant indicated that inaccessible areas of the reactor building are located below grade and in areas where an

obstruction such as equipment may make the location inaccessible for inspection. In areas where there is an obstruction, the inaccessible surfaces are exposed to the same environment, Reactor Building environment, as the accessible surfaces. Therefore, the accessible surfaces provide a leading indicator for the inaccessible surface. For the below grade portions of the concrete, the structure is exposed to back fill and groundwater. The groundwater at McGuire and Catawba is not aggressive since the pH, chloride, and sulfate concentrations are below the limits where degradation would occur. The pH, chloride, and sulfate levels are identified on page 3.5-2 of the LRA. The applicant also referenced page II A1-7 of the Generic Aging Lessons Learned report to demonstrate that inspection of inaccessible areas was not warranted. The staff will consider the information provided by the applicant, but may request additional information to confirm that below-grade chemistry is periodically monitored to demonstrate that the below-grade environment is not aggressive."

B.3.35 Underwater Inspection of Nuclear service Water Structures

Question 2, response – add space between "complete" and "its".

Telecommunication Participants

Delete the hyphen on Sing Chu.
The name of the last Duke participant is Mark Ferlisi.

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: "Rani Franovich" <RLF2@nrc.gov>
Date: 11/20/01 7:38AM
Subject: Re: RAIs on Section 3.2, AMR of ESFs

Rani,
These are the Duke responses to the RAIs previously provided:

RAI 3.2 - we used terminology common to industry, GALL, SRP for aging effects (Rani to check basis for question)

RAI 3.2.2 - on page 3.2-22, valve/CS is located in the Reactor Building. Because of systems containing borated water in the vicinity, Fluid Leak Management is credited as well as the Civil Insp program. On page 3.2-23, the environment is sheltered rather than Reactor Building. In fact the valves listed on page 3.2-23 are located in the Dog Houses (no systems containing borated water in the vicinity) and thus are not subject to loss of material due to Boric Acid Corrosion. Thus, only the Civil Insp is credited.

RAI 3.2.6-Rani to check

RAI 3.2.7 - Error in LRA - ND pump seal water HX shells should include cracking as an aging effect.

RAI 3.2.8 - Error in LRA Table 3.2-8, page 3.2-48, It should read for valve bodies/PB/CS/Loss of Material/ Fluid Leak Management Program and Inspection Program for Civil Engineering Structures and Components

"Rani Franovich" <RLF2@nrc.gov> 11/16/2001 11:13 AM

To: <rlgill@duke-energy.com>
cc:
bcc:
Subject: RAIs on Section 3.2, AMR of ESFs

Bob,
The file of RAIs is attached. There are just a few. One of them (RAI 3.6) can porbably be eliminated, 3.2 needs a basis. I'll work with George on those two.
Thanks-
Rani

(See attached file: RAIs from George October 2.wpd)

CC: "Gregory D Robison" <gdrobiso@duke-energy.com>, "Rounette K Nader" <rknader@duke-energy.com>

Engineered Safety Features RAIs

RAI 3.2 The application does not define any of the aging effect listed in Tables 3.2-1 through 3.2-8. Paragraph 3.2.1, Aging Management Review Results Tables, Column 5 states that aging effects identification process is consistent with the process used in Oconee Nuclear Station. The Oconee application defined each aging effect in its Appendix C. Is the McGuire/Catawba LRA referencing Oconee's application for definition of aging effects?

RAI 3.2.2 In Table 3.2-2, on page 3.2-22, the applicant specifies the Fluid Leak Management Program and the Inspection Program for Civil Engineering Structures and Components as the aging management programs (AMPs) for carbon steel valve bodies. However, on page 3.2-23, the applicant specifies only the Inspection Program for Civil Engineering Structures and Components as the AMP for carbon steel valve bodies. The staff requests that the applicant provide information that explains the difference between these review results. (A. Smith)

RAI 3.2.6 In Table 3.2-6, on page 3.2-36, the applicant identifies cracking as an aging effect for stainless steel in a borated water environment. However, on page 3.2-37, the applicant identifies only loss of material for carbon steel in the same environment. The staff requests that the applicant provide information supporting the exclusion of cracking as an aging mechanism for carbon steel in the borated water environment.

RAI 3.2.7 In Table 3.2-7, you identify that the internal surfaces of the carbon steel residual heat removal (ND) heat exchanger (HX) shells and ND pump seal water HX shells are both exposed to treated water environments. Clarify either by reference to appropriate information in the application or by discussion why cracking is identified as an applicable aging effect for the ND HX shells but not for the ND pump seal water HX shells. (J. Medoff)

RAI 3.2.8 In Table 3.2-8, you identify that the external surfaces of some of the carbon steel piping and valve bodies in the safety injection (NI) systems are exposed to sheltered air environments. Clarify either by reference to appropriate information in the application or by discussion why loss of material is identified as an applicable aging effect for the carbon steel NI piping that is exposed sheltered air but not for the carbon steel NI valve bodies that are exposed to the same environment. (J. Medoff)

From: "Robert L Gill Jr" <rlgill@duke-energy.com>
To: "Rani Franovich" <RLF2@nrc.gov>
Date: 11/20/01 6:54AM
Subject: Re: Fwd: LBB Questions (Duke LRA Review - Catawba and McGuire)

Rani, thanks for the note. Here is the Duke response to the two questions.

Question #1 - There are no welds along the piping at MNS or CNS that are fabricated from Alloy 82/182 weld metal. All of the MNS/CNS loop piping is cast stainless steel with stainless steel welds.

As we understand, the weld at Summer that cracked was a reactor vessel to loop weld. For MNS and CNS, this weld is listed in Table 3.1-1 on page 3.1-11. Aging management programs credited include the Alloy 600 Aging Management Review, which is described in Appendix B, B.3.1, as well as other programs.

With respect to NUREG-1061, Volume 3 and draft SRP 3.6.3, these documents contain valuable technical information concerning LBB evaluations. However, neither is part of the CLB of MNS or CNS. Duke suggests that the staff incorporate these documents appropriately into the SRP-LR (NUREG-1800), Chapter 4, TLAA. Future license renewal applicants should be aware of the considerations contained in these staff documents.

Question #2 - WCAP-10456 is a Proprietary Westinghouse document. If we were to provide the comparison in a response on the docket, the response would need to be proprietary. Duke would prefer not to do this. There are two alternatives:
(1) NRC staff attempt to locate WCAP-10456 and/or NUREG-6177 (or NUREG/CR-6117, we're still checking which one is correct) May 1994, in its library/records system and then do the comparison in-house (both of these documents should be in the PDR system, especially the NUREG); or
(2) Hold a Duke/NRC meeting to do the comparison together. Meeting could be in White Flint or Charlotte

As soon as I know more about the correct NUREG number I'll let you know, but we're sure that it is one of the two and the date is correct. Bob

"Rani Franovich" <RLF2@nrc.gov> 11/19/2001 02:20 PM

To: <rlgill@duke-energy.com>
cc:
bcc:
Subject: Re: Fwd: LBB Questions (Duke LRA Review - Catawba and McGuire)

Bob,
Please see the attached note from my LBB reviewer.
Thanks-
Rani

----- Message from "Chia-Fu Sheng" <SHENG@nrc.gov> on Mon, 19 Nov 2001 13:40:26 -0500 -----

To: "Rani Franovich" <RLF2@nrc.gov>

cc: "Meena Khanna" <MKK@nrc.gov>

Subject: Re: Fwd: LBB Questions (Duke LRA Review - Catawba and McGuire)

Rani,

I do not have either of these reports. The question was intended to ask the licensee to provide quantitative evaluation of these two sets of lower bound data and to confirm that the NUREG-6177 lower bound data are also bounding for McGuire and Catawba. If this is not the case, the licensee should provide the discrepancies between these two data sets quantitatively (e.g., 15%) and the justification that the discrepancies of this magnitude won't change the licensee's conclusion. Please transmit this information to the licensee.

Simon

>>> Rani Franovich 11/19/01 09:22AM >>>
Hi Simon,
I sent your questions on leak before break to Duke. My counterpart at Duke wanted to know if you have acces to WCAP-10456 and NUREG-6177. He suggested a review of these documents might provide the information you need to resolve your second question. Please advise.
Thanks,
Rani

CC: "Gregory D Robison" <gdrobiso@duke-energy.com>, "Mary H Hazeltine" <mhhazelt@duke-energy.com>

From: Rani Franovich
To: Bob Gill
Date: 11/20/01 1:04PM
Subject: Fwd: RAI 4.6

Bob,
Please print the attached revised list of questions for the 1:00 call today. Sorry for the inconvenience.
Thanks-
Rani

From: Mark Hartzman
To: Rani Franovich
Date: 11/19/01 1:53PM
Subject: RAI 4.6

Rani, attached is a revised RAI on this section.

CC: Hansraj Ashar

REQUEST FOR ADDITIONAL INFORMATION

McGuire Units 1 and 2. Catawba Units 1 and 2.

4.6 CONTAINMENT LINER PLATE, METAL CONTAINMENTS, AND PENETRATION FATIGUE ANALYSES

4.6.1 Section 4.6.2 "Metal Containments" refers to Section 3.9.2.8 of the McGuire UFSAR and Section 3.4.2.4 of the Catawba UFSAR. These sections state that mechanical penetrations are treated as fabricated piping assemblies meeting the requirements of ASME Section III Section NC, and are assigned the same classification as the piping system that includes the assembly. Table 3.5 of the UFSAR indicates that the applicable code design criteria for Duke Class A piping is ASME Section III, Class 1, 1971. Provide justification for designing the Duke Class A piping containment mechanical penetrations, including the bellows, to the requirements of ASME Section III, Subsection NC.

4.6.2 Provide detailed justification why a fatigue TLAA was not required for the steel containment vessel, as stated in Section 4.6.2, for loadings resulting from operating transients, peak containment internal pressure resulting from the design basis LOCA, design basis SSE, and leakage rate testing, in addition to the loading resulting from the transient expansions of the bellows.

4.6.3 Sections 4.6.3.1 "McGuire Design and Time-Limited Aging Analysis Evaluation" and 4.6.3.2 "Catawba Design and Time-Limited Aging Analysis Evaluation," refer to cracking as an aging effect which could result from cyclic fatigue, requiring fatigue management of the penetration bellows for the period of extended operation. "The Containment Leak Rate Testing Program," discussed in Section B.3.8, has been identified as the program that manages cracking of the bellows. The element, "McGuire Operating Experience," in Section B.3.8 states that several leaking penetration bellows were identified after twenty years of operation, and that some are currently cracked but the test leakages are within Technical Specification limits.

a. For the McGuire and the Catawba plants, provide the number of bellows where leaking cracks have been found, and the number of bellows that have been replaced, since the beginning of operation of these plants.

b. For the McGuire and the Catawba plants, provide the number of Duke Class A and Class B bellows that are currently cracked.

c. Table 3.5-1 "Aging Management Review Results," indicates that the function of the bellows and mechanical penetrations is to provide a pressure boundary and/or fission product barrier. Provide justification for operating with cracked bellows during the period of current operation and the proposed period of extended operation.

4.6.4 Section 4.6.3.1 indicates that the vendors of the bellows performed cyclic life evaluations and stated that the life of the bellows is well beyond what the bellows would see during normal operation in 40 years of plant operation. Provide the root cause of bellows cracking as a result of fatigue failure within 20 years from the start of plant operation, well

short of the bellows vendor test lives.

4.6.5 Section 4.6.3.2, "Catawba Design and Time-Limited Aging Analysis Evaluation," states that the design Code of Record for Catawba bellows assemblies is ASME Section III NC-3649, 1974. This code requires an evaluation of the cumulative effect of stress cycles for cyclic life of bellows.

1. Explain why the fatigue design of penetration bellows is not a time limited analysis for Catawba.

2. Provide the basis for the statement that Criterion (4) of §54.3 is not met, i. e., the determination that the penetration bellows fatigue analyses at the Catawba plants are not relevant in making any safety determination. Explain this statement since cracked bellows have been found at Catawba, and the function of the bellows is to act as a pressure and fission barrier.

4.6.6 The acceptance criteria in Section B.3.8, "Containment Leak Rate Testing Program" state that the space between dual-ply bellows shall be subjected to a low pressure leak test, with no detectable leakage. Provide the minimum pressure requirement that makes this a meaningful test.

4.6.7 If the leakage is detectable, the acceptance criteria in Section B.3.8 also state that the assembly must be tested with the containment side of the bellows assembly pressurized to Pa, and the acceptance criterion is based on the combined leakage rate for all reactor building bypass leakage paths to be less than or equal to 0.07 La. Provide the steps used to verify that the test leakage of any individual bellows assembly will be less than La over the extended life of the plant, or during a LOCA.

From: Rani Franovich
To: Bob Gill
Date: 11/21/01 8:13AM
Subject: Summary of October 25 Conference Call on Section 3.5 of the LRA

Bob,
Please review the attached conference call summary and provide comments. Thanks-
Rani

LICENSEE : Duke Energy Corporation

FACILITIES: McGuire (MNS), Units 1 and 2, and Catawba (CNS), Units 1 and 2

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON AGING MANAGEMENT OF CONTAINMENTS, STRUCTURES AND STRUCTURAL SUPPORTS

On October 25, 2001, after the NRC (the staff) reviewed information provided in Section 3.5 of the license renewal application (LRA), a conference call was conducted between the staff and Duke Energy Corporation (the applicant) to clarify information presented in the application pertaining to aging management programs for mechanical systems and components. Participants in the conference call are provided in an attachment.

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

Table 3.5-1, Aging Management Review Results - Reactor Building

1. Table 3.5-1 of the LRA indicates that no aging management is needed for the below grade portion of the foundation mat for the concrete shield buildings. Section 3.5.2.2.1.1 of the Standard Review Plan for License Renewal (SRP-LR, NUREG 1800, July 2001) states that increases in porosity and permeability, cracking, and spalling due to leaching of calcium hydroxide and aggressive chemical attack and cracking, spalling, loss of bond, and loss of material due to corrosion of embedded steel could occur in inaccessible areas of concrete containments. Table 3.5-2 of the LRA also indicates that no aging management program (AMP) is needed to manage loss of material due to corrosion of embedded steel that could occur in inaccessible areas of concrete situated in other structures. The Generic Aging Lessons Learned (GALL) report recommends further evaluation to manage the aging effects for inaccessible areas, when conditions do not exist in accessible areas that could indicate the presence of, or result in, degradation to such inaccessible areas. Why is further evaluation to manage aging effects in inaccessible areas not specified in the LRA?

   The applicant indicated that the inaccessible areas of the reactor building are below grade, which is defined on page 3.5-2 of the LRA. According to this definition, portions of below grade structures are exposed to back fill and groundwater. The groundwater is not aggressive at either Catawba or McGuire as a function of pH ranges, chloride concentration and sulfate concentration. The applicant stated that, since inaccessible surfaces are exposed to the same environment as accessible areas, there is no need to perform inspections of these inaccessible areas. The applicant also referenced

page II A1-7 of the Generic Aging Lessons Learned report to demonstrate that inspection of inaccessible areas was not warranted. This same response was provided for a similar question (B.3.33 Question 3), as documented in a summary of an October 11, 2001, conference call on aging management programs for structures. A request for additional information will be generated from this section (3.5) of the LRA to confirm that below-grade chemistry is, and will continue to be, periodically monitored to demonstrate that the below-grade environment is not aggressive.

2. Table 3.5-1 of the LRA states that Technical Specification SR 3.6.16.3 visual inspection is credited for managing change in material properties due to leaching of both the shell wall and dome of the shield building. Describe the present extent of the aging due to change in material properties resulting from leaching for the shield buildings of CNS and MNS. Indicate the inspection experience gathered to date (e.g., growth of leached surface area, indications of loss of material of embedded rebars in the leached areas) and discuss the basis for maintaining that the visual inspection program should adequately manage the aging effect of the shield buildings due to leaching during the extended period of operation for both plants.

   The applicant indicated that this question was addressed in Appendix B of the LRA under the Technical Specification Surveillance Requirement 3.6.16.3 Visual Inspection program, which requires a visual inspection of the exposed interior and exterior surfaces of the reactor building three times every ten years. The applicant further asserted that results of these visual inspections indicate that the condition of the shield buildings and embedded rebar is not degrading. The staff will consider the information provided, but may request additional information to complete its review.

3. Discuss if the initial licensing basis for CNS and MNS included a program to monitor settlement. If yes, assess the settlement potential of the plants based on past settlement monitoring data and discuss the need for managing aging effects of the MNS/CNS containments/shield buildings due to settlement for the extended period of operation.

   The applicant indicated that structures are built on bedrock, as reflected in their licensing basis documents. As such, the staff will review the Updated Final Safety Analysis Report (UFSAR) to verify this information and preclude the need for additional information on this issue.

4. Section 3.5.2.2.1.3 of the SRP-LR discusses the issue of loss of compressive strength and modulus of elasticity for concrete structures due to elevated temperature. Table 3.5-1 of the LRA does not provide pertinent information related to this issue. Loss of strength and modulus of elasticity due to elevated temperatures could occur in localized areas of a PWR Ice Condenser containment. The GALL report recommends further evaluation if any portion of the concrete containment components exceeds specified temperature limits, i.e., general temperature 66°C (150°F) and local area temperature 93°C (200°F). Provide information related to this issue.

   The applicant indicated that both upper and lower containment temperatures are governed by technical specifications, which require that temperatures remain below

100°F (for upper containment) and 120°F (for lower containment). As such, loss of compressive strength and modulus of elasticity for concrete structures due to elevated temperature is not a concern at CNS or MNS.

5. With respect to component types, "steel containment vessel," and "structural steel beams, columns, plates & trusses" listed in Table 3.5-1 of the LRA, no information is provided regarding potential loss of material due to corrosion of inaccessible areas in liner plates and steel structures. Section 3.5.2.2.1.4 of theSRP-LR states that loss of material due to corrosion could occur in inaccessible areas of steel structures and liner plate for all types of PWR and BWR containments. The GALL report recommends further evaluation to manage the aging effects for steel components in inaccessible areas, when conditions do not exist in accessible areas that could indicates the presence of, or result in, degradation to such inaccessible areas. Discuss how this potential aging effect is managed for the CNS and the MNS. Additionally, provide information describing the applicants' planned disposition of damaged seal between the containment floor and the containment steel liner that may be identified as a result of inservice inspection.

   The applicant suggested that this question is a good candidate for a formal request for additional information. As such, the staff will issue a formal request to provide the applicant an opportunity to submit a written response.

6. With respect to the bellows (penetration), electrical penetrations, fuel transfer tube penetration and mechanical penetrations listed in Table 3.5-1, "Steel Containment," no information is provided for aging effect management of potential cracking due to cyclic loading and stress corrosion cracking (SCC). Section 3.5.2.2.1.7 of the SRP-LR states that cracking of containment penetrations (including penetration sleeves, penetration bellows, and dissimilar metal welds) due to cyclic loading could occur in all types of PWR and BWR containments. These cracks are inspected by a visual VT-3 examination. However, this inspection may not detect such cracks. A combination of Inspection Categories E-B & E-F, and enhanced VT-1 is an acceptable method. The GALL report recommends further evaluation of programs to manage these aging effects. Discuss how the GALL recommendation for establishment of aging management programs is implemented for the MNS and CNS.

   The applicant indicated that mechanical penetrations are provided with bellows to accommodate differential movement between the containment and the reactor building for thermal, seismic, and containment test conditions (as documented in Section 4.6.3 of the LRA). As such, the penetration bellows are sacrificial components subject to cracking due to cyclic loading and stress corrosion cracking (SCC). The applicant further indicated that cracking (the aging effect) of penetration bellows (the component) is addressed in Table 3.5-1. The staff is satisfied with this response and has no additional questions on this item.

7. With respect to the items listed under "Ice Condenser Components" of Table 3.5-1 of the LRA (e.g., Ice baskets and others), Ice Condenser Inspections program is credited for managing the loss of material aging effect. Based on your plant inspection experience, summarize various types of aging degradations experienced in the past for the listed ice

condenser components including the loss of ice basket connecting screws due to loss of material and/or SCC. With reference to these experienced aging degradations, discuss your basis for asserting that their continued use of the Ice Condenser Inspections program alone can provide adequate aging management for the ice condenser components for the extended period of plant operation.

The applicant indicated that previous failures of ice basket connecting screws were caused by improper installation and maintenance practices and not caused by aging mechanisms and effects. The staff reviewed Section B.3.18 of the LRA, as well as other documents associated with ice basket connecting screws failures to confirm the applicant's response and is satisfied with the information provided. No additional information on this item is needed.

8. Regarding the reinforced concrete beams, columns, floor slabs, walls and some localized portions of the top layer-basemat concrete, which are rendered inaccessible because of the layout of the Ice Condenser/Ice Baskets System, increases in porosity and permeability, cracking, loss of material (spalling, scaling,) due to aggressive chemical attack and loss of material due to corrosion of embedded steel could occur. The Gall report (e.g., Section A1.1) recommends further evaluation to manage the aging effects for these inaccessible areas, when conditions do not exist in accessible areas that could indicate the presence of, or result in, degradation to such inaccessible areas. Table 3.5-1 of the LRA did not address this issue. Provide information which discusses how this concern is addressed at MNS and CNS.

   The applicant indicated that this question is similar to Question 5 and is a good candidate for a formal request for additional information. However, since it is particular to inaccessible areas of the ice condenser, the staff will issue a separate formal request to provide the applicant an opportunity to submit a written response.

9. The second to the last item on page 3.5-13 of Table 3.5-1of the SRP-LR for steel elements protected by coating indicates that no further evaluation is required, if there is a protective coating monitoring and maintenance program (an AMP). State whether there is such a program and provide the reference.

   The applicant indicated that coatings are not relied upon to protect steel elements and referred the staff to page III A2-10 of the Generic Aging Lessons Learned (GALL) report. The GALL report states that the structures monitoring program should include requirements to address protective coating monitoring and maintenance only if protective coatings are relied upon to manage the effects of aging. The staff is satisfied with this response and has no additional questions on this issue.

10. Section 3.5.2.2.1.5 of SRP-LR indicates that loss of prestress forces due to relaxation, shrinkage, creep, and elevated temperatures for PWR prestressed concrete containment is a TLAA and is required to be evaluated in accordance with 10 CFR 54.21(c). Tables 3.5-1 through 3.5-3 seem to indicate that MNS and CNS have no prestressed concrete structural elements that are within the scope of the LRA. As applicable, confirm the above statement or provide pertinent information to address the TLAA issue.

The applicant confirmed that, as documented in Section 4.5 of the LRA, ice condenser containments (including MNS and CNS) do not use prestressed tendons. The staff is satisfied with this response and requires no additional information on this issue.

11. Table 3.5-1, Aging Management Review Results - Reactor Building of the LRA lists no aging effects and their corresponding AMPs for the following component types: (1) dome concrete, foundation mat and shell wall of concrete shield building; (2) Wear slab concrete of ice condenser components and (3) equipment pads, flood curbs, hatches, missile shields, reinforced concrete beams, columns, floor slabs, walls of reactor building interior structural components. It is widely known in the concrete industry that concrete components or materials are subject to aging effects. Aging effects on concrete components for several nuclear plants were specifically identified in NUREG-1522. Enclosed is EMEB Position on Concrete Structures. As stated in the a recent NRC staff position paper, all concrete structures within the scope of license renewal require an aging management program for license renewal. The scope and contents of the AMP should be consistent with or equivalent to those provided in the position. Please provide McGuire/Catawba plants specific AMP(s) for the above listed concrete elements for staff review.

    The applicant requested a copy of the staff's position paper on the aging of concrete structures and indicated that this question is a good candidate for a formal request for additional information. As such, the staff will issue a staff position statement and formal request for information pertaining to this issue.

Table 3.5-2, Aging Management Review Results - Other Structures

1. Table 3.5-2 of the LRA lists several below grade component types (i.e., foundation caissons for MNS turbine building, other foundations, reinforced concrete beams, columns, floor slabs, walls, foundation dowels, wear slab, manholes & covers, and trenches) as having exposed to no aging effects and therefore, no AMPs are identified for these items. Discuss the specific below grade environments to which these items are exposed including their potential exposure to aggressive ground water. As applicable, provide most recent test based documentation supporting the applicants' finding that no AMPs are needed for the listed component.

    The applicant indicated that the groundwater is not aggressive at either Catawba or McGuire as a function of pH ranges, chloride concentration and sulfate concentration. Their response was similar to that which was provided for Question 1on LRA Table 3.5-1 (as documented in the first page of this conference call summary). A request for additional information will be generated from this section (3.5) of the LRA to confirm that below-grade chemistry is, and will continue to be, periodically monitored to demonstrate that the below-grade environment is not aggressive.

2. Table 3.5-2 of the LRA assigns no aging management program for portions of the non-sheltered, externally exposed missile shields (auxiliary building and the nuclear service water pump structure only), whereas the same table designates the Inspection Program

for Civil Engineering Structures and Components as the aging management program for the refueling water storage tank missile shield wall to manage an aging effect (change in material properties) due to leaching. Confirm, as appropriate, that past plant operating experience has shown that the auxiliary building and nuclear service water pump structure at MNS and CNS exhibit insignificant leaching potential or explain the different treatment of the missile shields.

The applicant stated that plant-specific operating experience indicated the auxiliary building and the nuclear service water pump structure do not exhibit signs of leaching. However, the applicant suggested that the staff issue a formal request for additional information to provide the applicant an opportunity to address this item in their response.

3. Table 3.5-2, Aging Management Review Results - Other Structures of the LRA lists no aging effects and their corresponding AMPs for the following component types: equipment pads. floor curbs, foundation cassons, foundations, hatches, manholes and covers, missile shields, reinforced concrete beams, columns, floor slabs, walls, sumps and trenches under "concrete structural components" subheading. It is widely known in the concrete industry that concrete components or materials are subject to aging effects. Aging effects on concrete components for several nuclear plants were specifically identified in NUREG-1522. As stated in the EMEB position on concrete structures (Refer to RAI 3.5.1-16), all concrete structures within the scope of license renewal require an aging management program for license renewal. The scope and contents of the AMP should be consistent with or equivalent to those provided in the position. Please provide McGuire/Catawba plants specific AMP(s) for the above listed concrete elements of other structures for staff review.

   The applicant indicated that the groundwater is not aggressive at either Catawba or McGuire as a function of pH ranges, chloride concentration and sulfate concentration. As with Question 2 on LRA Table 3.5-2 (see previous page), their response was similar to that which was provided for Question 1on LRA Table 3.5-1 (as documented in the first page of this conference call summary). A request for additional information will be generated from this section (3.5) of the LRA to confirm that below-grade chemistry is, and will continue to be, periodically monitored to demonstrate that the below-grade environment is not aggressive.

Table 3.5-3, Aging Management Review Results - Component Supports

1. Table 3.5-3 provides no information to address the cracking initiation and growth from SCC for high strength low-alloy bolts. Last item on page 3.5-18 of Table 3.5-1 of the SRP-LR addresses the issue of bolting integrity for ASME Class I piping and components supports. It indicates that, no further evaluation is required, if there is a bolting integrity program to address the cracking initiation and growth from SCC for high strength low-alloy bolts. State whether there is such a program and provide the reference.

The applicant acknowledged that this question applies to the LRA generically. The staff will issue a general request for additional information to complete their review of the applicant's management of bolting aging mechanisms and effects.

2. Table 3.5-3 of the LRA states that no AMP is needed for cable tray & conduit, control boards, electrical & Instrument panels & enclosures, and new fuel storage racks. Are these items all made of galvanized steel? If not, discuss the basis for not designating the Inspection Program for Civil Engineering Structures and Components as the AMP for items made of non-galvanized carbon steel.

   The applicant indicated that the components referenced are manufactured of galvanized steel. The staff is satisfied with this response but may request this information formally.

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

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

cc w/attachment: See next page

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

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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Division of Regulatory Improvement Programs
COVER PAGE

DATE: November 14, 2001

SUBJECT: TELECOMMUNICATION WITH DUKE ENERGY CORPORATION TO DISCUSS INFORMATION IN THEIR LICENSE RENEWAL APPLICATION ON AGING MANAGEMENT OF CONTAINMENTS, STRUCTURES AND STRUCTURAL SUPPORTS

ORIGINATOR: R. Franovich

SECRETARY: S. Chey

●●●DRIP ROUTING LIST●●●		
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ADAMS ACCESSION NUMBER: **ML** DATE ENTERED: / /01

FORM 665 ATTACHED and filled out: **YES** **NO**

COMMITMENT FORM ATTACHED: **YES** **NO**

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OCTOBER 25, 2001

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David Jeng

Duke Energy Corporation Participants

Bob Gill

Debra Keiser

Attachment

From: Rani Franovich
To: Bob Gill
Date: 11/21/01 12:48PM
Subject: Scoping RAIs on Steam and Power Conversion Systems

Bob,
Pease review the attached; we'll go over them when you are ready.
Thanks-
Rani

Dave Cullison - Catawba/McGuire RAIs

Generic - PNNL Questions

a. Discuss why the closure bolting is not included as a component for aging management of the steam and power conversion systems. Cracking and loss of preload in bolting could be a part of aging effect and may need aging management. *This is a valid question. There are numerous heat exchangers, flanges, etc with closure bolts but no where is bolting addressed. This is a deviation from other applications.*

b. Discuss why the pump casings are not included in the feedwater system in Table 3.4-5 as a component for aging management. *The feed pumps are not within the scope of license renewal.*

Catawba

1. 2.3.4.11 Main Turbine Hydraulic Oil System & 2.3.4.12 Main Turbine Lube Oil and Purification System. According to the system descriptions on pages 2.3.97 and 2.3.99, these two systems have the exact same function. As neither are described in the FSAR, this could not be verified. The system descriptions do not provide enough information to determine the function of components on the diagrams. Also, the Duke Piping Class of the piping in these systems is not consistently provided. The Main Turbine Lube Oil and Purification System is not listed in the "Catawba License Renewal Drawing Index."

2. 2.3.4.4 Condensate Storage System. The system description on page 2.3-88 describes the Condensate Storage System as a non-safety system whose postulated failure could prevent satisfactory accomplishment of certain safety-related functions. The "certain safety-related functions" which the failure of this system could impact are not described, nor are the "postulated failures." The referenced diagrams show that only a small portion of the system piping in the auxiliary building is within a license renewal boundary. The system description on page 2.3-88 does not provide an adequate explanation for the location of the license renewal boundaries. An example: On Drawings CN-1590-2.1 and CN-2590-2.1 for the condensate storage system, the license renewal boundary ends where the piping exits the auxiliary building with no explanatory note or physical means of isolation.

3. 2.3.4.5 Feedwater System. On drawing CN-1591-1.1, the license renewal evaluation boundary appears to start in the middle of the feedwater piping down stream of the feedwater isolation valves at the wall separating the turbine building from the yard, without any physical means of isolation. Provide justification for not extending the license renewal boundary to an isolation valve. There are identical issues with CN-2591-1.1.

4. 2.3.4.5 Feedwater System. On drawing CN-1591-1.1, the license renewal evaluation boundaries for the piping associated with tempering flow to the steam generator upper nozzles starts in the middle of the pipe without any physical means of isolation. Provide

justification for not extending the license renewal boundary to an isolation valve. Additionally, at the start of the license renewal evaluation boundary a Note 14 is referenced. Note 14 tells the reviewer to see CN-1490-CF039 for exact class break boundary, CN-1490-CF039 is not provided in the application. There are identical issues with CN-2591-1.1.

5. 2.3.4.5 Feedwater System. On drawing CN-2591-1.1, the line to 2CF134 is not within the scope of license renewal. On drawing CN-1591-1.1, the line to 1CF134 is within the scope of license renewal. Since the lines serve the same purpose, justify why the line to 2CF134 is not within the scope of license renewal.

6. 2.3.4.2 Auxiliary Steam. On drawing CN-1595-1.0, piping to steam trap stations and the boric acid batching tank heater coil come off in-scope piping but are not marked as being within the license renewal evaluation boundary and are non-isolable from the in-scope piping. The function of the in-scope piping is to serve as a pressure boundaries but failure of the piping not included in the license renewal evaluation boundary could defeat that function. Provide justification for not including the piping to the steam trap stations and the boric acid batching tank heater coil in the license renewal evaluation boundary.

7. 2.3.4.2 Auxiliary Steam. On Drawing CN-1595-1.2, the piping from Drawing CN-1595-1.0 (to Steam Trap Station T-23) is within the scope of license renewal but the license renewal evaluation boundary is at a pipe size reducer without physical means of isolation. Provide justification for not extending the license renewal boundary to an isolation valve.

8. 2.3.4.2 Auxiliary Steam. On Drawing CN-1595-1.2, the piping from Drawing CN-1595-1.0 (to Steam Trap Station T-23) is within the scope of license renewal but the branch line off that pipe to the waste evaporator condensate return tank is not. The license renewal evaluation boundary is located where the pipes meet without physical means of isolation. Provide justification for not extending the license renewal boundary to an isolation valve.

9. 2.3.4.3 Condensate System. On Drawings CN-1590-1.8 and CN-2590-1.8 for the condensate system, the license renewal boundary ends where the piping exits the auxiliary building with no explanatory note or physical means of isolation. Provide justification for ending the license renewal boundary at this point.

10. 2.3.3.21 Groundwater Drainage System. The purpose of the Groundwater Drainage System is to remove water from the Auxiliary Building. The FSAR states that the discharge piping terminates at the Auxiliary Building wall or nearby yard drain. Drawing CN-1581-1.0 has the license renewal boundary associated with the discharge piping ending at the missile boundary, not at the piping termination point. Provide justification for ending the license renewal boundary at this point.

11. 2.3.4.8 Main Steam. On drawing CN-1593-1.7, piping from the Main Steam Lines to the continuous drain orifice stations is within the license renewal scope. One-inch lines coming off the in-scope two-inch lines are not within the license renewal boundaries but are cannot be isolated from the in-scope lines. The component function of piping is to be a pressure boundary, failure of the one-inch lines could compromise the function of the

two-inch piping. Justify why the one inch lines are not within the license renewal boundary. There are identical issues with CN-2593-1.7.

12. 2.3.3.36 Turbine Building Sump Pump System (WP). The system description on page 2.3-78 describes the Turbine Building Sump Pump System as a non-safety system whose postulated failure could prevent satisfactory accomplishment of certain safety-related functions. The "certain safety-related functions" which the failure of this system could impact are not described, nor are the "postulated failures." This system is not described in the FSAR. The referenced diagrams show that only a small portion of the system piping in the auxiliary building is within a license renewal boundary. The information provided is not adequate for making a determination if the license renewal boundaries for this system are appropriate. A more detailed system description needs to be provided.

13. 2.3.3.27 Nuclear Sampling System. On drawings CN-1572-1.1 and CN-2572-1.1, the safety-related piping to a relief valve off the line coming from the NI accumulators is not within the license renewal boundary. Justify not including this safety-related piping within the license renewal boundary. As a note, this piping is within the scope of license renewal for McGuire.

14. 2.3.4.9 Main Steam Supply To Auxiliary Equipment System (SA). The Aging Management Review Result Table (Table 3.4-8) for this system identifies the Auxiliary Feedwater Pump Turbine as a component subject to aging management review. The component function is to act as a pressure boundary. This is confusing as the turbine is a complex piece of equipment with numerous moving parts. Specify which parts of the AFW Turbine are subject to an aging management review.

MCGUIRE

1. 2.3.4.11 Main Turbine Hydraulic Oil System & 2.3.4.12 Main Turbine Lube Oil and Purification System. According to the system descriptions on pages 2.3.97 and 2.3.99, these two systems have the exact same function. As neither are described in the FSAR, this could not be verified. The system descriptions do not provide enough information to determine the function of components on the diagrams. Also, the Duke Piping Class of the piping in these systems is not consistently provided. The Main Turbine Lube Oil and Purification System is not listed in the "McGuire License Renewal Drawing Index."

2. 2.3.4.1 Auxiliary Feedwater System. Part of 6-inch piping from the Auxiliary Feedwater Storage tank inside of the Auxiliary Building on drawing MCFD-1592-01.01, K-12 is Duke System Piping Class F due to flooding concerns and is included within the license renewal boundary. According to the drawing, a segment of this pipe is within the Auxiliary Building but is neither Duke System Piping Class F nor is within the license renewal boundary. Explain why the license renewal boundary ends where it does? On drawing MCFD-2592-01.01, the license renewal boundary for this pipe ends where the pipe exits the Auxiliary Building.

3. 2.3.4.2 Auxiliary Steam System. The 4" line off the 10" auxiliary steam piping at position G-6 on drawing MCFD-1595-01.02 is not within the license renewal boundary. The 10" piping is within the license renewal boundary. According to the description on page 2.3-86 of the application, a postulated failure of the Auxiliary Steam System could prevent the satisfactory accomplishment of unidentified safety-related functions. The failure of the 4" line could defeat the pressure boundary component function of the 10" piping. Justify not including the 4" line within the license renewal boundary.

4. 2.3.4.2 Auxiliary Steam System. The license renewal boundary for the auxiliary steam piping on drawing MCFD-2595-01.00 starts at the boundary of the service building and the auxiliary building. It is noted on the drawing that the Duke Piping Classification changes from G to F at the boundary of the auxiliary building. It is not clearly identified if the license renewal boundary starts at the first seismic support as is done on other drawings. Verify the license renewal boundary includes all the Duke Piping Classification F piping.

5. 2.3.4.2 Auxiliary Steam System. For Unit 1 there is a drawing, MCFD-1595-01.02, which contains the majority of the auxiliary steam system that is within the license renewal boundary. There is no equivalent drawing for Unit 2. MCF1550-04-00, "Index Of McGuire Flow Diagrams," lists a drawing MCFD-2595-01.01, " Auxiliary Steam System" but that drawing was not provided.

6. 2.3.4.6 Feedwater Pump Turbine Exhaust System. On drawings MCFD-1593-02.00 and MCFD-2593-02.00, the license renewal boundary on the ½ inch line to the feedwater pump turbine condenser starts at a vendor interface prior to a flanged connection without any physical means of isolation. This piping is Duke Piping Class F. The Duke Piping Class of the piping upstream of vendor interface is not identified although this piping appears to perform the same function as the in-scope piping. As this system is not described in the FSAR, it is not possible to make a determination if the license renewal boundaries for this system are appropriate. Provide justification for locating the license

renewal boundary where you did.

7. 2.3.3.21 Groundwater Drainage System. The sump pumps are identified on drawing MCFD-1581-01.00 as being within the license renewal boundary but the pump casings are not listed on Table 3.3-29 as needing an aging management review. Justify why the pump casings are not included in the feedwater system in Table 3.3-29 as a component for aging management.

8. 2.3.4.9 Main Steam Supply To Auxiliary Equipment System. On drawing MCFD-2593-01.02, safety-related lines to valves 2SA0061 and 2SA0060 and the associated valve bodies are not within the license renewal scope. Justify not including these safety related valves and the downstream piping within the scope of license renewal.

9. 2.3.4.9 Main Steam Supply To Auxiliary Equipment System. The Aging Management Review Result Table (Table 3.4-8) for this system identifies the Auxiliary Feedwater Pump Turbine as a component subject to aging management review. The component function is to act as a pressure boundary. This is confusing as the turbine is a complex piece of equipment with numerous moving parts. Specify which parts of the AFW Turbine are subject to an aging management review.

10. 2.3.4.10 Main Steam Vent To Atmosphere System. A large portion of the exhaust piping for the Main Steam Safety Valves (MSSV) is excluded from the license renewal scope as shown on drawings MCFD-1593-01.00 and MCFD-2593-01.00. A note, Note 13, is referenced on the drawings which states that "THE IMPULSE LINE IS EXCLUDED FROM PIPE CLASS F REQUIREMENTS SEE MCC-1205.9-00-D001." No explanation for excluding this piping is provided in the application or the FSAR. MCC-1205.9-00-D001 was not provided as part of the application. Justify excluding from the license renewal scope the portion of MSSV exhaust piping shown on MCFD-1593-01.00 and MCFD-2593-01.00.

11. 2.3.4.8 Main Steam. The FSAR states that the 28 inch turbine inlet piping is Duke Safety Class F which should make it within the scope of license renewal. On Drawings MCFD-1593-01.01 and MCFD-2593-01.01, the license renewal boundary on the 28 inch turbine inlet piping stops at a vendor boundary prior to reaching the turbine throttle valve. Explain why the license renewal boundary does not include the entire length of the 28 inch turbine inlet piping.

Areas Currently With No RAIs

1. Catawba

   a. 2.3.3.34, Spent Fuel Pool Cooling
   b. 2.3.4.1 Auxiliary Feedwater Systems
   c. 2.3.4.6 Feedwater Pump Turbine Exhaust System
   d. 2.3.4.7 Feedwater Pump Turbine Hydraulic Oil System

2. McGuire

   a. 2.3.3.27 Nuclear Sampling System
   b. 2.3.3.34, Spent Fuel Pool Cooling
   c. 2.3.4.5 Feedwater System
   d. 2.3.4.6 Feedwater Pump Turbine Exhaust System

From: Rani Franovich
To: Bob Gill
Date: 11/21/01 1:59PM
Subject: More RAIs

Hi Bob,
Hope your Thanksgiving was restful and pleasant. Welcome back!

Attached are RAIs from the contractor (PNNL) on Auxiliary Systems. We have discussed some of their questions already, but many others have been sent since then.

For your benefit, I am attaching two (2) files: The July 31st file contains the question we have already discussed. The November 21st file contains the total collection of RAIs on Auxiliary Systems from the contractor.

You'll need some time to look them over before we set up a conference call. Just let me know when you are ready.

Thanks-
Rani