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1CAN011003

January 20, 2010

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

SUBJECT: Response to Request for Additional Information
Request for Alternative – Implementation of a Risk-Informed
Inservice Inspection Program Based on ASME Code Case N-716
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

REFERENCES: 1. Entergy letter to the NRC, dated June 11, 2009, "Request for Alternative – Implementation of a Risk-Informed Inservice Inspection Program Based on ASME Code Case N-716" (1CAN060902)

Dear Sir or Madam:

In Reference 1, Entergy Operations, Inc. (Entergy) requested authorization to implement a risk-informed Inservice Inspection program based on the American Society of Mechanical Engineers (ASME) Code Case N-716, as documented in the Request for Alternative ANO1-ISI-014.

Subsequent to the submittal, the NRC determined that additional information was required to complete their review and provided a request for additional information (RAI) in an email dated November 2, 2009. The attachment to this letter contains the RAI and associated responses.

As noted during a November 10, 2009, conference call, the Arkansas Nuclear One, Unit 1 (ANO-1) Probabilistic Safety Assessment (PSA) model was updated and, in August of 2009, an industry peer review of the model and supporting documentation was performed. The results of the peer review were favorable; however, several issues were identified that required further enhancement. The results of the peer review relating to the internal flooding analysis have been evaluated and relevant information provide in attachment to this letter.

This letter contains no new commitments.

If you have any questions or require additional information, please contact me.

Sincerely,

DBB/rwc

Attachment: Response to Requests for Additional Information

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Attachment to

1CAN011003

Response to Requests for Additional Information

**RESPONSE TO REQUESTS
FOR ADDITIONAL INFORMATION**

**REQUEST FOR ALTERNATIVE ANO1-ISI-014
TO IMPLEMENT RISK-INFORMED INSERVICE INSPECTION (RI ISI)
PROGRAM BASED ON CODE CASE N-716**

1. **Appendix 1 of the submittal states that a gap analysis was held in June 2007. The submittal also states that an industry peer review of the ANO-1 Probabilistic Safety Assessment (PSA) was conducted in 2002.**

   A. **Identify the guidance document(s) used for the gap analysis and the peer review (e.g., NEI 00-01).**

   B. **Update Table 2 and the unresolved facts and observations Facts and Observations (F&Os) in Appendix 1 to include a description of the supporting requirement for each corresponding F&O number.**

   C. **Identify the results of the 2002 peer review and explain how unresolved F&Os affect this relief request.**

   In a conference call with the NRC on November 10, 2009, Entergy explained that the Arkansas Nuclear One, Unit 1 (ANO-1) Probabilistic Safety Assessment (PSA) model had been updated and a peer review of that model occurred in August of 2009. The NRC agreed that, in light of this information, no response to the above question is necessary..

2. **The submittal states that the ANO-1 internal flooding analysis (IFA) was significantly upgraded to meet Regulatory Guide (RG) 1.200, Revision 1, in 2008, and a gap analysis was conducted in June 2007. In accordance with the guidance endorsed by RG 1.200, a focused-scope peer review should have been performed for a model upgrade. Please summarize the results of the focused-scope peer review conducted on the ANO-1 internal flooding Probabilistic Risk Analyses (PSA) after the 2008 internal flooding upgrade to the American Society of Mechanical Engineers (ASME) PSA Standard RA-Sb-2005 or latest standard and how the peer review findings have been addressed for this application.**

   In August of 2009, an industry peer review of the ANO-1 PSA model and supporting documentation was performed. The results of the peer review were favorable; however, several issues were identified that require further enhancement. The results of the peer review relating to the IFA have been evaluated and the supporting requirements (SRs) that were identified as “Not Met” have been listed in the table below. Each of the SRs listed has been evaluated in relation to it’s applicability to the Code Case N-716 and dispositioned accordingly. In most instances, the SR was addressed in an update to the IFA for ANO-1.

TABLE 1

SUPPORTING REQUIREMENTS “NOT MET” AND DISPOSTION

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFPP-B3 Document sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood plant partitioning.	Cat 1-3 is NOT Met	Sources of model uncertainty and related assumptions were not documented for the IFA.	Documenting and understanding sources of model uncertainty is critical in ultimately ensuring that application results are understood and utilized in a manner that is defensible in relation to the application. This SR, although important for developing a thorough understanding of the results, does not affect the ANO-1 results for the following reasons and will be included, as necessary, in future revisions to the IFA: 1) The sizes of flood sources were first determined assuming guillotine breaks of lines or the catastrophic rupture of valves, tanks, gaskets, fittings, and heat exchangers. This approach is consistent with the NRC Standard Review Plan (SRP), Sections 3.6.1 and 3.6.2, for high-energy lines and components but is more conservative than the NRC SRP for the medium energy lines that are of principal concern in this analysis. 2) No flood area was screened out on the basis of operator action PRA-A1-01-002 (ANO-1 IFA) R2 Sec 3.4

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
			3) Flow rates were taken as a maximum flow capacity for the propagation path. 4) A plant scram was assumed for each flood scenario. 5) In general floods were allowed to persist for long periods of time (~ 12 to 24 hours) unless the flood source is finite. 6) Model uncertainty is not incorporated into this revision of the analysis. Uncertainty analysis does not affect the results.
IFSO-B1 Document the internal flood sources in a manner that facilitates PSA applications, upgrades, and peer review.	Cat 1-3 is NOT Met	Although flood sources were documented and discussed within Section 4.2 of PRA-A1-01-002, they are not amenable to PSA applications and upgrades. Supplemental Excel spreadsheets were obtained and flood sources were listed by flood zone, but it was confusing as to why different lengths were used for general and major flood scenarios.	This particular comment does not affect the use of this analysis in support of applications because it does not alter or affect the results. The documentation of the analysis for applications, upgrades and peer review is critical for ensuring that the integrity of the analysis is preserved and understood. This SR was not met primarily because the supporting documents associated with the flood frequency calculations, maximum flood height, flow rates, and floor areas were not included within the context of the analysis. These documents are available and have now been included in the revision to the IFA.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
		Also, there was a lack of clarifying information as to why certain pipe lengths that were considered for flood scenarios were excluded from spray scenarios.	The specific concern relating to the different length of piping was used for the flood versus spray or the general versus major flood are addressed as follows: Different pipe lengths apply to various scenarios as smaller diameter piping capable of giving rise to a "spray" rupture (< 100 gpm) might not be capable of giving rise to a "flood" rupture, etc. Scenarios, in which spray damage (as opposed to submergence damage) arises, result from the rupture of those lengths of piping in proximity to a vulnerable target and within direct line of sight. Many pipe lengths considered in flooding scenarios are therefore not being considered in spray damage scenarios.
IFSO-B3 Document sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood sources.	Cat 1-3 is NOT Met	Sources of model uncertainty and related assumptions were not documented for the IFA.	See IFPP-B3 above.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFSN-A6 For the SSCs identified in IFSN-A5, identify the susceptibility of each SSC in a flood area to flood-induced failure mechanisms. Include failure by submergence, spray, jet impingement, pipe whip, humidity, condensation, temperature concerns, and any other identified failure modes in the identification process. For the SSCs identified in IFSN-A5, identify the susceptibility of each SSC in a flood area to flood-induced failure mechanisms. Include failure by submergence and spray in the identification process. EITHER (a) ASSESS qualitatively the impact of flood-induced mechanisms that are not formally addressed (e.g., using the mechanisms listed under Capability Category III of this requirement), by using conservative assumptions; OR (b) NOTE that these mechanisms are not included in the scope of the evaluation.	Cat 1-2 is NOT Met Cat 3 is Not Assessed	Upon review of the internal flood document (PRA-A1-01-002) and other supplemental files, it was not explicitly clear as to what SSCs were susceptible to a particular flood damage category, e.g., submergence or spray. For the purposes of meeting the RG 1.200 qualification, the scope of the IFA did not explicitly include any qualitative assessment of the impacts from the mechanisms listed in Capability Category III	See example for zone AB317-5. While water might accumulate in flood zone AB335-53, should flooding be allowed to persist, water will force open the door into flood zone AB335-20 before submergence damage to the High Pressure Injection (HPI) motor operated valves (MOVs) can occur. Water entering flood zone AB317-5 will flow into the other flood zones on the 317' elevation of the Auxiliary Building, but no submergence damage to safety-related systems will occur on the 317' elevation or in the valve pit. Spray damage in the filter room would also be of no great consequence. The current analysis does indeed address the SR as required. However, in order to better address this issue, the IFAs has been revised to include a more comprehensive listing of components contained in the zone and the assumed failures for each zone. This information has been incorporated as part of the IFA for ANO-1.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFSN-B1 Document the internal flood scenarios in a manner that facilitates PRA applications, upgrades, and peer review.	Cat 1-3 is NOT Met	Documentation of flood scenarios for the Auxiliary Building, Turbine Building, and Intake Structure are explained in sufficient detail and organized by subsection under Section 4.2 of PRA-A1-01-002. However, the calculational details of the reported water heights and flow rates reported for the analyzed scenarios were omitted from the documentation.	This particular comment is a documentation issue and does not affect the application of this analysis in support of the RI ISI submittal because it does not alter or affect the results. The documentation of the analysis for applications, upgrades and peer review is critical for ensuring that the integrity of the analysis is preserved and understood. This SR relates to the SR IFSO-B1 in that the supporting documents associated with the flow rates and floor areas were not included within the context of the analysis. These documents are available and have been included in the revision to the IFA.
IFSN-B3 Document sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood scenarios.	Cat 1-3 is NOT Met	Sources of model uncertainty and related assumptions were not documented for the IFA.	See IFPP-B3 above.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFEV-A3 Group or subsume the flood initiating scenarios with an existing plant initiating event group, if the impact of the flood (i.e., plant response and mitigating system capability) is the same as a plant initiating event group already considered in the PSA in accordance with the applicable requirements of 2-2.1. Do not group and do not subsume flood-initiating scenarios with other plant initiating event groups.	Cat 1-2 is NOT Met Cat 3 is NOT Met	Reviewed PRA-A1-01-002 Rev 2: Unevaluated scenarios are grouped into similar but analyzed internal events, however, the impact of the flood may not be 'the same as the plant initiating event group already considered in the PSA'. For example, see Section 4.2.1.30. Because the process of subsuming was used, Capability Category (CC) III was not met.	The ANO-1 IFA has been revised to calculate the core damage frequency (CDF) and large early release frequency (LERF) for the scenarios that have been identified. The new revision to the analysis does not screen or subsume any scenarios or zones. The issue relating to this SR has been addressed in the revision to the IFA.
IFEV-A6 In determining the flood initiating vent frequencies for flood scenario groups, use one of the following: (a) generic operating experience (b) pipe, component, and tank rupture failure rates from generic data sources (c) A combination of (a) or (b) above with engineering judgment Gather plant-specific information on plant design, operating practices, and conditions that may impact	Cat 1 is MET Cat 2-3 is NOT Met	PRA-A1-01-002 Rev 2: Page 25/375 states: 'The pipe and equipment rupture and leak frequencies used are presented in Tables 3.2.1.1 and 3.2.1.2; failure rates for control loops and human error probabilities are those developed elsewhere in the PSA. These data represent generic data for the US	A review of plant specific data has been performed and the data does not reflect a necessary change to the generic data presented in the analysis (Also see response to RAI #5). The results of this review have been included in the revised internal events (IE) analysis. The following practices are incorporated within the next revision to determine IE frequencies. a) The use of generic and plant-specific operating experience

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
flood likelihood (i.e., material condition of fluid systems, experience with water hammer, and maintenance-induced floods). In determining the flood-initiating event frequencies for flood scenario groups, use a combination of the following: (a) generic and plant-specific operating experience (b) pipe, component, and tank rupture failure rates from generic data sources and plant-specific experience (c) engineering judgment for consideration of the plant-specific information collected		nuclear industry that might appropriately be modified, or updated, on the basis of plant practice or experience. In this regard, we would note that ANO-1 has implemented both continuous flow and continuous chlorination to address microbiological (bacterial) and macro-biological (clams) fouling and corrosion. Accordingly, we would see no reason to doubt the applicability of the generic pipe and equipment rupture data to ANO-1. 'There is no indication of use of plant specific operating experience or initiator information in the determination of IE frequencies'.	(b) pipe, component, and tank rupture failure rates from generic data (c) engineering judgment for consideration of the plant specific information collected

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFEV-A7 Include consideration of human-induced floods during maintenance through application of generic data. Evaluate plant-specific maintenance activities for potential human-induced floods using human reliability analysis techniques. Note: this would require consideration of errors of commission. Subsection 2-2.5 does not at this time provide specific requirements related to errors of commission	Cat 1-2 is NOT Met Cat 3 is Not Assessed	The EPRI failure database in TR-1013141 excluded certain events in the calculation of pipe failure frequencies that appear to be related to maintenance activities. See Table C-2, e.g., Crystal River 3 event.	While the need to assess human induced floods in relation to the application of the generic data is important for ensuring that the flood frequency is inclusive, the inclusion of these human induced floods has no bearing on the susceptible damage mechanisms associated with ISI examinations. EPRI TR-1013141, states, “All piping system pressure boundary failures have been included including failures in pipe base metal, welds, and other metallic pressure boundary components such as valve bodies, heat exchangers, and fittings. Human induced causes of flooding that do not involve piping system pressure boundary failure such as overfilling tanks and inappropriate valve operations that release fluid from the system are not included. Such events are expected to be included in the human reliability analysis for the internal flood PRA as they are design and procedure specific and should not be “buried” in the component failure data”. Also, a review of the plant-specific experience for ANO-1 identified two instances of maintenance related activities affecting a potential flood. In each of the cases identified, the maintenance related failures were associated with improper valve closure during or after the

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
			maintenance activity. There are no instances of maintenance related activities that would affect the susceptible damage mechanisms associated with ISI examinations. This SR will be addressed, as necessary, in a future update to the IFA. This SR has no affect on the RI-ISI submittal for ANO-1 since the generic data includes the piping system pressure boundary failures including those that are human induced. Also, IFEV-A7 is not considered required per EPRI 1018427 Table 2-2 for technical adequacy of PRAs used to develop RI-ISI programs.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFEV-A8 Screen out flood scenario groups if (a) the quantitative screening criteria in IFSN-A10, as applied to the flood scenario groups, are met, OR (b) the internal flood event affects only components in a single system, AND it can be shown that the product of the frequency of the flood and the probability of SSC failure given the flood is two orders of magnitude lower than the product of the non-flooding frequency for the corresponding initiating event in the PSA, AND the random (non flood-induced) failure probability of the same SSCs that are assumed failed by the flood. If the flood impacts multiple systems, do not screen on this basis.	Cat 1-3 is NOT Met	In reviewing PRA-A1-01-002, it was noted for several scenario frequencies that they were 'screened' on a strict comparison with the IE initiating frequency, which does not compare with this particular SR. A few examples may be found in Sections 4.2.1.50, 4.2.1.52, and 4.2.1.36.	This issue has been addressed in a revision to the IFA via revision of the scenarios and quantification of the scenarios in which a flood frequency was determined. Therefore, this SR has been resolved.
IFEV-B3 Document sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood-induced initiating events.	Cat 1-3 is NOT Met	Sources of model uncertainty and related assumptions were not documented for the IFA.	See IFPP-B3 above.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFQU-A5 If additional human failure events are required to support quantification of flood scenarios, perform any human reliability analysis in accordance with the applicable requirements described in 2-2.5.	Cat 1-3 is NOT Met	Although it was noted in Section 3.3 of PRA-A1-01-002 that a review of the human actions credited was done to ensure that the internal flooding would not affect the actions, several operator actions not already credited in the PRA were discussed in Section 4.2 that were assumed to occur that would isolate the source of flooding.	Although the scenario description indicates that timely operator action may mitigate the consequences of the flood, the quantification of the scenarios took no credit for operator action, except where expressly stated, and assumed that the continued flooding would propagate, failing affected equipment in the affected zones. Equipment failures were not dismissed due to human reliability to perform mitigating actions but rather other parameters in the scenario such as water volume, lack of submergence and type of equipment under consideration. For the scenarios crediting operator action for flood mitigation, the process for calculating the human error probability was performed in accordance with applicable requirements.

ASME SR	Whether Met or Not Met	Description of Issue If Not Met	Disposition
IFQU-A10 For each flood scenario, review the LERF analysis to confirm applicability of the LERF sequences. If appropriate LERF sequences do not exist, modify the LERF analysis as necessary to account for any unique flood-induced scenarios or phenomena in accordance with the applicable requirements described in 2-2.8.	Cat 1-3 is NOT Met	Similar to the CDF model, the quantification of the IF model is done by application of specific flag files in the base model. This is explained in Appendix A of the IFA. There was no objective evidence that the LERF analysis was reviewed for impact by IF.	The ANO-1 PSA model links the level 1 and level 2 results into a single fault tree file. The top gates for level 1 are CORE DAMAGE, and the top gate for LERF is level 2. The flag files are set during the quantification for level 1 and level 2 results. Since the LERF portion of the tree is quantified in a similar manner to that for Level 1, the flag files used in the quantification are the same, and the LERF sequences are not altered by the flood analysis (only the flood failures affecting the probability of a level 1 endstate and the flood failures affecting the LERF mitigation components are affected in the flood analysis), the quantification of the Level 2 results are valid. The results of the LERF analysis when related to the corresponding CDF provide additional validation of the relative nature of the results.
IFQU-B3 DOCUMENT sources of model uncertainty and related assumptions (as identified in QU-E1 and QU-E2) associated with the internal flood accident sequences and quantification.	Cat 1-3 is NOT Met	Sources of model uncertainty and related assumptions were not documented for the IFA.	Same comment as above for IFPP-B3.

3. **The supporting requirement IF-C3 in ASME PRA Standard RA-Sb-2005 identifies the failure mechanisms that shall be evaluated to determine the susceptibility of each safety-related structure, system, and component (SSC) in a flood area to flood-induced failures. Capability Category III identifies failure by submergence and spray as requiring detailed analysis and includes jet impingement, pipe whip, and humidity, condensation, and temperature concerns. As endorsed in RG 1.200, Capability Category II would require all SSC failures induced by a pipe break to be considered. Please demonstrate that all SSC failures that are induced by a pipe break are adequately addressed in your analysis.**

The ANO-1 IFA risk model includes a discussion of submergence and propagation paths. Unless specifically evaluated, the PSA modeled components within a source room are assumed failed via spray or other impacts such as those noted in Category III for SR IF-C3. This method is conservative when determining whether a flood could exceed a core damage impact of 1E-06 per Code Case N-716.

The susceptibility to flood and spray damage was explicitly considered in the IFA. Also considered was the impact of jet impingement, pipe whip, temperature and humidity in high energy line breaks. Specifically, jet impingement is considered as a result of main steam line breaks in the piping areas and primary makeup system ruptures in the lower north piping penetration area; pipe whip is considered as a result of primary makeup system ruptures in the upper north piping penetration area; temperature and humidity are considered as a result of Emergency Feedwater (EFW) and primary makeup system ruptures in the upper north piping penetration area, primary makeup system ruptures in the lower north piping penetration area, Main Feedwater (MFW) and EFW ruptures in the upper south piping penetrations area and main steam system rupture in the penthouse, lower south piping penetrations area and chiller rooms.

4. **Supporting requirements, IF-C6 and IF-C8, permits screening out of flood areas based on, in part, the success of human actions to isolate and terminate the flood. The endorsed Risk-Informed Inservice Inspection (RI-ISI) methods require determination of the flood scenario with and without human intervention, which corresponds to the Capability Category III (i.e., scenarios are not screened out based on human actions). Therefore, a Category III analysis is consistent with the expected RI-ISI analyses. To provide confidence that scenarios that might exceed the quantitative core damage frequency (CDF) and large early release frequency (LERF) guidelines are identified, please describe how credit is given to human actions and identify if the current application analyses meet Capability Category III for these supporting requirements.**

Supporting Requirements IF-C6/C-8:

Capability Category II:

Use potential human mitigative actions as additional criteria for screening out *flood areas/flood sources* if all the following can be shown:

(a) Flood indication is available in the control room.

(b) The flood sources in the area can be isolated.

(c) The mitigative action can be performed with high reliability for the worst flooding initiator.

High reliability is established by demonstrating, for example, that the actions are procedurally directed, that adequate time is available for response, that the area is accessible, and that there is sufficient manpower available to perform the actions.

Capability Category III:

Do not screen out *flood areas/flood source* based on reliance on operator action to prevent challenges to normal plant operations.

The ANO-1 IFA meets Capability Category III of the ASME RA-Sb-2005 for these SRs. In August of 2009, a PSA peer review of the ANO-1 IE PRA was reviewed against the capability categories defined in ASME/ANS RA-Sa-2009. The IFA was reviewed as part of that effort. The ANO-1 IFA was given a "Met" for Capability Category III of SRs HLN-IFSN-A14 and A16 (Same SRs as IF C-6 and IF C-8 of ASME/ANS RA-Sa-2008).

In the scenario quantifications, operator actions are credited for plant shutdown and sequence mitigation in order to accurately reflect the risk of the flooding event. However, the IFA does not screen out flooding areas or flooding sources that prevent the challenges to normal plant operations by crediting operator actions. Although most flooding scenarios would result in alarms due to high drain tank or sump levels, no flooding areas or sources were screened from quantification by crediting such alarms to initiate operator actions.

5. Supporting requirement IF-D5a addresses the development of flood initiating (pipe rupture) frequencies for use during the scenario development. RI-ISI is premised on inspecting locations with the highest risk, driven mostly by failure frequency. The plant-specific information collected and used should include experience related to degradation mechanisms that could indicate increased likelihood of pipe failure at particular locations. Please describe how plant-specific operating experience was used to identify experience related to degradation mechanisms and how this experience was incorporated into the development of pipe failure frequencies.

In August of 2009, a PSA Peer Review of the ANO-1 IE PSA was reviewed against the capability categories defined in ASME/ANS RA-Sa-2009. The IFA was reviewed as part of that effort. The ANO-1 IFA was given a "Met" for Capability Category I of SRs HLN-IFEV-A6 (Same SRs as IF D-5a of ASME/ANS RA-Sa-2008).

A Findings and Observation (F&O) was generated from the peer review team relating to meeting the capability Category II/III for this SR. This F&O states, *"There is no indication of use of plant specific operating experience or initiator information in the determination of IE frequencies. It is necessary that plant specific operating experience and/or plant specific information be incorporated with the generic failure rate information to achieve greater that Cat I for this SR."*

Although a review of the plant specific operational experience was performed as part of the IFA, there was no documentation or references for the peer review team to review in order to substantiate that the criteria for CC II/III was indeed met.

In order to better address this issue, a review of the ANO-1 and Common (to both ANO-1 and ANO-2) Condition Reports (CRs) were searched for information relating to flooding and excessive leakage that might be integrated into the generic data. The results of this search have been incorporated into a revision to the IFA.

One CR was identified with a failure that would potentially correlate to the initiating frequency for a flood. This CR is associated with a failed Service Water (SW) pipe to a Decay Heat (DH) room cooler during an outage due to loss of primary means of SW pressure control. The root cause for this failure concludes that the failure was due to the inappropriate installation of a cantilevered drain valve into a cleanout port of the cooling coils. This header drain connection mounted on the vendor intended cleanout plug location is unique in the as-built design of the DH room Marlo cooling coils. This inappropriate installation combined with the ANO-1 outage configuration created a condition leading to failure. Since this failure is attributed to outage conditions, these unique circumstances prohibit the usefulness of this data for updating the generic flood frequency used in the at-power IFA.

This review of the plant operating experience provides the basis for conclusion that no plant specific operational experience was noted that would indicate there are piping locations which should use values above generic frequencies. The analyses use generic pipe break frequencies, and the review failed to note any cases where ANO-1 would be an outlier nor would it require the use of more conservative frequencies. No plant specific update to the generic frequencies used in the IFA for ANO-1 is necessary and this information, and as stated above, has been included in a revision of the IFA. Therefore, the F&O has been addressed in the IFA revision used in this application

6. It is not clear if new examination locations were identified. If so, using an upper-bound estimate for new locations would overestimate the risk decrease and therefore be not conservative. Please demonstrate that this non-conservative approach, if corrected in the evaluation of your proposed RI-ISI program, would not cause the delta risk guidelines to be exceeded.

A bounding sensitivity case was evaluated where risk impact is estimated using upper bound values for Conditional Core Damage Probability (CCDP) and Conditional Large Early Release Probability (CLERP) in those cases that result in a risk increase and lower bound values for CCDP and CLERP in those cases that result in a risk decrease. The delta risk impact guidelines are not exceeded.