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1CAN111204

November 15, 2012

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: Response to Request for Additional Information
Request for Extension of Enforcement Discretion
Arkansas Nuclear One – Unit 1
Docket No. 50-313
License No. DPR-51

- References:
1. Entergy letter dated August 23, 2012, "Request for Extension of Enforcement Discretion, Arkansas Nuclear One – Unit 1" (1CAN081202) (ML12236A407)
 2. NRC email dated November 5, 2012, "RAI Regarding the Revision of the Regulatory Commitment Relating to the Submittal of 10 CFR 50.48(c) LAR (TAC No. ME9429)" (ML12310A462)
 3. Staff Requirements Memorandum SECY-12-0031, "Enforcement Alternatives for Sites that Indicate Additional Time Required to Submit Their License Amendment Requests to Transition to 10 CFR 50.48(c) National Fire Protection Association Standard 805," dated February 24, 2012 (ML12025A349)

Dear Sir or Madam:

By letter dated August 23, 2012 (Reference 1), Entergy Operations, Inc. (Entergy) requested an extension to enforcement discretion related to fire protection issues associated with Renewed Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit 1 (ANO-1). The original enforcement discretion was based, in part, on submittal of an ANO-1 request to adopt a new fire protection licensing basis which complies with the requirements in 10 CFR 50.48(a), 10 CFR 50.48(c), and the guidance in Regulatory Guide 1.205, "Risk-Informed Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," no later than August 31, 2012. Due to circumstances described in the Reference 1 letter, Entergy has requested an extension of enforcement discretion related to fire protection issues for ANO-1 based, in part, on submitting the aforementioned ANO-1 License Amendment Request (LAR) implementing 10 CFR 50.48(c) prior to August 31, 2013. Per the enforcement discretion policy, once the request is submitted and accepted, the enforcement discretion would then continue until the NRC dispositions the LAR.

The NRC notified Entergy on November 5, 2012 (Reference 2), of a request for additional information (RAI) necessary to support approval of Entergy's request for an extension of enforcement discretion. Enclosure 1 contains Entergy's response to the RAI.

Entergy requests the NRC issue a Confirmatory Order approving the requested enforcement discretion extension for ANO-1 as permitted by Reference 3.

This letter contains no new commitments. Should you have any questions concerning this letter, or require additional information, please contact Stephenie Pyle at 479-858-4704.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on November 15, 2012.

Sincerely,

ORIGINAL SIGNED BY CHRISTOPHER J. SCHWARZ

CJS/dbb

Enclosure: 1. Response to RAI Regarding the Revision of the Regulatory Commitment
Relating to the Submittal of 10 CFR 50.48(c) LAR

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Enclosure 1 to

1CAN111204

**Response to RAI Regarding the Revision of the Regulatory Commitment
Relating to the Submittal of 10 CFR 50.48(c) LAR**

Enforcement Policy Requirements for Fire Protection Issues – 10 CFR 50.48(c)

By email dated November 5, 2012, the NRC notified Entergy Operations, Inc. (Entergy) of a request for additional information (RAI) related to Entergy's August 23, 2012, request for an extension of enforcement discretion for fire protection issues for Arkansas Nuclear One, Unit 1 (ANO-1). The questions associated with the RAI are listed below and include the Entergy responses.

1) General/Plant Configuration and Modifications

- a. Provide a list of modifications that have been installed that may improve fire safety since starting transition in 2005.

The following is a list of ANO-1 modifications completed. Similar modifications have been completed for ANO, Unit 2 (ANO-2), but are not included below.

Zone 97-R Eliminate makeup tank outlet valve CV-1275 spurious operation

Zone 98-J: Eliminate action to manually re-close B512 load center breaker

Zone 98-J: Eliminate action to de-energize and close pressurizer electromagnetic relief valve (ERV) isolation

Zone 98-J: Eliminate actions to establish emergency diesel generator (EDG) power

Zone 99-M: Eliminate action to manually re-close B512 load center breaker

Zone 99-M: Eliminate actions to establish EDG power

Zone 99-M Eliminate makeup tank outlet valve CV-1275 spurious operation

Zone 100-N: Eliminate actions to establish EDG power

Zone 112-I: Eliminate action to de-energize and close pressurizer ERV isolation

Zone 129-F Eliminate makeup tank outlet valve CV-1275 spurious operation

Zone 197-X Eliminate makeup tank outlet valve CV-1275 spurious operation

- b. Provide a list of "known" modifications that will be committed to in the LAR.

A list of the known modifications that are expected to be committed to in the ANO-1 license amendment request (LAR) is provided in Attachment 1 of this enclosure.

- c. Provide a schedule for inclusion of the known modifications into the PRA models.

The known modifications identified in Attachment 1 of this enclosure are currently included in the ANO-1 Fire probabilistic risk analysis (PRA) model. Updates to the ANO-1 Fire PRA model for any changes associated with modifications will be addressed upon identification. However, additional modifications are not expected to be required.

- d. Provide a schedule for installation of the known modifications.

Attachment 4 of Entergy's August 23, 2012, request for an extension of enforcement discretion provided a "scoping" schedule for known modifications associated with the ANO-1 transition to NFPA 805. The previous attachment has been modified to include projected design and installation schedules for each modification and is included in Attachment 2 of this enclosure. The schedule, as presented, represents the current assessment of available resources over the expected transition/implementation period and also considers plant operating modes for those modifications that require shutdown conditions for installation. While this schedule is subject to change, the ANO-1 NFPA 805 transition plan is based on completing implementation items as soon as reasonably practical.

- e. Provide an explanation as to how the proposed schedule supports the submission of a complete and acceptable LAR by an additional 12 months.

The ANO-1 LAR is based on the Nuclear Energy Institute (NEI) 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program under 10 CFR 50.48(c)" template which includes a large main body, 23 attachments, and at least three enclosures. Seven of the attachments, and their related main body sections, lack finalization. As discussed in the aforementioned August 23, 2012, request for enforcement discretion extension, most activities associated with the ANO-1 LAR have been temporarily suspended in order to support resolution of NRC concerns associated with the ANO-2 NFPA 805 LAR. Upon completion of the ANO-2 LAR (currently scheduled to complete by the end of 2012), lessons learned will be incorporated into the ANO-1 LAR and the remaining sections/attachments completed. This is currently scheduled to complete in the 2nd quarter 2013. Entergy has requested an extension of enforcement discretion to permit the ANO-1 LAR to be submitted no later than August 31, 2013, in order to accommodate potential unforeseen circumstances that could delay completing the ANO-1 LAR in the 2nd quarter 2013. These circumstances may include:

- Spring 2013 ANO-1 refueling outage*
- Delay of the ANO-2 NFPA 805 LAR submittal*
- New NRC concerns or industry issues associated with NFPA 805 submittals*
- Preparation for NFPA 805 audit of ANO-2, which is expected to occur in the 2nd quarter 2013 following the ANO-1 refueling outage*
- Resources needed to support potential ANO-2 NFPA 805 related NRC RAI*
- Other significant emergent site issues that could require support from the ANO NFPA 805 resource team*

Following submittal of the ANO-2 LAR, the focus will shift to completing the ANO-1 LAR. The response to RAI 2 below presents additional detailed information regarding the schedule for completing the ANO-1 LAR, absent unforeseen circumstances described above. Based on this assessment, Entergy believes the requested ANO-1 LAR submittal date of August 31, 2013, will provide sufficient margin to accommodate LAR completion considering the potential unforeseen circumstances described above.

- f. During the October 9, 2012 ANO-2 public meeting, it was discussed that the AFW pump scoping would be completed this year. However, Attachment 4 in the ANO-1 request has the AFW pump scoping completing in September, 2013. Reconcile the difference between the two dates to complete AFW scoping.

The auxiliary feedwater (AFW) pump scoping activities were originally scheduled "in series" since the same design engineering team would be required to support both unit modifications. The design engineering team is also responsible for supporting other NFPA 805 modifications. Significant progress has been made with respect to the ANO-2 AFW pump scoping effort. During this effort, efficiencies have been realized that partially support upcoming ANO-1 AFW pump scoping efforts. Based on this overlap, the ANO-1 AFW pump scoping effort is currently scheduled to complete near the end of the 1st quarter 2013 (see Attachment 2 of this enclosure).

2) Key Transition Activities Matrix

Entergy provided an NFPA 805 transition project schedule matrix which showed minimal LAR preparation activities and milestone dates, except for some modification scoping and implementation activities. It may be that the licensee's LAR preparation is mostly complete; however, the staff needs more detailed breakdown of the LAR preparation activities to justify the additional 12 months of enforcement discretion. Therefore, the staff requests a more detailed matrix of key transition activities which include the current status of these key activities and their scheduled completion dates. At minimum, include the following key transition activities:

- a. Classical Fire Protection
- NFPA Code Compliance Reviews
Code compliance reviews are complete.
 - Existing Engineering Equivalency Evaluations (EEEEEs)
EEEEEs have been compiled and are complete.
 - Fire Area Licensing Action Reviews
Licensing Actions reviews are complete.
- b. Nuclear Safety Capability Assessment
- Safe Shutdown Equipment List (SSEL)
The SSEL was established by CALC-85-E-0087-23, Safe Shutdown Equipment List (SSEL) Methodology, in 2005 and loaded into the Plant Data Management System in support of deterministic compliance for Appendix R. Additional equipment has been added on an as needed basis to support the Fire PRA. This activity is complete.

- Safe Shutdown Circuit Analysis

Safe shutdown cable analysis was established by CALC-85-E-0087-24, Safe Shutdown Cable Analysis, in 2005 and loaded into the Plant Data Management System in support of deterministic compliance for Appendix R. Additional analysis has been performed on an as needed basis to support the Fire PRA. This activity is complete.

- Fire Area Assessment

Fire Area assessments are complete pending final data from the Fire PRA affecting fire area risk.

- Known Transition Modifications

Thirty-five (35) modifications have been identified as provided in Attachment 1 of this enclosure. Modifications that support the deterministic and Fire PRA issues have been identified and design scoping is underway on many. Future ANO-1 NFPA 805 outage related modifications have been segregated into a red train or green train outage based on the train most impacted.

c. Probabilistic Risk Assessment (PRA)

- Fire PRA Peer Review

The Fire PRA Peer Review has been completed and results incorporated into draft version of LAR Attachment V.

- Scoping Fire Modeling

A draft of LAR Attachment J has been prepared and will be revised, if necessary, following completion of the overall Fire PRA activity.

- Self-Ignited Cable Fire Scenarios

This concern does not apply at ANO-1 because the electrical cable insulation is IEEE 383 equivalent such that this scenario is not credible.

- Circuit Failure Mode/Likelihood Analysis

This portion of the project has been completed, which permits development of the Fire PRA model with respect to failures.

- Main Control Room Analysis

A revision to the Control Room Analysis is pending completion of the ANO-2 Control Room Analysis. The ANO-1 analysis will be revised to reflect the issues and concerns discussed during the October 9, 2012, public meeting relating to the status of the ANO-2 non-acceptance items. This activity is scheduled to complete in the 1st quarter 2013.

- Detailed Fire Modeling

Most of the detailed fire modeling effort for ANO-1 has been completed. This activity is scheduled to complete in the 1st quarter 2013.

- Focus Scope Peer Review (if needed)
A focused scope peer review has been performed and documentation is near completion. Any findings from the peer review will be documented in LAR Attachment V along with the disposition of any findings. This activity is scheduled to complete in the 1st quarter 2013.
 - Human Reliability Analysis
The Human Reliability Analysis (HRA) for ANO-1 operator actions has been completed for all new operator actions. This effort is considered complete, pending no new operator actions are identified as the Control Room Analysis is completed.
 - Fire Risk Quantification
The Fire Risk Quantification for all fire scenarios is in progress and nearing completion, with the exception of the Control Room Analysis. The Control Room scenarios will be completed following submittal of the ANO-2 LAR and will incorporate the insights gained from the ANO-2 analysis. The overall results will be quantified upon completion of the Control Room Analysis and incorporated into the Summary Report. This activity is scheduled to complete in the 1st quarter 2013.
 - Revised Fire PRA
Multiple Spurious Operations (MSOs), proposed modifications, and operator actions have been incorporated into the Fire PRA model and the model has been used for quantification of the delta risk for most Fire Areas. Additional changes to the Fire PRA model may be required to address changes to proposed modifications or new recovery actions, however, it is expected that any additional changes would be minor. This activity is scheduled to complete in the 1st quarter 2013.
 - Fire Risk Evaluations (FREs)
All FREs, with the exception of the Control Room Analysis, have been drafted. Final revisions to the FREs are in progress and are expected to be completed soon after submittal of the ANO-2 LAR. The FRE for the Control Room Analysis will require significant effort and is currently scheduled to complete near the end of the 1st quarter 2013.
- d. Non-Power Operations (NPO)
- Circuit Analysis
NPO circuit analysis is complete.
 - Pinch-Point Analysis
Pinch-Point analysis was the method used for determining impacts on NPO key safety functions. This activity is complete.

e. Resolution of the three ANO-2 LAR Deficiencies

o Deficiency No. 1

▪ Steps to resolution

The insights gained from the ANO-2 LAR deficiencies and the October 9, 2012, public meeting are being evaluated to ensure that the ANO-1 transition risk analysis is completed in accordance with the lessons learned. This activity is scheduled to complete in the 1st quarter 2013.

▪ Steps to inclusion into the PRA

It is unlikely the Fire PRA model will require revision to address the issues identified in this deficiency. However, in order to address the deficiency identified, the scenarios for the compliant transition case will be reviewed and revised as necessary. This activity is scheduled to complete in the 1st quarter 2013.

▪ Steps to inclusion into the FREs

The FRE for the transition risk will be developed in a manner to document the process used and the results obtained from the quantifications. This activity is scheduled to complete near the end of the 1st quarter 2013.

o Deficiency No. 2

▪ Steps to resolution

The unapproved methods identified in the ANO-2 LAR submittal have been removed and the ANO-1 analysis performed in a manner that is in accordance with approved methods. This activity is complete.

▪ Steps to inclusion into the PRA

ANO-1 has revised the analysis to remove all unapproved methods and has included the Multi-Compartment Analysis / Hot Gas Layer (MCA/HGL) analysis in the core damage frequency / large early release frequency (CDF/LERF) results. The CDF/LERF results remain acceptable in relation to the risk acceptance criteria. This activity is complete.

▪ Steps to inclusion into the FREs

The process utilized, along with the results, will be documented in the FREs. This activity is scheduled to complete near the end of the 1st quarter 2013.

o Deficiency No. 3

▪ Steps to resolution

The methods used in finalizing the ANO-1 analysis will identify any additional modifications or operator actions required to ensure acceptable risk results. This activity is scheduled to complete in the 1st quarter 2013.

- Steps to inclusion into the PRA
The process used will be similar to that previously used in ensuring that any plant changes required to minimize risk are documented, properly included in the PRA model, and incorporated into the results. This activity is scheduled to complete in the 1st quarter 2013.
- Steps to inclusion into the FREs
All modifications and operator actions that are required for acceptable delta risk results will be documented in the appropriate FRE. This activity is scheduled to complete near the end of the 1st quarter 2013.

f. Programmatic

- Finalize the ANO-1 LAR

As noted above, all preparation activities are scheduled to complete by the end of the 1st quarter 2013. Final reviews and verifications are scheduled to complete in the 2nd quarter 2013 with submittal of the LAR to follow immediately thereafter.

- LAR Peer Review

Because both ANO units are unique with regard to plant configuration, there are no industry experts available to support a peer review. This was identified during ANO public meetings held with the NRC staff following submittal of the enforcement extension request; therefore, Entergy believes this item is no longer applicable. In addition, Entergy maintains contract staff to perform LAR reviews against the NEI template and other NFPA 805 LARs submitted by the industry. Based on the numerous public meetings and reviews already ongoing, Entergy is confident a quality LAR will be submitted without need for additional peer review.

- Management Approval

The plant management approval is an on-going process that is systematically performed throughout the ANO-1 LAR development process. Final signature and approval will be obtained immediately following the aforementioned verifications.

Attachment 3 of this enclosure provides a table of the above LAR preparation activities.

Note that Entergy's August 23, 2012, request for an extension of enforcement discretion also included a list of NFPA 805 operator recovery actions and the associated recovery action risk (Attachments 2 and 3 of the August 23, 2012, letter, respectively). Enclosure 2 of Entergy's August 23, 2012, letter contains the commitment for submittal of the ANO-1 NFPA 805 LAR by August 31, 2013.

Attachments

1. ANO-1 NFPA 805 Modifications
2. ANO-1 NFPA 805 Modifications Design and Installation Schedule
3. ANO-1 NFPA 805 License Amendment Request (LAR) Schedule

Attachment 1

ANO-1 NFPA 805 Modifications

S. Plant Modifications to be Completed During Implementation

Table S-1, Plant Modifications, provided below includes a description of the modifications along with the following information:

- A problem statement,
- Risk ranking of the modification,
- An indication if the modification is currently included in the FPRA,
- Compensatory measure in place, and
- A risk-informed characterization of the modification and compensatory measure.

The following ranking legend should be used when reviewing the table:

- High = Modification which would have an impact on FPRA and affect multiple Fire Areas.
- Med = Modification which would have an impact on FPRA and affect individual Fire Areas, or include IN 92-18 modifications.
- Low = Modification which would have no or insignificant impact on risk.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-1	High (PRA)	1	<p>New Auxiliary Feedwater (AFW) pump:</p> <p>Due to multiple impacts to the Emergency Feedwater (EFW) system, the need for an additional source of feedwater to the Steam Generators (SGs) was identified.</p> <p>The availability of feedwater to SGs was identified as an issue by PRA. Also identified by PRA was ANO's inability to perform high risk and time sensitive actions, such as control of AFW, outside of the Control Room.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a new AFW pump with controls independent of the existing EFW pumps. The AFW will be capable of feeding one of the ANO-1 SGs. The new AFW pump would be designed to meet or exceed the flow requirements of the ANO-1 EFW pump P-7B (nominally 500 gpm @ 1050 psig).</p> <p>The new AFW pump would be designed with the capability to be operated from the ANO-1 Control Room and locally at the pump. The design will ensure electrical isolation from Control Room functions to prevent a fire in the Control Room from affecting local control of AFW components.</p> <p>The new AFW pump and associated motor operated valves would be designed to be powered by diverse power sources to prevent a single exposure fire from disabling equipment operation. The new AFW pump would be designed to include local controls and monitoring instrumentation to ensure proper operation and water flow to the SG.</p>	Yes	Yes	<p>This AFW modification is credited globally from a PRA perspective to provide a reliable additional source of feedwater.</p> <p>The local control panel modification is also specifically credited from a PRA perspective to provide an alternate means to perform required actions outside the ANO-1 Control Room.</p> <p>Manual actions are credited in fire areas that contain redundant safe shutdown equipment. The modification process will ensure these actions are feasible.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-2	High (PRA)	1	<p>Switchgear A-1:</p> <p>In multiple Fire Areas, PRA determined that backup DC control power supply to switchgear A-1 will be installed to eliminate loss of switchgear A-1 due to loss of normal DC control power.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification to install a redundant DC control power supply to switchgear A-1 to eliminate loss of switchgear due to loss of normal DC control power.</p> <p>In the event the normal DC control power source is lost, a transfer to this alternate DC power source can be performed.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>Modification to install an alternate DC power source reduces the risk of a fire induced circuit failure to the DC power cables feeding A-1 which could preclude loss of offsite power.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-3	High (PRA)	1	<p>Switchgear A-2:</p> <p>In multiple Fire Areas, PRA determined that backup DC control power supply to switchgear A-2 will be installed to eliminate loss of switchgear A-2 due to loss of normal DC control power.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification to install a redundant DC control power supply to switchgear A-2 to eliminate loss of switchgear due to loss of normal DC control power.</p> <p>In the event the normal DC control power source is lost, a transfer to this alternate DC power source can be performed.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>Modification to install an alternate DC power source reduces the risk of a fire induced circuit failure to the DC power cables feeding A-2 which could preclude loss of offsite power.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-4	Med (PRA)	1	<p>Switchgear A-3:</p> <p>In Fire Area I-2, PRA determined that rerouting the DC control power to A-3 was necessary to maintain control functions for P-36A, P-7B, P-4A and P-4B(R).</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification to reroute the DC control power to eliminate Fire Area I-2 impact.</p>	Yes	Yes	<p>This modification is specifically credited for Fire Area I-2.</p> <p>Modification to reroute the DC power source for A-3 reduces the risk of a fire induced circuit failure of the switchgear and the possible loss of control functions to pumps P-36A, P-7B, P-4A and P-4B(R).</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-5	High (PRA)	1	<p>Switchgear H-1:</p> <p>In multiple Fire Areas, PRA determined that existing DC control power supply to switchgear H-1 should be modified to eliminate loss of switchgear H-1 due to loss of normal DC control power.</p> <p>This failure could preclude the Reactor Coolant Pumps (RCPs) from being tripped in the control room.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification to install a redundant DC control power supply to switchgear H-1 to eliminate loss of switchgear due to loss of normal DC control power.</p> <p>In the event the normal DC control power source is lost, a transfer to this alternate DC power source can be performed.</p> <p>Additionally, ANO plans a modification to remove internal DC jumpers and separately protect H-1 switchgear line and load breaker control power. This will prevent a fire originating in a cubicle from disabling the ability to trip the RCPs due to loss of shared control power.</p>	Yes	Yes	<p>The modification to install a redundant DC control power supply is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>The modification to separate line and load breaker control power is only credited in B-1@BOFZ.</p> <p>Both modifications reduce the risk of a fire induced circuit failure to the DC power cables feeding switchgear H-1 which could preclude tripping the RCPs from the control room.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-6	High (PRA)	1	<p>Switchgear H-2:</p> <p>In multiple Fire Areas, PRA determined that existing DC control power supply to switchgear H-2 should be modified to eliminate loss of switchgear H-2 due to loss of normal DC control power.</p> <p>This failure could preclude the RCPs from being tripped in the control room.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification to install a redundant DC control power supply to switchgear H-2 to eliminate loss of switchgear due to loss of normal DC control power.</p> <p>In the event the normal DC control power source is lost, a transfer to this alternate DC power source can be performed.</p> <p>Additionally, ANO plans a modification to remove internal DC jumpers and separately protect H-2 switchgear line and load breaker control power. This will prevent a fire originating in a cubicle from disabling the ability to trip the RCPs due to loss of shared control power.</p>	Yes	Yes	<p>The modification to install a redundant DC control power supply is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>The modification to separate line and load breaker control power is only credited in B-1@BOFZ.</p> <p>Both modifications reduce the risk of a fire induced circuit failure to the DC power cables feeding switchgear H-2 which could preclude tripping the RCPs from the control room.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-7	Med (PRA)	1	<p>A-309, 4160V AC Breaker:</p> <p>In Fire Area B-1@BOFZ, PRA identified that a fire induced fault in the turbine building could result in spurious closing or preclude automatic trip functions at A-309 (vital switchgear A-3 supply breaker from switchgear A-1), when loading the credited Emergency Diesel Generator (EDG).</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a circuit modification to protect the circuits associated with breaker A-309 such that, a fire in the turbine building will not result in spurious closing, or preclude automatic trip functions challenging the supply when loading the EDG (A-308).</p> <p>This modification will re-route cables, wrap cables or modify circuits for breaker A-309 to assure the protective features remain intact; breakers remain tripped, and do not impede automatic start of the associated EDG and closure of EDG breaker A-308.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective.</p> <p>Modification to the circuits associated with breaker A-309 is planned such that a fire in the turbine building will not result in spurious closing or preclude automatic trip functions when loading the credited EDG (A-308) in Fire Area B-1@BOFZ.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-8	Med (PRA)	1	<p>A-409, 4160V AC Breaker:</p> <p>In Fire Area B-1@BOFZ, PRA identified that a fire induced fault in the turbine building could result in spurious closing or preclude automatic trip functions at A-409 (vital switchgear A-4 supply breaker from switchgear A-2), when loading the credited EDG.</p> <p>LAR Source:</p> <p>Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a circuit modification to protect the circuits associated with breaker A-409 such that a fire in the turbine building will not result in spurious closing or preclude automatic trip functions challenging the supply when loading the EDG (A-408).</p> <p>This modification will re-route cables, wrap cables or modify circuits for breaker A-409 to assure the protective features remain intact; breakers remain tripped, and do not impede automatic start of the associated EDG and closure of EDG breaker A-408.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective.</p> <p>Modification to the circuits associated with breaker A-409 is planned such that a fire in the turbine building will not result in spurious closing or preclude automatic trip functions when loading the credited EDG (A-408) in Fire Area B-1@BOFZ.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-9	Med (PRA)	1	<p>Control Room Panel C20:</p> <p>In Fire Area G, Fire Zone 129F, PRA determined that in order to reduce risk of a fire induced circuit and equipment failure in Control Room Panel C20, an incipient very early warning aspirating smoke detector (ASD) is required to be installed in Panel C20.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to provide a modification to install an incipient very early warning ASD detector in ANO-1 Control Room Panel C20.</p> <p>The modification to install an incipient early warning fire detection system is planned to be in accordance with the latest edition of NFPA 72, Fire Alarm Detection Code and NFPA 76, Standard for the Fire Protection of Telecommunications Facilities. The incipient fire detection system is required to meet FAQ 08-0046, Incipient Fire Detection System requirements.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective.</p> <p>The modification to install an incipient very early warning ASD detector in ANO-1 Control Room Panel C20 in Fire Area G, Fire Zone 129F, reduces the risk of a fire induced circuit and equipment failure that could result in the loss of Control Room Panel C20.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-10	Med (PRA)	1	<p>Air Operated Valve (AOV) CV-1052:</p> <p>In Fire Area G, PRA determined that Quench Tank Drain valve CV-1052 should be modified to preclude spurious operation. CV-1052 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-1052 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced AOV circuit failures (hot shorts, open circuits and short to ground). This AOV modification can preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-11	Med (PRA)	1	<p>Motor Operated Valve (MOV) CV-1053:</p> <p>In Fire Area G, PRA determined that Quench Tank Drain valve CV-1053 should be modified to preclude spurious operation. CV-1053 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-1053 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced MOV hot short circuit failure. This MOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-12	High (PRA)	1	<p>MOV CV-1221:</p> <p>PRA determined that Letdown isolation valve CV-1221 should be modified to meet requirements per IN 92-18. CV-1221 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-1221 to meet requirements per IN 92-18.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>The modification reduces the risk of fire induced MOV hot short circuit failure in accordance with IN 92-18. This MOV modification will preclude spurious operation to reduce plant risk as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-13	High (PRA)	1	<p>MOV CV-1405:</p> <p>In multiple Fire Areas, PRA determined that Train A Emergency Core Cooling (ECCS) Reactor Building sump suction valve CV-1405 should be modified to meet requirements per IN 92-18. CV-1405 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-1405 to meet requirements per IN 92-18.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification reduces the risk of fire induced MOV hot short circuit failure in accordance with IN 92-18. This MOV modification will preclude spurious operation to reduce overall plant risk as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-14	High (PRA)	1	<p>MOV CV-1406:</p> <p>In multiple Fire Areas, PRA determined that Train B Emergency Core Cooling (ECCS) Reactor Building sump suction valve CV-1406 should be modified to meet requirements per IN 92-18. CV-1406 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-1406 to meet requirements per IN 92-18.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification reduces the risk of fire induced MOV hot short circuit failure in accordance with IN 92-18. This MOV modification will preclude spurious operation to reduce overall plant risk as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-15	High (PRA)	1	<p>MOV CV-3643:</p> <p>PRA determined that Service Water (SW) Auxiliary Cooling Water (ACW) supply valve CV-3643 should be modified to meet requirements per IN 92-18. CV-3643 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-3643 to meet requirements per IN 92-18.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification reduces the risk of fire induced MOV hot short circuit failure in accordance with IN 92-18. This MOV modification will preclude spurious operation to reduce overall plant risk as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-16	Med (PRA)	1	<p>AOV CV-4400:</p> <p>In Fire Area G, PRA determined that Reactor Building sump drain valve CV-4400 should be modified to preclude spurious operation. CV-4400 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-4400 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced AOV hot short circuit failure. This AOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-17	Med (PRA)	1	<p>MOV CV-4446:</p> <p>In Fire Area G, PRA determined that Reactor Building sump drain valve CV-4446 should be modified to preclude spurious operation. CV-4446 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source:</p> <p>Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-4446 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced MOV circuit failures (hot shorts, open circuits and short to ground). This MOV modification can preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-18	Med (PRA)	1	<p>MOV CV-5611:</p> <p>In Fire Area G, PRA determined that Reactor Building firewater valve CV-5611 should be modified to preclude spurious operation. CV-5611 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source:</p> <p>Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-5611 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced MOV hot short circuit failure. This MOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-19	Med (PRA)	1	<p>MOV CV-5612: In Fire Area G, PRA determined that Reactor Building firewater valve CV-5612 should be modified to preclude spurious operation. CV-5612 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-5612 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced MOV hot short circuit failure. This MOV modification will preclude spurious operation to reduce plant risk Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-20	Med (PRA)	1	<p>AOV CV-7401: In Fire Area G, PRA determined that Reactor Building purge valve CV-7401 should be modified to preclude spurious operation. CV-7401 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-7401 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced AOV hot short circuit failure. This AOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-21	Med (PRA)	1	<p>AOV CV-7402:</p> <p>In Fire Area G, PRA determined that Reactor Building purge valve CV-7402 should be modified to preclude spurious operation. CV-7402 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-7402 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced AOV hot short circuit failure. This AOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-22	Med (PRA)	1	<p>AOV CV-7403:</p> <p>In Fire Area G, PRA determined that Reactor Building purge valve CV-7403 should be modified to preclude spurious operation. CV-7403 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-7403 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>This modification reduces the risk of fire induced AOV hot short circuit failure. This AOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-23	Med (PRA)	1	<p>AOV CV-7404:</p> <p>In Fire Area G, PRA determined that Reactor Building purge valve CV-7404 should be modified to preclude spurious operation. CV-7404 does not have automatic features via interlocks to preclude spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a modification for CV-7404 to preclude spurious operation.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious operation of the AOV due to intercable or intracable hot shorts.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area G.</p> <p>Modification reduces the risk of fire induced AOV hot short circuit failure. This AOV modification will preclude spurious operation to reduce plant risk in Fire Area G as a result of a fire induced hot short circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>
S1-24	Med (PRA)	1	<p>SW Pump P-4A:</p> <p>In Fire Area I-2, the PRA identified the possible loss of SW pump P-4A due to circuit impacts.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a circuit modification to reroute cables that support remote operation of SW pump P-4A.</p> <p>Circuits are planned to be rerouted to avoid Fire Area I-2 using embedded conduit as available or routed in raceways that already contain other cables that would impact P-4A. Any new raceway needed for these circuits will be installed outside of any zone of influence for postulated fire sources or routed in locations where deterministic compliance can be demonstrated.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area I-2.</p> <p>This modification to reroute cables reduces the risk of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-25	Med (PRA)	1	<p>EFW Pump P-7B:</p> <p>In Fire Area I-2, the PRA identified the possible loss of EFW pump P-7B due to circuit impacts.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a circuit modification to reroute cables that support remote operation of P-7B.</p> <p>Circuits are planned to be rerouted to avoid Fire Area I-2 using embedded conduit as available or routed in raceways that already contain other cables that would impact P-7B. Any new raceway needed for these circuits will be installed outside of any zone of influence for postulated fire sources or routed in locations where deterministic compliance can be demonstrated.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area I-2.</p> <p>This modification to reroute cables reduces the risk of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-26	Med (PRA)	1	<p>Primary Makeup Pump P-36A:</p> <p>In Fire Area I-2, the PRA identified the possible loss of Primary Makeup pump P-36A due to circuit impacts.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans a circuit modification to reroute cables that support remote operation of P-36A.</p> <p>Circuits are planned to be rerouted to avoid Fire Area I-2 using embedded conduit as available or routed in raceways that already contain other cables that would impact P-36A. Any new raceway needed for these circuits will be installed outside of any zone of influence for postulated fire sources or routed in locations where deterministic compliance can be demonstrated.</p>	Yes	Yes	<p>This modification is specifically credited from a PRA perspective in Fire Area I-2</p> <p>Modification to reroute cables reduces the risk of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>
S1-27	High (PRA)	1	<p>Sluice Gate Valve SG-1:</p> <p>In multiple Fire Areas, PRA determined that Sluice Gate valve SG-1 should be modified to remove the potential of spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a modification for Sluice Gate valve SG-1.</p> <p>A modification is planned to be completed to remove the potential for spurious closing as a result of a fire induced circuit failure.</p> <p>The modification is planned to allow Sluice Gate Valve SG-1 to remain open in all PRA fire scenarios.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification removes the potential of spurious operation to reduce overall plant risk for SG-1 as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-28	High (PRA)	1	<p>Sluice Gate Valve SG-2:</p> <p>In multiple Fire Areas, PRA determined that Sluice Gate valve SG-2 should be modified to remove the potential of spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a modification for Sluice Gate valve SG-2.</p> <p>A modification is planned to be completed to remove the potential for spurious closing as a result of a fire induced circuit failure.</p> <p>The modification is planned to allow Sluice Gate Valve SG-2 to remain open in all PRA fire scenarios.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification removes the potential of spurious operation to reduce overall plant risk for SG-2 as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate</p>
S1-29	High (PRA)	1	<p>Sluice Gate Valve SG-3:</p> <p>In multiple Fire Areas, PRA determined that Sluice Gate valve SG-3 should be modified to remove the potential of spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a modification for Sluice Gate valve SG-3.</p> <p>A modification is planned to be completed to remove the potential for spurious closing as a result of a fire induced circuit failure.</p> <p>The modification is planned to allow Sluice Gate Valve SG-3 to remain open in all PRA fire scenarios.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification removes the potential of spurious operation to reduce overall plant risk for SG-3 as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-30	High (PRA)	1	<p>Sluice Gate Valve SG-4:</p> <p>In multiple Fire Areas, PRA determined that Sluice Gate valve SG-4 should be modified to remove the potential of spurious operation to reduce overall plant risk as a result of a fire induced circuit failure.</p> <p>LAR Source: Attachment C (NEI-04-02 Table B-3)</p>	<p>ANO plans to install a modification for Sluice Gate valve SG-4.</p> <p>A modification is planned to be completed to remove the potential for spurious closing as a result of a fire induced circuit failure.</p> <p>The modification is planned to allow Sluice Gate Valve SG-4 to remain open in all PRA fire scenarios.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>This modification removes the potential of spurious operation to reduce overall plant risk for SG-4 as a result of a fire induced circuit failure.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate</p>
S1-31	High (PRA)	C	<p>New PRA Credited Fire Barriers identified:</p> <p>NFPA 805 non-compliance issues were encountered when smaller fire area barriers such as multiple walls, dampers, penetration seals, and doors required by insurance were credited and used in the Fire PRA model as rated fire barriers in the NRC regulatory basis for NFPA 805.</p> <p>Multiple walls and doors barriers will require upgrading to comply with NFPA 805.</p> <p>LAR Source: Attachment A (NEI-04-02 Table B-1)</p>	<p>ANO plans to provide a modification to upgrade insurance required fire barriers such as multiple walls, dampers, penetration seals, and doors to rated barriers. These barriers will be identified as NRC regulatory basis to ensure compliance with NFPA 805. These barriers will be upgraded as required per EC 1956.</p>	Yes	Yes	<p>This modification is credited globally from a PRA perspective and affects multiple fire areas.</p> <p>In accordance with station directives, compensatory measures per OP-1000.120 have been established as appropriate.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-32	Low (Code)	C	<p>NFPA 50A, Gaseous Hydrogen Systems, code non-compliance issues were identified:</p> <p>NFPA 50A code issues exist in the Hydrogen Gas Bottle Storage Room related to inadequate vent piping and room ventilation. Hydrogen relief valve vent piping is not routed to the outside of the building. The hydrogen storage room light switch was identified as not meeting Article 501 for Class I, Division II locations of the National Electric Code (NEC).</p> <p>LAR Source: Attachment A (NEI-04-02 Table B-1)</p>	<p>ANO plans to provide a modification to remove the hydrogen bottles and manifold outside the room (reference EC 25606).</p>	No	No	<p>The subject hydrogen gas system bottle storage area is not credited by the PRA.</p> <p>This modification is planned to be completed to meet NFPA 805 code requirements.</p>
S1-33	Low (Code)	C	<p>NFPA 10, Fire Extinguishers, code non-compliance issues were identified:</p> <p>NFPA 10 code issues (such as incorrect number of fire extinguishers for travel distance, incorrect type and size for the hazard area) were identified with ANO portable fire extinguishers in multiple Fire Areas.</p> <p>LAR Source: Attachment A (NEI-04-02 Table B-1)</p>	<p>ANO plans to provide a modification to install the proper number of fire extinguishers to meet travel distance requirements in coverage areas.</p> <p>ANO plans to install adequately sized fire extinguishers and correct type fire extinguishers that are rated for the fire hazard to meet NFPA 10 requirements.</p>	No	No	<p>The subject fire extinguishers are not credited in the Fire PRA.</p> <p>This modification is planned to be completed to meet NFPA 805 code requirements.</p>

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-34	Low (Code)	1	<p>NFPA 30, Oil Storage Tank, code non-compliance issues were identified:</p> <p>In the Dirty and Clean Lube Oil Tank Room, Fire Area B-1, Fire Zone 187-DD, the air supply duct location in the vault wall near the floor provides an oil leakage path via the supply duct outside of the vault; therefore the vault is not liquid tight.</p> <p>The oil storage vault contains Lube Oil Tank (T-26) with the capacity of 30,000 gallons, which could rupture resulting in lube oil leak into the air supply duct.</p> <p>LAR Source: Attachment A (NEI-04-02 Table B-1)</p>	<p>ANO plans to provide a modification to reroute the ventilation air supply duct to remove the oil leakage path from the oil storage vault.</p> <p>ANO plans to modify the ventilation air duct to meet NFPA 30 requirements.</p>	No	No	<p>The subject oil storage tank vaults are not credited in the Fire PRA.</p> <p>This modification is planned to be completed to meet NFPA 805 code requirements.</p>
S1-35	Med (92-18)		<p>Non Power Operation (NPO) MOVs CV-1050, CV-1410, CV-1404:</p> <p>ANO 1 has no redundancy to the single RCS drop line to the Decay Heat Removal (DHR) system with three in-series valves CV-1050, CV-1410, and CV-1404. The NPO assessment determined that any one of the three RCS drop line valves could fail in a closed and unrecoverable position resulting in a loss of DHR.</p> <p>LAR Source: Attachment D (NEI-04-02 Table F-1)</p>	<p>ANO plans a modification for CV-1404 to meet requirements per IN 92-18.</p> <p>This modification adds an "inhibit" circuit which will preclude spurious closing of the MOV due to intercable or intracable hot shorts.</p> <p>Procedural changes are planned to secure MOVs CV-1050 and CV-1410 in the open position by opening breakers to remove power.</p>	No	Yes	<p>The NPO modification reduces the risk of fire induced MOV circuit failures (hot shorts, open circuits and short to ground). This MOV modification can prevent a non-recoverable position failure resulting in the loss of decay heat removal.</p> <p>In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.</p>

Attachment 2

ANO-1 NFPA 805 Modifications Design and Installation Schedule

ANO-1 NFPA 805 Modifications Design and Installation Schedule

<i>Modification Description (based on ANO-1 LAR Table S-1 numbering)</i>	<i>Scoping Complete</i>	<i>Design Complete</i>	<i>Installation Complete</i>
S1-1 Additional Auxiliary Feedwater (AFW) source to Steam Generators	03/01/2013	07/01/2013	1R26 / 1R27
S1-2 thru S1-6 Provide redundant DC control power to Switchgear A-1, A-2, A-3, H-1 and H-2 and re-route some cabling	10/25/2013	07/01/2015	1R26 / 1R27
S1-7 and S1-8 4160V AC breaker circuit modification to prevent spurious operation of A-309 and A-409	10/25/2013	07/01/2015	1R26 / 1R27
S1-9 Incipient Fire Detection for Control Room Panel C20	09/06/2013	12/15/2013	1R25 / 1R26
S1-10 Air Operated Valve (AOV) CV-1052 (Quench Tank Drain) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26
S1-11 Motor Operated Valve (MOV) CV-1053 (Quench Tank Drain) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R27
S1-12 MOV CV-1221 (Letdown Isolation) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26
S1-13 MOV CV-1405 (Emergency Core Cooling Reactor Building Sump Suction) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R27
S1-14 MOV CV-1406 (Emergency Core Cooling Reactor Building Sump Suction) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26
S1-15 MOV CV-3643 (Service Water Auxiliary Cooling Water Supply) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26
S1-16 AOV CV-4400 (Reactor Building Sump Drain) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26
S1-17 MOV CV-4446 (Reactor Building Sump Drain) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R27
S1-18 MOV CV-5611 (Reactor Building Firewater Supply) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R26

Modification Description (based on ANO-1 LAR Table S-1 numbering)	Scoping Complete	Design Complete	Installation Complete
S1-19 MOV CV-5612 (Reactor Building Firewater Supply) circuit modification to preclude spurious operation	08/16/2013	07/01/2015	1R27
S1-20 thru S1-23 AOVs CV-7401, CV-7402, CV-7403, and CV-7404 (Reactor Building Purge Isolations) circuit modifications to preclude spurious operations	08/16/2013	07/01/2015	1R26 / 1R27
S1-24 thru S1-26 Circuit re-routes for Service Water Pump P-4A, Emergency Feedwater Pump P-7B, and Primary Makeup Pump P-36A to reduce risk of circuit failure in specific areas	12/20/2013	07/01/2015	1R27
S1-27 thru S1-30 Service Water sluice gate valves SG-1, SG-2, SG-3, and SG-4 modifications to prevent spurious closure	03/15/2013	12/15/2013	1R25 / 1R26
S1-31 Fire Barrier Upgrades	09/23/2013	07/01/2015	1R26
S1-32 NFPA 50A Non-Compliance Corrections (related to Hydrogen Gas Bottle Storage Room)	12/21/2012	04/01/2014	12/15/2014
S1-33 NFPA 10 Non-Compliance Corrections (related to fire extinguishers)	01/25/2013	04/01/2014	12/15/2014
S1-34 NFPA 30 Oil Storage Tank Ventilation Air Duct Relocation (related to Dirty and Clean Lube Oil Tank Room)	09/27/2013	04/01/2014	12/15/2014
S1-35 MOVs CV-1050, CV-1410, and CV-1404 (Decay Heat Removal Suction Isolations) modification for NRC Information Notice (IN) 92-18 issues (associated with non-power operations)	08/30/2013	07/01/2015	1R26 / 1R27

Refueling outage 1R25 (red train outage) is scheduled for the fall of 2014.

Refueling outage 1R26 (green train outage) is scheduled for the spring of 2016

Refueling outage 1R27 (red train outage) is scheduled for the fall of 2017.

Attachment 3

ANO-1 NFPA 805 License Amendment Request (LAR) Schedule

ANO-1 NFPA 805 LICENSE AMENDMENT REQUEST (LAR) SCHEDULE

<u>ACTIVITY</u>	<u>STATUS*</u>
Classical Fire Protection	
NFPA Code Compliance Reviews	Complete
Existing Engineering Equivalency Evaluations	Complete
Fire Area Licensing Action Reviews	Complete
Nuclear Safety Capability Assessment	
Safe Shutdown Equipment List	Complete
Safe Shutdown Circuit Analysis	Complete
Fire Area Assessment	Complete
Known Transition Modifications	Complete
Probabilistic Risk Assessment (PRA)	
Fire PRA Peer Review	Complete
Scoping Fire Modeling	Complete
Self-Ignited Cable Fire Scenarios	Not Applicable
Circuit Failure Mode/Likelihood Analysis	Complete
Main Control Room Analysis	1 st Quarter 2013
Detailed Fire Modeling	1 st Quarter 2013
Focused Scope Peer Review	1 st Quarter 2013
Human Reliability Analysis	Complete
Fire Risk Quantification	1 st Quarter 2013
Revised Fire PRA	1 st Quarter 2013
Fire Risk Evaluations (FREs)	1 st Quarter 2013
Non-Power Operations	
Circuit Analysis	Complete
Pinch-Point Analysis	Complete

ANO-1 NFPA 805 LICENSE AMENDMENT REQUEST (LAR) SCHEDULE
(continued)

<u>ACTIVITY</u>	<u>STATUS*</u>
Resolution of the Three ANO-2 LAR Deficiencies	
Deficiency No. 1	
Steps to Resolution	1 st Quarter 2013
Steps to Inclusion into the PRA	1 st Quarter 2013
Steps to Inclusion into the FREs	1 st Quarter 2013
Deficiency No. 2	
Steps to Resolution	Complete
Steps to Inclusion into the PRA	Complete
Steps to Inclusion into the FREs	1 st Quarter 2013
Deficiency No. 3	
Steps to Resolution	1 st Quarter 2013
Steps to Inclusion into the PRA	1 st Quarter 2013
Steps to Inclusion into the FREs	1 st Quarter 2013
Programmatic	
Finalize the ANO-1 LAR	2 nd Quarter 2013
LAR Peer Review	Not Applicable
Management Approval	2 nd Quarter 2013

* A status of "complete" indicates that the related section/attachment of the LAR has been fully drafted and initial reviews completed; however, further revision may be required pending the final results of the Fire PRA activities.