February 13, 2004

LICENSEE: Southern Nuclear Operating Company

FACILITY: Joseph M. Farley Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF TELEPHONE CONFERENCES HELD ON JANUARY 21, 22 AND 23, 2004, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND THE SOUTHERN NUCLEAR OPERATING COMPANY CONCERNING DRAFT REQUESTS FOR ADDITIONAL INFORMATION ON JOSEPH M. FARLEY NUCLEAR PLANT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION (TAC NOS. MC0774 AND MC0775)

The U.S. Nuclear Regulatory Commission staff and representatives of Southern Nuclear Operating Company (SNC or the applicant) held telephone conferences on January 21, 22 and 23, 2004, to discuss the draft requests for additional information (D-RAIs) concerning the Joseph M. Farley Nuclear Plant (FNP) license renewal application.

The conference calls were useful in clarifying the intent of the staff's D-RAIs. On the basis of the discussion, the applicant was able to better understand the staff's questions. No staff decisions were made during the telephone conferences. In some cases, the applicant agreed to provide information for clarification.

Enclosure 1 provides a list of the telephone conference participants. Enclosure 2 contains a listing of the D-RAIs discussed with the applicant, including a brief description on the status of the items. The applicant has had an opportunity to review and comment on this summary.

/RA/
Tilda Y. Liu, Project Manager
License Renewal Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket Nos: 50-348 and 50-364

Enclosures: As stated

cc w/enclosures: See next page

February 13, 2004

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cc w/enclosures: See next page

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LIST OF PARTICIPANTS FOR TELEPHONE CONFERENCES ON DRAFT REQUESTS FOR ADDITIONAL INFORMATION

January 21, 2004

Participants	**Affiliation**
Farideh Saba	ISL
Ken Chang	NRC
Tilda Liu	NRC
Louis Bohn	SNC
William Evans	SNC
Michael Macfarlane	SNC

January 22, 2004

Participants	**Affiliation**
Hans Ashar	NRC
David Jeng	NRC
Tilda Liu	NRC
Louis Bohn	SNC
Jan E. Fridrichsen	SNC
Partha Ghosal	SNC
Michael Macfarlane	SNC

January 23, 2004

Participants	**Affiliation**
Tilda Liu	NRC
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REVIEW OF LICENSE RENEWAL APPLICATION (LRA) FOR FARLEY UNITS 1 AND 2
DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs)

January 21, 2004

Section 3.1: Aging Management of Reactor Vessel, Internals, and Reactor Coolant System

D-RAI 3.1-1

LRA Table 3.1.1, item 3.1-37 states:

> "The FNP AMR results are consistent with the intent of this summary item, with the exception that SNC applies a higher threshold value for neutron fluence effects on stainless steels than does NUREG-1801."

However, this exception is not specifically discussed in Section B.5.1.3 of LRA Appendix B.5.1, "Reactor Vessel Internals Program." Please confirm that this exception is applicable to Appendix B.5.1, identify the higher threshold value for neutron fluence effects, and justify the use of this higher value for the LRA of Farley.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.1-2

LRA Table 3.1.1, items 3.1.1-16 and 3.1.1-48 indicate that as part of the FNP Reactor Vessel Internals Program:

> "SNC commits to continued participation in industry initiatives intended to clarify the nature and extent of this aging effect. FNP will incorporate the results of these industry initiatives into the program inspection requirements and acceptance criteria."

SNC also indicated this commitment in Table 3.1.1, item 3.1.1-11, by reference to Section 3.1.2.2.6. The aging effects being managed are the loss of preload due to stress relaxation and changes in dimension due to void swelling.

However, this commitment is not contained in the UFSAR supplement presented in LRA Appendix A, nor is it included in the recently submitted LRA supplement letter, NL-03-2418, dated December 5, 2003, Enclosure 2, "License Renewal Future Action Commitments List." Please confirm that SNC will submit the revised inspection program, when completed, to the NRC for review and approval prior to implementation and that this commitment will be contained in the FNP UFSAR supplement and commitments list.

Response: The staff and the applicant agreed that the last sentence to this question should be revised to read, "Please confirm that with respect to the aging effects of loss of preload due to stress relaxation and changes in dimension due to void swelling, SNC will incorporate the results of industry initiatives into the inspection requirements and acceptance criteria for the FNP Reactor Vessel Internals Program. The SNC will submit a summary of the planned inspection activities to the NRC prior to the period of extended operation, and that this commitment will be contained in the Future Action Commitments List." Since the applicant agreed to include this commitment in its "Future Action Commitment List" as requested by the staff, the staff will verify the inclusion of this commitment during the next audit visit at SNC, which will take place from February 24 to 26, 2004.

This D-RAI will NOT be sent as a RAI.

D-RAI 3.1-3

In LRA Table 3.1.2-3, the ISI program is not credited to manage cracking of non-Class 1 piping and valve components. However, LRA summary Table 3.1.1, item 3.1.1-36 (linked to the non-Class 1 piping and valve bodies) states:

> "The FNP AMR results are consistent with this summary item. Consistent with NUREG-1801, the Water Chemistry Program and Inservice Inspection Program will manage cracking of these components."

There is an apparent inconsistency between the two Tables of the LRA. Please explain whether the ISI program is credited for the non-Class 1 piping and valve bodies and, if necessary, correct the apparent inconsistency.

Response: During the telephone conference, the applicant agreed to send a copy of the draft response to this D-RAI for staff review. After the telephone conference, the staff reviewed the draft response provided by the applicant and it is as follows:

> The ISI Program is not credited to manage cracking of non-Class 1 piping and valve components. For clarity, the second paragraph of the discussion text contained in FNP LRA Table 3.1.1, Item 3.1.1-36 should have read as follows:
>
> "While the Water Chemistry Control Program and the Inservice Inspection Program are credited, Inservice Inspection for this group is primarily directed at welded connections in ASME Class 1 components. The Water Chemistry Control Program alone will manage cracking of the non-welded portions of ASME Class 1 components/component types within this group and all non-ASME Class 1 components/component types within this group."

The staff acknowledged the applicant's draft response and informed the applicant that this D-RAI will be combined with other D-RAIs that are of CLARIFYING and/or CONFIRMATORY in nature, and will be sent under one umbrella RAI. The applicant agreed to the staff's proposal.

This D-RAI will be grouped and sent under one umbrella RAI.

Section 3.3: Aging Management of Auxiliary Systems

D-RAI 3.3-1

For component type "compressible joints and seals", LRA Table 3.3.2-9 credits the One-Time Inspection Program to manage the aging effects of change in material properties and loss of material. It also references Summary Table 1, item 3.3.1-2, which refers to Section 3.3.2.2.2 for further discussion. However, Section 3.3.2.2.2 states that the FNP External Surfaces Monitoring Program will manage the applicable aging effects for this component type. It is not clear which aging managment program (AMP) is credited. Please clarify which AMP is intended to manage the aging effects of loss of materials and change in material properties for this component type, and propose correction, if required.

Response: The applicant indicated that this was an editorial error. The correct AMP is One-Time Inspection Program. The applicant agreed that this item will be corrected in an ERRATA letter that will be forthcoming.

This D-RAI will NOT be sent as a RAI.

D-RAI 3.3-2

For component types regenerative heat exchanger; letdown, excess letdown, and RCP seal water heat exchangers, filter casings, and letdown orifices, LRA Table 3.3.2-8 credits the Water Chemistry AMP to manage the aging effect of cracking. Furthermore, the one-time inspection performed on ASME Class 1 small bore piping would serve as an equivalency indicator for any SCC of stainless steels in the reactor coolant environment. This is consistent with GALL Volume 2, Section VII.E1, which requires a verification program to confirm the adequacy of the water chemistry program to manage cracking. However, this equivalency indicator is not captured in the commitment list nor in LRA Appendix A for the UFSAR supplement. Please justify the omission of this commitment or confirm that it will be included in the FNP UFSAR supplement and commitments.

Response: The applicant agreed to include this commitment in its "Future Action Commitments List" as requested by the staff. The staff will verify the inclusion of this commitment during the next audit visit at SNC, which will take place in February 2004.

This D-RAI will NOT be sent as a RAI.

D-RAI 3.3-3

Loss of material and fouling are listed in LRA Table 3.3.2-5 as aging effects that require aging management for the open-cycle cooling water system components listed below. However, the GALL report (NUREG-1801) does not identify fouling as an aging effect applicable to these components. Fouling is generally an aging effect for components with intended function of heat transfer, not pressure boundary. Explain how fouling is related to the pressure boundary intended function of these components. Identify and describe the program that is credited for detection, prevention, and monitoring of the aging effect due to fouling for these components.

- CCW heat exchanger's channel head and tube sheet
- Containment and ESF room coolers' channel heads
- Air compressor lube oil cooler's tubesheet and channel head
- Air compressor intercooler and aftercooler and bleed-off air coolers' shells, tubesheet, and channel head

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.3-4

Column 8 of Table 2 (LRA Tables 3.3.2-x), refers to Item 3.3.1-29 of Table 1 for many auxiliary system components with loss of material aging effects due to selective leaching of carbon steel, copper alloy (brass), and stainless steel materials. The discussion column of Table 1, Item 3.3.1-29 addresses only CCW pumps fabricated from carbon steel. Provide additional information on how selective leaching aging mechanism are addressed for copper alloy (brass) and stainless steel materials in the components of the auxiliary systems (OCCW, CCW, EDG, etc.) Further, describe the credited FNP program for the detection of the selective leaching of materials and compare it with GALL AMP X1.M33 for consistency determination.

Response: This question is to be reworded for clarification. The applicant indicated that it understood the intent of the question.

This D-RAI will be sent as a RAI.

D-RAI 3.3-5

Equipment frames and housings (crankcase ventilation) is defined in LRA Table 3.3.2-15 as being consistent with GALL (item VII.H2.4-a) for material, environment, aging effects and aging management program. But, the GALL item is for a different component. The material of the equipment frames and housings in LRA Table 3.3.2-15 is cast iron in a wetted air EDG environment. The material for GALL item VII.H2.4-a is carbon steel in an environment with "hot diesel engine gases containing moisture and particulate." Therefore, the material and environment for the equipment frames and housings are different from the GALL (item VII.H2.4-a) material and environment. Please justify the conclusion of being consistent with GALL, determine whether the One-Time Inspection Program is applicable to the equipment frames and housings, and make any necessary changes to the Table, if required.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

REVIEW OF LICENSE RENEWAL APPLICATION (LRA) FOR FARLEY UNITS 1 AND 2
DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs)

January 22, 2004

D-RAI 3.5-1

In discussing Item Number 3.5.1-3 (Table 3.5.1) of the LRA, the applicant asserts that the FNP AMR results are consistent with NUREG-1801. NUREG-1801 under item A3.1 (page II A3.6) recommends further evaluation regarding the stress corrosion cracking of containment bellows. The applicant is requested to provide additional information regarding the containment pressure boundary bellows at FNP, relevant operating experience, and method(s) used to detect their age related degradation. In many cases, VT-3 examination of IWE, and Type B, Appendix J testing cannot detect such aging effects (See NRC Information Notice 92-20).

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-2

For seals and gaskets related to containment penetrations, in Item Number 3.5.1-6 of the LRA, containment ISI and containment leak rate testing have been stated as the aging management programs. For equipment hatches and air-locks at FNP, the staff agrees with the applicant's assertion that the leak rate testing program will monitor aging degradation of seals and gaskets, as they are leak rate tested after each opening. For other penetrations with seals and gaskets, the applicant is requested to provide information regarding the adequacy of Type B leak rate testing frequency to monitor aging degradation of seals and gaskets at FNP.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-3

Please note an error in the "Discussion" column of Item 3.5.1-11 (Table 3.5.1) of the LRA. Containment Tendon Prestress TLAA is discussed in Section 4.3.4 of the LRA (not in 4.3.3).

Response: The applicant noted this error. The applicant agreed that this item will be corrected in an ERRATA letter that will be forthcoming.

This D-RAI will NOT be sent as a RAI.

D-RAI 3.5-4

In discussion of Item 3.5.12 in Section 3.5.2.2.4, the applicant notes that the moisture barrier is monitored under IWE for aging degradation. The industry experience indicates that the moisture barrier degrades with time, and any moisture accumulation in the degraded barrier

corrodes the steel liner. The applicant is requested to provide information regarding the operating experience related to the degradation of moisture barrier and the containment liner plate at FNP. Please include a discussion of acceptable liner plate corrosion before it is reinstated to the nominal thickness.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-5

With reference to LRA Item 3.5.1-15, the following information is requested:

> In 1985, the incident of post-tensioning anchor-head failures had occurred at Farley Unit 2. The event is partially documented in NRC Information Notices 85-10 and its Supplement 1. Please provide a description of the subsequent actions taken, together with the operating experience as to the effectiveness of the corrective actions taken. Also, indicate, if any other actions are (and will be) continued in addition to the IWL tendon inspections to ensure the integrity of the tendon anchor-heads.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-6

Regarding the AMR summary covering FNP's sump trash rack listed on Table 3.5.2-1 (page 3.5-38) of the LRA, the applicant identified no applicable aging effect as well as AMP for the stainless steel component. Since sumps tend to be exposed to high moisture, acidic or accumulated water environment, discuss FNP's past operating/inspection experience covering sump trash racks to support its AMR finding that no AMP is needed for the component.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be combined with other D-RAIs that are of CLARIFYING and/or CONFIRMATORY in nature, and will be sent under one umbrella RAI.

This D-RAI will be grouped and sent under one umbrella RAI.

D-RAI 3.5-7

With respect to the AMR result provided in Table 3.5.2-2 of the LRA (page 3.5-40) for compressible joints and seals, discuss past FNP's operating/inspection experience pertaining to change in material properties and cracking of elastomers to justify that the inspection frequency adopted in the Structural Monitoring Program is adequate to ensure proper functioning of the FNP's compressible joints and seals.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-8

Regarding the stainless steel penetration sleeves listed on Table 3.5.2-2 (page 3.5-43) of the LRA that are exposed to outside environment, no AMP is credited to manage aging of these components. Depending on the plant site specific parameters that define the 'outside environment,' some stainless steel components exposed to sustained, aggressive outside environment might still be subjected to appreciable loss of material aging effect. Discuss key characteristics of FNP's outside environment and past operating/inspection experience related to this potential aging concern to justify that no AMP is required for stainless steel penetration sleeves exposed to FNP's outside environment.

Response: The applicant indicated that the question is clear.

This D-RAI will be COMBINED with D-RAI 3.5-10 and sent as a RAI.

D-RAI 3.5-9

Table 3.5.2-3 (page 3.5-45) of the LRA indicates that the compressible joints and seals consisting of fiber, foams and ceramics used in FNP Diesel Generator Building that are exposed to below grade environment have no applicable aging effect requiring management and, therefore, no AMP is credited to manage aging of the same. Since sustained exposure to an aggressive below grade environment might result in aging of these components, FNP is requested to discuss key characteristics of its below grade environment as well as its past operating/inspection experience with respect to aging management of these components and justify its position that no AMP is needed for the listed components.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI.

D-RAI 3.5-10

Table 3.5.2-9, (page 3.5-64) of the LRA indicates that FNP cable trays, conduits, ducts, and tube tracks that are made of aluminum and stainless steel and exposed to inside and outside environment have no applicable aging effect requiring management and, therefore, no AMP is credited to manage their aging. Since sustained exposure to a chemically aggressive or acidic outside environment might result in aging of these components, FNP is requested to discuss its past operating/inspection experience with respect to aging management of the above listed components and justify its position that no AMP is needed for the components.

Response: The applicant indicated that the question is clear.

This D-RAI will be sent as a RAI. This D-RAI will be COMBINED with D-RAI 3.5-8 and sent as a RAI.

D-RAI 3.5-11

In Item 3.3.1-11 (Table 3.3.1), the applicant states that the FNP new fuel storage racks are fabricated from both carbon steel (CS) and stainless steel (SS). Chapter VII of NUREG 1801 does not address such hybrid rack configurations. Depending on the CC-SS interface between the racks, stress corrosion cracking of the SS portion of the racks cannot be ruled out. The applicant is requested to provide justification for not requiring aging management of the SS portion of the new fuel storage racks.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be combined with other D-RAIs that are of CLARIFYING and/or CONFIRMATORY in nature, and will be sent under one umbrella RAI.

This D-RAI will be grouped and sent under one umbrella RAI.

REVIEW OF LICENSE RENEWAL APPLICATION (LRA) FOR FARLEY UNITS 1 AND 2
DRAFT REQUESTS FOR ADDITIONAL INFORMATION (D-RAIs)

January 23, 2004

Section 3.2, Aging Management of Engineered Safety Features

D-RAI 3.2-1: LRA Table 3.2.2-2, page 3.2-18 does not list the material type for valve bodies in an inside environment with no aging effects or aging management programs required. The applicant is requested to identify the material type for these valve bodies.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be combined with other D-RAIs that are of CLARIFYING and/or CONFIRMATORY in nature, and will be sent under one umbrella RAI.

D-RAI 3.2-2: LRA Table 3.2.2-3 states that loss of material in an oil environment was determined not to be an aging effect requiring management for the carbon steel oil cooler shell and the copper alloy tubes for the high head safety injection pump in the emergency core cooling system. The GALL report recommends a plant-specific aging management program for loss of material due to general, pitting, and crevice corrosion and microbiologically induced corrosion (MIC) in carbon steel components exposed to lubricating oil that may be contaminated with water. Similar aging effects (except general corrosion) are possible for copper alloy. The NRC staff considers a periodic inspection program appropriate to manage this aging effect. For the oil cooler shell and tubes in the emergency core cooling system exposed to an oil environment, the applicant is requested to provide aging management for loss of material due to general (carbon steel), pitting, and crevice corrosion and MIC, or provide justification for not managing this aging effect.

Response: The applicant indicated that the question is clear.

D-RAI 3.2-3: LRA Table 3.2.2-3 states that the copper alloy oil cooler tubes for the high head safety injection pump in a closed cycle cooling water environment will be managed for loss of material using the Water Chemistry Control Program and the One-Time Inspection Program. For this material type and environment, the staff considers selective leaching to be aging effects requiring management. The applicant is requested whether selective leaching is considered to be an aging mechanism for the tubes. If so, describe the type of inspections used by the One-Time Inspection Program to detect selective leaching in the tubes. Also, list any other aging mechanisms for this item and discuss if the one-time inspection program provides verification that the aging effect is not occurring.

Response: The applicant indicated that the question is clear.

D-RAI 3.2-4: The GALL report recommends further evaluation of programs to manage the loss of material due to pitting and crevice corrosion to verify the effectiveness of the Water Chemistry Control Program. A one-time inspection of select components at susceptible locations is an acceptable method to determine whether an aging effect is occurring or is progressing very slowly so that the intended function will be maintained during the period of extended operation. LRA Tables 3.2.2-1, 3.2.2-2, and 3.2.2-3 list various stainless steel

components in a borated water environment with the aging effect being loss of material. The aging management program for these components is the Water Chemistry Control Program; however, the One-Time Inspection Program is not credited to verify the effectiveness of the Water Chemistry Control Program. The applicant is requested to explain why a one-time inspection is not performed to determine the effectiveness of the Water Chemistry Control Program. Also, state the aging mechanisms for the loss of material.

Response: The applicant indicated that the question is clear.

D-RAI 3.2-5: LRA Table 3.2.2-3 lists loss of material for the carbon steel encapsulation vessel in an air and gas (wetted) environment as being managed by the One-Time Inspection Program. Section 3.0.4 of the LRA defines an air and gas (wetted) environment as containing significant amounts of moisture where condensation or water pooling may occur and such components in this environment include cooling units and non-dried air system low points. The GALL report recommends a one-time inspection in cases where either 1) an aging effect is not expected to occur but there is insufficient data to completely rule it out, or 2) an aging effect is expected to occur very slowly. The staff does not consider a one-time inspection appropriate to manage this aging effect for a carbon steel component. The applicant is requested to provide a periodic inspection aging management program for this component or to provide adequate basis for performing a one-time inspection.

Response: The applicant indicated that the question is clear.

D-RAI 3.2-6: LRA Table 3.2.2-3 lists loss of material and cracking as aging effects requiring management for the flow orifice/element, but does not list erosion. The staff considers erosion a possible aging effect requiring management for flow orifice/elements. The applicant is requested to describe the flow orifice/element, its location in the system, and why erosion is not considered to be an aging effect requiring management.

Response: The applicant indicated that the question is clear.

Section 3.4, Aging Management of Steam and Power Conversion Systems

D-RAI 3.4-1: LRA Table 3.4.2-x identifies cracking as the aging effect for various stainless steel components in steam or treated water environments. The applicant credits the Water Chemistry Control Program to manage this aging effect. Since stainless steels are susceptible to cracking in these types of environments, the applicant is requested to justify why the Water Chemistry Control Program without an inspection program to verify that cracking is not occurring is adequate to manage this aging effect, or to provide an inspection program.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be COMBINED with D-RAI 3.4.2.

D-RAI 3.4-2: LRA Table 3.4.2 identifies loss of material as the aging effect for various stainless steel components in treated water environments. The applicant credits the Water Chemistry Control Program to manage this aging effect. Stainless steels are susceptible to loss of material in this type of environment and the GALL report recommends that, for loss of material due to pitting and crevice corrosion, the effectiveness of the Water Chemistry Control Program

should be verified to ensure that significant degradation is not occurring. The applicant is requested to perform a one-time inspection to verify the effectiveness of the Water Chemistry Control Program or to provide justification for not performing a one-time inspection.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be COMBINED with D-RAI 3.4.1.

D-RAI 3.4-3: LRA Table 3.4.2-1 identifies loss of material as an aging effect for alloy steel steam/fluid traps in a steam and treated water environment. The applicant credits the Water Chemistry Control Program to manage this aging effect. The GALL report recommends Water Chemistry Control and a one-time inspection to manage loss of material for carbon/alloy steel components in a treated water environment. The applicant is requested to perform a one-time inspection to verify the effectiveness of the Water Chemistry Control Program or to provide justification for not performing a one-time inspection.

Response: The applicant indicated that the question is clear.

D-RAI 3.4-4: LRA Table 3.4.2-1 identifies no aging effects for alloy steel steam/fluid traps in an outside environment. The LRA defines an outside environment as: "An environment where components are exposed to direct sunlight, precipitation, and freezing conditions. The outside environment also conservatively includes components located in sheltered areas where the component is beneath some type of roof structure or outdoor enclosure (such as a valve box) but is otherwise open to the ambient environment." The GALL report recommends aging management for the loss of material due to general corrosion on the external surfaces of carbon (alloy) steel components exposed to operating temperatures less than 212°F, such corrosion may be due to air, moisture, or humidity. The applicant is requested to provide a program to manage corrosion on the external surface of alloy steel steam/fluid traps in an outside environment or to provide justification for not managing this aging effect.

Response: The applicant indicated that the question is clear. The staff informed the applicant and the applicant agreed that this D-RAI will be combined with other D-RAIs that are of CLARIFYING and/or CONFIRMATORY in nature, and will be sent under one umbrella RAI.

D-RAI 3.4-5: LRA Table 3.4.1-4 states that loss of material was determined not to be an aging effect requiring management for the auxiliary feedwater (AFW) system turbine oil cooling system. Table 3.4.2-4 identifies no aging effects requiring management for carbon and stainless AFW components in an oil environment. For AFW oil cooler tubes, Table 3.4.2-4 only identifies fouling as an aging effect requiring management. The GALL report recommends a plant-specific aging management program for loss of material due to general (carbon steel only), pitting, and crevice corrosion and MIC in carbon and stainless steel components exposed to lubricating oil that may be contaminated with water. The staff considers a periodic inspection program appropriate to manage these aging effects. Industry operating experience indicates that moisture in oil has caused degradation in these types of components. For the filters, flow orifice/element, oil cooler shell, oil cooler channel head, oil cooler tube sheet, oil cooler tubes, piping, pump casings, and valve bodies in the AFW system exposed to an oil environment, the applicant is requested to provide aging management for loss of material due to general (carbon steel only), pitting, and crevice corrosion and MIC, or to provide justification for not managing this aging effect.

Response: The applicant indicated that the question is clear.

D-RAI 3.4-6: LRA Table 3.4.2-4 identifies fouling as an aging effect for the AFW oil cooler tubes in both an oil and treated water environment and the oil cooler tube sheet in a treated water environment. The applicant credits the One-Time Inspection Program to verify this aging effect is not occurring, or that the aging effect is occurring slowly enough to not affect the component intended function during the period of extended operation. The applicant's One-Time Inspection Program scope in Section B.5.5.5 of the LRA identifies specific components included in the sample population. This sample population does not include the oil cooler tubes or tube sheet, and the items identified in the list do not appear to bound the aging effect of fouling on the oil cooler tubes or tube sheet. The applicant is requested to explain why the One-Time Inspection Program sample population does not contain inspection criteria for the tubes.

Response: The applicant indicated that the question is clear.

D-RAI 3.4-7: LRA Table 3.4.1-11 states that the External Surfaces Monitoring Program will manage loss of material of the external surfaces of the condensate storage tanks, and that the program is consistent with the intent of NUREG-1801 Volume 2 (GALL), XI.M29, "Aboveground Carbon Steel Tanks" aging management program. The staff has the following comments regarding this item: 1) The applicant is requested to clarify the meaning of the phrase "intent of." If External Surfaces Monitoring Program is not consistent with NUREG-1801, describe any differences between the two programs; 2) For tanks supported on earthen or concrete foundations, the GALL program XI.M29, "Aboveground Carbon Steel Tanks," recommends a thickness measurement of the tank bottom surface as verification that unacceptable degradation is not occurring from the exterior. The External Surfaces Monitoring Program does not contain a thickness measurement of the tank bottom. Describe how the applicant will manage aging on the exterior bottom of the condensate storage tank; and 3) For tanks listed in LRA Table 3.4.2-5, describe if any of these carbon steel tanks have inaccessible tank bottoms and, if so, how these aging effects will be managed.

Response: The applicant indicated that the question is clear.

Appendix B: Aging Management Programs and Activities

D-RAI B.5.3-1: The GALL report recommends that acceptance criteria for inspections be in accordance with the ASME Code. The applicant is requested to explain if inspection criteria for the external surfaces monitoring program will be in accordance with the ASME Code. In cases where the ASME Code is not applicable, explain what criteria will be used to determine acceptability during these inspections.

Response: The applicant indicated that the question is clear.

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