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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Subject: **COLUMBIA GENERATING STATION, DOCKET NO. 50-397**
**RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**
**LICENSE RENEWAL APPLICATION**

References:
1) Letter, GO2-10-11, dated January 19, 2010, WS Oxenford (Energy Northwest) to NRC, "License Renewal Application"
2) Letter dated June 30, 2010, NRC to WS Oxenford (Energy Northwest), "Request for Additional Information for the Review of the Columbia Generating Station, License Renewal Application," (ADAMS Accession No. ML 101720623)

Dear Sir or Madam:

By Reference 1, Energy Northwest requested the renewal of the Columbia Generating Station (Columbia) operating license. Via Reference 2 the Nuclear Regulatory Commission (NRC) requested additional information related to the Energy Northwest submittal.

Transmitted herewith in an attachment that contains the Energy Northwest responses to the Request for Additional Information (RAI) contained in Reference 2.

A035
~~A090~~
NRR

No new commitments are included in this response. However, a revision to the commitment made in item 43 in Table A-1, of the License Renewal Application is provided as Amendment 3, in the enclosure to this letter.

If you have any questions or require additional information, please contact Abbas Mostala at (509) 377-419

I declare under penalty of perjury that the foregoing is true and correct. Executed on the date of this letter.

Respectfully,

Jack L. Stiles

SK Gambhir
Vice President, Technical Services

Attachment: Response to Request for Additional Information

Enclosure: Amendment 3

cc: NRC Region IV Administrator
NRC NRR Project Manager
NRC Senior Resident Inspector/988C
EJ Leeds - NRC NRR
EFSEC Manager
RN Sherman – BPA/1399
WA Horin – Winston & Strawn
EH Gettys - NRC NRR (w/a)
BE Holian - NRC NRR
RR Cowley – WDO

# Response to Request for Additional Information

Letter dated June 30, 2010, NRC to WS Oxenford (Energy Northwest), "Request for Additional Information for the Review of the Columbia Generating Station, License Renewal Application," (ADAMS Accession No. ML 101720623)

## 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.

### Energy Northwest Response

The condensate storage tanks (CSTs) have a preventative maintenance (PM) task to perform visual and non-destructive examination (NDE) inspections every ten years. The NDE inspections are to include ultrasonic thickness measurements of the bottom of the tank.

## 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.

**Energy Northwest Response**

The inappropriate decision of the system engineer to not document this condition in the corrective action process (CAP) is not indicative of a failure in the entire process. However, as a result of evaluations conducted to address multiple scrams at Columbia between August 2008 and November 2009, Energy Northwest has implemented a number of initiatives that will strengthen the CAP. Efforts are underway to improve system monitoring and trending by system engineers. In addition, improvements include clarification of system engineer roles and responsibilities, enhancements to improve system health, and enhancements of the engineering technical conscience. These efforts are directed at improving attention to and resolution of problems and therefore the validity of the Energy Northwest response to the CAP and operating experience (OE).

The expectations at Energy Northwest are that issues like this should have been documented in the CAP. The system engineer has been coached on these expectations.

The system engineer had identified the degradation in previous walkdowns and was tracking and trending the condition, but had not entered the issue into the CAP because the condition was identified as surface corrosion and no significant material loss was noted. The area of the corrosion was also believed to be low consequence based on the corrosion being limited to an area at the very edge of the tank support ring and outside of the bolting circle. Thus, the tank will still be capable of performing its intended function.

**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.

**Energy Northwest Response**

The basis for the criteria for the air quality sampling were provided to the NRC in letter, GO2-89-128, G. C. Sorensen to NRC, "Final Response to Generic Letter 88-14, 'Instrument Air Supply System Problems Affecting Safety-Related Equipment," dated July 28, 1989. Section 6, "Testing Criteria and Procedures," is repeated here for your convenience.

> 6 TESTING CRITERIA AND PROCEDURES
>
> A procedure for testing the air quality in each of the instrument air systems has been developed.
>
> The air quality test criteria for the instrument air systems are presented in Table 6-1. The basis for these criteria is as follows:
>
> 1. Particulate Size
>
>    The maximum allowable particulate size for the containment instrument air and control air systems is based on the air quality requirements for each of the safety-related air actuators. These requirements are presented in the Safety-Related Air Operated Valve Database (Appendix 1). There are rare instances where the requirement for maximum particulate size is more restrictive than the test criteria. In these rare cases the air supply line has been examined to assure that a filter regulator, sized to provide the proper filtration, is installed upstream of the actuator.
>
>    The diesel starting air systems are designed to function on service air quality air. Therefore, no filtration is required. Yet, for conservatism, the starting air systems are equipped with in-line filters which are designed to remove all particles 1 micron and larger. As a check, the starting air systems were tested to verify that particulate matter does not exceed 40 microns. This is the same criteria as that used for the Control Air System.

2. Dew Point Temperature (Humidity)

   The dewpoint is the compressed air temperature at which moisture in the compressed air would begin to condense and form water droplets. Compressed air dryers are usually rated by the dewpoint and air flowrate. Since the only moisture in the air system is that entrained in the ambient air before entering the compressor, the dewpoint measured at the dryer discharge would reflect the dewpoint temperature throughout the system. Therefore, the dewpoint test criteria for the control air system was based on the rated dryer performance.

   The primary gas supply for the Containment Instrument Air System is the cryogenic liquid nitrogen tank. By definition, liquid nitrogen does not contain any moisture. Therefore there should not be any moisture in the CIA, and for this reason, the CIA system is not tested for excess moisture.

   The diesel starting air systems are designed to function with service air quality air. That is, air that is free of entrained moisture but not necessarily dried to a specified dewpoint. It is expected that any moisture entrained in the compressed air stream at the discharge of the compressor aftercoolers would settle out in the air receivers before being transported into the engine air start motors. For conservatism, the starting air systems are equipped with deliquescing type dryers which are capable of lowering the dewpoint by 30°F. The dewpoint limit is based on saturated conditions for 250 psig air at the minimum room temperature of 70°F.

3. Hydrocarbon Contamination

   Hydrocarbons can be introduced into a compressed air stream at the compressor or from vapors in the intake air. All of the compressors installed in the WNP-2 air systems are oil free. Therefore, no hydrocarbons should be present in the compressed air piping. To verify this, the CAS air system was and will continue to be tested for the presence of hydrocarbons in accordance with the criteria presented in ANSI Standard ISA-S7.3, "Quality Standard for Instrument Air."

The air quality in each system was tested at a number of key locations. These locations were selected to be close to the compressors, the air dryers and to important safety-related air users such as the ADS Valves, MSRVs and the MSIVs. Test locations were also selected on the basis of accessibility considerations.

**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.

**Energy-Northwest Response**

The ASME Section VIII Div. 1, 1974 edition, UG-32d, item (d) Ellipsoidal Heads provides 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.

**Energy Northwest Response**

1. A search of plant specific OE did not identify any additional leaks or adverse conditions discovered during inspections. However, visual exams performed on the service water (SW) system and the control air system (CAS) identified external coating deficiencies. Small sections of CAS system piping were identified as having coating failures during those inspections. Damage was identified as mechanical damage likely caused during the excavation process.

   The Buried Piping Integrity Program specifies the performance of visual inspections of excavated piping. Buried tanks are subject to periodic ultrasonic examinations. Deficiencies found during these inspections will be entered into the CAP and resolved accordingly.

2. The Buried Piping and Tanks Inspection Program will use industry and plant specific OE, in addition to trending of past inspections, to drive inspection locations. The Buried Piping Integrity Program Plan references the process for selecting inspection locations and using OE during that process. The plan accounts for piping that is buried. This includes piping that may run within a vault or culvert; however it does not include piping within buildings below grade (such as Reactor Building basement). The External Surfaces Monitoring Program is credited for piping within buildings below grade (such as the Reactor Building basement).

**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.

**Energy Northwest Response**

While the materials added to the scope of the AMP do not exhibit the same corrosion tendencies as carbon steel, a system engineer is able to identify areas that are susceptible to aging effects. While the additional materials may not all be susceptible to general corrosion, other means to identify aging affects exist and will be used. Specifically, system engineers can use field guidance for aging assessment developed by Electric Power Research Institute (EPRI) to help identify aging effects of materials beyond carbon steel. This guide helps the system engineer identify the potential degradation mechanisms, monitor for indicators during walkdowns, and evaluate mechanical components.

This variance from the GALL is an enhancement which expands the scope of the program for license renewal. While the additional materials may not all be susceptible to general corrosion, other means to identify aging affects exist and will be used. The LRA Section B.1.2 contains the description of exceptions versus enhancements. The addition of the materials beyond carbon steel is considered an enhancement rather than an exception because it expands the scope of the program. Guidance provided in the SRP-LR describes exceptions as portions of the GALL Report AMP that the applicant does not intend to implement.

**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.

**Energy Northwest Response**

While the materials added to the scope of the AMP do not exhibit the same corrosion tendencies as carbon steel, a system engineer is able to identify areas that are susceptible to aging effects. Specifically, system engineers can use field guidance for aging assessment developed by EPRI to help identify aging effects of materials beyond carbon steel. This guide helps the system engineer identify the potential degradation mechanisms, monitor for indicators during walk downs and evaluate mechanical components.

This variance from the GALL is an enhancement which expands the scope of the program for license renewal. While the additional materials may not all be susceptible to general corrosion, other means to identify aging affects exist and will be used. The LRA Section B.1.2 contains the description of exceptions versus enhancements. The addition of the materials beyond carbon steel is considered an enhancement rather than an exception because it expands the scope of the program. Guidance provided in the SRP-LR describes exceptions as portions of the GALL Report AMP that the applicant does not intend to implement.

**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.

**Energy Northwest Response**

The periodic inspection activities were not included in the parameters monitored and trended element because the inspections are not required for, and not included in, the existing program. The periodic inspection activities are to be added to the program prior to the period of extended operation (PEO) based on operating experience, a subsequent element. The enhancement discussion in the LRA focused on the detection of aging effects element. The Amendment 3 to the LRA is provided in the Enclosure to this letter.

**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.

**Energy Northwest Response**

State quality guidelines are not the only means to be used in the AMP. As indentified in LRA B.2.43, the program will be enhanced to include periodic inspection activities to provide additional confirmation that the integrity of piping and component will be maintained for the PEO.

The evaluation of the existing program for license renewal identified operating experience determined that monitoring water based on state water chemistry guidelines is "... not optimum for preventing corrosion." Energy Northwest determined that enhancement would be needed to monitor the condition of metallic piping and components to ensure there were no adverse interactions with safety-related components in the area. Accordingly, both the existing potable water monitoring and enhancement for condition monitoring were evaluated for license renewal and the combination of the existing potable water monitoring activities, with enhancement for condition monitoring, are credited for ensuring that component intended function is performed through the PEO.

During the current period of operation, state water quality guidelines are followed for the Potable Water systems. Internal operating experience shows that there have been no failures of the metallic piping and components inside the Reactor Building or Radwaste Building that are within the scope of license renewal. Thus, there have been no additional actions for corrosion control necessary.

# License Renewal Application
# Amendment 3

| LRA Section Number | Page Number | RAI Number |
|---|---|---|
| B.2.43 | B-167 | B.2.43-1 |
| B.2.43 | B-167a | B.2.43 |
| Table A-1, Item 43 | A-59 | B.2.43 |

- Parameters Monitored or Inspected
  The Potable Water Monitoring Program monitors the water treatment plant performance and the overall status of the potable water system, including water quality.

Insert A from Page B-167a

- Detection of Aging Effects
  The Potable Water Monitoring Program will be enhanced to use a combination of established volumetric and visual examination techniques performed by qualified personnel on ~~locations~~ components within the PWC, PWH, and ROA systems, as determined by engineering evaluation, to identify evidence of a loss of material, or to confirm a lack thereof. ~~At least one inspection will be conducted within the 10-year period prior to the period of extended operation.~~ , in the raw (potable) water environment.

  Based on operating experience, it is necessary that inspections be conducted at least once every five years, and include components of the PWC and PWH systems that are located in the Reactor Building, and components associated with the ROA air washer (ROA-AW-1), including the air washer housing.

Insert: "or Radwaste Building (including corridors)"

- Monitoring and Trending
  The Potable Water Monitoring Program monitors the water treatment plant performance and the overall status of the potable water system, including water quality, and the results are recorded and trended.

Insert B from Page B-167a

- Acceptance Criteria
  The acceptance criteria for potable water system inspections are: indications or relevant conditions of degradation detected during the inspection will be compared to pre-determined acceptance criteria. If the acceptance criteria are not met, then the indications and conditions will be evaluated under the corrective action program to determine whether they could result in a loss of component intended function during the period of extended operation.

  Acceptance criteria have been established for potable water quality, which minimizes the presence of impurities that could cause degradation.

- Corrective Actions
  This element is common to Columbia programs and activities that are credited with aging management during the period of extended operation and is discussed in Section B.1.3.

- Confirmation Process
  This element is common to Columbia programs and activities that are credited with aging management during the period of extended operation and is discussed in Section B.1.3.

Insert A to Page B-167

As described for the Detection of Aging Effects and Operating Experience elements below, the Potable Water Monitoring Program will be enhanced to include inspection of the components within the PWC, PWH, and ROA systems, as determined by engineering evaluation, to identify evidence of a loss of material, or to confirm a lack thereof, in the raw (potable) water environment.

Insert B to Page B-167

The Potable Water Monitoring Program will also be used to characterize conditions (inside piping and components) and to determine if, and to what extent, further actions may be required. The program will include increasing the inspection sample size and location if degradation is detected. The program will also include engineering evaluation of the inspection results to determine if the inspection frequency can be reduced or needs to be increased.

**Table A-1**
**Columbia License Renewal Commitments**

| Item Number | Commitment | FSAR Supplement Location (LRA App. A) | Enhancement or Implementation Schedule |
|---|---|---|---|
| 43) Potable Water Monitoring Program<br>• Include engineering evaluation of inspection results and adjustment of inspection frequencies. | The Potable Water Monitoring Program is an existing program that will be continued for the period of extended operation, with the following enhancements:<br>• Include periodic inspection activities. Based on operating experience, it is necessary that inspections be conducted at least once every five years, and include components of the Potable Cold Water and Potable Hot Water systems that are located in the Reactor Building, and components associated with the Reactor Building Outside Air (ROA) air washer (ROA-AW-1), including the air washer housing.<br>At least one inspection will be conducted within the 10-year period prior to the period of extended operation. | A.1.2.43<br>for evidence of a loss of material, or to confirm lack thereof. | Enhancement and inspection within the 10-year period prior to the period of extended operation.<br>Then ongoing. |
| 44) Preventive Maintenance – RCIC Turbine Casing | The Preventive Maintenance – RCIC Turbine Casing is an existing program that will be continued for the period of extended operation. | A.1.2.44 | Ongoing |
| 45) Reactor Head Closure Studs Program | The Reactor Head Closure Studs Program is an existing program that will be continued for the period of extended operation. | A.1.2.45 | Ongoing |
| 46) Reactor Vessel Surveillance Program | The Reactor Vessel Surveillance Program is an existing program that will be continued for the period of extended operation. | A.1.2.46 | Ongoing |