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1CAN081202

August 23, 2012

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

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

- References:
1. NRC letter dated July 28, 2011, "Arkansas Nuclear One, Units 1 and 2 – Commitment to Submit a License Amendment Request to Transition to 10 CFR 50.48(c), National Fire Protection Association Standard NFPA 805, and Request to Extend Enforcement Discretion" (TAC Nos. ME6691 and ME6692) (ML 112030193) (0CNA071107)
  2. NRC letter dated May 25, 2012, "Supplemental Information Needed for Acceptance of Requested Licensing Action Re: License Amendment Request to Adopt National Fire Protection Association Standard 805" (TAC No. ME8282) (ML 121380395) (2CNA051202)
  3. Entergy letter dated July 10, 2012, "Supplemental to License Amendment Request to Adopt NFPA-805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)" (2CAN071202)
  4. Entergy letter dated August 14, 2012, "Request for Extension of Enforcement Discretion, Arkansas Nuclear One – Unit 2" (2CAN081202)
  5. 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 July 28, 2011 (Reference 1), Entergy Operations, Inc. (Entergy) received enforcement discretion for fire protection issues for Renewed Facility Operating License No. DPR-51 for Arkansas Nuclear One, Unit 1 (ANO-1). The 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.

ANO, Unit 2 (ANO-2) submitted a request to adopt a new licensing basis (i.e., transition to 10 CFR 50.48(c), National Fire Protection Association (NFPA) Standard 805, commonly called NFPA 805) in March 2012. By letter dated May 25, 2012 (Reference 2), the NRC informed Entergy that supplemental information was required to support completion of the NRC's acceptance review of the ANO-2 submittal. As a result, supplemental information, including a regulatory commitment to provide additional information by November 2, 2012, was submitted to the NRC on July 10, 2012 (Reference 3). By teleconference on August 9, 2012, the NRC informed Entergy that additional information would be required to complete the NRC acceptance review and, therefore, the ANO-2 letter would not be accepted. The NRC identified three generic information items, but not in sufficient detail for Entergy to fully comprehend the scope and resources required to resolve all open issues. Subsequently, Entergy applied for an extension of the ANO-2 enforcement discretion period in Reference 4.

From a fire protection perspective, both ANO units are similar and supported by a single NFPA 805 transition team. Given the unexpected and significant resources likely to be required to resolve the aforementioned ANO-2 NFPA 805 submittal issues and, assuming that the same information would need to be developed and submitted for ANO-1, the August 31, 2012, ANO-1 submittal commitment is no longer achievable.

Because additional time is required to better understand the NRC concerns and develop an acceptable response into the ANO-1 submittal, in addition to the development of a subsequent ANO-2 NFPA 805 submittal, Entergy requests an extension of enforcement discretion for fire protection issues associated with ANO-1 until August 31, 2013. Entergy, therefore, commits to submit an ANO-1 License Amendment Request (LAR) implementing 10 CFR 50.48(c) prior to August 31, 2013 (see Enclosure 2 of this letter). Per the enforcement discretion policy, once the request is submitted and accepted, the enforcement discretion would then continue until the NRC dispositions the LAR.

By letter dated May 25, 2012 (Reference 2), the NRC outlined justification that would be required for an extension of enforcement discretion should Entergy be unable to provide sufficient supplemental information in a timely fashion that would support NRC acceptance of the ANO-2 LAR. Enclosure 1 to this letter contains information necessary to meet the Reference 2 requirements for enforcement discretion application as it would pertain to ANO-1.

Entergy requests the NRC issue a Confirmatory Order approving the requested enforcement discretion extension for ANO-1 as permitted by Reference 5.

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 August 23, 2012.

Sincerely,

**ORIGINAL SIGNED BY CHRISTOPHER J. SCHWARZ**

CJS/dbb

Enclosures:

1. Enforcement Policy Requirements for Fire Protection Issues – 10 CFR 50.48(c)
2. List of Regulatory Commitments

cc: Mr. Elmo E. Collins  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
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NRC Senior Resident Inspector  
Arkansas Nuclear One  
P. O. Box 310  
London, AR 72847

U. S. Nuclear Regulatory Commission  
Attn: Mr. Kaly Kalyanam  
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One White Flint North  
11555 Rockville Pike  
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Mr. Bernard R. Bevill  
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**Enclosure 1 to**

**1CAN081202**

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

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

In accordance with Section 9.1, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)," of the NRC Enforcement Policy, dated July 12, 2011, and NRC letter to Entergy Operations, Inc. (Entergy) dated May 25, 2012, "Supplemental Information Needed for Acceptance of Requested Licensing Action Re: License Amendment Request to Adopt National Fire Protection Association Standard 805" (ML 121380395), Entergy is providing the following justification in support of extending the current enforcement discretion period for fire protection issues for Arkansas Nuclear One, Unit 1 (ANO-1) as described in the cover letter to this Enclosure. The required information stated below is excerpted from the aforementioned NRC letter dated May 25, 2012. Key information associated with Entergy's NFPA 805 transition process is included in italics.

1. Schedule of the key transition activities and major milestones for achieving the proposed new date including:

- a. The preliminary design of specific plant modifications used to reduce site risk.

*The preliminary design of specific plant modifications that are necessary to support the ANO-1 transition to NFPA 805 is included in Attachment 1 of this Enclosure. Physical modifications are generally in the scoping phase at this time; however, the modification design phase includes verification by key ANO NFPA 805 project team personnel to ensure the final design meets the risk-based requirements credited in the ANO-1 NFPA 805 transition process.*

- b. Identification of all required NFPA 805 operator recovery actions.

*Operator recovery actions are provided in Attachment 2 of this Enclosure. Although the final ANO-1 NFPA 805 submittal is not complete, the ANO-1 NFPA 805 transition process is not expected to identify any additional operator recovery actions.*

- c. Identification of all the NFPA 805 recovery action risk.

*Recovery action risk is included in Attachment 3 of this Enclosure. The risk associated with the recovery actions is conservatively calculated within the context of the Fire Area in which the recovery actions are credited. The information provided in Attachment 3 is preliminary; however, Entergy does not expect the enclosed risk values to differ significantly in the final NFPA 805 submittal from that provided in Attachment 3.*

- d. Completion of the subsequent fire risk evaluations, sensitivity analyses, and formulation of the LAR.

*The fire risk evaluations (FREs) and any necessary sensitivity analyses have been completed and are undergoing final review. Completion of the ANO-1 NFPA 805 submittal is not expected to require any significant changes to the fire risk evaluations or sensitivity analyses. However, the scope of the NRC identified ANO-2 open items, which must be evaluated for impacts on the ANO-1 NFPA 805 submittal, could require further review of the FREs and/or sensitivity analyses.*

*In light of the above, Entergy expects to submit the ANO-1 LAR by August 31, 2013, to accommodate gaps identified in the ANO-2 LAR and to account for unforeseen circumstances that may arise over this time period that could have a significant, currently undefined, impact on the timing of the ANO-1 LAR. Therefore, Entergy requests an extension of enforcement discretion until August 31, 2013. Nevertheless, Entergy intends to submit the ANO-1 LAR as soon as possible and will continue to interface with NRC personnel to support this effort.*

2. Transition status should also identify and describe the additional progress that will be made in the following areas between the original ANO-1 LAR submittal date and the proposed new submittal date:
  - a. Classical fire protection transition.
  - b. Nuclear safety performance criteria transition.
  - c. Defining and installing transition modifications.

*A summary of the ANO-1 NFPA 805 transition schedule over the requested enforcement discretion extension period is provided in Attachment 4 of this Enclosure. Note that the uncertainties described above and accommodation of the ANO-2 NFPA 805 submittal can affect the schedule. Issues that have been raised on ANO-2 will need to be addressed for ANO-1 and resolved separately. The schedule is continuously updated to reflect necessary changes in start and finish dates and to reflect current plans.*

The aforementioned May 25, 2012, NRC letter also requested Entergy ensure the following transition-related information remains available, on-site, for NRC staff review:

- a. Listing of all fire protection-related non-compliances and the related compensatory measures for those non-compliances.
- b. Documentation ensuring each Operator Manual Action put in place as a compensatory measure is feasible and reliable, in accordance with the guidance in Regulatory Issue Summary 2005-07, "Compensatory Measures to Satisfy the Fire Protection Program Requirements," dated April 19, 2005 (ADAMS Accession No. ML042360547).
- c. A description of the physical modifications performed, if any, to address existing fire protection issues and non-compliances.

*The above information is available, on-site, for NRC staff review.*

#### Attachments

1. ANO-1 NFPA 805 Modifications
2. ANO-1 NFPA Operator Recovery Actions
3. ANO-1 Recovery Action Risk
4. ANO-1 Transition Status

**Attachment 1**

**ANO-1 NFPA 805 Modifications**

## **S. Plant Modifications and Items 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:</p> <p>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> <p>Compensatory measures have been established until compliance can be achieved by transitioning to a 10 CFR 50.48(c) licensing basis.</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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</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-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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>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>	ANO plans to provide a modification to remove the hydrogen bottles and manifold outside the room (reference EC 25606).	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 intercalable 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 Operator Recovery Actions**

A multi-compartment analysis has been performed that has identified the need for operator action should the fire impact adjacent areas. These actions are required in the event of a multi-compartment fire interaction. The probability of such an interaction is low and therefore the need to implement these actions is not expected based upon the low failure probability of breaches that affect the associated barriers and creates an interaction beyond the initiating fire requiring recovery actions due to the fire impact in the adjacent area. The incorporation of these actions in post fire shutdown procedures will be evaluated in a manner that clearly differentiates these actions from those primary recovery actions which are associated with the initiating fire. The recovery actions identified below are associated with the initiating fire.

Recovery Actions and Activities			
Fire Area	Component	Component Description	Actions
B-1@BOFZ	P-32A/B/C/D	Reactor Coolant Pumps (RCPs)	Manually trip load breakers (H-11, H-22, H-12, H-21) and trip RCPs. For fire at switchgear H1/H2/A1/A2, the DC modification design maintains trip capability of the RCPs.
G	A-4	4160V Vital Power Switchgear	Verify breaker A-409 open and open DC control power breaker.
G	A-410	Vital Power Switchgear A4-A3 Crosstie	Verify breaker open and open DC control power breaker.
G	B-6	480V Vital Power	De-energize B6 locally by opening A-401 and open DC control power when ERV isolation valve position verified.
G	CV-1000	Pressurizer Electromatic Relief Valve (ERV) Isolation Valve	Remotely close valve.
G	CV-1206	RCP Seal Injection Valve	Verify valve closed.
G	CV-1221	Letdown Coolers Outlet Valve	De-energize CV-1221 at panel B-61, breaker B6154, located in Fire Area B-1, Fire Zone 149-E. Verify closed/manually close CV-1221 in Fire Area B-1, Fire Zone 79-U.
G	CV-1227 CV-1228	High Pressure Injection (HPI) Block Valves	Verify valves open.
G	CV-1274	RCP Seal Bleed Off Isolation Valve	Verify valve closed.
G	CV-1275	Makeup Tank Outlet Valve	Verify valve closed.

Recovery Actions and Activities			
Fire Area	Component	Component Description	Actions
G	CV-1408	Borated Water Storage Tank (BWST) Outlet Valve	Manually open CV-1408 while monitoring flow.
G	CV-3643	Auxiliary Cooling Water (ACW) Isolation Valve	Verify valve closed.
G	CV-3807	Service Water (SW) to Emergency Diesel Generator #2 (EDG2) Coolers	Verify valve open.
G	D21-1, -3, -9, -29 and -32	DC Power To Various Equipment	Open breakers to remove DC power to switchgear H2 and A2, and load center B6 (RCP seal return to Quench Tank and High Point Vents).
G	K-1	Main Turbine	Manually trip Main Turbine with TRIP lever at front standard.
G	K-2A, K-2B	Main Feed Pumps	Manually trip both Main Feedwater Pumps locally.
G	K-4B	EDG2	If EDG2 output breaker (A-408) is open, secure EDG by opening EDG2 Engine Control Power breaker (D-2114A) inside Control Panel C108.
G	K-4B	EDG2	Place EDG2 in <i>no DC</i> override condition to start or maintain operating if running.
G	P-32A	RCP	Manually open H1 and H2 feeder breakers to trip RCPs following fire damage to control circuits.
G	P-32B	RCP	Manually open H1 and H2 feeder breakers to trip RCPs following fire damage to control circuits.
G	P-32C	RCP	Manually open H1 and H2 feeder breakers to trip RCPs following fire damage to control circuits.
G	P-32D	RCP	Manually open H1 and H2 feeder breakers to trip RCPs following fire damage to control circuits.
G	P-34B	Low Pressure Injection / Decay Heat Removal (LPI/DHR) Pump	Verify breaker A-405 open and open DC control power breaker.
G	P-35B	Reactor Building Spray Pump	Verify breaker A-404 open and open DC control power breaker.
G	P-36A	Primary Makeup Pump	De-energize DC control power to P-36A at D11, D-1104, located in Fire Area F, Fire Zone 110-L. Verify tripped/manually trip A-306 in Fire Area E, Fire Zone 100-N.

Recovery Actions and Activities			
Fire Area	Component	Component Description	Actions
G	P-36B	Primary Makeup Pump	De-energize DC control power to P-36B(C) at RA2, RA-204, located in Fire Area I-1, Fire Zone 98-J. Verify closed/manually close A-801 in Fire Area B-8, Fire Zone 104-S. De-energize DC control power to P-36B at A4, A-407, located in Fire Area I-2, Fire Zone 99-M. Verify tripped/manually trip A-407, in Fire Area I-2, Fire Zone 99-M.
G	P-36B	Primary Makeup Pump	Manually start P-36B(G) at A4, breaker A-407, located in Fire Area I-2, Fire Zone 99-M.
G	P-36C	Primary Makeup Pump	De-energize DC control power to P-36C at A4, A-406, located in Fire Area I-2, Fire Zone 99-M. Verify tripped/manually trip A-406 in Fire Area I-2, Fire Zone 99-M.
G	P-36C	Primary Makeup Pump	Manually start P-36C at A4, breaker A-406, located in Fire Area I-2, Fire Zone 99-M.
G	P-4B, P-4C	SW Pump	Align Loop 2 SW.
G	TBD	New Auxiliary Feedwater (AFW) Pump	Manually start and align AFW pump to establish primary to secondary heat removal.
G	PSV-1000	Pressurizer ERV	Manually disable PSV-1000 at breaker D-1124, local panel D11 in Fire Area I-1, Fire Zone 98-J.
G	RA2-3 and -4	SW Pump P-4B and Primary Makeup Pump P-36B Motor Operated Disconnect Control Power	Open breakers RA2-3 and -4.
I-1	CV-1221	Letdown Coolers Outlet Valve	De-energize CV-1221 at panel B61, breaker B-6154, located in Fire Area B-1, Fire Zone 149-E. Verify closed/manually close CV-1221 in Fire Area B-1, Fire Zone 79-U.
J-North	CV-1221	Letdown Coolers Outlet Valve	De-energize CV-1221 at panel B61, breaker B-6154, located in Fire Area B-1, Fire Zone 149-E. Verify closed/manually close CV-1221 in Fire Area B-1, Fire Zone 79-U.
J-South	CV-1221	Letdown Coolers Outlet Valve	De-energize CV-1221 at panel B61, breaker B-6154, located in Fire Area B-1, Fire Zone 149-E. Verify closed/manually close CV-1221 in Fire Area B-1, Fire Zone 79-U.



**Attachment 3 to**  
**ANO-1 Recovery Action Risk**

Risk of Recovery Summary by Fire Area

Fire Area	$\Delta$ CDF Risk of Recovery	$\Delta$ LERF Risk of Recovery
B-1@120 <sup>1</sup>	2.72E-09	2.72E-09
B-1@73W <sup>1</sup>	7.52E-07	9.88E-08
B1@BOFZ	6.72E-07	3.94E-09
B-9 <sup>1</sup>	4.04E-11	4.04E-11
E <sup>1</sup>	5.03E-10	5.29E-11
F <sup>1</sup>	3.08E-07	1.41E-08
G	4.74E-06	1.23E-06
H <sup>1</sup>	1.94E-09	1.94E-09
I-1	6.90E-07	1.30E-08
I-2 <sup>1</sup>	1.40E-09	1.27E-10
J-North	9.74E-07	1.34E-07
J-South	4.88E-07	4.76E-08
O <sup>1</sup>	1.68E-10	1.68E-10
<b>Total</b>	<b>8.63E-06</b>	<b>1.54E-06</b>

<sup>1</sup> These Fire Areas contribute to the delta risk via recoveries associated with the multi-compartment analysis only.

**Attachment 4**

**ANO-1 Transition Status**

### ANO-1 NFPA 805 Transition Project Schedule Overview

<b>NFPA 805 Project Activity Name</b>	<b>Start</b>	<b>Finish</b>
Clarification and Resolution of Three (3) NRC Identified LAR Deficiencies from August 9th Conference Call for ANO-2	On-going	12/03/2012
Finalize ANO-1 NFPA 805 LAR Update incorporating ANO-2 LAR deficiency corrections	12/04/2012	03/01/2013
Outside Expertise Review of ANO-1 Revised NFPA 805 LAR for Confirmation Prior to NRC Submittal	03/04/2013	05/15/2013
<i>Procedure Development</i>		
- Corporate Procedures (Design Engineering, Work Management, Outage Management, Training, Maintenance, Licensing, Operations, and Fire Protection) [~40 identified]	On-going	05/16/2013
- Site Fire Protection Procedures (Engineering, Operations, Maintenance, and Fire Protection) [~80 identified]	08/29/2013	03/24/2014
<i>Training Program</i>		
- Corporate Procedures Training	On-going	10/07/2013
- Site Procedures Training	10/25/2012	05/09/2014
Software Development (ARC-PLUS)	01/07/2013	04/02/2013
<i>Attachment 'S' Implementation Items</i>		
- Monitoring Program	01/07/2013	07/12/2013
- Flushing Procedure in Accordance with NFPA 15	01/14/2013	04/12/2013
- Revise Procedure EN-DC-161 Control of Combustibles	Completed	01/27/2012
- Revise Procedure(s) for NPO Transition	01/28/2013	07/26/2013
- Revise OMA Procedures/Documents to include feasibility criteria for FAQ 07-0030	02/11/2013	08/16/2013
- Develop/Revise Technical Documents/Procedures for NFPA 805 Licensing Basis	03/18/2013	11/22/2013
- Revise NFPA 13 Documentation on Partial Suppression in Electrical Penetration Rooms	01/14/2013	04/12/2013
- Revise NFPA 15 Documentation on Water Spray Release Modules	06/10/2013	12/20/2013

<b>NFPA 805 Project Activity Name</b>	<b>Start</b>	<b>Finish</b>
<i>Attachment 'S' Modification Scoping</i>		
- S1-1 on Additional AFW Source to SG's	On-going	09/27/2013
- S1-2 thru S1-6 on DC Control Power to Switchgear A-1, A-2, A-3, H-1 and H-2	04/23/2013	10/25/2013
- S1-7 and S1-8 on 4160V AC Breaker Circuit Modification to Prevent Spurious Operation of A-309 and A-409	07/25/2013	10/25/2013
- S1-9 on Incipient Fire Detection for Control Room Panel C20	03/04/2013	09/06/2013
- S1-10 thru S1-23 on Circuit Modifications on 14 Valves to Preclude Spurious Operation (MOV's and AOV's)	03/18/2013	08/16/2013
- S1-24 thru S1-26 on Circuit Reroutes for P-4A, P-7B, and P-36A to Reduce Risk of Circuit Failure in Specific Areas	07/29/2013	12/20/2013
- S1-27 thru S1-30 on Sluice Gate Valve Modification for SG-1, SG-2, SG-3, and SG-4 to Prevent Spurious Closure	10/17/2012	03/15/2013
- S1-31 on Fire Barrier Upgrades	09/25/2012	09/23/2013
- S1-32 on NFPA 50A Non-Compliance Corrections	On-going	11/23/2012
- S1-33 on NFPA 10 Non-Compliance Corrections	On-going	01/25/2013
- S1-34 on NFPA 30 Oil Storage Tank Ventilation Air Duct Relocation	03/04/2013	09/27/2013
- S1-35 on MOV's Modification for IN 92-18 issues (NPO)	02/25/2013	08/30/2013

**Enclosure 2 to**

**1CAN081202**

**List of Regulatory Commitments**

### LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Entergy Operations, Inc. (Entergy) in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check one)		SCHEDULED COMPLETION DATE
	ONE-TIME ACTION	CONTINUING COMPLIANCE	
Entergy will submit the License Amendment Request implementing 10 CFR 50.48(c) for Arkansas Nuclear One, Unit 1	✓		August 31, 2013