200 Exelon Way
Kennett Square, PA 19348
www.constellation.com

10 CFR 50.90

JAFP-22-0032
June 16, 2022

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

James A. FitzPatrick Nuclear Power Plant
Renewed Facility Operating License No. DPR-59
NRC Docket No. 50-333

Subject: Response to Request for Additional Information for James A. FitzPatrick Nuclear Power Plant to Adopt Risk Informed Completion Times TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b." and 10 CFR 50.69, "Risk-Informed categorization and treatment of structures, systems and components for nuclear power reactors."

References:

1. Letter from D. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Technical Specifications to Adopt Risk-Informed Completion Times TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," dated July 30, 2021 (ML21211A053)

2. Letter from D. Gudger (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Application to Adopt 10 CFR 50.69, "Risk-Informed categorization and treatment of structure, systems and components for nuclear power reactors," dated July 30, 2021 (ML21211A078)

3. Letter from J. Poole (Senior Project Manager, U.S. Nuclear Regulatory Commission) "James A. FitzPatrick Nuclear Power Plant – Audit Plan in Support of Review of License Amendment Request Regarding TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4B" and 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors" (EPID L-2021-LLA-0143 and EPID L-2021-LLA-0142)" dated October 22, 2021 (ML21285A149)

By letters dated July 30, 2021 (References 1 and 2), Exelon Generation Company, LLC (Exelon) requested to change the James A. FitzPatrick Nuclear Power Plant (JAF) Technical Specification (TS). The proposed amendments would modify TS requirements to permit the use of Risk Informed Completion Times in accordance with TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b," (ADAMS Accession No. ML21211A053) and modify the licensing basis in accordance with the application to adopt 10 CFR 50.69, "Risk-Informed categorization and treatment of structures, systems and components for nuclear power reactors."

By email dated May 4, 2022 (Reference 3), the NRC provided Requests for Additional Information (RAI) to support their continued review of References 1 and 2. Attachment 1 to this letter provides a response to the RAIs. Attachment 2 to this letter provides the revised TS markups to address the RAIs. The information provided in Attachment 2 to this letter supersedes the information provided in Attachments 2 and 3 of Reference 1 for TS page 3.8.7-1 and the associated Basis pages and inserts. All other information in Attachments 2 and 3 of Reference 1 remains unchanged.

Constellation Energy Generation, LLC (CEG) has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the NRC in Reference 1 and 2. The supplemental information provided in this letter does not affect the bases for concluding that the proposed license amendments do not involve a significant hazards consideration. Furthermore, the supplemental information provided in this letter does not affect the bases for concluding that neither an environmental impact statements nor an environmental assessment needs to be prepared in connection with the proposed amendments.

There are no commitments contained in this response.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of New York of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning this letter, please contact Jessie Hodge at (610) 765-5532.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 16th day of June 2022.

Respectfully,

David T. Gudger

David T. Gudger
Senior Manager - Licensing
Constellation Energy Generation, LLC

Attachments:
1. Response to Request for Additional Information
2. Revised Technical Specification and Technical Specification Basis Marked-Up Pages

| cc: | | |
|---|---|---|
| | USNRC Region I, Regional Administrator | w/ attachments |
| | USNRC Senior Resident Inspector, FitzPatrick | " |
| | USNRC Project Manager, FitzPatrick | " |
| | A. L. Peterson, NYSERDA | " |

**ATTACHMENT 1**

**License Amendment Request**

**James A. FitzPatrick Nuclear Power Plant**

**Docket No. 50-333**

**Response to Request for Additional Information**

***APLA RAI 01 – Open Phase Condition***

*Section C.1.4 of Regulatory Guide (RG) 1.200 states the base (e.g., Model of Record) Probabilistic Risk Assessment (PRA) is to represent the as-built, as-operated plant to the extent needed to support the application. Furthermore, the licensee is to have a process that identifies updated plant information that necessitate changes to the base PRA model.*

*From the revised voluntary initiative[1] and resulting industry guidance in Nuclear Energy Institute (NEI) 19-02[2] on estimating Open Phase Condition (OPC) and Open Phase Isolation System (OPIS) risk, it is understood that the risk impact of an OPC can vary widely dependent on electrical switchyard configuration and design. In light of these observations, provide the following information:*

*a) Discuss FitzPatrick's evaluation of the risk impact associated with OPC events including the likelihood of OPC initiating plant trips and the impact of those trips on PRA-modeled structures, systems, and components (SSCs). Also, explain whether an OPIS has been installed at FitzPatrick and if it has been installed, then discuss its functionality and any operator actions needed to operate the system or needed in response to the system.*

*b) Clarify whether any installed OPIS equipment and associated operator actions are credited in the PRAs that support this application. If OPIS equipment and associated operator actions are credited, then provide the following information:*

*i. Describe the OPIS equipment and associated actions that are credited in the PRA models.*

*ii. Describe the impact that this treatment, if any, has on key assumptions and sources of uncertainty for the categorization process.*

*iii. Discuss human reliability analysis methods and assumptions used for crediting OPIS alarm manual response.*

*iv. Discuss how OPC related scenarios are modelled for non-internal event scenarios such as fire, seismic, flooding, high winds, tornado, and other external events.*

*v. Regarding inadvertent OPIS actuation:*

*a. Explain whether scenarios regarding inadvertent actuation of the OPIS, if applicable, are included in the Real Time Risk (RTR) model that supports the risk-informed completion time (RICT) calculations.*

---

*[1] Doug True to Ho Nieh, Ltr re: "Industry Initiative on Open Phase Condition, Revision 3," dated June 6, 2019 (ADAMS Accession No. ML19163A176).*
*[2] Nuclear Energy Institute (NEI) 19-02, "Guidance for Assessing Open Phase Condition Implementation Using Risk Insights," Revision 0, April 2019 (ADAMS Accession No. ML19122A321).*

*b. If inadvertent OPIS actuation scenarios are not included in the RTR model, then provide justification with basis that confirms the exclusion of this inadvertent actuation has no adverse impact to the RICT program.*

*c) If OPC and OPIS are not included in the application PRA models (whether OPIS equipment is installed or not), provide justification with basis that confirms the exclusion of this failure mode and mitigating system has no adverse impact to the RICT program.*

*d) As an alternative to part (c), propose a mechanism to ensure that OPC-related scenarios are incorporated into the application PRA models prior to implementing the RICT program.*

**RAI Response for APLA RAI 01 – Open Phase Condition**

**Response part 1a:**

JAF performed a risk evaluation (JF-MISC-012) to support the NEI Voluntary Industry Initiative response to the NRC bulletin 2012-01 regarding the potential impact of an open phase condition. JAF installed open phase detection (OPD, sometimes called Open Phase Isolation System, or OPIS) in accordance with the voluntary industry initiative. The purpose of the OPD is to detect the presence of an OPC and actuate an automatic trip of the affected circuit and/or actuate an alarm in the main control room. The purpose of the risk evaluation was to evaluate the difference in risk between two different alternatives of using the OPD; enabling the automatic trip function associated with the open phase detection, or rely on the alarm function to cue an operator response to remove the open phase condition from affecting the plant's class 1e emergency power distribution.

In the risk evaluation, the potential for a plant trip due to OPC in the offsite power (115kV) system was assessed. In normal configuration, an OPC in the 115kV system will not result in an automatic or immediate manual plant trip, because the class 1e emergency buses are not normally energized by the 115kV power system during normal operations. The 115kV system normally supplies the class 1e emergency buses after plant trip and transfer of those buses to the Reserve Station Service Transformers (RSSTs). An OPC may result in a manual shutdown if the offsite power circuit is declared inoperable and operability is not restored within the technical specification limited condition for operation time limit.

The OPD monitors for the presence of an OPC affecting the input to the RSSTs. The OPD requires a minimum load on the RSST in order to function and during normal operations, the OPD is not enabled due to the low RSST load condition. If a plant trip occurs and the emergency bus loads transfer to the RSSTs with an OPC present, the OPD would activate an alarm in the main control room; operators are to respond to the alarm by removing the RSST supply to the emergency bus and allowing the emergency diesel generators to start and supply the bus.

**Response part 1b:**

The installed OPD (OPIS) and associated operator actions are not credited in the PRAs that support this application.

**Response part 1c:**

The exclusion of the failure mode and system has no adverse impact to the RICT program because the original OPC evaluation is conservative and the potential impact to the RICTs using this conservative model is small.

The OPC risk evaluation was used to perform a set of select RICT sample calculations. Both the full power internal events (FPIE) and fire PRA models were used to quantify the sample calculations. The OPC model was revised to support the quantification of CDF and LERF estimates and refined to represent a more realistic risk contribution relative to the original NEI 19-02 evaluation. Changes to the OPC risk evaluation include:

1) Addition of modeling for the DC power supply supporting the OPD. This supply was not required to generate the NEI 19-02 calculation of difference in risk between the automatic trip function and alarm cued operator response for the NEI voluntary industry initiative because failure of the supply would fail both the automatic trip and alarm functions. However, the modeling is needed to reflect the total risk contribution and to facilitate quantification of the fire-induced failure of the OPD for the fire PRA portion of the RICT sample calculations.

2) Revision of the OPC probability to add credit for detection of an OPC via operator check of 115 kV phase currents (performed approximately once per every 4 hours) and surveillance of 115kV phase currents (performed weekly). This reduces the probability an OPC is present in the 115kV system after a plant trip and transfer of emergency buses to the RSSTs.

3) Addition of the RICT sample calculations and comparison to the original sample calculations and discussion of the results.

An OPC can prevent plant SSCs from starting when demanded because the OPC can prevent automatic transfer of the emergency bus to an alternate power supply if the OPC prevents the plant undervoltage relay logic from being satisfied (failure of one phase does not satisfy logic that requires two or more phase voltages to be low to generate the undervoltage signal). Thus, AC power-related technical specification sample calculations were quantified. Including the OPC and OPD in the PRA model would also increase the total CDF and LERF estimates in the PRA. LERF could be disproportionately impacted in technical specification RICT cases associated with inoperability of containment air locks and containment penetrations. These sample calculations were also quantified. The results of the sample calculations show the OPC has only a small impact on the RICTs. Table 1 shows the OPC sample calculation RICTs compared to the original sample calculation RICTs.

**Table 1: Potential Impact to RICTs**

| Technical Specification | LCO Condition | Original 2017A RICT in Days | 2017A with OPC RICT in days | %Change in RICT |
|---|---|---|---|---|
| 3.6.1.2.C | One or more primary containment air locks inoperable for reasons other than Condition A or B. | 28 (28.81) | 27 (26.52) | -7.95% |
| 3.6.1.3.A | One or more penetration flow paths with one PCIV inoperable for reasons other than conditions D and E. | 28 (27.73) | 26 (25.60) | -7.68% |
| 3.6.1.3.C | One or more penetration flow paths with one PCIV inoperable for reasons other than conditions D and E. | 28 (27.73) | 26 (25.61) | -7.65 |
| 3.6.1.3.E | One or more penetration flow paths with LPCI system or CS system testable check valve leakage limit not met | 29 (28.81) | 27 (26.52) | -7.95 |
| 3.8.1.A | One required offsite circuit inoperable. | 30 (169.73) | 30 (166.37) | 0.0 |
| 3.8.1.B | One required EDG subsystem inoperable. | 30 (248.99) | 30 (239.47) | 0.0 |
| 3.8.1.C | Two required offsite circuits inoperable. | 20 (19.74) | 20 (19.60) | -0.7 |
| 3.8.1.D | One required offsite circuit inoperable AND One required DG inoperable. | 30 (54.07) | 30 (52.03) | 0.0 |
| 3.8.1.E | Two EDG subsystems inoperable. | 18 (17.74) | 18 (17.55) | -1.1 |

There is potentially small impact (2 days) to the LERF-specific containment airlock and penetration RICTs that are close to the 30-day back stop, and a small impact (<1 day) to two AC power related RICTs. Although there is a potential small impact to the RICTs, these estimates are conservative for the following reasons:

1. The OPC is assumed to cause failure of normally running or expected to start three-phase motor loads supplied by the emergency bus during the time the operator diagnoses the presence of the OPC in response to the OPC alarm. The motors may only trip and may be able to re-start. Credit for re-start of tripped motor loads should decrease the risk estimates and increase the RICT estimates.
2. Alarms and status lights associated with three phase motor loads that trip or fail to start are expected to aid in diagnoses of the open phase condition. However, the model assumes the operator will fail to diagnose the OPC if the OPD alarm is failed or unavailable. Credit for operator action with the OPD failed or out of service should decrease the risk estimates and increase the RICT estimates.
3. The connections between disconnect switches 10015 and 10025 and associated RSST T2 and T3 are walked-by during operator rounds, inspected during a thirty day transformer yard walkdown, and during thermography performed approximately every six months. These inspections are not performed strictly for the purpose of detecting an OPC, but are expected to provide some chance of detecting an OPC. Credit for detection of the OPC via alternate means should reduce the risk estimates and increase the RICT estimates.

Therefore, with little impact to the sample RICTs and consideration of the conservative nature of the OPC model, including OPC in the PRA model would result in little impact to the RICT estimates and OPC does not need to be modeled in the JAF RICT application PRA model.

***APLA RAI 02 – PRA Model for TS LCO 3.3.7.2.A***

*NEI TR 06-09-A (ADAMS Accession No. ML122860402) specifies that where the SSC is not modeled in the PRA, and its impact cannot otherwise be quantified using conservative or bounding approaches, the Risk-Managed Technical Specifications (RMTS) are not applicable, and the existing front-stop completion time (CT) would apply. The U.S. Nuclear Regulatory Commission (NRC) safety evaluation to NEI TR 06-09-A (ADAMS Accession No. ML18267A259) further specifies under Limitations and Conditions number 9 that the LAR should confirm "that the CRMP [configuration risk management program] tools can be readily applied for each TS LCO [Technical Specification Limiting Condition for Operation] within the scope of the plant-specific RMTS submittal." Furthermore, Section 2.3, Item 11 of TSTF-505, Rev. 2 states in part, [t]he traveler will not modify Required Actions for systems that do not affect core damage frequency (CDF) or large early release frequency (LERF) or for which a RICT cannot be quantitatively determined.*

a. *For TS 3.3.7.2.A in response to APLA Audit Question 08.e the licensee provides in supplement dated March 4, 2022 (ADAMS Accession No. ML22063A135) for calculating a RICT for TS LCO 3.3.7.2.A, the PRA model will either 1) not include credit for fission product scrubbing by the condenser, or 2) will credit fission product scrubbing by, if justified, "creating a condenser scrubbing model to be used for stuck open MSIV scenarios." This implies that a RICT for this equipment out of service (OOS) configuration can be calculated regardless of whether a condenser scrubbing model is available, which is contrary to the comment in LAR Table E1-1 for this LCO that "the SSCs are not modeled." The supplement further states that "[r]elated to the mechanical vacuum pump isolation function in RICT calculations, if failed or unavailable, this would likely be assumed to fail any credit taken for condenser pathway scrubbing." The implication of this statement is that the condenser scrubbing model would likely not be credited when calculating a RICT for this LCO. The NRC staff is unable to make a determination that the scope of the PRA model and RTR tool are appropriate for the RICT application. Address the following:*

   1. *Identify and describe what SSCs modeled in the PRAs are being used as the surrogate for the condenser air removal pump isolation instrumentation and confirm that their failure rate is bounding with respect to the failure rate for the instrumentation.*

   2. *Confirm that a RICT can be calculated using the current PRA models without the new condenser scrubbing model consistent with the excerpts provided above from NEI TR 06-09-A and provide an estimate of the RICT for TS LCO 3.3.7.2.A assuming no credit for condenser scrubbing.*

   3. *Explain what the purpose is for the condenser scrubbing model proposed with respect to calculating a RICT for TS LCO 3.3.7.2. A.*

   4. *Alternatively, remove TS LCO 3.3.7.2.A from the scope of the RICT program.*

*b. For TS 3.6.1.6.C in Attachment 6 of the license amendment request the licensee provides an implementation item to update the PRA models to include SSCs prior to exercising the RICT program for this TS.*

*1. Identify and describe what SSCs are presently modeled in the PRA, and the surrogate if applicable, used to assess the failure of the function for TS 3.6.1.6.C.*

*2. Confirm that a RICT can be determined using the current PRA models consistent with the excerpt provided above from NEI 06-09-A and provide an estimate of the RICT for the TS LCO 3.6.1.6.C.*

*3. Alternatively, remove TS LCO 3.6.1.6.C from the scope of the RICT program.*

**RAI Response for APLA RAI 02.a – PRA Model for TS LCO 3.3.7.2.A**

**Response part a.1:**

The current JAF PRA models do not have an adequate surrogate to represent the risk significance of the condenser air removal isolation function.

**Response part a.2:**

Because the current JAF PRA models do not have an adequate surrogate to represent the risk significance of the condenser air removal isolation function a RICT evaluation cannot be performed without model modification.

**Response part a.3:**

The condenser scrubbing model was envisioned as a model addition which would provide a surrogate for RICT evaluation of the condenser air removal isolation function. Due to uncertainties associated with crediting the condenser for a severe accident capability which it was not designed for and the level of effort to account for these uncertainties, the development of a condenser scrubbing model has been postponed. Therefore, without an adequate surrogate in existing or updated models, JAF is not planning on performing RICT evaluation of the condenser air removal isolation function.

**Response part a.4:**

Because the development of a condenser scrubbing model has been postponed, the condenser air removal isolation function (TS LCO 3.3.7.2.A) will be removed from the RICT program.

**Response part b.1:**

The Technical Specification 3.6.1.6.C condition is “One line with one or more reactor building to suppression chamber vacuum breakers inoperable for opening”.

The “Failure to Open” function of Reactor Building to Torus Vacuum Breakers was previously not modeled because this failure mode was screened based on low importance using expert judgement. For the RICT program, it is desired to model this failure mode of these components because the “Failure to Open” function is included as a specific technical specification.

The Fail to Open Function of the Torus to Reactor Building vacuum breakers has been added to an Application Specific PRA model (Ref. APLA-RAI-2-1) and this modeling is representative of what will be used in the configuration risk management tool. This Application Specific Model (ASM) was developed from the existing model of record (MOR).

The Reactor Building to Torus Vacuum Breakers are designed to normally remain closed and the spurious open failure mode had been included in the MOR PRA as a contributor to Torus vapor suppression bypass.

The Vacuum breakers are also designed to open to prevent dangerously low containment pressure. The Failure to Open on Demand function had not been previously included in the MOR so it has been explicitly added to the ASM. The Open on Demand function of the Reactor Building to Torus Vacuum Breakers is designed to respond to negative primary containment pressure and equilibrate pressure to avoid containment implosion. Such conditions could occur following a LOCA in the drywell followed by prolonged operation of Drywell Spray. Prolonged operation of Drywell Spray could reduce pressure below atmospheric if the 2.7 psig trip of Containment Spray fails AND operators fail to manually control Drywell Spray per step D.4.14 of OP-13B (Reference APLA-RAI-2-2).

Vacuum breaker isolation valves 27AOV-101A and 27AOV-101B must open to allow vacuum relief and remain closed to isolate primary containment. The normally closed, fail closed position of the vacuum breaker isolation valves, along with the vacuum breaker check valves (27VB-6 and 27VB-7) provide the protection for primary containment. Supplying the isolation valves with a safety-related pneumatic supply (N2) through 27SOV-101A and 27SOV-101B provides the capability to maintain primary containment integrity for either high or low containment pressure. The power supplies for 27AOV101A, B; 27SOV101A, B are 71ACA2 and 71ACB2. These are ultimately supplied by EDG-backed buses 10500 and 10600, respectively.

Figure APLA-RAI-2-1 shows the configuration of the vacuum breakers. Figure APLA-RAI-2-2 shows the relevant portion of the Nitrogen system and Figure APLA-RAI-2-3 shows the relevant power supply circuits.

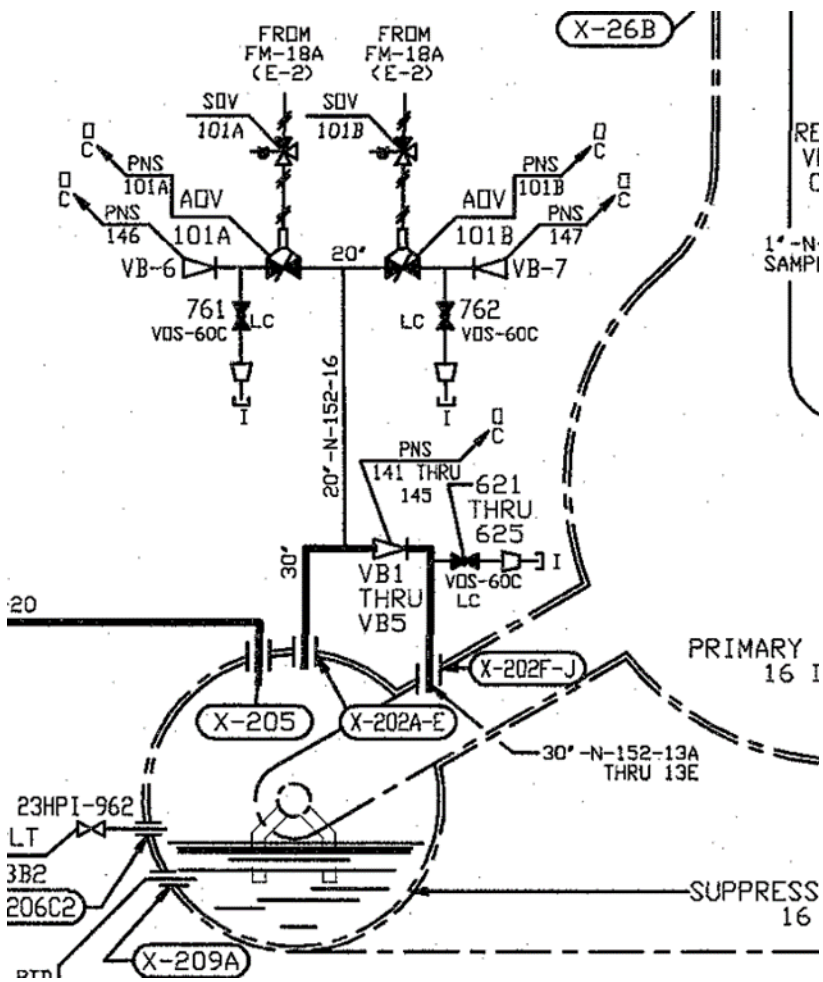


Figure APLA-RAI-2-1 Reactor Building to Torus Vacuum Breakers (FM-18B, Rev 045)

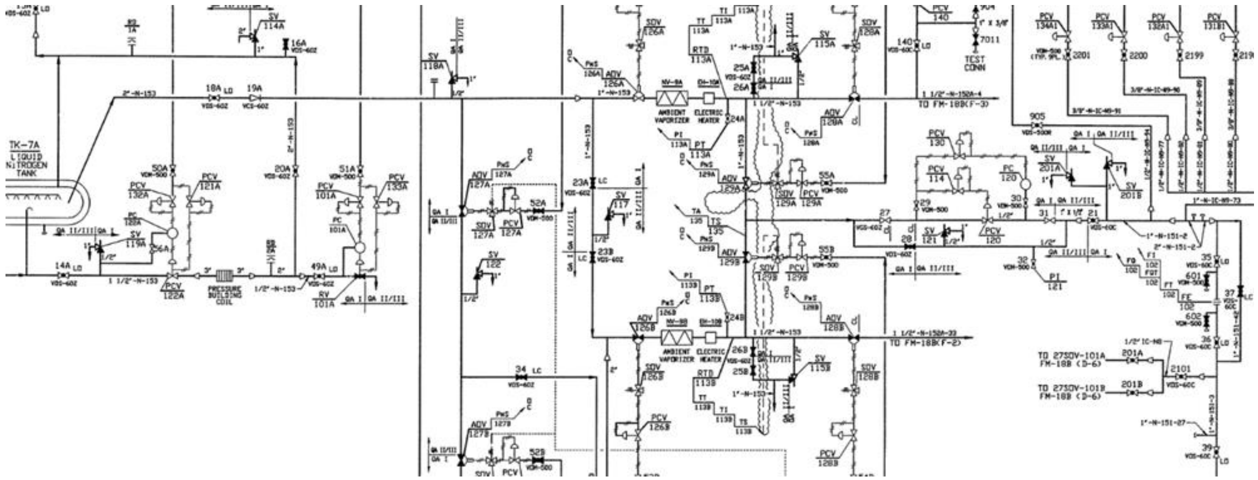


Figure APLA-RAI-2-2 – Nitrogen Supply (FM-18A, Rev. 057)

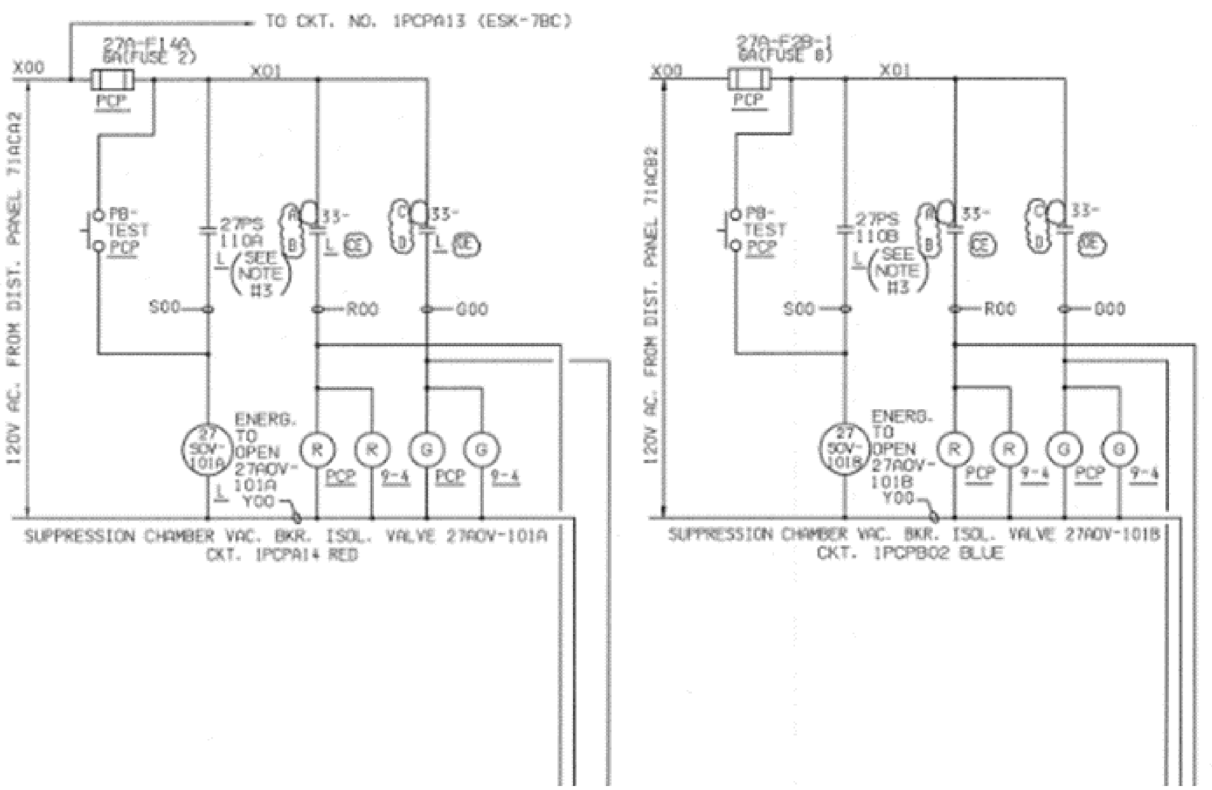


Figure APLA-RAI-2-3 – Power Supply 71ACA2, 71ACB2 (ESK-7AG, Rev. 020)

Figures APLA-RAI-2-4 through APLA-RAI-2-7 provide the fault tree logic added to represent the Reactor Building to Torus Vacuum Breakers. Note that gate GVSS-RB-TORUS represents the new logic and that common-cause failure groups (e.g., QVSSVBROOA), where applicable, are listed below the basic event probabilities in the fault tree figures.

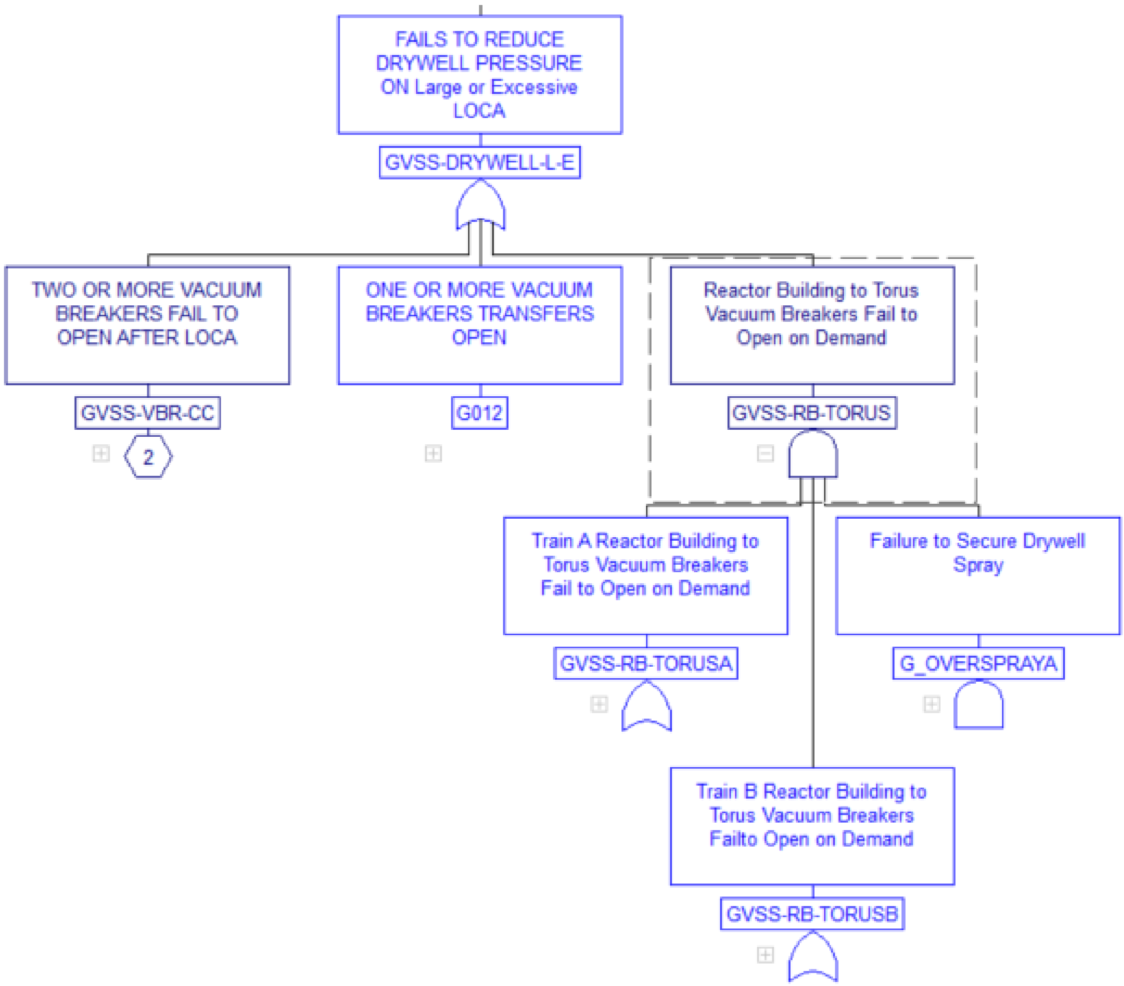


Figure APLA-RAI-2-4 Reactor Building to Torus Vacuum Breaker Logic (Page 1 of 4)

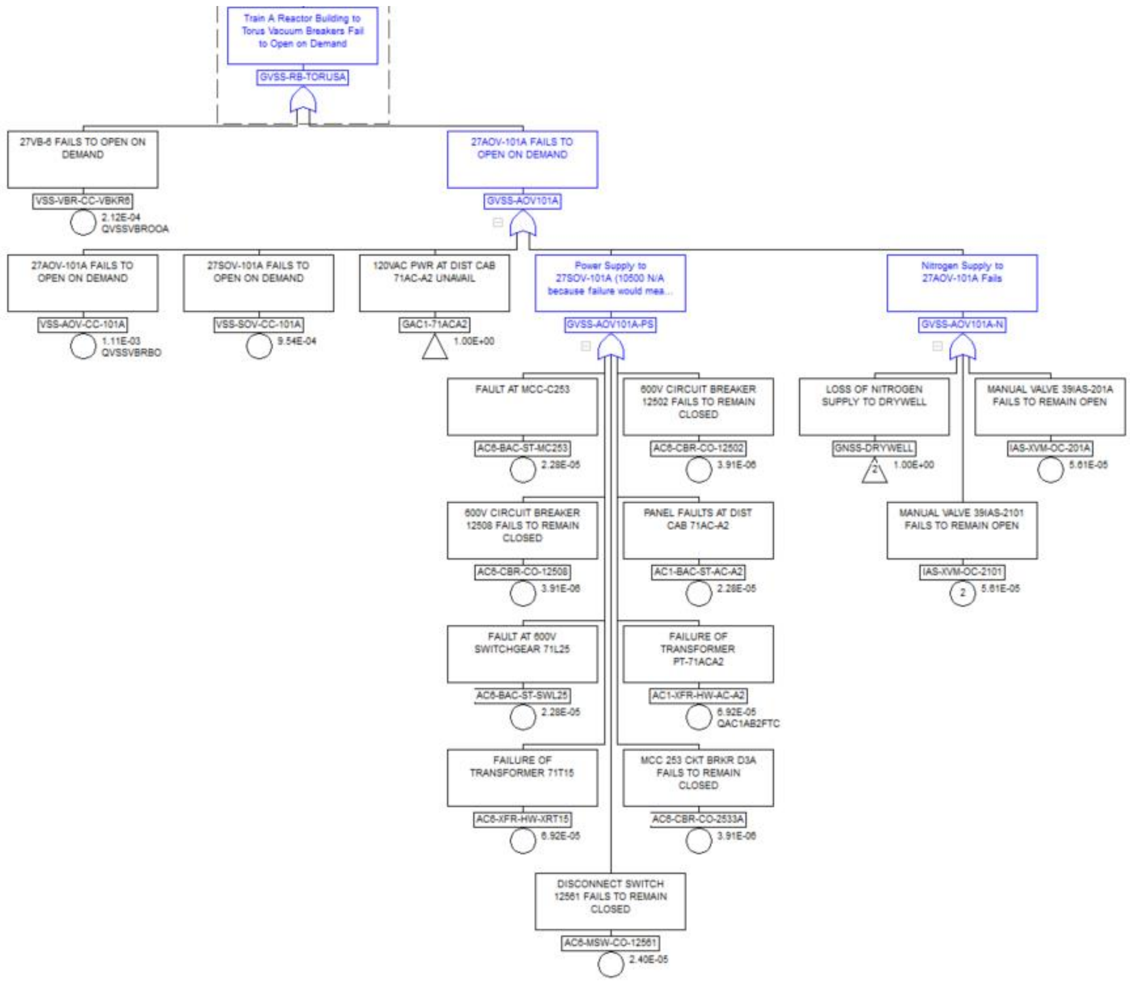


Figure APLA-RAI-2-5 Reactor Building to Torus Vacuum Breaker Logic (Page 2 of 4)

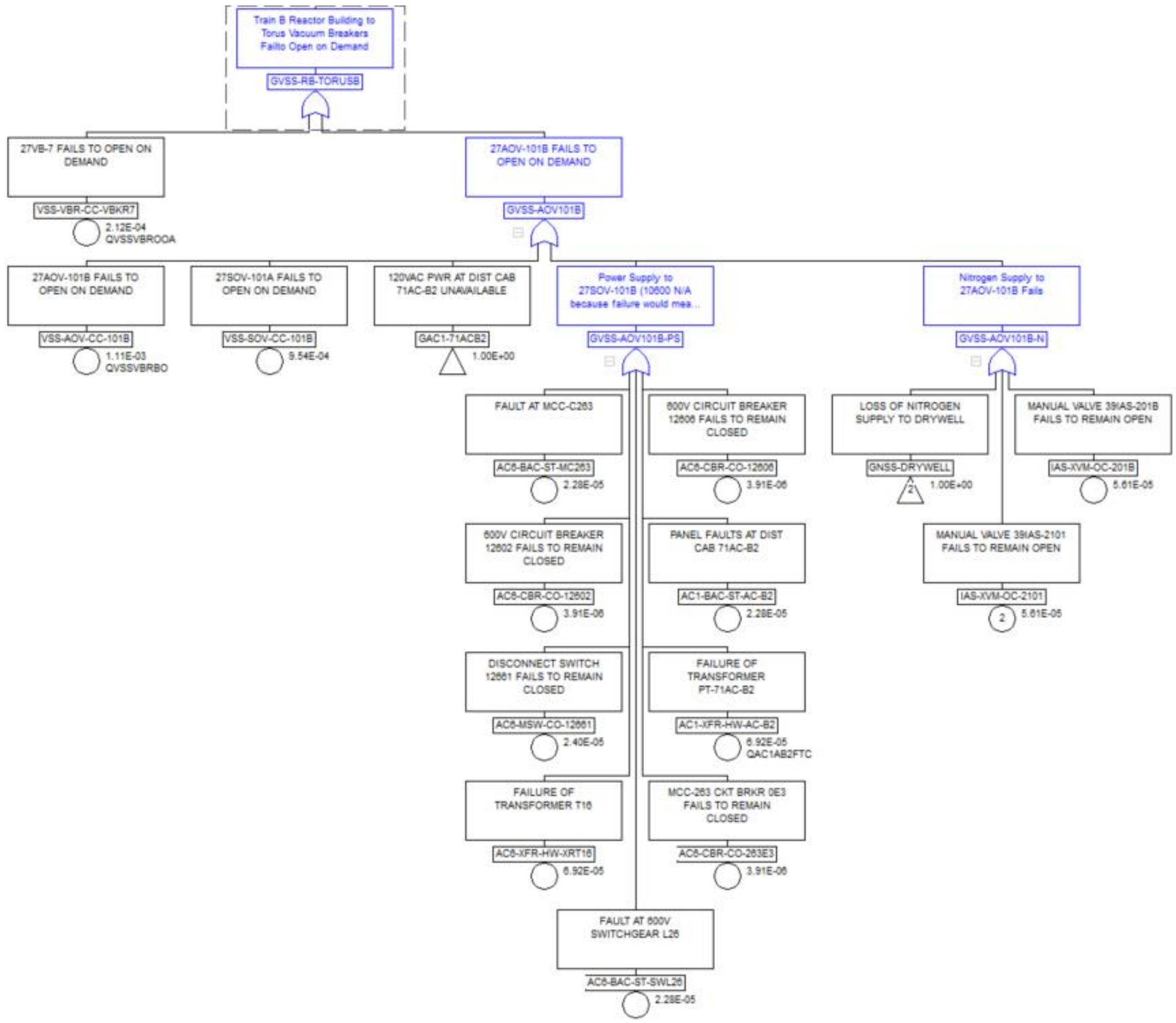


Figure APLA-RAI-2-6 Reactor Building to Torus Vacuum Breaker Logic (Page 3 of 4)

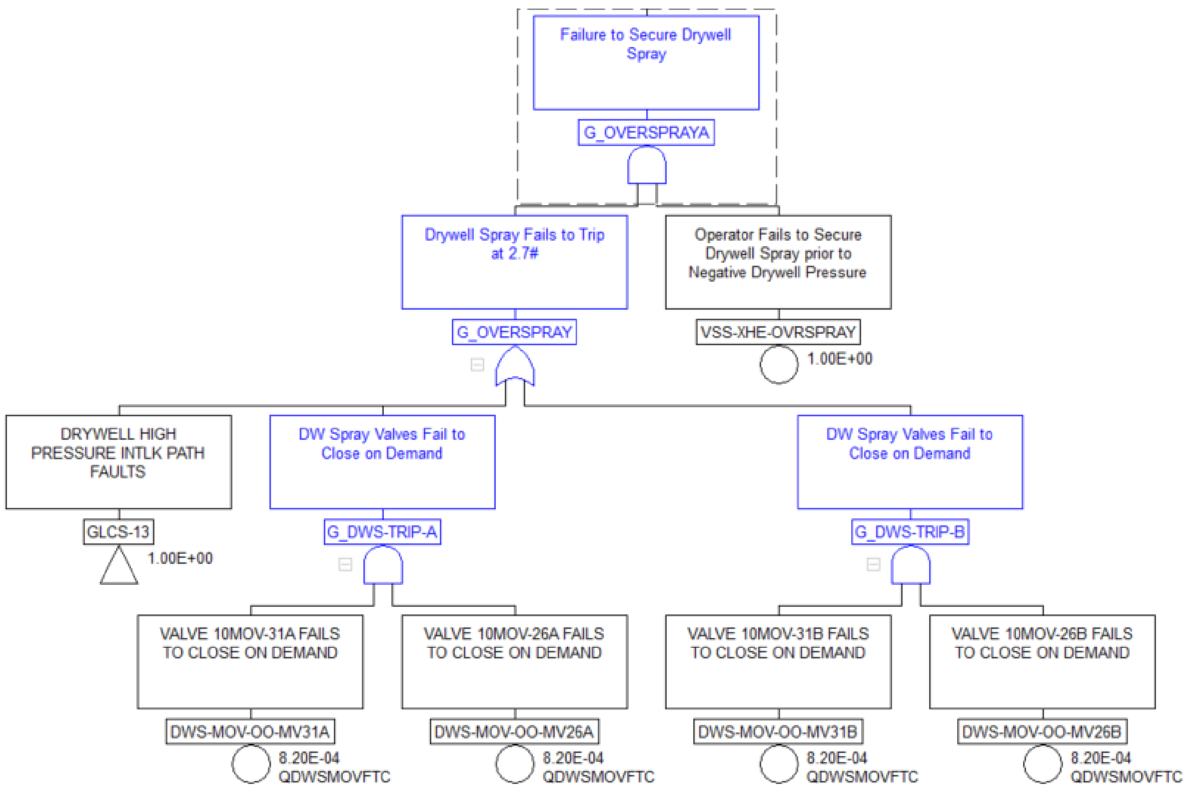


Figure APLA-RAI-2-7 Reactor Building to Torus Vacuum Breaker Logic (Page 4 of 4)

**Response b.2:**

To determine the impact of the modifications made to the PRA model, the previous results are compared to the new ASM results. A comparison of the results can be seen below in Table Error! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.**-1**. The truncation limit is 1E-12 for the FPIE CDF and LERF models.

**TABLE** ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.**-1**
**ASM CDF/ENDSTATE COMPARISON**

| CDF / ENDSTATE | RESULT | CUTSETS | RESULT | CUTSETS |
|---|---|---|---|---|
| | JF2017A | | JF2017A1 | |
| CDF | 3.21E-06 | 43,052 | 3.21E-06 | 43,073 |
| LERF | 5.66E-07 | 7,828 | 5.68E-07 | 7,870 |

* The modifications were made to the FPRA as a sensitivity case. The modifications resulted in no change in base fire risk and no delta CDF/LERF for fire risk. The no change in fire risk is because fire events do not results in pipe break LOCAs in containment. Fire induced LOCAs from spurious operations are negligible to the fire risk.

RICT estimates are performed with a zero-maintenance model. Results are provided below for T.S. 3.6.1.6.C.

| | T.S. Description | IE CDF | FIRE CDF | **TOTAL DELTA CDF** | IE LERF | FIRE LERF | **TOTAL DELTA LERF** | CDF RICT | LERF RICT | **MIN RICT** |
|---|---|---|---|---|---|---|---|---|---|---|
| 3.6.1.6.C | One line with one or more reactor building to suppression chamber vacuum breakers inoperable for opening. | 2.60E-06 | 1.73E-05 | 2.50E-06 | 5.35E-07 | 3.40E-06 | 1.00E-06 | 1459.28 | 364.56 | 30.00 |

RICT estimates were also performed for a subset of the applicable Technical Specifications to ensure that Torus to Reactor Building Vacuum Breaker modeling did not have a broader impact upon the PRA results. Estimates can be seen below and none of the selected cases resulted in different RICT values.

| | T.S. Description | IE CDF | FIRE CDF | **TOTAL DELTA CDF** | IE LERF | FIRE LERF | **TOTAL DELTA LERF** | CDF RICT | LERF RICT | **MIN RICT** | **JF117A Estimates** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.3.5.1.C | ECCS Instrumentation: As required by Required Action A.1 and referenced in table 3.3.5.1-1 1.c, 1.d, 2.c, 2.d, 2.f, 3.c (Low RX Pressure) | 1.55E-04 | 1.79E-05 | 1.56E-04 | 2.68E-06 | 3.86E-06 | 3.66E-06 | 23.36 | 99.65 | 23.36 | 23.36 |
| 3.8.1.B | AC Sources: One required EDG subsystem inoperable. | 2.83E-06 | 1.81E-05 | 3.98E-06 | 5.74E-07 | 3.58E-06 | 1.28E-06 | 913.96 | 285.07 | 30.00 | 30.00 |
| 3.8.1.E | AC Sources: Two EDG subsystems inoperable. | 9.26E-06 | 1.01E-04 | 9.37E-05 | 1.37E-06 | 2.13E-05 | 1.98E-05 | 38.95 | 18.43 | 18.43 | 18.43 |

References

APLA-RAI-2-1. JF-ASM-008, “Application Specific Model”, 06/2022
APLA-RAI-2-2. JAF Procedure OP-13B, “RHR-Containment Control”, Revision 16.

***EEEB RAI 01 – TS 3.8.7.A***

*TSTF 505 requires licensees to identify technical specifications being considered for RICTs that may have a potential loss of function to apply a note that specifically states that the RICT does not apply for loss of function. The NRC staff identified TS 3.8.7.A as having a potential loss of function, requests use of RICT, but does not include the required note in the TS markup in Attachment 2 of the LAR.*

*Provide a revised marked up of TS 3.8.7.A which includes the appropriate note for loss of function.*

**RAI Response for EEEB RAI 01 – TS 3.8.7.A**

EEEB RAI 01 – A revised marked up of TS 3.8.7.A and associated bases has been provided to include the appropriate note for loss of function.

# ATTACHMENT 2

## License Amendment Request

## James A. FitzPatrick Nuclear Power Plant

## Docket No. 50-333

## Revised Technical Specification and Technical Specification Basis Marked-Up Pages

# 3.8 ELECTRICAL POWER SYSTEMS

## 3.8.7 Distribution Systems - Operating

LCO 3.8.7 The Division 1 and Division 2 AC and 125 VDC electrical power distribution subsystems shall be OPERABLE

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

| CONDITION | REQUIRED ACTION | COMPLETION TIME |
|---|---|---|
| A. One or more AC electrical power distribution subsystems inoperable | A.1 Restore AC electrical power distribution subsystems to OPERABLE status. | 8 hours |
| B. One 125 VDC electrical power distribution subsystem inoperable. | B.1 Restore 125 VDC electrical power distribution subsystems to OPERABLE status. | 8 hours |
| C. Required Action and associated Completion Time of Condition A or B not met. | C.1 Be in MODE 3.<br>AND<br>C.1 Be in MODE 4. | 12 hours<br><br>36 hours |

(continued)

OR

---------NOTE----------
Not applicable when loss of function can occur.
----------------------------
In accordance with the Risk Informed Completion Time Program

BASES (continued)

ACTIONS

A.1

With one or more required AC electrical power distribution subsystems inoperable and a loss of function has not occurred. the remaining AC electrical power distribution subsystems are capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition. assuming no single failure. The overall reliability is reduced. however. because a single failure in the remaining power distribution subsystems could result in the minimum required engineered safeguards functions not being supported. Therefore, the required AC electrical power distribution subsystems must be restored to OPERABLE status within 8 hours.

Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time (RICT) Program. A Note has been provided to indicate that a RICT is not applicable when a loss of safety function has occurred.

The Condition A worst scenario is one division without AC power (i.e., no reserve or normal power to the division and the associated EDG subsystem inoperable). In this Condition, the plant is more vulnerable to a complete loss of AC power. It is, therefore, imperative that the plant operators' attention be focused on minimizing the potential for loss of power to the remaining division by stabilizing the plant. and on restoring power to the affected division. The 8 hour time limit before requiring a plant shutdown in this Condition is acceptable because of:

a. The potential for decreased safety if the plant operators' attention is diverted from the evaluations and actions necessary to restore power to the affected division to the actions associated with taking the plant to shutdown within this time limit.

b. The low potential for an event in conjunction with a single failure of a redundant component in the division with AC power. (The redundant component is verified OPERABLE in accordance with Specification 5.5.12, "Safety Function Determination Program (SFDP).")

This Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This results in establishing the "time zero" at the time this LCO was initially not met, instead of at the time Condition A was entered. The 16 hour Completion Time is an acceptable limitation on this potential to fail to meet the LCO indefinitely.

(continued)

BASES

ACTIONS (continued)

B.1

With one 125 VDC electrical power distribution subsystems inoperable, the remaining 125 VDC electrical power distribution subsystem is capable of supporting the minimum safety functions necessary to shut down the reactor and maintain it in a safe shutdown condition, assuming no single failure. The overall reliability is reduced, however, because a single failure in the remaining 125 VDC electrical power distribution subsystem could result in the minimum required engineered safeguards functions not being supported. Therefore, the required 125 VDC electrical power distribution subsystem must be restored to OPERABLE status within 8 hours by powering the bus from the associated battery or charger.

Alternatively, a Completion Time can be determined in accordance with the Risk Informed Completion Time (RICT) Program. A Note has been provided to indicate that a RICT is not applicable when a loss of safety function has occurred.

Condition B represents one division without adequate 125 VDC power, potentially with both a battery significantly degraded and the associated charger nonfunctioning. In this situation the plant is significantly more vulnerable to a complete loss of all 125 VDC power. It is, therefore, imperative that the operator's attention focus on stabilizing the plant, minimizing the potential for loss of power to the remaining divisions, and restoring power to the affected division.

This 8 hour limit is more conservative than Completion Times allowed for the majority of components that would be without power. Taking exception to LCO 3.0.2 for components without adequate 125 VDC power, which would have Required Action Completion Times shorter than 8 hours, is acceptable because of:

a. The potential for decreased safety when requiring a change in plant conditions (i.e., requiring a shutdown) while not allowing stable operations to continue;

b. The potential for decreased safety when requiring entry into numerous applicable Conditions and Required Actions for components without 125 VDC power, while not providing sufficient time for the operators to perform the necessary evaluations and actions for restoring power to the affected division;

c. The potential for an event in conjunction with a single failure of a redundant component.

(continued)