June 30, 2010

Mr. W.S. Oxenford, Vice President
Nuclear Generation and Chief Nuclear Officer
Columbia Generating Station
Energy Northwest
MD PE08
P.O. Box 968
Richland, WA 99352

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE COLUMBIA GENERATING STATION, LICENSE RENEWAL APPLICATION

Dear Mr. Oxenford:

By letter dated January 19, 2010, Energy Northwest submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54), to renew operating license NPF-21 for Columbia Generating Station, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Abbas Mostala and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-4029 or by e-mail at evelyn.gettys@nrc.gov.

Sincerely,

/RA/

Evelyn Gettys, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosure:
As stated

cc w/encl: See next page

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COLUMBIA GENERATING STATION
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION

Aboveground Steel Tanks Inspection Program

RAI B.2.1-1

Background

The preventive actions element of the GALL AMP XI.M29 “Aboveground Steel Tanks” states that sealant or caulking at the interface edge between the tank and concrete foundation mitigates corrosion of the bottom surface of the tank by preventing water and moisture from penetrating the interface, which would lead to corrosion of the bottom surface.

Issue

LRA Section B.2.1 indicates an exception to the preventive actions element. The LRA states that there is no sealant or caulking at the interface edge between condensate storage tanks and their concrete foundations. The staff is unclear on what compensatory inspections, such as a visual inspection at the tank to foundation interface in addition to the tank bottom thickness measurements, will be conducted to account for the lack of this mitigative feature.

Request

Justify why there are no apparent compensatory inspections to detect potential corrosion of the tank bottom surface due to water and moisture penetrating the tank and concrete interface given that there is no sealant or caulking at this interface edge.

RAI B.2.1-2

Background

The operating experience element of the GALL AMP XI.M29 “Aboveground Steel Tanks” indicates that corrosion damage near the concrete-metal interface and sand-metal interface has been reported in metal containments. The SRP-LR Section A.1.2.3.10 “Operating Experience” indicates that an effective AMP should provide objective evidence to support the conclusion that the effects of aging will be adequately managed.

Issue

The LRA basis document for the Aboveground Steel Tanks Inspection program states that no instances of degradation of condensate storage tanks were identified in a review of condition reports. However, in preparation for a plant walkdown during the AMP audit, Columbia personnel provided photographs to the NRC staff showing surface corrosion and peeling paint at the concrete-metal interface at the base of the condensate storage tanks. During followup discussions, Columbia personnel indicated that this type of adverse condition should have been

identified by plant personnel during normal system walkdowns. A search of the corrective action database did not reveal any document identifying this condition, and a condition report was subsequently initiated based on questions by the NRC staff (Action Request 00218647). The initial reviews determined that this was a long-standing issue known to plant staff members including the condensate system engineer, which had never been documented in a condition report. The lack of documentation associated with this adverse condition causes the effectiveness of the operating experience reviews for this program to be questioned.

Request

Given the long term lack of documenting a protective coating degradation and corrosion issue at the condensate storage tank interface edge between the tank and concrete foundation, justify why an historical search of condition reports, particularly in light of the OE example provided in GALL AMP XI.M29, is an adequate input source to validate the effectiveness of the "operating experience" program element of the Aboveground Steel Tanks Inspection Program.

Air Quality Sampling Program

RAI B.2.2-1

Background

The acceptance criteria element of the GALL AMP XI.M24 "Compressed Air Monitoring" indicates that acceptance criteria for instrument air quality are established based on design basis conditions and/or components vendor specifications.

Issue

LRA Section B.2.2 indicates that acceptance criteria for air quality sampling are specified for particulates, hydrocarbons, and dew point in the surveillance procedures for the control air and diesel starting air systems (i.e., Procedures 10.27.88 and 10.27.90). It is unclear to the staff the basis for establishing the acceptance criteria for particulates, hydrocarbons, and dew point.

Request

Provide the basis for establishing the particulates, hydrocarbons, and dew point criteria for air quality sampling of the control air and diesel starting air systems.

RAI B.2.2-2

Background

The acceptance criteria element of the GALL AMP XI.M24 "Compressed Air Monitoring" indicates that acceptance criteria for instrument air quality are established based on design basis conditions and/or components vendor specifications.

Issue

LRA Section B.2.2 indicates that an operating minimum wall thickness of 0.236" was determined based on ASME code for the air receiver tanks of the diesel starting air system. It is unclear to the staff the basis for the wall thickness criteria established for the air receiver tanks.

Request

Provide the basis for establishing the tank wall thickness criteria for ultrasonic inspections of the diesel starting air system.

CGS Buried Piping and Tanks Inspection Program

RAI B.2.5-1

Background

The license renewal application (LRA) states that Aging Management Program (AMP) B.2.5, Buried Piping and Tanks Inspection Program, is an existing program with 2 enhancements and is consistent with the program elements in GALL AMP XI.M34. This AMP addresses buried piping, (i.e., piping in direct contact with soil). The LRA also states that AMP B.2.23, External Surfaces Monitoring Program, is an existing program with 2 enhancements and is consistent with the program elements in GALL AMP XI.M34. This AMP addresses aging management of the external surfaces of piping exposed to air, which would normally include underground inaccessible piping (i.e., piping not in direct contact with soil, but located below grade in a vault, pipe chase, or other structure where it is exposed to air and where access is limited).
There have been a number of recent industry events involving leakage from buried and underground piping and tanks.

Issue

In light of this recent industry operating experience (OE), the staff is concerned about the continued susceptibility to failure of buried and/or underground piping that are within the scope of 10 CFR 54.4 and subject to aging management for license renewal. In reviewing the AMPs cited above along with the applicable aging management review (AMR) items associated with them, the staff is not clear whether: (1) the components addressed by these AMPs clearly include both buried and underground piping (piping which is below grade and contained in a vault or other structure where it is exposed to air and where access is limited); and (2) whether such programs are being updated to incorporate lessons learned from these recent events as well as any OE from the applicant's own history.

Request

1. Provide a list and brief summary of any leaks or adverse conditions discovered during inspections (e.g., coating damage that directly exposes the piping or tank to the environment, presence of any coarse material in backfill within 6 inches of the pipe or tank, unexpected corrosion or damage to piping walls or component pressure boundaries) which have occurred in buried or underground piping or tanks at the station in the past five years that were entered in your corrective action program but are not

included in your LRA. The staff is concerned that relevant operating experience with buried piping can sometimes be screened out in the process of preparing the LRA, since they may not manifest themselves as aging related issues. Describe how your current AMPs, or proposed changes to the AMPs, address these issues.

2. Provide a discussion of how the AMPs used in managing the aging of buried, underground, and limited access piping and tanks within the scope of license renewal will address recent industry OE as well as any OE from the applicant's own history.

External Surfaces Monitoring Program

RAI Question B.2.23-1

Background

The GALL AMP XI.M36 recommends managing aging effects of steel through visual inspections. Based on observable degradation byproducts intrinsic to steel, the GALL AMP states that "visual inspections are expected to identify loss of material due to general corrosion in accessible steel components. Loss of material due to pitting and crevice corrosion may not be detectable through these same visual inspections, however, general corrosion is expected to be present and detectable such that, should pitting and crevice corrosion exist, general corrosion will manifest itself as visible rust or rust byproducts (e.g., discoloration or coating degradation) and be detectable prior to any loss of intended function."

However, within the LRA the applicant has included aluminum, copper, copper alloy (>15% Zn), grey cast iron, elastomers sealants and flexible connections in the HVAC system and stainless steel within the scope of this AMP.

Issue

The LRA program includes materials not considered by the GALL Report for aging management by this program. Thus the LRA AMP is inconsistent with the GALL Report. Staff notes that the LRA describes the AMP as consistent with the GALL Report with enhancements. However, guidance provided in the SRP-LR describes enhancements as additions to existing aging management programs needed to ensure consistency with the GALL Report recommendations, and when describing exceptions it states that any deviations should be described and justified.

Further, in LRA Section B.1.2 the applicant describes exceptions to the GALL Report as necessary when the elements of the Columbia program are different from the GALL Report program elements.

Question

Provide a basis for not taking an exception to the GALL Report in the External Surfaces Monitoring Program for managing aging of aluminum, copper, copper alloy (>15% Zn), grey cast iron, elastomers sealants and flexible connections in the HVAC system and stainless steel within the scope of this AMP.

RAI Question B2.23-2

Background

The GALL AMP XI.M36 recommends managing the aging effects of loss of material from general corrosion, pitting and crevice corrosion. Based on observable degradation byproducts intrinsic to steel, the GALL AMP states that "visual inspections are expected to identify loss of material due to general corrosion in accessible steel components. Loss of material due to pitting and crevice corrosion may not be detectable through these same visual inspections, however, general corrosion is expected to be present and detectable such that, should pitting and crevice corrosion exist, general corrosion will manifest itself as visible rust or rust byproducts (e.g., discoloration or coating degradation) and be detectable prior to any loss of intended function."

However, within the LRA, the applicant has included management of cracking of aluminum and stainless steel; and hardening and loss of strength of elastomer sealants and flexible connections in HVAC systems.

Issue

The LRA program includes management of aging effects not considered by the GALL Report for aging management by this program. Thus the LRA AMP is inconsistent with the GALL Report. Staff notes that the LRA describes the AMP as consistent with the GALL Report with enhancements. However, guidance provided in the SRP-LR describes enhancements as additions to existing aging management programs needed to ensure consistency with the GALL Report recommendations, and when describing exceptions it states that any deviations should be described and justified.

Further, in LRA Section B.1.2, the applicant describes exceptions to the GALL Report as necessary when the elements of the Columbia program are different from the GALL Report program elements.

Question

Provide a basis for not taking an exception to the GALL Report in the External Surfaces Monitoring Program for including the aging management of cracking.

Potable Water Monitoring Program

RAI B.2.43-1

Background

The parameters monitored and inspected element is expected to include details on the parameters to be monitored or inspected and linked to the degradation of the particular structure and component intended function.

Issue

The applicant's Potable Water Monitoring Program parameters monitored and inspected element provides information on the water quality monitoring and none on the periodic inspection activities.

Request

Provide additional information for not including the periodic inspection activities in the parameters monitored and inspected element.

RAI B.2.43-2

Background

The parameters monitored and inspected element is expected to include details on the parameters to be monitored or inspected and linked to the degradation of the particular structure and component intended function. Secondly, the acceptance criteria element is expected to include acceptance criteria that are examined to ensure that the structure and component intended function(s) are maintained.

Issue

The applicant's Potable Water Monitoring Program parameters monitored and inspected element shows that water quality parameters being monitored are based on state water quality guidelines, which is also what the acceptance criteria is based upon. It is unclear to the staff how these guidelines are appropriate for managing materials aging in the portable water systems. For example, the applicant's onsite documentation indicated that "meeting the state water quality guidelines does not mean the water quality is optimum for preventing corrosion." Furthermore, this onsite information stated that sulfide, which is not monitored, in the system led to pitting.

Request

Provide additional information on the basis for using state quality guidelines as a means to control aging in the potable water system, especially for loss of material.

Letter to W. Oxenford from E. Gettys dated June 30, 2010

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