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1CAN051602

May 19, 2016

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

SUBJECT: Update to Tables S-1 and S-2
Adoption of National Fire Protection Association Standard NFPA-805
Arkansas Nuclear One, Unit 1
Docket No. 50-313
License No. DPR-51

Dear Sir or Madam:

By letter dated January 29, 2014 (Reference 1), Entergy Operations, Inc. (Entergy) submitted a request to amend the Arkansas Nuclear One, Unit 1 (ANO-1) Technical Specifications (TS) and licensing bases to comply with the requirements in 10 CFR 50.48(a), 10 CFR 50.48(c), and the guidance in Regulatory Guide (RG) 1.205, "Risk-Informed Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants." The amendment request followed Nuclear Energy Institute (NEI) 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program under 10 CFR 50.48(c)." This submittal described the methodology used to demonstrate compliance with, and transition to, National Fire Protection Association (NFPA)-805, and included regulatory evaluations, PRAs, change evaluations, proposed modifications for non-compliances, and supporting attachments.

Entergy notified the NRC in a conference call on May 12, 2016, at 1430 eastern time, of plans to revise the wording previously proposed in certain Plant Modification and Implementation Items contained in Attachment S, Tables S-1 and S-2, of the original amendment request, as updated by letter dated March 25, 2016 (Reference 16).

Entergy proposes clarifications to Table S-1, *Plant Modifications*, Items S1-2, S1-3, S1-5, S1-6, and S1-23. Modification items S1-2, S1-3, S1-5, and S1-6 involve installation of an alternate control power source for non-vital 4160 V switchgear A1 and A2, and non-vital 6900 V switchgear H1 and H2. The current wording includes Entergy's plan to install a "redundant" power source when the alternate power source will be "diverse" only, not redundant. Therefore, the "redundant" terms are replaced with the term "diverse". The final risk quantifications provided in the latest Attachment W (Reference 16) are not impacted by the proposed wording change as the original PRA credited only a diverse means of supplying control power to the respective switchgear. The source of this diverse power has remained unchanged since original conception.

ADOL
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Table S-1, Item S1-23, is revised to clarify that modification of the subject Reactor Building purge valve will prevent spurious "opening" of the valve vice spurious "operation," consistent with the wording which follows in the "Proposed Modification" column of the table. Closure of this valve is a conservative measure (provides for Reactor Building isolation) and, therefore, spurious closure need not be addressed, nor does valve closure impact the final risk quantifications provided in the latest Attachment W (Reference 16). Note that operation of the Reactor Building purge system is not an ANO-1 credited safety function; however, isolation of the system (valves closed) is credited as a Reactor Building isolation function. This change is for clarification purposes only and does not impact the original assumptions associated with the ANO-1 transition to NFPA-805.

With respect to Table S-2, *Implementation Items*, one sentence of Implementation Item S2-9 is revised as follows:

The wording proposed in Entergy by letter dated March 25, 2016 (Reference 16):

> *If the as-built change-in-risk from each modification or implementation item, including the procedure changes in Implementation Item S2-6, exceeds RG 1.205 acceptance criteria, the results shall be entered into the corrective action program to evaluate the cause of risk increase and determine appropriate resolution.*

New proposed wording:

> *The PRA review plan will ensure the as-built change-in-risk, including the procedure changes in Implementation Item S2-6, does not exceed the RG 1.205 acceptance criteria, and if it does, the cause of the risk increase will be evaluated and an appropriate resolution will be identified to verify that the acceptance guidelines are met.*

Entergy's March 25, 2016 (Reference 16) letter included an update to Table S-1 which identified those items which have been complete to date (Items S1-9, S1-12, S1-13, S1-14, S1-27, S1-28, S1-29, S1-30, S1-32, and S1-33). No additional Table S-1 items have completed since the Reference 16 submittal; however, Table S-2, Implementation Items S2-3, S2-7, and S2-8 have been completed and Table S-2 updated accordingly (see Attachment 1 of this letter).

To accommodate the above changes, a revised Attachment S, "Modifications and Implementation Items," which contains the updated Tables S-1 and S-2, is included in Attachment 1 of this letter. Because the planned modifications and implementation items are required to be completed as part of the ANO-1 transition to NFPA-805, revised markup and clean copies of the affected Operating License pages are included in Attachments 2 and 3 of this letter, respectively. Although no changes were made to the previously proposed Page 8 of the Operating License, all Operating License pages provided in the original license amendment request (LAR) (Reference 1) as updated by Entergy letter dated March 25, 2016 (Reference 16) are included in this submittal for completeness. Entergy requests the NRC to replace the respective Operating License pages submitted in letter dated March 25, 2016 (Reference 16) with those attached to this letter.

Section 2.c(8) of the Operating License is also revised to add the following sentence at the end of the first bullet under the heading "Other Changes that may be Made Without Prior NRC Approval," to be consistent with the NFPA 805 Operating License approved previously for ANO, Unit 2:

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

The information, as detailed in this letter, with respect to the original Entergy request (Reference 1) has been reviewed and Entergy has determined that the information does not invalidate the no significant hazards consideration included in the Reference 1 letter.

In accordance with 10 CFR 50.91(b)(1), a copy of this application is being provided to the designated Arkansas state official.

This letter contains no new commitments.

If you have any questions 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 May 19, 2016.

Sincerely,

for

JGB/dbb

Attachments:

1. Updated Attachment S – Modifications and Implementation Items
2. Updated Mark-up of Enclosure 2 Operating License Pages
3. Updated Enclosure 3 Revised Operating License Pages

cc: Mr. Marc L. Dapas
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REFERENCES:

1. Entergy letter dated January 29, 2014, *License Amendment Request to Adopt NFPA-805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants (2001 Edition)* (1CAN011401) (ML14029A438)

2. NRC letter dated May 5, 2015, *Arkansas Nuclear One, Unit 1 – Request for Additional Information Regarding License Amendment Request to Adopt National Fire Protection Association Standard 805* (TAC No. MF3419) (1CNA051501) (ML15091A431)

3. Entergy letter dated May 19, 2015, *Response to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN051501) (ML15139A196)

4. Entergy letter dated June 16, 2015, *60-Day Response to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN061501) (ML15167A503)

5. Entergy letter dated July 21, 2015, *90-Day Response to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN071501) (ML15203A205)

6. Entergy letter dated August 12, 2015, *120-Day Response to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN081501) (ML15224A729)

REFERENCES (continued):

7. NRC email dated September 8, 2015, *Arkansas Nuclear One, Unit 1 – 2nd Round Request for Additional Information - ANO-1 NFPA-805 LAR (TAC No. MF3419)* (1CNA091501) (ML15251A220)

8. Entergy letter dated September 22, 2015, *Round 2 Response to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN091501) (ML15265A113)

9. NRC email dated October 6, 2015, *Arkansas Nuclear One, Unit 1 – 2nd Round Part 2 Request for Additional Information - ANO-1 NFPA-805 LAR (TAC No. MF3419)* (1CNA101501) (ML15280A114)

10. Entergy letter dated November 4, 2015, *Second Set of Round 2 Responses to Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN111501) (ML15308A452)

11. Entergy letter dated November 17, 2015, *Clarification of Response to Round 2 Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN111502) (ML15321A076)

12. NRC email dated January 12, 2016, *Arkansas Nuclear One, Unit 1 – 3rd Round Request for Additional Information - ANO-1 NFPA-805 LAR (TAC No. MF3419)* (1CNA011601) (ML16012A049)

13. Entergy letter dated January 15, 2016, *Response to Round 3 Request for Additional Information – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN011601) (ML16015A421)

14. NRC email dated February 3, 2016, *Arkansas Nuclear One, Unit 1 – PRA Integrated Analysis Request for Additional Information - ANO-1 NFPA-805 LAR (TAC No. MF3419)* (1CNA021601)

15. NRC email dated March 10, 2016, *Arkansas Nuclear One, Unit 1 – 4th Round Request for Additional Information - ANO-1 NFPA-805 LAR - TAC No. MF3419* (1CNA031601) (ML16070A131)

16. Entergy letter dated March 25, 2016, *Response to PRA RAI 03 – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN031602) (ML16088A299)

17. Entergy letter dated April 7, 2016, *Response to PRA RAI 19 – Adoption of National Fire Protection Association Standard NFPA-805* (1CAN041601) (ML16099A057)

Attachment 1 to

1CAN051602

Updated Attachment S – Modifications and Implementation Items

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	New Auxiliary Feedwater (AFW) pump: 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. LAR Source: Attachment C, listed as a global modification to reduce risk	ANO plans a modification to install a new AFW pump (common feedwater system for both units) and associated motor operated valves with diverse power sources and controls independent of the existing EFW pumps. The pump will be capable of feeding either SG The new AFW pump will be designed to meet or exceed the flow requirements of the ANO-1 EFW pump P-7B. The new AFW pump proposed design includes: - The capability to be operated from the ANO-1 Control Room and locally. - Electrical isolation from Control Room functions to prevent a fire in the Control Room from affecting local control of AFW components. - Local controls and monitoring instrumentation to ensure proper operation and water flow to the SG.	Yes	Yes	This AFW modification is credited globally from a PRA perspective to provide a reliable additional source of feedwater. The local control panel modification is also credited from a PRA perspective to provide an alternate means to perform required actions outside the ANO-1 Control Room. Manual actions are credited in fire areas that contain redundant safe shutdown equipment. The modification process will ensure these actions are feasible. Compensatory measures have been established until compliance can be achieved by transitioning to a 10 CFR 50.48(c) licensing basis.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-2	High (PRA)	1	Switchgear A-1: In multiple fire areas, a loss of normal DC control power could result in a loss of switchgear A-1. LAR Source: Attachment C, listed as a global modification to reduce risk	ANO plans a modification to install a diverse DC control power supply to switchgear A-1 to eliminate loss of switchgear due to loss of normal DC control power. In the event the normal DC control power source is lost, an automatic transfer to this alternate DC power source will occur. The modification for the backup or alternate DC power source will add a battery eliminator which is supplied from either an ANO-1 or ANO-2 non-1E source via an automatic transfer switch. Installation of automatic transfer switches, cables and electrical conduit is proposed.	Yes	Yes	This modification is credited globally from a PRA perspective. Installation of an alternate A-1 switchgear DC control power source reduces the risk of a fire induced A-1 DC control power cable failure causing a loss of offsite power. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-3	High (PRA)	1	Switchgear A-2: In multiple fire areas, a loss of normal DC control power could result in a loss of switchgear A-2 LAR Source: Attachment C, listed as a global modification to reduce risk	ANO plans a modification to install a diverse DC control power supply to switchgear A-2 to eliminate loss of switchgear due to loss of normal DC control power. In the event the normal DC control power source is lost, an automatic transfer to this alternate DC power source will occur. The modification for the backup or alternate DC power source will add a battery eliminator which is supplied from either an ANO-1 or ANO-2 non-1E source via an automatic transfer switch. Installation of automatic transfer switches, cables and electrical conduit is proposed.	Yes	Yes	This modification is credited globally from a PRA perspective. Installation of an alternate A-2 switchgear DC control power source reduces the risk of a fire induced A-2 DC control power cable failure causing a loss of offsite power. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-4	Med (PRA)	1	Switchgear A-3: In Fire Area I-2, loss of DC control power to 4160kV switchgear A-3 could result in the loss of control functions for Primary Makeup Pump (P-36A), EFW pump (P-7B), Service Water (SW) pump P-4A. LAR Source: Attachment C, Fire Area I-2 Risk Summary, VFDR I2-01-b, VFDR I2-02-a, and VFDR I2-03-c	ANO plans a modification to install a second diverse cable route to the A-3 DC control power. An auctioneering feature will be employed such that a fire induced failure in a single fire zone will not render the DC control function unavailable. Routing of the second red train A-3 switchgear room DC power cables outside the green train A-4 switchgear equipment room in Fire Area 99-M is planned. The new second cable route is expected to impact Fire Zones 100-N, 197-X, 161-B, 159-B, 67-U, and 110-L. The proposed scheme will also ensure availability of the A-3 DC control power should there be a fire in Fire Zones 67-U or 98-J.	Yes	Yes	This modification is credited for Fire Area I-2. In conjunction with the modifications described in items S1-2, S1-25, and S1-26, the second diverse cable route 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, and P-4A. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-5	High (PRA)	1	Switchgear H-1: In multiple fire areas, the loss of normal DC control power to switchgear H-1 could preclude the Reactor Coolant Pumps (RCPs) from being tripped in the Control Room. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR B-1@BOFZ-04, VFDR F-02, VFDR I1-04, and VFDR O-01	ANO plans a modification to install a diverse DC control power supply to H-1 switchgear to eliminate loss of switchgear due to loss of normal DC control power. 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.	Yes	Yes	The modification to install a diverse DC control power supply is credited globally from a PRA perspective. The modification to separate line and load breaker control power is only credited in Fire Area B-1@BOFZ. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-6	High (PRA)	1	Switchgear H-2: In multiple fire areas, the loss of normal DC control power to switchgear H-2 could preclude the RCPs from being tripped in the Control Room. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR B-1@BOFZ-04, VFDR F-02, VFDR I1-04, and VFDR O-01	ANO plans a modification to install a diverse DC control power supply to H-2 switchgear to eliminate loss of switchgear due to loss of normal DC control power. 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.	Yes	Yes	The modification to install a diverse DC control power supply is credited globally from a PRA perspective. The modification to separate line and load breaker control power is only credited in Fire Area B-1@BOFZ. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-7	Med (PRA)	1	A-309, 4160V AC Breaker: In Fire Area B-1@BOFZ, 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) that could challenge the automatic start of the credited Emergency Diesel Generator (EDG). LAR Source: Attachment C, Fire Area B-1@BOFZ Risk Summary, VFDR B-1@BOFZ-01	ANO plans to modify circuits for breaker A-309 to assure the protective features remain intact, i.e., breakers remain tripped and do not impede automatic start of the associated EDG and associated closure of EDG output breaker A-308.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area B-1@BOFZ. Modification to the circuits associated with breaker A-309 is planned to assure the protective features remain intact, i.e., breaker remains tripped and does not impede automatic start of the associated EDG and closure of EDG output breaker (A-308). In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-8	Med (PRA)	1	A-409, 4160V AC Breaker: In Fire Area B-1@BOFZ, 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) that could challenge the automatic start of the credited EDG. LAR Source: Attachment C, Fire Area B-1@BOFZ Risk Summary, VFDR B-1@BOFZ-01	ANO plans to modify circuits for breaker A-409 to assure the protective features remain intact, i.e., breakers remain tripped and do not impede automatic start of the associated EDG and associated closure of EDG output breaker A-408.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area B-1@BOFZ. Modification to the circuits associated with breaker A-409 is planned to assure the protective features remain intact, i.e., breaker remains tripped and does not impede automatic start of the associated EDG and closure of EDG output breaker (A-408). In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-9	Med (PRA)	1	Control Room Cabinet C20: In Fire Area G, Fire Zone 129-F, PRA determined that the installation of smoke detector(s) in Control Room Cabinet C20 will reduce risk of a fire induced circuit and equipment failure. LAR Source: Attachment C, Fire Area G Risk Summary	ANO has installed a smoke detector in ANO-1 Control Room Cabinet C20 in accordance with the NFPA 72, Fire Alarm Detection, code of record. The new smoke detector loop is connected via signal cable to the ANO-1 Control Room Fire Alarm Panel C-463 for trouble and alarm functions.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. The modification to install a smoke detector system in ANO-1 Control Room Cabinet C20 reduces the risk of a fire induced circuit and equipment failure that could result in the loss of Control Room Cabinet C20. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-10	Med (PRA)	1	Air Operated Valve (AOV) CV-1052: In Fire Area G, PRA determined that Quench Tank drain valve CV-1052 control circuit should be modified to preclude spurious operation. CV-1052 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans a modification to add an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening CV-1052 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV circuit failures (hot shorts, open circuits, and short to ground) and can preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-11	Med (PRA)	1	Motor Operated Valve (MOV) CV-1053: 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify CV-1053 by adding an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-12	High (PRA)	1	MOV CV-1221: In Fire Area G, 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. LAR Source: Attachment C, Fire Area G Risk Summary, VFDR G-02-a	ANO has modified CV-1221 to meet the requirements of IN 92-18. This modification added an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts. The circuit modification incorporated an available spare conductor in an existing cable between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. The modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-13	High (PRA)	1	MOV CV-1405: 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 of 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. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR B173-02-b, VFDR B8SEPR-03-b, VFDR C-01-b, and VFDR G-02-c	ANO has modified CV-1405 to meet the requirements of IN 92-18. This modification added an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts. The circuit modification incorporated an available spare cable for the conductor needed between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. This modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-14	High (PRA)	1	MOV CV-1406: In multiple fire areas, PRA determined that Train B ECCS Reactor Building sump suction valve CV-1406 should be modified to meet requirements of 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. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR B-1@120-03-d, VFDR G-02-c, VFDR I1-03-c, and VFDR I3-03-e	ANO has modified CV-1406 to meet the requirements of IN 92-18. This modification added an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts. The circuit modification incorporated an available spare cable for the conductor needed between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. This modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-15			Not Used				
S1-16	Med (PRA)	1	AOV CV-4400: In Fire Area G, PRA determined that Reactor Building sump drain valve CV-4400 control circuit should be modified to preclude spurious operation. CV-4400 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify the control circuit for CV-4400 by adding an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts. The circuit modification plan adds an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening CV-4400 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-17	Med (PRA)	1	MOV CV-4446: 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify CV-4446 by adding an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced MOV circuit failures (hot shorts, open circuits, and short to ground) and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-18	Med (PRA)	1	MOV CV-5611: 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. LAR Source: Attachment C, Fire Area G Risk Summary.	ANO plans to modify CV-5611 by adding an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-19	Med (PRA)	1	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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify CV-5612 by adding an "inhibit" circuit which will preclude spurious opening of the MOV due to intercable or intracable hot shorts.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced MOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-20	Med (PRA)	1	AOV CV-7401: In Fire Area G, PRA determined that Reactor Building purge valve CV-7401 control circuit should be modified to preclude spurious operation. CV-7401 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify the control circuit for CV-7401 by adding an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts. The circuit modification plan adds an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening CV-7401 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-21	Med (PRA)	1	AOV CV-7402: In Fire Area G, PRA determined that Reactor Building purge valve CV-7402 control circuit should be modified to preclude spurious operation. CV-7402 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify the control circuit for CV-7402 by adding an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts. The circuit modification plan adds an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening CV-7402 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-22	Med (PRA)	1	AOV CV-7403: In Fire Area G, PRA determined that Reactor Building purge valve CV-7403 control circuit should be modified to preclude spurious operation. CV-7403 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify the control circuit for CV-7403 by adding an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts. The circuit modification plan adds an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening CV-7403 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-23	Med (PRA)	1	AOV CV-7404: In Fire Area G, PRA determined that Reactor Building purge valve CV-7404 control circuit should be modified to preclude spurious operation. CV-7404 control circuit 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. LAR Source: Attachment C, Fire Area G Risk Summary	ANO plans to modify the control circuit of CV-7404 by adding an "inhibit" circuit which will preclude spurious opening of the AOV due to intercable or intracable hot shorts. The circuit modification plan adds an automatic feature to prevent solenoid or electro-pneumatic valve positioner from opening AOV valve CV-7404 as a result of a fire induced circuit failure in the Control Room.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area G. This modification reduces the risk of fire induced AOV hot short circuit failure and will preclude spurious operation. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-24	Med (PRA)	1	SW Pump P-4A: In Fire Area I-2 circuit impacts may cause a loss of SW pump P-4A. LAR Source: Attachment C, Fire Area I-2 Risk Summary, VFDR I2-02-a	ANO plans a circuit modification to reconfigure the circuit that supports remote operation of SW pump P-4A. Circuits are planned to be reconfigured to avoid Fire Area I-2. Any new raceway or cables 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.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area I-2. This modification to reconfigure the P-4A circuit reduces the risk of a fire induced circuit failure. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-25	Med (PRA)	1	EFW Pump P-7B: In Fire Area I-2 circuit impacts may result in loss of EFW pump P-7B. LAR Source: Attachment C, Fire Area I-2 Risk Summary, VFDR I2-01-b	ANO plans a circuit modification to reroute cables that support remote operation of P-7B. 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.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area I-2. This modification to reroute cables reduces the risk of a fire induced circuit failure. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-26	Med (PRA)	1	Primary Makeup Pump P-36A: In Fire Area I-2 circuit impacts may result in a loss of Primary Makeup pump P-36A. LAR Source: Attachment C, Fire Area I-2 Risk Summary, VFDR I2-03-c	ANO plans a circuit modification to reconfigure cables that support remote operation of P-36A. P-36A circuits are planned to be reconfigured to avoid Fire Area I-2. Any new raceway or cables 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.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area I-2 This modification to reconfigure the P-36A circuits reduces the risk of a fire induced circuit failure. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-27	High (PRA)	1	Sluice Gate Valve SG-1: 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. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR B-1@120-02-c and VFDR C-03-e	ANO has modified Sluice Gate valve SG-1 to remove the potential for spurious closing as a result of a fire induced circuit failure. The modification allows SG-1 to remain open in all PRA fire scenarios. The circuit modification incorporated an available spare conductor in an existing cable between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-28	High (PRA)	1	Sluice Gate Valve SG-2: 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. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR G-05-a	ANO has modified Sluice Gate valve SG-2 to remove the potential for spurious closing as a result of a fire induced circuit failure. The modification allows SG-2 to remain open in all PRA fire scenarios. The circuit modification incorporated an available spare conductor in an existing cable between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-29	High (PRA)	1	Sluice Gate Valve SG-3: 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. LAR Source: Attachment C, listed as a global modification to reduce risk	ANO has modified Sluice Gate valve SG-3 to remove the potential for spurious closing as a result of a fire induced circuit failure. The modification allows SG-3 to remain open in all PRA fire scenarios. The circuit modification incorporated an available spare conductor in an existing cable between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-30	High (PRA)	1	Sluice Gate Valve SG-4: 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. LAR Source: Attachment C, listed as a global modification to reduce risk, VFDR G-05-a	ANO has modified Sluice Gate valve SG-4 to remove the potential for spurious closing as a result of a fire induced circuit failure. The modification allows SG-4 to remain open in all PRA fire scenarios The circuit modification incorporated an available spare conductor in an existing cable between the Control Room cabinet and the 480 V MCC.	Yes	Yes	This modification is credited globally from a PRA perspective. 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. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-31	High (PRA)	C	NFPA 805 non-compliance issues were encountered when smaller fire area were defined such that multiple walls, dampers, penetration seals, and doors were credited and used in the Fire PRA model as rated fire barriers in the NRC regulatory basis for NFPA 805. Multiple walls and doors barriers will require upgrading to comply with NFPA 805. LAR Source: Attachment A, Section 3.11.2	ANO plans to provide an adequate-for-the-hazard evaluation and if necessary a modification to upgrade fire barrier walls, dampers, penetration seals, and doors to rated barriers for those barriers credited for deterministic compliance and subsequently credited in the Fire PRA analysis. These fire barriers below have been previously identified as NRC regulatory basis to ensure compliance with NFPA 805 and have compensatory measures established. Fire barriers to be addressed as identified by EC-1956 are: 15-5, 15-4, 39-5, 44-2, 45-2, 46-4, 64-3, 67-4, 70-7, 72-5, 73-5, 75-2, 75-3, 75-4, 76-2, 76-3, 77-2, 78-2, 79-6, 81-4, 81-6, 81-7, 82-2, 88-1, 88-3, 88-5, 89-1, 89-5, 90-2, 90-4, 93-4, 101-5, 103-2, 103-4, 104-2, 105-2, 120-5, 121-1, 122-5, 123-1, 125-1, 143-1, 144-2, 144-3, 144-5, 144-6, 147-4, 149-2, 162-3, 162-4, 162-5, 170-1, 183-4, and 183-5.	Yes	Yes	This modification will be completed to meet NFPA 805 code requirements. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-32	Low (Code)	C	NFPA 50A, Gaseous Hydrogen Systems, code non-compliance issues were identified in the Hydrogen Gas Bottle Storage Room related to inadequate vent piping and room ventilation. The hydrogen storage room light switch was identified as not meeting Article 501 for Class I, Division 2 locations of the National Electric Code (NEC). LAR Source: Attachment A, Section 3.3.7.1	ANO has modified the ventilation for the Hydrogen Bottle Storage area to ensure compliance with NFPA 50A. In addition, electrical equipment and wiring changes were made to meet the requirements of NFPA 70 (NEC), Article 501 for Class I, Division 2.	No	No	The subject hydrogen gas system bottle storage area is not credited by the PRA. This modification has been completed to meet NFPA 50A code requirements. Compliance with this code is not part of the current licensing basis, therefore, no compensatory measures were needed.
S1-33	Low (Code)	C	NFPA 10, Fire Extinguishers, code non-compliance issues (such as incorrect number of fire extinguishers for travel distance, and incorrect type and size for the hazard area) were identified with ANO portable fire extinguishers. LAR Source: Attachment A, Section 3.7	ANO has resolved NFPA 10 deficiencies identified in CALC-ANOC-FP-09-00009. In general, this modification involved portable fire extinguisher physical relocation, substitution of existing extinguishers, and documentation updates to reflect these plant changes. The proper number of fire extinguishers that meet travel distance requirements in coverage areas, adequately sized fire extinguishers, and the correct type of extinguisher that is rated for the fire hazard in each area have been installed.	No	No	The subject fire extinguishers are not credited in the PRA. This modification has been completed to meet NFPA 10 code requirements. Compliance with this code is not part of the current licensing basis, therefore, no compensatory measures were needed.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-34			Cabinet C539: In Fire Area I-1, impacts against the power supply for EFIC Signal Conditioning Cabinet C539 can result in a loss of instrumentation and the operator cues necessary for post fire shutdown. LAR Source: Attachment C, Fire Area I-1 Risk Summary, VFDR I1-05-a	ANO plans a modification to rework the power circuits from panel RS-1 to C539 that will eliminate the impacts in Fire Area I-1.	Yes	Yes	This modification is credited from a PRA perspective in Fire Area I-1 This modification removes the potential of a loss of instrumentation as a result of fire induced circuit failure. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.
S1-35	Med (92-18)	1	Non Power Operation (NPO) MOVs CV-1050, CV-1410, CV-1404: ANO-1 has no redundancy to the single Reactor Coolant System (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. LAR Source: Attachment D, VFDR NPO-RCS-DHR	ANO plans a modification for CV-1404 to meet the requirements of IN 92-18. This modification adds an "inhibit" circuit which will preclude spurious closing of the MOV due to intercable or intracable hot shorts. Procedural changes are planned to secure MOVs CV-1050 and CV-1410 in the open position by opening breakers to remove power.	No	Yes	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 DHR. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-1 Plant Modifications

Item	Rank	Unit	Problem Statement	Proposed Modification	In FPRA	Comp Measure	Risk Informed Characterization
S1-36	High (PRA)	1	NFPA 13, Standard for the Installation of Sprinkler Systems (1971 Edition), code non-compliance issues were identified in CALC-ANO1-FP-09-00007, Rev. 1, Unit 1 Electrical Penetration. These non-compliance issues are allowable sprinkler spacing exceeded and obstructions blocking sprinkler spray patterns located in the Upper (South and North) Electrical Penetration Rooms and Lower (South and North) Electrical Penetration Rooms. LAR Source: Attachment A, Section 3.9.1 (1)	ANO plans to provide a modification to physically relocate/rework existing sprinklers, add sprinklers, add or rework hangers and fire protection branch line piping, and add sprinkler deflectors to resolve non-compliant code issues and meet NFPA 13 requirements.	Yes	Yes	These modifications will be completed to meet NFPA 13 requirements. The Fire PRA model credited the non-compliant sprinkler systems in the fire areas to reduce the risk in the hot gas layer (HGL) and multi-component analysis (MCA) scenarios. The sprinkler systems were not designed or installed for full sprinkler coverage in these fire areas. In accordance with station directives, compensatory measures per OP-1003.014 have been established as appropriate.

Table S-2 items provided below are those items (procedure changes, process updates, and training to affected plant personnel) that will be completed prior to the implementation of new NFPA 805 fire protection program.

Table S-2 Implementation Items

Item	Unit	Description	LAR Section / Source
S2-1	C	Develop a monitoring program required by NFPA 805 that will include a process to monitor and trend the fire protection program based on specific goals established to measure effectiveness.	LAR Section 4.6 and Attachment A, Section 3.2.3 (3)
S2-2	1	Revise or develop fire protection flushing activity to perform fixed water spray system flushing and drainage of underground lead-in connections in accordance with NFPA 15, 1977 Edition Code.	Attachment A, Section 3.9.1 (2)
S2-3	C	Entergy has revised appropriate fire protection administrative procedures to include the following: • In accordance with FAQ 06-0020, the term "applicable NFPA Standards" is considered to be equivalent to those NFPA Standards identified in the current licensing basis (CLB) for existing procedures and systems in the fire protection program that are transitioning to NFPA 805. New Fire Protection Systems would be subject to the most current code or standard. • Terminology for zero transient combustibles and changes needed to support Fire PRA assumptions.	Attachment A, Section 3.3.1.2 (5)
S2-4	1	Revise existing procedure(s) or develop new procedure(s) for NPO required to transition to NFPA 805 based upon insights gained from ANO-1 NPO calculation.	Attachment D, VFDR NPO-Procedure
S2-5	1	Revise operator manual action (OMA) procedures/documents to include feasibility criteria in FAQ 07-0030 for the recovery actions listed in Table G-1 of Attachment G, Recovery Action Transition.	Attachment G, Step 4
S2-6	C	Develop or revise technical documents and procedures that relate to new Fire Protection design and licensing basis (e.g., ANO Fire Protection Program, OP-1003.014, Technical Requirements Manual, Design Basis Document, Pre-Fire Plans, Maintenance and Surveillance Procedures, Configuration Control Program, Training and Qualification Guidelines, etc.) as required for implementation of NFPA 805.	LAR Sections 4.7.1, 4.7.2, and 4.7.3, Attachment E Table E-1
S2-7	1	Entergy has completed a revision to CALC-ANOC-FP-09-00007 for NFPA 30 to update the code report for Oil Tank T-25 dike/berm compliance and has performed an engineering evaluation for Oil Tank T-26 in tank vault, Fire Area B-1, Fire Zone 187 DD, with respect to the potential oil leakage path at the air supply duct location in the vault wall near the floor via the supply duct outside of the vault.	Attachment A, Section 3.3.8
S2-8	1	Entergy has completed an evaluation which determined that Oil Tank T-29 supports are acceptable in accordance with American Petroleum Institute (API) and National Fire Protection Association (NFPA) codes/standards, since T-29 supports documentation from construction is not available. Straps were added to provide additional assurance that the tank would remain in its saddle following a seismic event.	Attachment A, Section 3.3.8

Table S-2 Implementation Items

Item	Unit	Description	LAR Section / Source
S2-9	1	Validate the change in risk by revising the FPRA model for each modification or implementation item completed that is credited either directly or indirectly by PRA. The PRA review plan will ensure the as-built change-in-risk, including the procedure changes in Implementation Item S2-6, does not exceed the RG 1.205 acceptance criteria, and if it does, the cause of the risk increase will be evaluated and an appropriate resolution will be identified to verify that the acceptance guidelines are met. The FPRA update will be performed in accordance with Entergy fleet PSA Maintenance procedure EN-DC-151, Section 5.2.	LAR Section 4.8.2
S2-10	1	Revise drawings and pre-fire plans for Fire Area I-1, Fire Zone 98-J corridor; since this wall will be credited by PRA as a radiant energy barrier wall with Door 57. PRA requires corridor to be divided or split into two separate fire compartments at C-4 Line wall on EL. 372. This division of the Fire Zone 98-J corridor will reduce the risk in the HGL/MCA scenarios.	Attachment C, Fire Area I-1 Fire Zone 98-J

Attachment 2 to

1CAN051602

Updated Mark-up of Enclosure 2 Operating License Pages

(8) Fire Protection

Entergy Operations, Inc.~~EOI~~ shall implement and maintain in effect all provisions of the approved f~~F~~ire p~~P~~rotection p~~P~~rogram ~~as described in Appendix 9A to the SAR and as approved in the Safety Evaluation dated March 31, 1992, subject to the following provision:~~that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated January 29, 2014, and supplements dated May 19, 2015, June 16, 2015, July 21, 2015, August 12, 2015, September 22, 2015, November 4, 2015, November 17, 2015, January 15, 2016, March 25, 2016, April 7, 2016, and May 19, 2016, and as approved in the SE dated _____. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval,

~~1. AP&L[1] may proceed with and is required to complete the modifications identified in Paragraphs 3.1 through 3.19 of the NRC's Fire Protection Safety Evaluation on the facility dated August 22, 1978, and supplements thereto. These modifications shall be completed as specified in Table 3.1 of the Safety Evaluation Report or supplements thereto. In addition, the licensee may proceed with and is required to complete the modifications identified in Supplement 1 to the Fire Protection Safety Evaluation Report, and any future supplements. These modifications shall be completed by the dates identified in the supplement.~~

~~2. T~~the licensee may make changes to the ~~approved f~~Fire p~~P~~rotection p~~P~~rogram without prior approval of the Commission ~~only~~ if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied~~would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire~~.

Risk-Informed Changes that may be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at ANO-1. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

~~[1] The Original licensee authorized to possess, use, and operate the facility was AP&L. Consequently, certain historical references to AP&L remain in the license conditions.~~

1. Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

2. Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7}/year (yr) for CDF and less than 1×10^{-8}/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

(9) Mitigation Strategies

The licensee shall develop and maintain strategies for addressing large fires and explosions that include the following key areas:

1. Fire fighting response strategy with the following elements:

   (a) Pre-defined coordinated fire response strategy and guidance
   (b) Assessment of mutual aid fire fighting assets
   (c) Designated staging areas for equipment and materials
   (d) Command and control
   (e) Training of response personnel

Moved to Page 7

2. Operations to mitigate fuel damage considering the following:

   (a) Protection and use of personnel assets
   (b) Communications
   (c) Minimizing fire spread
   (d) Procedures for implementing integrated fire response strategy
   (e) Identification of readily-available pre-staged equipment
   (f) Training on integrated fire response strategy
   (g) Spent fuel pool mitigation measures

3. Actions to minimize release to include consideration of:

   (a) Water spray scrubbing
   (b) Dose to onsite responders

~~[4] The Original licensee authorized to possess, use, and operate the facility was AP&L. Consequently, certain historical references to AP&L remain in the license conditions.~~

Other Changes that may be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

   Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

   The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

   - Fire Alarm and Detection Systems (Section 3.8);
   - Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
   - Gaseous Fire Suppression Systems (Section 3.10); and,
   - Passive Fire Protection Features (Section 3.11).

   This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that have No More than Minimal Risk Impact

   Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC SE dated _____ to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

(10) Upon implementation of Amendment 239 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.9.4, in accordance with Specifications 5.5.5.c.(i), 5.5.5.c.(ii), and 5.5.5.d, shall be considered met. Following implementation:

1. The first performance of SR 3.7.9.4, in accordance with Specification 5.5.5.c.(i), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

2. The first performance of the periodic assessment of CRE habitability, Specification 5.5.5.c.(ii), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

3. The first performance of the periodic measurement of CRE pressure, Specification 5.5.5.d, shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

3. This renewed license is effective as of the date of issuance and shall expire at midnight, May 20, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
Jon R. Johnson

Jon R. Johnson, Acting Director
Office of Nuclear Reactor Regulation

Attachment:
Appendix A - Technical Specifications and
Technical Specifications Bases (ML011710071 and ML011710100)

Date of Issuance: June 20, 2001

Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. below, risk-informed changes to the Entergy Operations, Inc. fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2. above.

2. The licensee shall implement the modifications to its facility, as described in Table S-1, "Plant Modifications," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, prior to startup from the second refueling outage following issuance of the Safety Evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of the modifications.

3. The licensee shall complete the implementation items as listed in Table S-2, "Implementation Items," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, within six months after issuance of the Safety Evaluation.

(9) Mitigation Strategies

The licensee shall develop and maintain strategies for addressing large fires and explosions that include the following key areas:

1. Fire fighting response strategy with the following elements:

   (a) Pre-defined coordinated fire response strategy and guidance
   (b) Assessment of mutual aid fire fighting assets
   (c) Designated staging areas for equipment and materials
   (d) Command and control
   (e) Training of response personnel

From Page 5

2. Operations to mitigate fuel damage considering the following:

   (a) Protection and use of personnel assets
   (b) Communications
   (c) Minimizing fire spread
   (d) Procedures for implementing integrated fire response strategy
   (e) Identification of readily-available pre-staged equipment
   (f) Training on integrated fire response strategy
   (g) Spent fuel pool mitigation measures

3. Actions to minimize release to include consideration of:

   (a) Water spray scrubbing
   (b) Dose to onsite responders

From Page 6

(10) Upon implementation of Amendment 239 adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.9.4, in accordance with Specifications 5.5.5.c.(i), 5.5.5.c.(ii), and 5.5.5.d, shall be considered met. Following implementation:

1. The first performance of SR 3.7.9.4, in accordance with Specification 5.5.5.c.(i), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

2. The first performance of the periodic assessment of CRE habitability, Specification 5.5.5.c.(ii), shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

3. The first performance of the periodic measurement of CRE pressure, Specification 5.5.5.d, shall be within 15 months of the approval of TSTF-448. SR 3.0.2 will not be applicable to this first performance.

3. This renewed license is effective as of the date of issuance and shall expire at midnight, May 20, 2034.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by:
Jon R. Johnson

Jon R. Johnson, Acting Director
Office of Nuclear Reactor Regulation

Attachment:
Appendix A - Technical Specifications and
Technical Specifications Bases (ML011710071 and ML011710100)

Date of Issuance: June 20, 2001

Attachment 3 to

1CAN051602

Updated Enclosure 3 Revised Operating License Pages

(8) Fire Protection

Entergy Operations, Inc. shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request dated January 29, 2014, and supplements dated May 19, 2015, June 16, 2015, July 21, 2015, August 12, 2015, September 22, 2015, November 4, 2015, November 17, 2015, January 15, 2016, March 25, 2016, April 7, 2016, and May 19, 2016, and as approved in the SE dated _____. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval,

Risk-Informed Changes that may be Made Without Prior NRC Approval

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at ANO-1. Acceptable methods to assess the risk of the change may include methods that have been used in the peer-reviewed fire PRA model, methods that have been approved by NRC through a plant-specific license amendment or NRC approval of generic methods specifically for use in NFPA 805 risk assessments, or methods that have been demonstrated to bound the risk impact.

1. Prior NRC review and approval is not required for changes that clearly result in a decrease in risk. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

2. Prior NRC review and approval is not required for individual changes that result in a risk increase less than 1×10^{-7}/year (yr) for CDF and less than 1×10^{-8}/yr for LERF. The proposed change must also be consistent with the defense-in-depth philosophy and must maintain sufficient safety margins. The change may be implemented following completion of the plant change evaluation.

Other Changes that may be Made Without Prior NRC Approval

1. Changes to NFPA 805, Chapter 3, Fundamental Fire Protection Program

   Prior NRC review and approval are not required for changes to the NFPA 805, Chapter 3, fundamental fire protection program elements and design requirements for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is functionally equivalent or adequate for the hazard. The licensee may use an engineering evaluation to demonstrate that a change to NFPA 805, Chapter 3 element is functionally equivalent to the corresponding technical requirement. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard.

   The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

   - Fire Alarm and Detection Systems (Section 3.8);
   - Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
   - Gaseous Fire Suppression Systems (Section 3.10); and,
   - Passive Fire Protection Features (Section 3.11).

   This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that have No More than Minimal Risk Impact

   Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC SE dated _____ to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

Transition License Conditions

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by 2. below, risk-informed changes to the Entergy Operations, Inc. fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in 2. above.

2. The licensee shall implement the modifications to its facility, as described in Table S-1, "Plant Modifications," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, prior to startup from the second refueling outage following issuance of the Safety Evaluation. The licensee shall maintain appropriate compensatory measures in place until completion of the modifications.

3. The licensee shall complete the implementation items as listed in Table S-2, "Implementation Items," Attachment S, of Entergy Operations, Inc. letter 1CAN051602, dated May 19, 2016, within six months after issuance of the Safety Evaluation.

(9) Mitigation Strategies

The licensee shall develop and maintain strategies for addressing large fires and explosions that include the following key areas:

1. Fire fighting response strategy with the following elements:

   (a) Pre-defined coordinated fire response strategy and guidance
   (b) Assessment of mutual aid fire fighting assets
   (c) Designated staging areas for equipment and materials
   (d) Command and control
   (e) Training of response personnel

2. Operations to mitigate fuel damage considering the following:

   (a) Protection and use of personnel assets
   (b) Communications
   (c) Minimizing fire spread
   (d) Procedures for implementing integrated fire response strategy
   (e) Identification of readily-available pre-staged equipment
   (f) Training on integrated fire response strategy
   (g) Spent fuel pool mitigation measures

3. Actions to minimize release to include consideration of:

   (a) Water spray scrubbing
   (b) Dose to onsite responders

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