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OPPD
Omaha Public Power District

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November 22, 2002
LIC-02-0133

U. S. Nuclear Regulatory Commission
ATTN.: Document Control Desk
Washington, DC 20555

References:
1. Docket No. 50-285
2. Letter from NRC (W. F. Burton) to OPPD (R. T. Ridenoure) dated October 11, 2002 (NRC-02-153)
3. Letter from OPPD (S. K. Gambhir) to NRC (Document Control Desk) dated November 22, 2002 (LIC-02-0136)

SUBJECT: Responses to Request for Additional Information (RAI) for the Review of the License Renewal Application for Fort Calhoun Station, Unit 1

Attached to this letter are the Omaha Public Power District (OPPD) responses to the following RAI questions contained in the Reference 2 letter:

2.2-1	2.3.3.8-2	2.3.3.15-1	2.3.3.16-5
2.2-2	2.3.3.9-1	2.3.3.15-2	2.3.3.16-6
2.3.3.2-1	2.3.3.9-2	2.3.3.16-1	2.3.3.16-7
2.3.3.5-1	2.3.3.14-1	2.3.3.16-3	2.3.3.19-1
2.3.3.8-1	2.3.3.14-2	2.3.3.16-4	

The responses to the remaining RAI questions will be provided by separate correspondence.

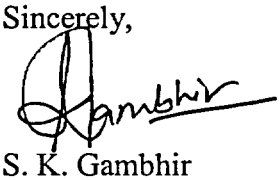
OPPD is also providing under separate cover letter (Reference 3) paper and electronic sets of revised license renewal boundary and additional drawings noted in the above responses. These drawings are not considered part of the LRA.

If you have any questions or require additional information, please contact T. C. Matthews at (402) 533-6938.

A090

No commitments are made to the NRC in this letter. I declare under penalty of perjury that the foregoing is true and correct. (Executed on November 22, 2002)

Sincerely,



S. K. Gambhir
Division Manager
Nuclear Projects

TCM/tcm

Attachment

c: E. W. Merschoff, NRC Regional Administrator, Region IV
W. C. Walker, NRC Region IV, Senior Project Engineer
W. F. Burton, NRC Project Manager
A. B. Wang, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector
Division Administrator - Public Health Assurance, State of Nebraska
Winston & Strawn

FORT CALHOUN STATION, UNIT 1
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION (RAIs) AND RESPONSES

2.2 Plant-Level Scoping Results

2.2-1
A legend was not provided for the system drawings. A legend is needed to ensure that the staff can properly identify system components. Please provide such a legend.

Response
A copy of Drawing 11405-MECH-1, *Symbol List P&ID*, has been provided by the Reference 3 letter.

2.2-2
For some of the systems highlighted on the system drawings, the license renewal boundaries appear to start/stop at the boundary between two design classes. Provide definitions of the design classes used at FCS and identify the classes which contain CQE components and Limited CQE components.

Response
This information is included on the drawing noted in the response to the previous question (2.2-1) and in USAR Appendix N.

2.3.3.2 Spent Fuel Pool Cooling

2.3.3.2-1
USAR Section 9.6.2 states that the fuel transfer canal drain pumps are utilized to provide spent fuel pool make-up water from the safety injection and refueling water tank. Drawing 11405-M-11 for the safety injection system depicts a transition to the spent fuel pool cooling system at valve AC-307. However, drawing 11405-M-11 for the spent fuel pool cooling system does not depict a transition to the safety injection system at valve AC-307. Please clarify whether the embedded piping to the right of valve AC-307 on drawing 11405-M-11 is within the scope of license renewal and subject to an AMR.

Response
The boundary flag pointing to the right of valve AC-307 on drawing 11405-M-11 is in error and should indicate LR-SI. The piping is within scope of license renewal and is included in scope of the Safety Injection System. Drawing 11405-M-11 has been provided by the Reference 3 letter.

2.3.3.5 Auxiliary Boiler Fuel Oil and Fire Protection Fuel Oil

2.3.3.5-1
The system description for the auxiliary boiler fuel oil system in LRA Section 2.3.3.5, "Auxiliary Boiler and Fuel Oil and Fire Protection Fuel Oil," lists the component types that are subject to AMR and lists the intended function for the components. However, the LRA description does not provide sufficient information on the license renewal intended function of the system to determine, with reasonable assurance, that all the components required by 10 CFR 54.4 to be within the scope of license renewal and subject to an AMR have been correctly identified. Please provide more information concerning the intended function(s) of this system. This information should be sufficient to justify the license renewal boundaries depicted on the referenced drawings, and identify which specific components are within the scope of license renewal and subject to AMR.

Response
The license renewal intended function of the Auxiliary Boiler Fuel Oil System is to provide a backup fuel oil supply to the diesel generators. Therefore, the components included in the scope of license renewal are the auxiliary boiler fuel oil storage tank, foundation, and piles; below grade piping associated with the tank; filters, pumps, valves and piping between the auxiliary boiler fuel oil storage tank, and the auxiliary boiler fuel oil supply solenoid valve since these comprise a pressure boundary that must be maintained to ensure the integrity of the supply system. In addition, the pump, filters, and valves within the supply pipeline from the auxiliary boiler fuel oil storage tank through the fuel oil transfer pump discharge valve are included since these comprise a pressure boundary to transfer fuel oil from the auxiliary boiler fuel oil storage tank to the diesel generator fuel oil day tank.

2.3.3.8 Instrument Air

2.3.3.8-1
LRA Section 2.3.2.2 states that containment isolation valves and associated piping in the compressed air system are subject to an AMR. LRA Section 2.3.3.8 states that the function of the compressed air system is to serve as the source of air for the instrument air system. Section 9.12 of the USAR describes the compressed air system to include air compressors, receivers, and air dryers. The staff believes these components, as well as valve bodies, piping, bolting, and valve operator bodies of the compressed air system, should be included within the scope of license renewal and should be subject to an AMR. The LRA description does not provide sufficient information on the license renewal intended function of the system to determine, with reasonable assurance, that all the components required by 10 CFR 54.4 to be within the scope of license renewal and subject to an AMR have been correctly identified. Please provide more information concerning the intended function(s) of this system. This information should be sufficient to justify the license renewal boundaries depicted on the referenced drawings, and identify which specific components are within the scope of license renewal and subject to an AMR.

Response
As described in section 9.12 of the USAR, the non-safety related compressed air system provides compressed air to the instrument air and the service air headers. The instrument air header provides air for pneumatic controls and the actuation of valves, dampers, and similar devices, as well as the fuel-handling machine in Containment. The compressed air system is not relied on to perform any Intended Function as defined in 10CFR54.4. The air compressors are not loaded onto the Emergency Diesel Generators and during a design basis event, the compressed air system is assumed to be unavailable. Because the air supply is unavailable during a design basis event, all air-operated valves and dampers required to control design basis events are: (1) designed to fail to the required post-accident position on loss of air pressure, (2) provided with safety grade instrument air accumulators, or (3) provided with nitrogen backup systems.

Most of the Instrument Air System is not safety-related and does not meet the scoping criteria for license renewal. The portions of the Instrument Air System that meet the scoping requirements of 10CFR54.4 are those components required to operate engineered safety features or essential auxiliary support system valves. For example, the system portion from the check valves downstream through the accumulators, tubing, and components are part of the plant's engineered safeguards, and are included within the scope of license renewal. Fort Calhoun Station doesn't have drawings showing individual valve actuators and their associated arrangement of instrument air valves, filter regulators and accumulators. Instead, there is a single drawing that shows the typical configuration of components and a schedule identifying the individual components. That drawing is C-4175, Sh.1, which was included with the drawings submitted with the LRA. It shows how the boundaries for the typical arrangements were scoped. The boundaries were determined to occur at the check valve or trip valve, as applicable. The complete list of those components is contained in the on-site documentation for the Instrument Air System. For this system, the component types determined to be in scope are accumulators (tanks), bolting, filter housings, pipes and fittings, tubing, valve bodies, and valve operators. Pressure boundary is the only Intended Function Identified.

2.3.3.8-2
The system description in LRA Section 2.3.3.8 lists the instrument air system component types that are subject to an AMR and lists the intended function of the components. However, the LRA description does not provide sufficient information on the license renewal intended function of the system to determine, with reasonable assurance, that all the components required by 10 CFR 54.4 to be within the scope of license renewal and subject to an AMR have been correctly identified. Please provide more information concerning the intended function(s) of this system. This information should be sufficient to justify the license renewal boundaries depicted on the referenced drawings, and identify which specific components are within the scope of license renewal and subject to an AMR.

Response
See the response to 2.3.3.8-1 above.

2.3.3.9 Nitrogen Gas

2.3.3.9-1

The system description in LRA Section 2.3.3.9, describes the function of the NG system to be to charge the safety injection tanks and to provide nitrogen cover for various tanks. However, the referenced drawings show the license renewal boundaries only going from the tanks to the first isolation valve. Also, the LRA description does not provide sufficient information on the license renewal intended function of the system to determine, with reasonable assurance, that all the components required by 10 CFR 54.4 to be within the scope of license renewal and subject to an AMR have been correctly identified. Please provide more information concerning the intended function(s) of this system. This information should be sufficient to justify the license renewal boundaries depicted on the referenced drawings, and identify which specific components are within the scope of license renewal and subject to an AMR.

Response

The license renewal intended function of the NG system is to maintain the pressure boundary of the nitrogen gas supply lines providing nitrogen to the various tanks. Therefore, the portions of the nitrogen gas system within the scope of license renewal are the supply lines from the tanks, which are supplied with nitrogen gas by this system, to the first isolation valve.

2.3.3.9-2

On Drawing 11405-M-42 Sheet 1, location C3, Valve NG-116 is highlighted as being within the scope of license renewal. The upstream and downstream side piping connected to NG-116 is not highlighted as being within the scope of license renewal. According to LRA Table 2.3.3.9-1, the intended function of the valve body component group is pressure boundary. The failure to include the connected piping within scope and subject to an AMR could defeat that function. Include the subject piping within the scope of license renewal and subject to an AMR or provide justification for not including the connected piping within the license renewal boundary.

Response

The referenced drawing has an error at that location. The LR Boundary Flag on the downstream side of NG-116 should not end as shown but continue on and direct the reader to the CVCS system. The piping downstream of NG-116 is WSLR. A corrected drawing has been provided by the Reference 3 letter.

2.3.3.14 Fire Protection

2.3.3.14-1

LRA Section 2.1.4.1, "Plant Systems" states on page 2-8 that, "The Non-CQE FP SSCs satisfying the regulation are identified in the Fire Hazards Analysis (FHA)." LRA Section 2.3.3.14, "Fire Protection" states that the plant is divided into unique plant areas as required by Appendix A to NRC Branch Technical Position APCSB 9.5-1 and Appendix R to 10 CFR Part 50. LRA Section 2.3.3.14 also states that more information on the FP system can be found in Section 9.11 of the USAR. The USAR states that the updated FHA documents the FP program

comparison matrix to Appendix A to BTP 9.5-1 and Appendix R, Section III.G, III.J., and III.O requirements. It appears that the applicant has used the FHA as the primary scoping tool to identify FP SSCs (Non-CQE) required to satisfy 10 CFR 50.48.

a. Discuss how plant commitments contained in drawings, the USAR and other plant documentation which may also reflect the FCS fire protection current licensing basis, were reviewed to ensure that all FP SSC's relied upon for compliance to 10 CFR 50.48 were included within the scope of license renewal.

   Response
   The scoping documents are the FCS USAR, Updated Fire Hazards Analysis, Appendix R Safe Shutdown Analysis, and P&IDs per PED-GEI-67, Mechanical Scoping for License Renewal. In addition, the RAMS Database and the Fire Protection Design Basis Document were also referred to for making scoping determinations.

b. If the FHA is the primary scoping tool, describe how it is updated to reflect changes in, and commitments to, the approved FP program.

   Response
   The Updated Fire Hazards Analysis (UFHA) is updated in accordance with PED-GEI-04, Fire Protection System Interaction. This procedure provides the direction for reviewing engineering design changes to the plant and incorporating any changes that affect the Fire Protection Design Basis Documents, including the UFHA, into those documents, where applicable.

2.3.3.14-2
The staff identified from its review of the flow diagrams that the following components have been excluded from within the scope of license renewal. Please provide the basis for exclusion of the following components from within the scope of license renewal:

a. 11405-M-266, Sheet 1B - 12" Hose Valve Heads Twelve-inch hose valve heads are not highlighted as being within the license renewal boundary in this flow diagram and appears to be excluded from within the scope of license renewal. Provide the basis for exclusion since it appears that these valves provide a pressure boundary intended function, consistent with the rest of the fire protection system piping, which is identified as within the scope of license renewal. If the hose valve heads are brought into scope, provide the aging management information for the components.

   Response
   The twelve-inch hose valve heads do not have an intended function. For fire pump FP-1A, valves FP-150, -449, and –500 isolate the hose head. For fire pump FP-1B, valves FP-152 and –501 isolate the hose head. These isolation valves are the pressure boundary valves. The hose valve heads are only used for fire pump testing and are normally shut during plant operations.

b. 11405-M-266, Sheet 8 - Fire Hose Connections The piping leading to the fire hose connections are not highlighted as being within the license renewal boundary and appear to be excluded from within the scope of license renewal. Provide the basis for exclusion since it appears this piping provides a pressure boundary intended function for the FP water

supply. If the hose connections are brought into scope, provide the aging management information for the components.

Response
The fire hose connections are for drainage purposes only, and do not have an intended function. Drain valves FP-463 and FP-464 associated with deluge valve FP-289, and drain valves FP-475 and FP-475 associated with deluge valve FP-749 do have a pressure boundary function and are flagged as a LR boundary. Therefore, the piping downstream, including the hose connections, is not within LR scope. Additionally, the hose valves themselves are only used for testing purposes and are normally isolated during plant operations.

2.3.3.15 Raw Water

2.3.3.15-1
Drawing 11405-M-100 depicts several license renewal boundary flags at locations E-8, D-8, and D-7, that are at design class boundaries not associated with an isolation valve. Please justify the location of these boundaries with regard to protection of essential systems from internal flooding, or relocate the license renewal boundary to an appropriately located isolation valve.

Response
Boundary flags located at class boundaries on drawing 11405-M-100 reflect results of an engineering analysis and a calculation that determined that the class boundaries are acceptable at a non-valve location. The above analysis determined that internal flooding of the Turbine Building due to failure of the non-class piping will not affect any safe shutdown equipment, nor is it possible for floods to propagate from the Turbine Building to the Auxiliary Building. Additionally, the analysis shows that the floor drains in the Auxiliary Building can easily handle a postulated flood from any lines that tie into the backup raw water header in the Auxiliary Building. Finally, the analysis determined that a break in any of the lines in question will not impair the ability of the raw water system to perform its intended safety function. Therefore, the LR boundary locations are acceptable as identified on drawing 11405-M-100. The engineering analysis and calculation are available on site for staff review.

2.3.3.15-2
USAR Section 9.8.2 states that four raw water pumps are installed in the intake structure to provide screened river water to the component cooling heat exchangers. The intake structure screens perform an apparent intended function of preventing debris from reaching the pumps that could block flow to, or otherwise cause the failure of, the safety-related raw water system. However, LRA Table 2.3.3.15-1 does not identify the intake structure screens as components subject to an aging management review. Please clarify whether the intake structure screens are subject to an AMR, or justify their exclusion.

Response
Intake Structure screens CW-2A, CW-2B, CW-2C, CW-2D, CW-2E and CW-2F are included in Table 2.3.3.15-1 under Component Type "Filters/Strainers"; therefore, are considered in scope for license renewal and subject to AMR.

2.3.3.16 Component Cooling

2.3.3.16-1
Drawing 11405-M-12, Sh. 1, for the component cooling water system depicts the sample chiller and the associated component cooling water supply and return piping at drawing location B-6 as outside the scope of license renewal. However, drawing 11405-M-12, Sh. 1, for the primary plant sampling system depicts the sample chiller as within scope and notes a transition to the component cooling water system for the associated supply and return piping. It is unclear to the staff whether these components are within the scope of license renewal and subject to an AMR, the basis for their inclusion or exclusion, and to what system(s) these components belong (for the purposes of license renewal). Please clarify whether the sample chiller and the associated component cooling water supply and return piping are within the scope of license renewal and subject to an AMR, the basis for inclusion within scope and subject to an AMR, and for what system(s) these components are within scope and subject to an AMR, or justify their exclusion.

Response
Sample chiller SL-51 and the associated component cooling water supply and return piping are within scope for license renewal. Drawing 11405-M-12, Sh 1 for the Component Cooling Water System was in error; a corrected version has been provided by the Reference 3 letter.

2.3.3.16-3
Drawing 11405-M-40, Sh. 1, for the component cooling water system depicts the containment air cooling coils as within the scope of the containment heating, ventilation, and air conditioning system. However, drawing 11405-M-1, Sh. 1, which is referenced by the LRA for the containment heating, ventilation, and air conditioning system, does not clearly depict the containment air cooling unit interface with the component cooling water system such that the components subject to aging management review can be identified. As discussed in the staff's letter to the Nuclear Energy Institute and the Union of Concerned Scientists, "License Renewal Issue: Guidance on the Identification and Treatment of Housings for active Components," May 1, 2002, housings of active components, including heating and cooling coils, may perform a critical pressure retention and/or structural integrity function which, should that function not be maintained, could prevent the associated active component from performing its function. The staff believes that the containment air cooling coils provide such an intended function and are passive and long-lived. Therefore, the staff concludes that these components should be subject to an AMR. Please clarify whether the containment air cooling coils are subject to an AMR, or justify their exclusion.

Response
OPPD agrees with the Staff that the containment air cooling coils are considered passive and long-lived, and therefore, are considered within scope for license renewal and subject to AMR. These components are VA-1A, VA-1B, VA-8A and VA-8B and are included in the Component Type "Heat Exchangers" in LRA Table 2.3.3.10-1. See also drawing 11405-M-1, Sh.1 for the Containment Ventilation System.

2.3.3.16-4
Drawing 11405-M-10, Sh. 2, for the component cooling water system depicts the nitrogen pressurization line to the component cooling water surge tank as within the scope of the component cooling water system. However, drawing 11405-M-42, Sh. 1, which is referenced by the LRA for the nitrogen gas system, depicts the interfacing line within the scope of the nitrogen gas system rather than the component cooling water system. Please resolve the discrepancy between these drawings.

Response
Drawing 11405-M-42, Sh.1 is correct. Drawing 11405-M-10, Sh. 2 was in error, and was revised by changing the LR flag at continuation flag "36-U" to LR-NG; and by adding a LR-NG/LR-AC-CCW boundary flag at the interface on top of the component cooling water surge tank. Revised drawing 11405-M-10, Sh. 2 has provided by the Reference 3 letter.

2.3.3.16-5
Drawing E-23866-210-120, Sh. 1A, for the chemical and volume control system identifies the letdown heat exchanger as within scope. However, drawing 11405-M-10, Sh. 3, for the component cooling water system fails to depict a transition to the chemical and volume control system at the letdown heat exchanger. In addition, drawing E-23866-210-120, Sh. 1A for the chemical and volume control system and drawing E-23866-210-120, Sh. 1A for the reactor coolant system are distinct license renewal drawings, but the LRA uses the identical reference number. Please clarify the noted discrepancies and clarify whether the component cooling water supply and return piping for the letdown heat exchanger is within the scope of license renewal and subject to an AMR.

Response
Drawing 11405-M-10, Sh.3 was revised to reflect the transition to the chemical and volume control (CH) system at the let down heat exchanger CH-7 interface. The revised drawing has provided by the Reference 3 letter.

The component cooling water supply and return piping to the letdown heat exchanger is in scope for license renewal.

The reference number used in the LRA for the LR drawings is the same as the drawing number. In many cases, the same drawing is used more then once to reflect the LR boundary for a given system. Consequently, the same drawing number may be used in more than one EA. Additionally, the system abbreviation (i.e., RCS) appears in front of the electronic version of each drawing.

2.3.3.16-6
Drawing 11405-M-10, Sh. 3, for the component cooling water system depicts a transition to the gaseous waste disposal system at the gas compressor seal water heat exchangers. However, drawing 11405-M-98, Sh. 1, for the gaseous waste disposal system fails to depict a transition to the component cooling water system at the gas compressor seal water heat exchangers. Please resolve these discrepancies and clarify whether the subject components (gas compressor seal water heat exchangers and associated component cooling water interfaces) are within the scope of license renewal and subject to an AMR.

Response
Drawing 11405-M-98, Sh. 1 for the waste gas disposal system has been revised to include a transition boundary flag at the gas compressor seal water heat exchangers to show the component cooling water system transition. Additionally, drawing 11405-M-98, Sh. 1 has also been added to the component cooling water system Engineering Analysis with the appropriate boundary flags and red highlight up to the gas compressor seal water heat exchangers. Both drawings have been provided by the Reference 3 letter.

2.3.3.16-7
Drawing 11405-M-10, Sh. 3, for the component cooling water system depicts relief valves for shutdown cooling heat exchangers AC-4A and AC-4B and the spent fuel pool heat exchanger (valves AC-1026, AC-1027, and AC-1059, respectively) as gagged. However, neither the valves' inlet piping nor the valve bodies are indicated as being within the scope of license renewal and subject to aging management review by red overprinting or an appropriate note. In addition, the gagging devices, which also perform an apparent pressure boundary intended function, are not listed in LRA Table 2.3.3.16-1 as being subject to aging management review. Please clarify whether the inlet piping, bodies, and gagging devices associated with the above-referenced valves are within the scope of license renewal and subject to an AMR, or justify their exclusion.

Response
Relief valves AC-1026, AC-1027, and AC-1059, including inlet piping, are in scope for license renewal. Drawing 11405-M-10, Sh. 3 has been revised to show these valves and the associated vent/drain valves as in scope, and has been provided by the Reference 3 letter.

Gagging devices are not within scope of license renewal. Please refer to 54.21(a)(1)(i) which reads "...excluding, but not limited to, pumps (except casing), valves (except body)..." Since the gagging device is not part of the valve body, and serves no pressure boundary function, it is not within scope of license renewal per the rule.

2.3.3.19 Primary Sampling

2.3.3.19-1
Drawing 11406-M-12, Sheet 1 shows sample heat exchangers SL-3, SL-8A, S-8B, and sample cooler SL-51 as being within the scope of license renewal for the primary sampling system. The intended functions of these components are heat transfer and pressure boundary. In all four cases, the primary sampling system inlet and outlet piping is not within the scope of license renewal. The failure of this piping could compromise the pressure boundary function of the heat exchangers and sample chiller. Provide justification for not including the inlet and outlet piping within the scope of license renewal.

RESPONSE:
Table 2.3.3.19-1 of the application incorrectly identifies an intended function of Heat Transfer for these heat exchangers. They provide only a pressure boundary function for CCW. The LR Boundary Flags on the referenced drawings are, therefore, correct.