

ENCLOSURE 4

REVISIONS TO THE LAR TRANSITION REPORT

RE-TYPED WITH CHANGES INCORPORATED

The following are revisions to the Transition Report (included with the License Amendment Request (LAR) submitted by Nine Mile Point Nuclear Station, LLC (NMPNS) letter dated June 11, 2012) resulting from the responses to NRC requests for additional information (RAI) Safe Shutdown / Circuit Analysis RAI 01 and Safe Shutdown / Circuit Analysis RAI 03. The revised, re-typed Transition Report pages, with the changes incorporated, replace the originally submitted pages, as noted.

- Sections 4.2 and 4.3 (Pages 14 through 29a)
- Table 4-3 (Pages 54 through 60)
- Attachment A (Pages A-42 through A-44)
- Attachment B (Pages B-1 through B-102 - replaces in its entirety the originally submitted version)
- Attachment F (Pages F-6 and F-7)
- Attachment G (Pages G-1 through G-32 - replaces in its entirety the originally submitted version)

REVISIONS TO TRANSITION REPORT

SECTION 4.2, NUCLEAR SAFETY PERFORMANCE CRITERIA

SECTION 4.3, NON-POWER OPERATIONAL MODES

Re-typed Pages 14 through 29a.

structures housing equipment required for nuclear plant operations are considered as “power block” structures.

These structures are listed in Attachment I and define the “power block” and “plant”.

4.2 Nuclear Safety Performance Criteria

The Nuclear Safety Performance Criteria are established in Section 1.5 of NFPA 805. Chapter 4 of NFPA 805 provides the methodology to determine the fire protection systems and features required to achieve the performance criteria outlined in Section 1.5. Section 4.3.2 of NEI 04-02 provides a systematic process for determining the extent to which the pre-transition licensing basis meets these criteria and for identifying any necessary fire protection program changes. NEI 04-02, Appendix B-2 provides guidance on documenting the transition of Nuclear Safety Capability Assessment Methodology and the Fire Area compliance strategies.

4.2.1 Nuclear Safety Capability Assessment Methodology

The Nuclear Safety Capability Assessment (NSCA) Methodology review consists of four processes:

- Establishing compliance with NFPA 805 Section 2.4.2
- Establishing the Safe and Stable Conditions for the Plant
- Establishing Recovery Actions
- Evaluating Multiple Spurious Operations

The methodology for demonstrating reasonable assurance that a fire during non-power operational (NPO) modes will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition is an additional requirement of 10 CFR 50.48(c) and is addressed in Section 4.3.

4.2.1.1 Compliance with NFPA 805 Section 2.4.2

Overview of Process

NFPA 805 Section 2.4.2 Nuclear Safety Capability Assessment states:

- “The purpose of this section is to define the methodology for performing a nuclear safety capability assessment. The following steps shall be performed:*
- (1) Selection of systems and equipment and their interrelationships necessary to achieve the nuclear safety performance criteria in Chapter 1*
 - (2) Selection of cables necessary to achieve the nuclear safety performance criteria in Chapter 1*
 - (3) Identification of the location of nuclear safety equipment and cables*
 - (4) Assessment of the ability to achieve the nuclear safety performance criteria given a fire in each fire area”*

The NSCA methodology review evaluated the existing post-fire safe shutdown analysis (SSA) methodology against the guidance provided in NEI 00-01, Revision 2, Chapter 3, “Deterministic Methodology,” as discussed in Appendix B-2 of NEI 04-02. NMP1 used the guidance provided in NEI 00-01, Revision 2 because it is endorsed as an

acceptable methodology in NRC RG 1.205 and due to feedback received as a result of NRC requests for additional information on other post-pilot plant LARs.

The methodology is depicted in Figure 4-2 and consisted of the following activities:

- Each specific subsection of NFPA 805 Section 2.4.2 was correlated to the corresponding section of Chapter 3 of NEI 00-01, Revision 2. Based upon the content of the NEI 00-01 methodology statements, a determination was made of the applicability of the section to the station.
- The plant-specific methodology was compared to applicable sections of NEI 00-01 and one of the following alignment statements and its associated basis were assigned to the section:
 - Aligns
 - Aligns with Intent
 - Not in Alignment
 - Not in Alignment, but Prior NRC Approval
 - Not in Alignment, but no adverse consequences
- For those sections that do not align, an assessment was made to determine if the failure to maintain strict alignment with the guidance in NEI 00-01 could have adverse consequences. Since NEI 00-01 is a guidance document, portions of its text could be interpreted as 'good practice' or intended as an example of an efficient means of performing the analyses. If the section has no adverse consequences, these sections of NEI 00-01 can be dispositioned without further review.

In addition, a review of NEI 00-01, Revision 3 was conducted against the guidance from NEI 00-01, Revision 2. There were no gaps relative to MSOs identified.

The comparison of the NMP1 existing post-fire SSA to NEI 00-01 Chapter 3 (NEI 04-02 Table B-2) was performed and documented in EIR 51-9133191, Nine Mile Point Unit 1 – Nuclear Safety Capability Assessment.

Results from Evaluation Process

The method used to perform the NSCA with respect to selection of systems and equipment, selection of cables, and identification of the location of equipment and cables, either meets the NRC endorsed guidance from NEI 00-01, Revision 2, Chapter 3 (as supplemented by the gap analysis to Revision 3) directly or meets the intent of the endorsed guidance with adequate justification as documented in Attachment B. Referenced documents are planned as being retained as post-transition documents.

NEI 00-01, Revision 2, Chapter 3 contains guidance criteria concerning identifying required and important to SSD components. These specific guidance criteria are not applicable to plants transitioning to NFPA 805; therefore, they were not addressed for NMP1.

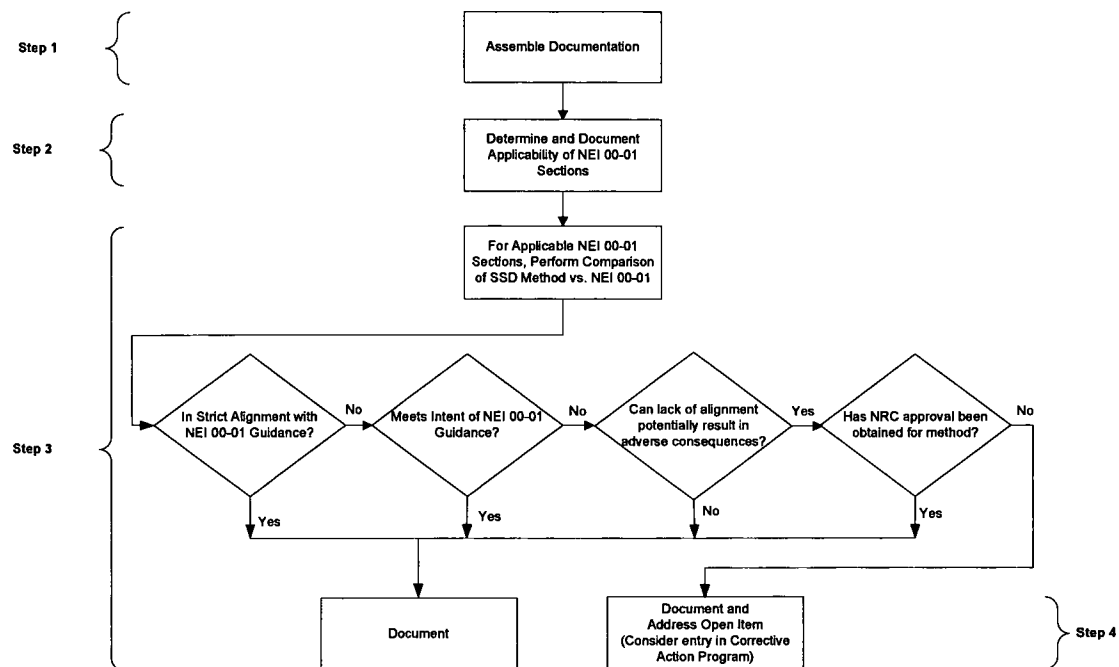


Figure 4-2 – Summary of Nuclear Safety Methodology Review Process (FAQ 07-0039)

4.2.1.2 Safe and Stable Conditions for the Plant

Overview of Process

The nuclear safety goals, objectives and performance criteria of NFPA 805 allow more flexibility than the previous deterministic programs based on 10 CFR 50 Appendix R and NUREG-0800, Section 9.5.1 (and NEI 00-01, Chapter 3), since NFPA 805 only requires the licensee to maintain the fuel in a safe and stable condition rather than achieve and maintain cold shutdown.

NFPA 805, Section 1.6.56, defines Safe and Stable Conditions as follows

“For fuel in the reactor vessel, head on and tensioned, safe and stable conditions are defined as the ability to maintain $K_{eff} < 0.99$, with a reactor coolant temperature at or below the requirements for hot shutdown for a boiling water reactor and hot standby for a pressurized water reactor. For all other configurations, safe and stable conditions are defined as maintaining $K_{eff} < 0.99$ and fuel coolant temperature below boiling.”

The nuclear safety goal of NFPA 805 requires “...reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition” without a specific reference to a mission time or event coping duration.

For the plant to be in a safe and stable condition, it may not be necessary to perform a transition to cold shutdown as currently required under 10 CFR 50, Appendix R. Therefore, the unit may remain at or below the temperature defined by a hot standby/hot shutdown plant operating state for the event.

Results

Demonstration of the Nuclear Safety Performance Criteria for safe and stable conditions was performed in two analyses.

- At-Power analysis for potential fires while in the Power Operating Condition (Reactor mode switch is in “Startup” or “Run” position and the reactor is critical or criticality is possible due to control rod withdrawal) or Shutdown Condition – Hot (Reactor mode switch is in “Shutdown” position and reactor coolant temperature is greater than 212°F), but not on shutdown cooling mode of decay heat removal. This analysis is discussed in Section 4.2.4.
- Non-Power analysis for potential fires while in Shutdown Condition – Hot and lower operating conditions. This analysis is discussed in Section 4.3.

Based on the EIR 51-9133191, Nine Mile Point Unit 1 – Nuclear Safety Capability Assessment, the NFPA 805 licensing basis for a safe and stable condition is defined as the ability to maintain $K_{eff} < 0.99$ with a reactor coolant temperature at or below the requirements for hot shutdown.

The At-Power analysis includes a primary and alternate means of achieving and maintaining safe and stable conditions. The primary means of achieving and maintaining Hot Shutdown (HSD) is via the Emergency Cooling system. Either of the two redundant Emergency Cooling decay heat removal loops can achieve and maintain HSD. The Emergency Cooling system operates by natural circulation where steam flows upward to the condenser(s) and returns as condensate to the Reactor Pressure Vessel (RPV). Decay heat is removed through the transfer of heat from the reactor coolant to the shell side water of the Emergency Condenser(s), which vents the developed steam to atmosphere. Operation of either Emergency Cooling loop can sustain HSD conditions for 8 hours without the need for makeup. Upon achieving HSD conditions, the plant is able to maintain safe and stable operation for an extended period of time using the Emergency Cooling system. After 8 hours, the Emergency Condenser makeup tanks can be replenished as needed using the diesel driven fire pump (DFP), which draws water from Lake Ontario (effectively an infinite source). Periodic refueling of the DFP is accomplished in accordance with existing plant procedures using an on-site fuel source. Reactor coolant makeup is required after 8 hours, assuming a nominal Technical Specification leakage rate of 25 gpm. Makeup is provided via the Control Rod Drive (CRD) system using one of the CRD pumps drawing suction from the CST. AC power is required to operate a CRD pump. The diesel driven fire pump may be aligned to provide primary makeup in the event no CRD pump is available.

The Emergency Cooling system can be initiated either manually or automatically. The RPS instruments and logic that automatically initiate the Emergency Cooling system on high reactor pressure or low-low reactor level have been included in the analysis. Manual initiation of the Emergency Cooling system can be accomplished from either the Control Room or Remote Shutdown Panel (RSP) if Control Room abandonment is

necessary, depending on the fire location. AC power is not required to manually initiate Decay Heat Removal (DHR) via the Emergency Cooling system.

In the event the primary means of decay heat removal during HSD is not available (i.e., Emergency Cooling system not available), the plant can be maintained in HSD by opening three Electromagnetic Relief Valves (ERVs) in the automatic depressurization system (ADS) and blowing steam to the Torus to reduce pressure. When reactor pressure reaches approximately 365 psig, Core Spray (CS) may be utilized to provide core cooling. AC and DC electrical power are required for this method of decay heat removal.

The ADS system can be initiated either manually or automatically. The RPS instruments and logic automatically initiate the ADS system on a combination of low-low reactor level and high drywell pressure.

The CS system can be initiated either manually or automatically. The RPS instruments and logic automatically initiate the CS system on low-low reactor level or high drywell pressure.

The instrumentation and logic circuitry that automatically initiates ADS and CS have been included in the analysis. Manual initiation of the ERVs and CS system is accomplished from the Control Room. In the event spurious actuations of the ERVs take place due to a Control Room fire, CS can be initiated manually from outside the Control Room if Control Room abandonment is necessary.

The alternate means of decay heat removal can be used to maintain safe and stable conditions until such time that the Shutdown Cooling (SDC) system is placed in service. CS is a two loop system. Operation of one loop is adequate to ensure core cooling. When utilizing CS, the reactor vessel eventually floods to the point where the ERVs are passing fluid to the Torus rather than steam, in essence placing the RCS in recirculation through the Torus. During this process, decay heat is removed by operation of the Containment Spray (CTS) system in conjunction with the Containment Spray Raw Water (CTSRW) system. Fully flooding the RPV negates the need for another system to provide inventory makeup. AC power is required to initiate this method.

For either the primary or alternate means of achieving and maintaining safe and stable conditions, AC power is available from either the station Emergency Diesel Generators (EDGs) or offsite power. Actions required to achieve and initially maintain hot shutdown conditions can be performed by the minimum shift complement consisting of reactor operators, senior reactor operators, and non-licensed plant operators. The EDGs can be refueled in accordance with existing plant procedures using an on-site fuel source (tanker truck), until such time that offsite power is restored. Additional resources from the emergency response organization will be available to support EDG refueling activities.

4.2.1.3 Establishing Recovery Actions

Overview of Process

NEI 04-02 and RG 1.205 suggest that a licensee submit a summary of its approach for addressing the transition of OMAs as recovery actions in the LAR (Regulatory Position 2.21 and NEI-04-02, Section 4.6). As a minimum, NEI 04-02 suggests that the

assumptions, criteria, methodology, and overall results be included for the NRC to determine the acceptability of the licensee's methodology.

The discussion below provides the methodology used to transition pre-transition OMAs and to determine the population of post-transition recovery actions. This process is based on FAQ 07-0030 (ML110070485) and consists of the following steps:

- Step 1: Clearly define the primary control station(s) and determine which pre-transition OMAs are taken at primary control station(s) (Activities that occur in the Main Control Room are not considered pre-transition OMAs). Activities that take place at primary control station(s) or in the Main Control Room are not recovery actions, by definition.
- Step 2: Determine the population of recovery actions that are required to resolve variances from deterministic requirements (VFDRs) (to meet the risk acceptance criteria or maintain a sufficient level of defense-in-depth).
- Step 3: Evaluate the additional risk presented by the use of recovery actions required to demonstrate the availability of a success path.
- Step 4: Evaluate the feasibility of the recovery actions.
- Step 5: Evaluate the reliability of the recovery actions.

Results

The review results are documented in EIR 51-9156521, Recovery Action Review for Nine Mile Point Nuclear Power Station Unit 1 Transition to NFPA 805. Refer to Attachment G for the detailed evaluation process and summary of the results from the process.

4.2.1.4 Evaluation of Multiple Spurious Operations

Overview of Process

NEI 04-02 suggests that a licensee submit a summary of its approach for addressing potential fire-induced MSOs for NRC review and approval. As a minimum, NEI 04-02 suggests that the summary contain sufficient information relevant to methods, tools, and acceptance criteria used to enable the NRC to determine the acceptability of the licensee's methodology. The methodology utilized to address MSOs for NMP1 is summarized below.

As part of the NFPA 805 transition project, a review and evaluation of NMP1 susceptibility to fire-induced MSOs was performed. The process was conducted in accordance with NEI 04-02 and RG 1.205, as supplemented by FAQ 07-0038 Revision 3 (ML110140242). The BWR Generic MSO list in NEI 00-01, Revision 2, dated June 5, 2009 (including a gap analysis to the Revision 3 Generic MSO list) was utilized.

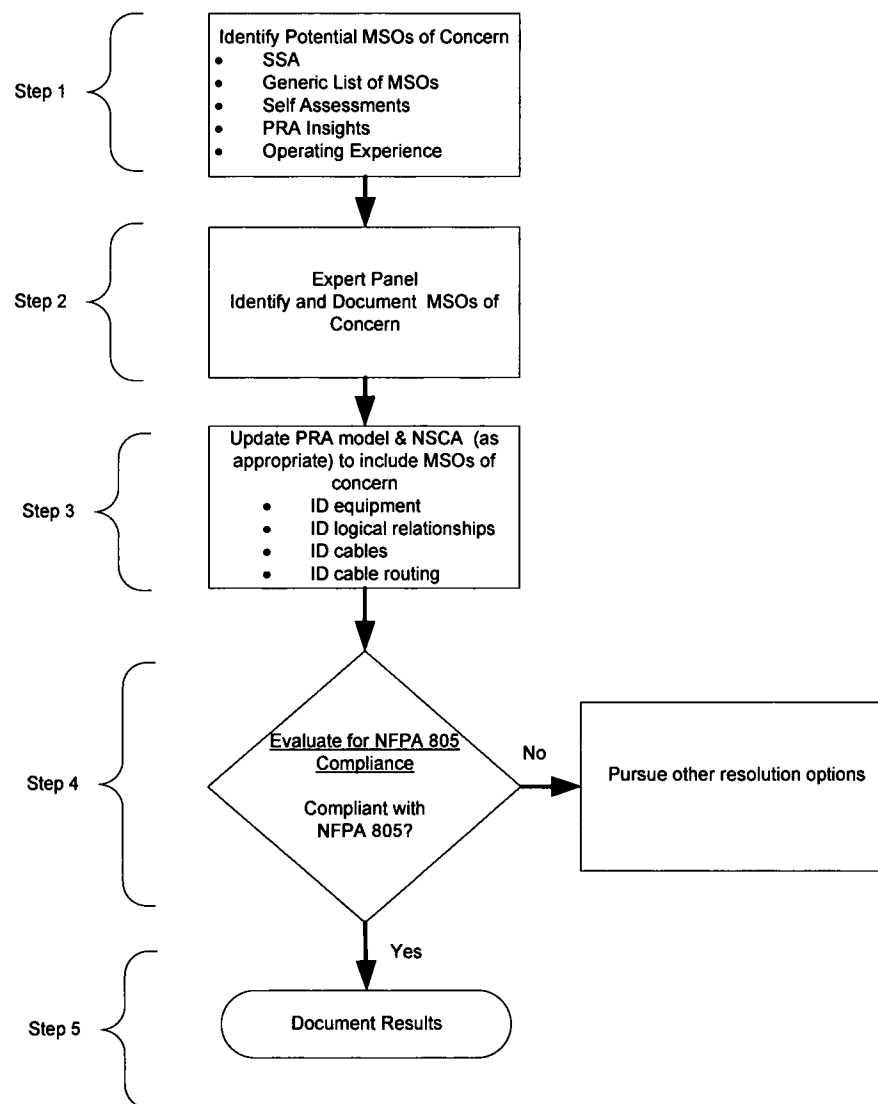
The approach outlined in Figure 4-3 (based on Revision 3 from FAQ 07-0038) is one acceptable method to address fire-induced MSOs. This method used insights from the Fire PRA developed in support of transition to NFPA 805 and consists of the following:

- Identifying potential MSOs of concern.
- Conducting an expert panel to assess plant specific vulnerabilities (e.g., per NEI 00-01, Rev. 1 Section F.4.2).

- Updating the Fire PRA model and existing post-fire SSA to include the MSOs of concern.
- Evaluating for NFPA 805 compliance.
- Documenting results.

This process is intended to support the transition to a new licensing basis. Post-transition changes would use the RI-PB change process. The post-transition change process for the assessment of a specific MSO would be a simplified version of this process, and may not need the level of detail shown in the following section (e.g., An expert panel may not be necessary to identify and assess a new potential MSO).

Identification of new potential MSOs may be part of the plant change review process and/or inspection process).



**Figure 4-3 – Multiple Spurious Operations – Transition Resolution Process
(Based on FAQ 07-0038)**

Results

Refer to Attachment F for the process used for NMP1 and the results from the process.

4.2.2 Existing Engineering Equivalency Evaluation Transition

Overview of Evaluation Process

The EEEEs that support compliance with NFPA 805 Chapter 3 or Chapter 4 (both those that existed prior to the transition and those that were created during the transition) were reviewed using the methodology contained in NEI 04-02. The methodology for performing the EEEE review includes the following determinations:

- The EEEE is not based solely on quantitative risk evaluations,
- The EEEE is an appropriate use of an engineering equivalency evaluation,
- The EEEE is of appropriate quality,
- The standard license condition is met,
- The EEEE is technically adequate,
- The EEEE reflects the plant as-built condition, and
- The basis for acceptability of the EEEE remains valid

In accordance with the guidance in RG 1.205, Regulatory Position 2.3.2, and NEI 04-02, as clarified by FAQ 07-0054, Demonstrating Compliance with Chapter 4 of NFPA 805, EEEEs that demonstrate that a fire protection system or feature is 'adequate for the hazard' are summarized in the LAR as follows:

- If not requesting specific approval for 'adequate for the hazard' EEEEs, then the EEEE was referenced where required and a brief description of the evaluated condition was provided.
- If requesting specific NRC approval for 'adequate for the hazard' EEEEs, then the EEEE was referenced where required to demonstrate compliance and was included in Attachment L for NRC review and approval.

In all cases, reliance on EEEEs to demonstrate compliance with NFPA 805 requirements is documented in the LAR.

Results

The review results for EEEEs are documented in EIR 51-9077683, NFPA 805 Fundamental Fire Protection Program and Design Elements Transition Review.

In accordance with the guidance provided in RG 1.205, Regulatory Position 2.3.2, and NEI 04-02, as clarified by FAQ 07-0054, EEEEs used to demonstrate compliance with Chapters 3 and 4 of NFPA 805 are referenced in Attachments A and C as appropriate.

None of the transitioning EEEEs require NRC approval.

4.2.3 Licensing Action Transition

Overview of Evaluation Process

The existing licensing actions (exemptions / safety evaluations) review was performed in accordance with NEI 04-02. The methodology for the licensing action review included the following:

- Determination of the bases for acceptability of the licensing action.
- Determination that these bases for acceptability are still valid and required for NFPA 805.

Results

Attachment K contains the detailed results of the Licensing Action Review.

The following licensing actions will be transitioned into the NFPA 805 fire protection program as previously approved (NFPA 805 Section 2.2.7). These licensing actions are considered compliant under 10 CFR 50.48(c).

- None

The following licensing actions are no longer necessary and will not be transitioned into the NFPA 805 fire protection program:

- An exemption from the requirements of Section III.G.2 of Appendix R for the battery board rooms (FA 16A and FA 16B), since their boundary walls do not provide the required 3-hour rated barriers.
- An exemption from the requirements of Section III.G.2 of Appendix R for the battery rooms (FA 17A and FA 17B), since their boundary walls do not provide the required 3-hour rated barriers.
- An exemption from the requirements of Section III.G of Appendix R for the control room (FA 11), since the control room ceiling does not have a 3-hour rating from the control room side due to unprotected structural steel members.
- An exemption from the requirements of Section III.G.2 of Appendix R for the wall between the reactor building and the turbine building above elevation 340' (FA 1, FA 2, and FA 5), since the wall is not a 3-hour rated barrier.
- An exemption from the requirements of Section III.G.2 of Appendix R for the fire break zone separating FA 1 and FA 2 in the reactor building upper level (elevation 340'), since the wall is not a 3-hour rated barrier.

These exemptions are no longer required because the subject boundaries have been demonstrated adequate for the hazard in an EEEE.

Since the exemptions are either compliant with 10 CFR 50.48(c) or no longer necessary, in accordance with the requirements of 10 CFR 50.48(c)(3)(i), NMPNS requests that the exemptions listed in Attachment K be rescinded as part of the LAR process. See Attachment O, Orders and Exemptions.

4.2.4 Fire Area Transition

Overview of Evaluation Process

The Fire Area Transition (NEI 04-02 Table B-3) was performed using the methodology contained in NEI 04-02 and FAQ 07-0054. The methodology for performing the Fire Area Transition, depicted in Figure 4-4, is outlined as follows:

Step 1 - Assembled documentation. Gathered industry and plant-specific fire area analyses and licensing basis documents.

Step 2 – Documented fulfillment of nuclear safety performance criteria.

- Assessed accomplishment of nuclear safety performance goals. Documented the method of accomplishment, in summary level form, for the fire area.
- Documented evaluation of effects of fire suppression activities. Documented the evaluation of the effects of fire suppression activities on the ability to achieve the nuclear safety performance criteria.
- Performed licensing action reviews. Performed a review of the licensing aspects of the selected fire area and documented the results of the review. See Section 4.2.3.
- Performed existing engineering equivalency evaluation reviews. Performed a review of existing engineering equivalency evaluations (or created new evaluations) documenting the basis for acceptability. See Section 4.2.2.
- Performed a review of pre-transition OMAs to determine those actions taking place outside of the main control room or outside of the primary control station(s). See Section 4.2.1.3.

Step 3 – VFDR identification, characterization and resolution considerations. Identified variances from the deterministic requirements of NFPA 805, Section 4.2.3.

Documented variances as either a separation issue or a degraded fire protection system or feature. Developed VFDR problem statements to support resolution.

Step 4 – Performance-Based evaluations (Fire Modeling or Fire Risk Evaluations). See Section 4.5.2 for additional information.

Step 5 – Final Disposition.

- Documented final disposition of the VFDRs in Attachment C (NEI 04-02 Table B-3).
- For recovery action compliance strategies, ensured the manual action feasibility analysis of the required recovery actions was completed. Note: If a recovery action cannot meet the feasibility requirements established per NEI 04-02, then alternate means of compliance were considered.
- Documented the post transition NFPA 805 Chapter 4 compliance basis.

Step 6 – Documented required fire protection systems and features. Reviewed the NFPA 805 Section 4.2.3 compliance strategies (including fire area licensing actions and engineering evaluations) and the NFPA 805 Section 4.2.4 compliance strategies (including simplifying deterministic assumptions) to determine the scope of fire protection systems and features 'required' by NFPA 805 Chapter 4. The 'required' fire protection systems and features are subject to the applicable requirements of NFPA 805 Chapter 3.

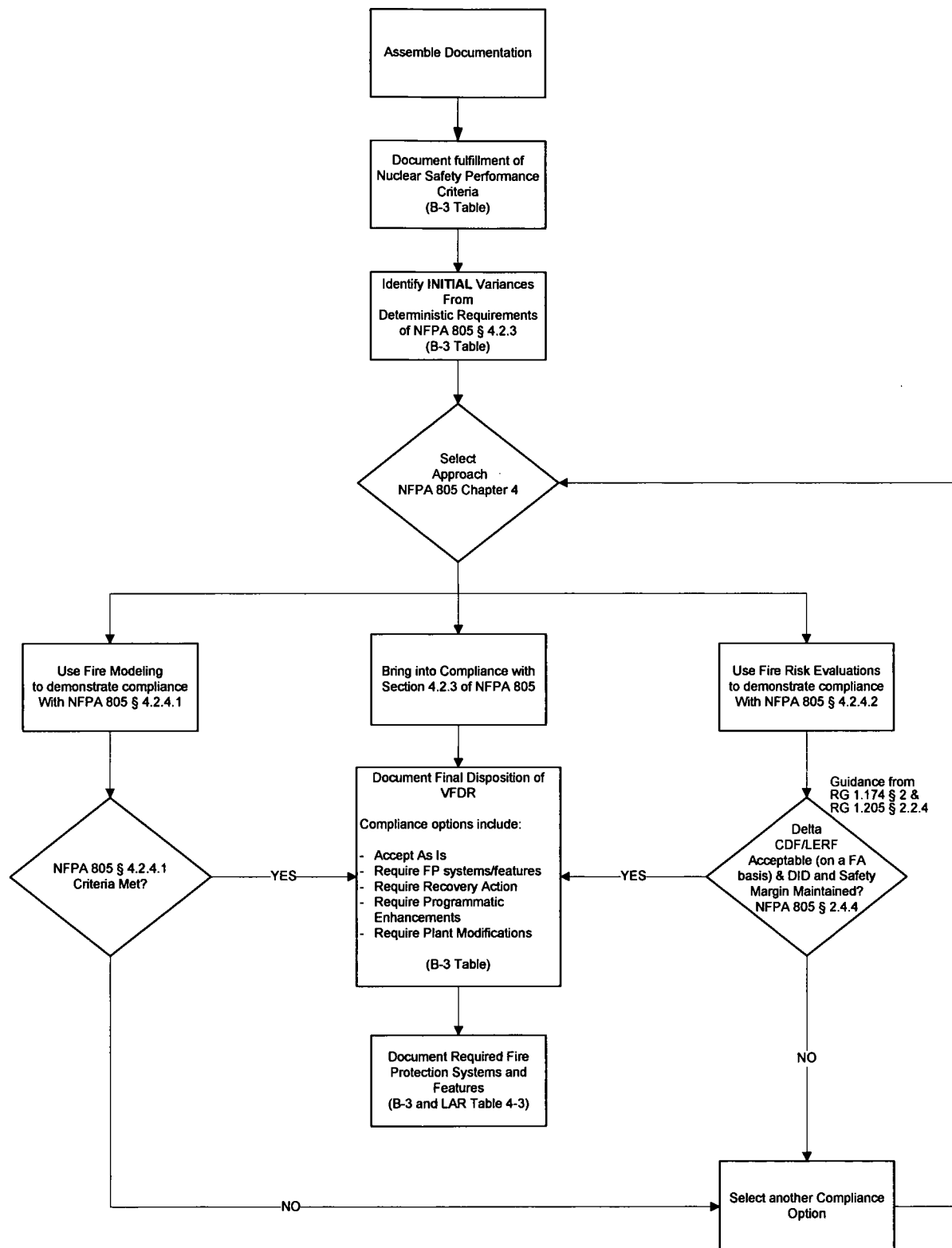


Figure 4-4 – Summary of Fire Area Review
[Based on FAQ 07-0054 Revision 1]

Results of the Evaluation Process

Attachment C contains the results of the Fire Area Transition review (NEI 04-02 Table B-3). On a fire area basis, Attachment C summarizes compliance with Chapter 4 of NFPA 805.

NEI 04-02 Table B-3 includes the following summary level information for each fire area:

- Regulatory Basis – NFPA 805 post-transition regulatory bases.
- Performance Goal Summary – An overview of the method of accomplishment of each of the performance criteria in NFPA 805 Section 1.5.
- Reference Documents – Specific references to Nuclear Safety Capability Assessment Documents.
- Licensing Actions – Specific references to safety evaluations that will remain part of the post-transition licensing basis. A brief description of the condition and the basis for acceptability of the licensing action are provided. In addition, summaries of Fire Risk Evaluations performed for variances from the deterministic requirements are also provided.
- EEEE – Specific references to EEEE that rely on determinations of “adequate for the hazard” that will remain part of the post-transition licensing basis. A brief description of the condition and the basis for acceptability are provided.
- VFDRs – Specific variances from the deterministic requirements of NFPA 805 Section 4.2.3. Refer to Section 4.5.2 for a discussion of the performance-based approach.

4.3 Non-Power Operational Modes

4.3.1 Overview of Evaluation Process

NMP1 implemented the process outlined in NEI 04-02 and FAQ 07-0040, “Non-Power Operations Clarifications.” The goal (as depicted in Figure 4-5) is to ensure that contingency plans are established when the plant is in a Non-Power Operational (NPO) mode where the risk is intrinsically high. During low risk periods, normal risk management controls and fire prevention/protection processes and procedures will be utilized.

The process to demonstrate that the nuclear safety performance criteria are met during NPO modes involved the following steps:

- Review of the existing Outage Management Processes
- Identification of Equipment/Cables:
 - Review of plant systems to determine success paths that support each of the defense-in-depth Key Safety Functions (KSFs), and
 - Identification of cables required for the selected components and determination of their routing.
- Perform Fire Area Assessments (identify pinch points – plant locations where a single fire may damage all success paths of a KSF).
- Manage pinch-points associated with fire-induced vulnerabilities during the outage.

The process is depicted in Figures 4-5 and 4-6. The results are presented in Section 4.3.2.

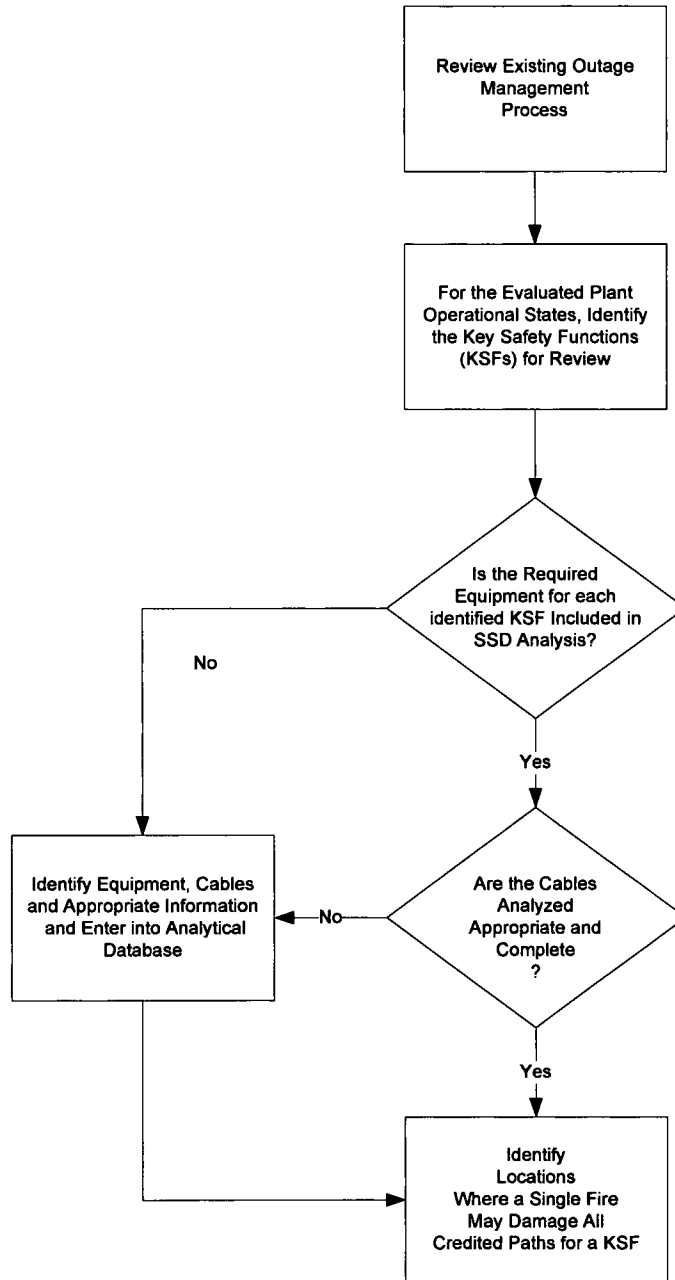


Figure 4-5 Review POSs, KSFs, Equipment, and Cables, and Identify Pinch Points

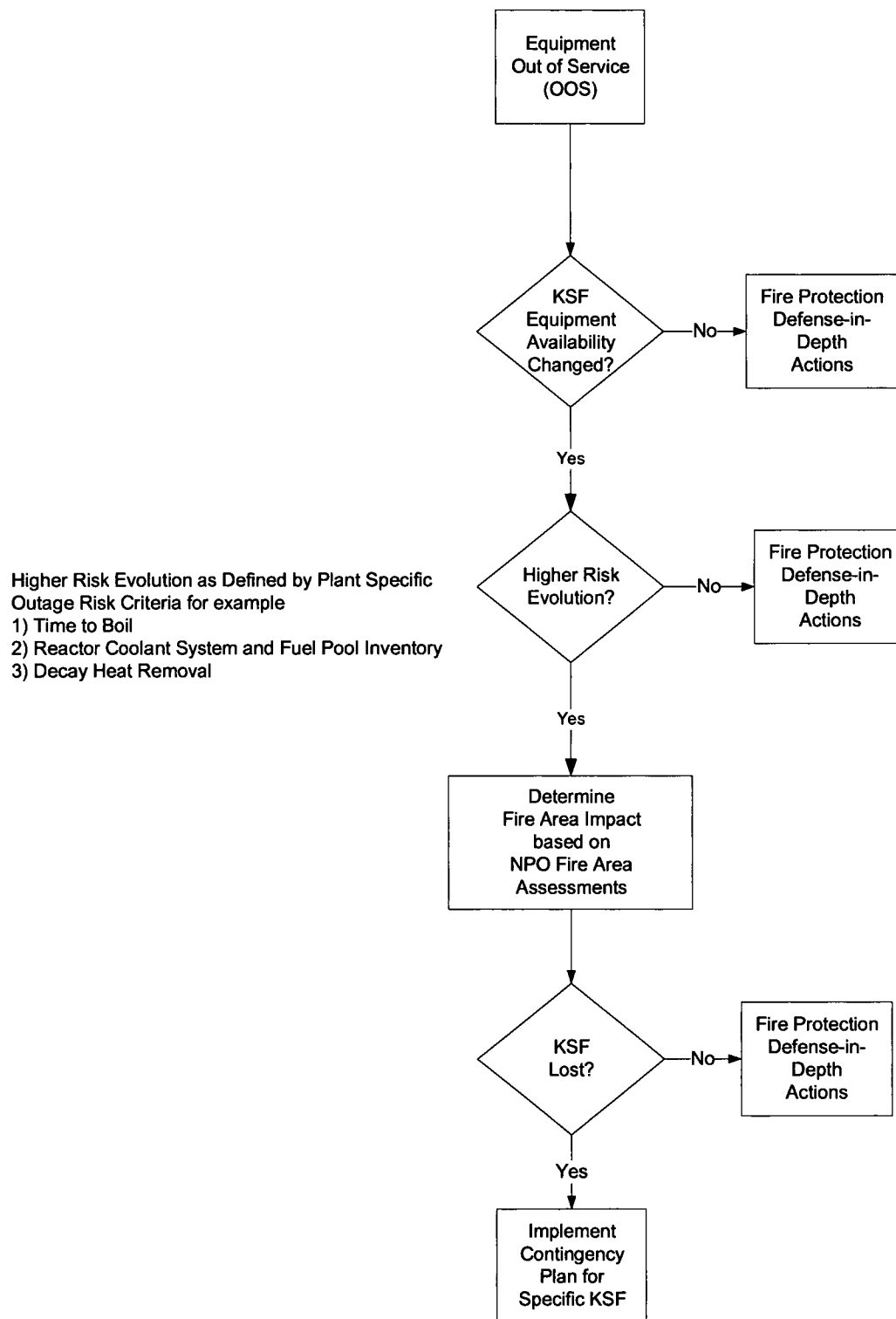


Figure 4-6 Manage Pinch Points

4.3.2 Results of the Evaluation Process

Based on FAQ 07-0040, the Plant Operating States (POSs) considered for equipment and cable selection are defined in EIR 51-9171174, Nine Mile Point 1, Non-Power Operations KSF Equipment List. The methodology for determination of KSFs, success paths, components required to achieve the success paths and their associated cabling are defined in EIR 51-9137629, Nine Mile Point 1 – Nuclear Power Station – NFPA 805 Transition – Non Power Operations Component Pinch Point Analysis. These documents provide the component selection information for the POSs included in the analysis (HSD, CSD, Refueling and Defueled conditions). Systems and components were identified to support the following KSFs:

- Reactor Vessel Decay Heat Removal Capability
- Spent Fuel Pool Cooling
- Reactor Vessel Inventory Control
- Spent Fuel Pool Inventory Control
- Electrical Power Availability
- Reactivity Control

KSFs are evaluated in each fire zone. Each KSF has one or more paths that satisfy the specific function. The process for selection and treatment of components is consistent with the methodology in the NSCA. Where new components are required to support KSFs, the components are included in NPO equipment list and cable identification is performed using the same methodology as that employed for the NSCA. Where NSCA equipment is also relied upon in the NPO analysis but the NPO functional requirements differed from that in the NSCA, additional reviews are performed to ensure comprehensive cable selection. Inherent in the process is identification of components potentially vulnerable to single and multiple spurious operation concerns during NPO. Note that the Reactivity Control KSF is not included in the NPO analysis because it is administratively controlled in accordance with procedure NIP-OUT-01.

No effort is made to eliminate or reduce fire impact by circuit analysis; therefore, a conservative estimate of damage is provided, including hot-short induced spurious operation of equipment. By assuming that a single fire impacts any and all components in a fire zone, (whether the individual component or its associated cables are physically located within the fire zone), the assumption is made that the entire contents of the fire zone are lost.

EIR 51-9137629 contains the fire zone evaluations comprising the 'KSF pinch point' analysis. If a component that is part of a particular KSF path is impacted, it is assumed that the KSF path is lost. However, there are normally one or more other paths within the particular KSF that are not impacted; therefore, the KSF is not considered lost and does not constitute a pinch point. Only when all paths for a particular KSF are impacted is the KSF itself considered lost and identified as a pinch point.

The NPO analysis results (EIR 51-9137629 and EIR 51-9171174) categorize each KSF (in each fire zone), as either “I”, “L” or “N” as follows:

- “I” (Impacted): At least one of the KSF paths associated with a given KSF is affected, i.e., a component of a specific KSF path or any of the component’s required cables within the fire zone are impacted, whereby that path can no longer be assured of being functional. However, at least one other KSF path for the KSF remains available.
- “L” (Lost): All available success paths for a given KSF are impacted.
- “N” (None): No impacts to the KSF are identified.

“Pinch Points” are identified (on a fire zone basis), based on the complete loss of a KSF. In accordance with FAQ 07-0040, any evaluated area in which all of the credited success paths for a given KSF are lost is considered a KSF pinch point. Each KSF for all Fire Zones is evaluated and documented in the pinch point analysis. The Fire Zone is labeled as “N” if no KSFs are lost. The Fire Zone is labeled with a “Y” if one or more KSFs are lost, thereby identifying that the Fire Zone contains one or more pinch points.

NUMARC 91-06 discusses the development of outage plans and schedules. A key element of that process is to ensure the KSFs perform as needed during the various outage evolutions. During outage planning, the NPO Fire Zone Assessment is reviewed to identify areas of single-point KSF vulnerability during HRE to develop needed contingency plans/actions. Depending upon the significance of the damage for those areas, combinations of the following options to reduce fire risk are considered at a minimum:

- Prohibition or limitation of hot work in fire areas during periods of increased vulnerability;
- Verification of functional fire detection and/or suppression in the vulnerable areas;
- Prohibition or limitation of combustible materials in fire areas during periods of increased vulnerability;
- Plant configuration changes (e.g., removing power from equipment once it is placed in its desired position);
- Provision of additional fire patrols at periodic intervals or other appropriate compensatory measures (such as surveillance cameras) during increased vulnerability;
- Use of recovery actions to mitigate losses of Key Safety Functions;
- Reschedule the work to a period with lower risk or higher DID;
- Identification and monitoring in-situ ignition sources for fire precursors.

In addition, KSF equipment removed from service during the HREs is evaluated. The evaluation is based on KSF equipment availability and NPO Fire Zone Assessment for any necessary contingency plans/actions. The recommendations for reducing risk can be applied as appropriate during the implementation phase (as part of the technical document and procedure review). NMP1 strategies for reducing NPO fire risk do not rely on Recovery Actions or Pre-Fire Actions (i.e., Plant Configuration Changes) as strategies for reducing NPO fire risk.

See Attachment D for more complete details. Based on incorporation of the recommendations from the KSF pinch point evaluations into appropriate plant procedures prior to implementation of the NFPA 805 fire protection program, the performance goals for NPO modes are fulfilled and the requirements of NFPA 805 will be met. See Implementation Items in Table S-2 of Attachment S.

4.4 Radioactive Release Performance Criteria

4.4.1 Overview of Evaluation Process

The review of the fire protection program against NFPA 805 requirements for fire suppression related radioactive release was performed using the methodology contained in EIR 51-9085686, NMP-1 NFPA 805 Radiological Release Transition Review. The methodology consists of the following:

- Screened the fire zones based on the potential for the presence of contaminated materials during all plant operating modes, including full power and non-power conditions. The screening process considered input from radiation protection personnel and review of the NMP1 fire pre-plans. The evaluation focused on radioactive release to any unrestricted area due to firefighting activities.
- Reviewed fire pre-plans and fire brigade training materials to identify fire protection program elements (e.g., systems / components / procedural control actions / flow paths, etc.) that are being credited to meet the radioactive release goals, objectives, and performance criteria during all plant operating modes, including full power and non-power conditions.
- Reviewed engineering controls to ensure containment of gaseous and liquid effluents (e.g., smoke and fire fighting agents). This review included all plant

REVISIONS TO TRANSITION REPORT

TABLE 4-3, SUMMARY OF NFPA 805 COMPLIANCE BASIS AND REQUIRED FIRE PROTECTION SYSTEMS AND FEATURES

Re-typed Pages 54 through 60.

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
1		Reactor Building East EL 198-0 thru EL 340-0	4.2.4.2³				
1	FBZR237N	Reactor Building EL 237-0 COL N-Q, ROW 8-9		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR261N	Reactor Building EL 261-0 COL N-Q, ROW 8-9		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR281N	Reactor Building EL 281-0 COL M-Q, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR281S	Reactor Building EL 281-0 COL K-L, ROW 7-8		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR298N	Reactor Building EL 298-0 COL N-Q, ROW 7.5-8.5		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR298S	Reactor Building EL 298-0 COL K-L, ROW 7-8		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR318N	Reactor Building EL 318-0 COL M-Q, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR318S	Reactor Building EL 318-0 COL K-M, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
1	FBZR340N	Reactor Building EL 340-0 COL M-Q, ROW 6-7		None	D	None	Detection
1	FBZR340S	Reactor Building EL 340-0 COL L-N, ROW 7-8		None	D	None	Detection
1	R1A	CTS Pump Room And General Floor Area East EL 198-0 & 237-0		D	R	None	Water Pre-Action Sprinkler, Detection
1	R1C	Access Stairwell Southeast EL 237-0 & 261-0		None	D	None	Detection
1	R1D	CS Pump Room And Protective Clothing Change Area EL 198-0 & 237-0		D	D	None	Water Pre-Action Sprinkler, Detection
1	R2A	General Floor Area East EL 261-0		D	R	None	Water Pre-Action Sprinkler, Detection
1	R3A	General Floor Area East EL 281-0		None	D	None	Detection
1	R4A	General Floor Area East EL 298-0		None	D	None	Detection
1	R4C	Emergency Condenser Isolation Valve Room EL 298-0		D	D	None	Halon Suppression System, Detection
1	R5A	General Floor Area East EL 318-0		None	D	None	Detection
1	R6A	General Floor Area East EL 340-0		None	D	None	Detection
2		Reactor Building West EL 198-0 thru EL 340-0	4.2.4.2³				
2	FBZR237N	Reactor Building EL 237-0 COL N-Q, ROW 8-9		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR261N	Reactor Building EL 261-0 COL N-Q, ROW 8-9		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR281N	Reactor Building EL 281-0 COL M-Q, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
2	FBZR281S	Reactor Building EL 281-0 COL K-L, ROW 7-8		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR298N	Reactor Building EL 298-0 COL N-Q, ROW 7.5-8.5		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR298S	Reactor Building EL 298-0 COL K-L, ROW 7-8		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR318N	Reactor Building EL 318-0 COL M-Q, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR318S	Reactor Building EL 318-0 COL K-M, ROW 6-7		S,R	S,R	None	Water Pre-Action Sprinkler, Detection
2	FBZR340N	Reactor Building EL 340-0 COL M-Q, ROW 6-7		None	D	None	Detection
2	FBZR340S	Reactor Building EL 340-0 COL L-N, ROW 7-8		None	D	None	Detection
2	R1B	CTS Pump Room, CS Pump Room, General Floor Area West EL 198-0 & 237-0		None	R	None	Detection
2	R2B	General Floor Area West EL 261-0		D	R	None	Water Pre-Action Sprinkler, Detection
2	R2C	Shutdown Cooling Room EL 261-0		None	D	None	Detection
2	R2D	Reactor Building Track Bay EL 261-0		D	None	None	Dry Pipe System
2	R3B	General Floor Area West EL 281-0		None	E,R	None	Detection
2	R4B	General Floor Area West EL 298-0		None	D	None	Detection
2	R4C	Emergency Condenser Isolation Valve Room EL 298-0		D	D	None	Halon Suppression System, Detection
2	R5B	General Floor Area West EL 318-0		D	D	None	Water Pre-Action Sprinkler, Detection
2	R6B	General Floor Area West EL 340-0		None	D	None	Detection
3		Drywell EL 237-0 thru 318-0	4.2.3.1				
3	R1	Drywell EL 237 – 318		None	None	None	
4		Foam Room EL 261-0	4.2.4.2³				
4	AB1F	Foam Room EL 261-0		None	D	None	Detection
5		Turbine Building EL 240-0 thru 369-0	4.2.4.2³				
5	FBZT261N	Turbine Building Fire Break Zone North EL 261-0		E,R	E,R	None	Water Pre-Action Sprinkler, Detection
5	FBZT261S	Turbine Building Fire Break Zone South EL 261-0		E,D	E,D	None	Water Pre-Action Sprinkler, Detection
5	OG1	General Floor Area EL 232-0		None	E,D	None	Detection

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
5	OG2	General Floor Area EL 247-0		None	E,D	None	Detection
5	OG3	General Floor Area EL 261-0		E,D	E,R	None	Wet Pipe System, Detection
5	T1	Turbine Condenser/Heater Bay Area EL 250-0		E,R	E,R	None	Deluge System, CO ₂ required for risk, Detection
5	T1A	Turbine Building EL 240-261 MSIV Room & Steam Tunnel		None	None	None	
5	T3A	General Floor Area East of MSIV Room and Fire Zone T1 EL 261-318		E,R,D	E,R	None	Water Pre-Action Sprinkler, Wet and Dry Pipe System, CO ₂ required for DID, Detection
5	T3B	General Floor Area West of MSIV Room; Also South And West Of Fire Zone 1 EL 237-0 & 261-0		E,R,D	E,R	S	Water Pre-Action Sprinkler, CO ₂ required for DID, Detection, Promat-H enclosure for the HVAC duct
5	T4A	General Floor Area East Of Fire Zone T1 EL 277-0		E,R	E,R	None	Water Pre-Action Sprinkler, Wet Pipe and Deluge System, Detection
5	T4B	General Floor Area West Of Fire Zone T1 EL 277-0		E,D	E,R	None	Water Pre-Action Sprinkler, Wet Pipe System, Detection
5	T4C	Hydrogen Seal Oil Unit Room EL 277-0		E,R,D	E,R	None	Deluge System, CO ₂ required for DID, Detection
5	T4D	Battery Room EL 277		None	E,D	None	Detection
5	T5A	General Floor Area North EL 291-0		E,D	E,D	None	Wet Pipe System, Detection
5	T6A	General Floor Area North EL 305-6		E,D	E,R	None	Wet Pipe System, CO ₂ required for DID, Detection
5	T6B	Turbine Laydown Area East EL 300-0		None	E,D	None	Detection
5	T6C	General Floor Area South EL 300-0		E,D	E,D	None	Deluge System, Detection
5	T6D	Mechanical Storage Area EL 300-0		E,D	E,D	None	Water Pre-Action Sprinkler, Detection
5	T7A	General Floor Area South EL 320-0		None	E,D	None	Detection
5	T8A	General Floor Area North EL 333-0, General Floor Area North EL 351-0, General Floor Area East EL 369		E,D	E,D	None	Wet Pipe System, Detection
5	T8B	General Floor Area West EL 369-0		None	E,D	None	Detection
6		Turbine Building North EL 250-0	4.2.4.2³				
6	T2A	Turbine Building EL 250-0		R	E,R	None	Water Pre-Action Sprinkler, Detection

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
7		Turbine Building South & West EL 250-0	4.2.4.2³				
7	T2B	Turbine Building South And West EL 250-0		R	R	None	Water Pre-Action Sprinkler, Detection
7	T2E	UPS Battery Room EL 250		None	D	None	Detection
9		Turbine Building East EL 250-0	4.2.4.2³				
9	T2C	Turbine Building Offgas Tunnel EL 250-0		None	D	None	Detection
9	T2D	Turbine Building General Area East EL 250-0		R	R	None	Water Pre-Action Sprinkler, Detection
10		Cable Spreading Room EL 250-0	4.2.4.2³				
10	C1	Cable Spreading Room EL 250-0		E,R,D	E,R	None	Water Pre-Action Sprinkler, CO ₂ required for DID, Detection
11		Control Complex EL 261-0 And EL 277-0	4.2.4.2³				
11	C2	Auxiliary Control Room, Computer Room 261-0		R,D	E,R	S	Halon Suppression System, CO ₂ required for DID, Detection, Promat-H enclosure for the HVAC duct
11	C3	Control Room EL 277-0		None	E,R	None	Detection
12		Administration Building EL 250-0	4.2.4.2³				
12	AB1A	Records Storage Area EL 250-0		None	D	None	Detection
12	AB1B	SAS Equipment Area EL 252-0		D	D	None	Halon Suppression System, Detection
12	AB1C	CPU Equipment Area EL 252-0		D	D	None	Halon Suppression System, Detection
12	AB1D	General Area EL 250-0		D	D	None	Wet Pipe System, Detection
12	AB1E	Locker Area, Lunch Room, Offices EL 261-0		D	D	None	Wet Pipe System, Detection
12	AB2A	Access Passageway EL 248-0		D	None	None	Wet Pipe System
12	AB2B	Technical Support Area EL 248-0		D	D	None	Wet Pipe System, Detection
12	AB2C	Radiation Records Area EL 248-0		D	D	None	Wet Pipe System, Detection
12	AB2D	Warehouse Area EL 248-0		D	None	None	Wet Pipe System
12	AB3A	Warehouse Area EL 261-0		D	None	None	Wet Pipe System

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
12	AB3B	Oil Storage Room EL 261-0		D	None	None	Wet Pipe System
12	AB3C	Storeroom Truck Dock EL 261-0		D	None	None	Dry Pipe System
12	AB3D	Electrical/Mechanical Shop Area, Office Areas, Locker Rooms EL 261-0		R	R	None	Wet Pipe System, Detection
12	AB3E	Telephone Room 1 EL 261-0		D	D	None	Halon Suppression System, Detection
12	AB3F	Telephone Room 2 EL 261-0		D	D	None	Halon Suppression System, Detection
12	AB4A	General Office Area EL 277-0		D	D	None	Wet Pipe System, Detection
12	AB4B	File Room EL 277-0		D	D	None	Water Pre-Action Sprinkler, Detection
12	AB4C	Records Processing Area EL 277-0		R	R	None	Water Pre-Action Sprinkler, Detection
12	AB4D	General Office Area EL 277-0		R	R	None	Wet Pipe System, Detection
12	AB5	Penthouse Ventilation Room EL 290-0		D	D	None	Deluge System, Detection
13		Screenhouse	4.2.4.2³				
13	S1	Screenhouse EL 225-0 – 256-0		S,D	R	None	Dry Pipe System, Detection
14		Diesel Fire Pump Room EL 261-0	4.2.4.2³				
14	S2	Diesel Fire Pump Room EL 256-0		S,D	S,D	None	Wet Pipe System required for Chapter 3, Section 3.9.4, compliance; Detection
15		Radwaste And Waste Disposal Buildings EL 252-0 thru 292-0	4.2.4.2³				
15	RS1A	Drum Waste Storage Vaults EL 252-0		None	None	None	
15	RS1B	Electrical Equipment Room EL 252-0		D	D	None	Halon Suppression System, Detection
15	RS1C	General Floor Area South, Drum Storage Room EL 252-0		None	D	None	Detection
15	RS2A	Truck Loading Area, North EL 261-0		D	None	None	Dry Pipe System
15	RS2B	Truck Loading Area, West EL 261-0		D	None	None	Dry Pipe System
15	RS2C	General Floor Area EL 261-0		D	D	None	Dry-pipe System, Detection

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
15	RS2D	Radwaste Control Room, West EL 261-0		D	D	None	Halon Suppression System, Detection
15	RS2E	General Floor Area, South EL 261-0		None	None	None	
15	RS3A	General Floor Area, West EL 281-0		None	D	None	Detection
15	RS4A	General Floor Area, Northwest EL 292-0		D	D	None	Deluge System, Detection
15	RS5B	General Floor Area, Southwest EL 292-0		None	D	None	Detection
15	WD1	General Area EL 225-0 & 229-0		None	D	None	Detection
15	WD2	General Area EL 247-0		None	D	None	Detection
15	WD3A	General Area EL 261-0		D	D	None	Water Pre-Action Sprinkler, Detection
15	WD3B	Radwaste Control Room EL 261-0		None	D	None	Detection
15	WD3C	Baler Room EL 261-0		D	D	None	Dry Pipe System, Detection
15	WD3D	Dow Solidification Area EL 261-0		D	D	None	Dry Pipe System, Detection
15	WD3E	Truck Bay EL 261-0		E,D	E,D	None	Dry Pipe System, Detection
15	WD4	Waste Building Ventilation Area EL 277-0		None	D	None	Detection
16A		Battery Board Room 12 EL 261-0	4.2.4.2³				
16A	B1A	Battery Board Room 12 EL 261-0		None	E,D	None	Detection
16B		Battery Board Room 11 EL 261-0	4.2.4.2³				
16B	B1B	Battery Board Room 11 EL 261-0		None	E,D	None	Detection
17A		Battery Room 12 EL 277-291	4.2.4.2³				
17A	B2A	Battery Room 12 EL 277-0		None	E,D	None	Detection
17B		Battery Room 11 EL 277-291	4.2.4.2³				
17B	B2B	Battery Room 11 EL 277-0		None	E,D	None	Detection
18		Emergency Diesel Generator 102 Missile Enclosure EL 271	4.2.4.2³				
18	D3	EDG 102 Control Cable Missile Enclosure EL 271-0		None	E,D	S	Detection, Promat-H enclosure

Table 4-3 Summary of NFPA 805 Compliance Basis and Required Fire Protection Systems and Features

Fire Area	Fire Zone	Description	NFPA 805 Regulatory Basis	Required Suppression System (S, E, R, D) ²	Required Detection System (S, E, R, D) ²	Required Fire Protection Feature (S, E, R, D) ²	Required Fire Protection Feature and System Details ¹
19		Emergency Diesel Generator 103 Foundation Room EL 250-0 and Diesel Generator Room EL 261-0	4.2.4.2³				
19	D1A	EDG 103 Foundation Room EL 250-0		E,D	E,D	None	Water Pre-Action Sprinkler, Detection
19	D2A	EDG 103 Room EL 261-0		R	E,R	None	CO ₂ System, Detection
20		Diesel Generator Enclosed Cableway EL 250-0	4.2.4.2³				
20	D1C	EDG 103 Cable Routing Area EL 250-0		D	D	None	Water Pre-Action Sprinkler, Detection
21		Below Powerboards 102 & 103 EL 250-0	4.2.4.2³				
21	D1D	Room Below PB's 102 & 103 EL 250-0		D	D	None	Water Pre-Action Sprinkler, Detection
22		Emergency Diesel Generator 102 Foundation Room EL 250-0 and Diesel Generator Room EL 261-0	4.2.4.2³				
22	D1B	EDG 102 Foundation Room EL 250-0		E,D	E,D	None	Water Pre-Action Sprinkler, Detection
22	D2B	EDG 102 Room EL 261-0		R	E,R	None	CO ₂ System, Detection
23		Power Board 102 Room EL 261-0	4.2.4.2³				
23	D2C	Power Board 102 Room EL 261-0		D	E,R	None	CO ₂ System, Detection
24		Power Board 103 Room EL 261	4.2.4.2³				
24	D2D	Power Board 103 Room EL 261-0		D	E,R	None	CO ₂ System, Detection
EXT		External to Plant	4.2.3.1³				
EXT	EXT	External to Plant		E	E	None	Deluge System, Detection

- Notes:
1. Refer to Attachment C for each area and additional information
 2. NR – Not Required; S – Required for Separation; E – Required for Engineering Evaluation; R – Required for Risk; D – Required for Defense-in-Depth
 3. Compliance includes reliance on simplifying deterministic assumptions

REVISIONS TO TRANSITION REPORT ATTACHMENT A

**NEI 04-02 TABLE B-1, TRANSITION OF FUNDAMENTAL
FIRE PROTECTION PROGRAM & DESIGN ELEMENTS**

Re-typed Pages A-42 through A-44.

Chapter 3. Reference and Requirements/Guidance	Compliance Statement	Compliance Bases	Reference Documents
<p>3.5.16 The fire protection water supply system shall be dedicated for fire protection use only.</p> <p>Exception No. 1: Fire protection water supply systems shall be permitted to be used to provide backup to nuclear safety systems, provided the fire protection water supply systems are designed and maintained to deliver the combined fire and nuclear safety flow demands for the duration specified by the applicable analysis.</p> <p>Exception No. 2: Fire protection water storage can be provided by plant systems serving other functions, provided the storage has a dedicated capacity capable of providing the maximum fire protection demand for the specified duration as determined in this section.</p>	<p>Complies with Clarification based on Exception No. 1</p>	<p>In addition to fire protection use, N1-SD-018 and the UFSAR describe the following non-fire protection, nuclear safety / emergency uses of the fire protection water supply system:</p> <ul style="list-style-type: none"> a. Provide a source of make-up water to the emergency condenser make-up tanks. b. Provide an emergency source of water for containment and reactor vessel flooding. c. Provide an emergency source of make-up water to the spent fuel pool. d. Provide a back-up water source for the emergency service water system. e. Provide a back-up water source for the diesel generator cooling water system. <p>The following additional considerations apply to non-fire protection uses described above:</p> <ul style="list-style-type: none"> a. Use of the electric motor-driven or diesel engine-driven fire pump as a source of emergency make-up to the emergency condenser make-up tanks would not be required for a minimum of 8-hours after depletion of the emergency condenser inventory, assuming worst case conditions in which the CST inventories are unavailable due to fire damage to the CST transfer system. If the CST transfer system is available, emergency condenser makeup using a fire pump is not required for a minimum of 48-hours. In either case, concurrent fire protection use is unlikely. 	<p>N1-SD-018, Rev. 05, Sec. 1.0</p> <p>UFSAR Sec. X.N, Appendix 10A, Rev. 21, Sec. 2.5, pg. 10A-29</p> <p>UFSAR Sec. X.N, Appendix 10B, Rev. 21, Appendix D, Sec. 1.c, pg. 10B-220</p> <p>Calculation S13.1-100F005, "Diesel Fire Pump / Reactor Vessel Flooding," Rev. 0, All</p> <p>Calculation S13.1-100F006, "Pressure Drop Calculation, NMP2 Main Fire Pumps Supply to NMP1 Fire Water Distribution System," Rev. 0, All</p> <p>Calculation 13.1-100F007, "Hydraulic Analysis of Diesel Fire Pump Supply to ESW #11 and Emergency Diesel Cooling Water Systems," Rev. 0, All</p>

Chapter 3 Reference and Requirements/Guidance	Compliance Statement	Compliance Bases	Reference Documents
3.5.16 (cont.)		<p>(cont.)</p> <p>b. Use of the electric motor-driven or diesel engine-driven fire pump for emergency containment and reactor vessel flooding would only be required in the unlikely event that all other means of core injection are lost. On this basis, concurrent fire protection use is unlikely.</p> <p>c. Use of the electric motor-driven or diesel engine-driven fire pump as a source of emergency spent fuel pool inventory would only be required upon loss of the Fuel Pool Make-up System, condensate transfer via hoses, and demineralized water with hoses from refueling service connections. On this basis, concurrent fire protection use is unlikely.</p> <p>d. and e. Use of the diesel engine-driven fire pump as a source of ESW and EDG cooling water would only be required upon occurrence of a fire in the Screenhouse that could disable all other Screenhouse pumps.</p> <p>Clarification: The required flow rate and pressure demand for each of the non-fire protection, nuclear safety / emergency uses of the fire protection water supply system described above can be supplied by use of one (1) of the redundant fire pumps. Therefore, in the unlikely event that concurrent fire protection and non-fire protection use is required, either the remaining Unit 1 fire pump, or the Unit 2 fire protection water supply system will be available. To ensure adequate water supply for fire suppression activities concurrent with other uses, a modification for a cross-connection will be installed. See modifications in Attachment S.</p>	

Chapter 3 Reference and Requirements/Guidance	Compliance Statement	Compliance Bases	Reference Documents
3.5.16 (cont.)		(cont.) Additionally, since the source of the Unit 1 and Unit 2 fire protection water supply is Lake Ontario, the water available to supply fire protection and/or non-fire protection demands is not a concern.	
3.6 Standpipe and Hose Stations.	N/A	N/A - Section title, no technical requirements. See sub-sections for specific compliance statements and references.	
3.6.1 For all power block buildings, Class III standpipe and hose systems shall be installed in accordance with NFPA 14, Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems.	Complies with use of EEEE	Standpipe and hose systems are provided for all power block structures. Per N1-SD-018, standpipe risers are located at various points throughout Nine Mile Point Unit 1 to serve hose stations. The standpipes/hose stations are so spaced as to permit hose stream coverage of all points in the buildings including primary containment. Hose stations are equipped with 100 feet of 1-1/2 inch hose with adjustable spray nozzles. Hose stream coverage is in accordance with NFPA 14 Class III systems.	N1-SD-018, Rev. 05, Sec. 2.2.5 UFSAR Sec. X.N, Appendix 10A, Rev. 21, Sec. 2.5.3.4, Table 1.2.2, pgs. 10A-46, 10A-47, 10A-86 FPEE 0-98-003, "Acceptable Use of Aluminum Fire Hose Couplings," Rev. 0 EIR 51-9077284-000, "NMP-1 Code Reviews," Sec. 4.0, Appendix F
3.6.2 A capability shall be provided to ensure an adequate water flow rate and nozzle pressure for all hose stations. This capability includes the provision of hose station pressure reducers where necessary for the safety of plant industrial fire brigade members and off-site fire department personnel.	Complies	Based on the fire protection water supply design information contained in S13.1-100F002, the NMP1 fire protection water supply system is capable of providing adequate flow and pressure for all hose stations and exceeds NFPA 14-1963 design requirements. Pressure reduction devices are not installed for hose stations. This has been deemed acceptable because fire hoses connected to the standpipe system are intended for use exclusively by trained fire brigade personnel.	S13.1-100F002, "Fire Protection Water Supply," Rev. 02 UFSAR Sec. X.N, Appendix 10A, Rev. 21, Sec. 2.5.3.4, Table 1.2.2, pgs. 10A-46, 10A-47, 10A-86

REVISIONS TO TRANSITION REPORT ATTACHMENT B

**NEI 04-02 TABLE B-2, NUCLEAR SAFETY CAPABILITY
ASSESSMENT - METHODOLOGY REVIEW**

Re-typed Pages B-1 through B-102.

(Replaces the original Attachment B in its entirety.)

B. NEI 04-02 Table B-2 – Nuclear Safety Capability Assessment - Methodology Review

101 Pages Attached

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

A comprehensive list of systems and equipment and their interrelationships to be analyzed for a fire event shall be developed. The equipment list shall contain an inventory of those critical components required to achieve the nuclear safety performance criteria of Section 1.5. Components required to achieve and maintain the nuclear safety functions and components whose fire-induced failure could prevent the operation or result in the mal-operation of those components needed to meet the nuclear safety criteria shall be included. Availability and reliability of equipment selected shall be evaluated.

NEI 00-01 Ref

3 Deterministic Methodology

NEI 00-01 Guidance

This section discusses a generic deterministic methodology and criteria that licensees can use to perform a post-fire safe shutdown analysis to address regulatory requirements. For a complete understanding of the deterministic requirements, work this section in combination with the information in Appendix C, High/Low Pressure Interfaces, Appendix D, Alternative and Dedicated Shutdown Requirements, Appendix E, Acceptance Criteria for Operator Manual Actions and repairs, and Appendix H, Hot Shutdown versus Important to Safe Shutdown Components. To resolve the industry issue related to MSOs, refer to Section 4, Appendix B, Appendix F and Appendix G. The plant specific analysis approved by NRC is reflected in the plant's licensing basis. The methodology described in this section is an acceptable method of performing a post-fire safe shutdown analysis. This methodology is depicted in Figure 3-1. Other methods acceptable to NRC may also be used. Regardless of the method selected by an individual licensee, the criteria and assumptions provided in this guidance document may apply. The methodology described in Section 3 is based on a computer database oriented approach, which is utilized by several licensees to model Appendix R data relationships. This guidance document, however, does not require the use of a computer database oriented approach.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

This document addresses the comparison of the deterministic methodology used for the existing the Nine Mile Point 1 (NMP1) Safe Shutdown Analysis and the requirements of 10CFR50 Appendix R, Sections III.G.1, III.G.2 and III.G.3 against the compliance requirements and criteria specified in NFPA 805. The subsequent sections determine the extent the analysis meets the requirements as described in NEI 04-02. This documents a line by line review and comparison against the methodology and criteria provided in Chapter 3 of NEI 00-01, Revision 2. The deterministic methodology described in Section 3 and Figure 3-1 of NEI 00-01 was utilized as documented in the following Table B-2 sections. The NMP1 safe shutdown methodology utilizes a computer oriented database to model data relationships for systems, components, and cables used to comply with the requirements for post fire safe shutdown. This review of modifications, procedural controls, repair procedures and previously approved configurations and boundaries demonstrates that the safe shutdown analysis generally meets the Nuclear Safety Performance Criteria including the information provided in Appendix B of NFPA 805 related to circuit criteria and Multiple Spurious Operations (MSOs).

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

3.1 Safe Shutdown Systems and Path Development

NEI 00-01 Guidance

This section discusses the identification of systems necessary to perform the required safe shutdown functions. It also provides information on the process for combining these systems into safe shutdown paths. Appendix R Section III.G.1.a requires that the capability to achieve and maintain hot shutdown be free of fire damage. Appendix R Section III.G.1.b requires that repairs to systems and equipment necessary to achieve and maintain cold shutdown be completed within 72 hours. This section provides some guidance on classifying components as either required or important to SSD circuit components. It also provides some guidance on the tools available for mitigating the effects of fire-induced circuit failures to each of these classes of equipment. For a more detailed discussion of the topic of required and important to SSD components refer to Appendix H.

The goal of post-fire safe shutdown is to assure that a one train of shutdown systems, structures, and components remains free of fire damage for a single fire in any single plant fire area. This goal is accomplished by determining those functions required to achieve and maintain hot shutdown. Safe shutdown systems are selected so that the capability to perform these required functions is a part of each safe shutdown path. The functions required for post-fire safe shutdown generally include, but are not limited to the following:

- Reactivity control
 - Pressure control systems
 - Inventory control systems
 - Decay heat removal systems
 - Process monitoring (as defined in NRC Information Notice 84-09)
 - Support systems
-
- Electrical power and control systems
 - Component Cooling systems
 - Component Lubrication systems

These functions are of importance because they have a direct bearing on the safe shutdown goal of being able to achieve and maintain hot shutdown, which ensures the integrity of the fuel, the reactor pressure vessel and the primary containment. If these functions are preserved, then the plant will be safe because the fuel, the reactor and the primary containment will not be damaged. By assuring that this equipment is not damaged and remains functional, the protection of the health and safety of the public is assured.

The components required to perform these functions are classified as required for hot shutdown components. These components are necessary and sufficient to perform the required safe shutdown functions assuming that fire-induced impacts to other plant equipment/cables do not occur. Since fire-induced impacts to other plant equipment/cables can occur in the fire condition, these impacts must also be addressed. The components not necessary to complete the required safe shutdown functions, but which could be impacted by the fire and cause a subsequent impact to the required safe shutdown components are classified as either required for hot shutdown or important to SSD components. Depending on the classification of the components, the tools available for mitigating the effects of fire-induced damage vary. The available tools are generally discussed in this section and in detail in Appendix H. The classification of a component or its power or control circuits may vary from fire area to fire area. Therefore, the required safe shutdown path for any given fire area is comprised of required for hot shutdown components and important to SSD components. The distinction and classification for each required safe shutdown path for each fire area should be discernible in the post-fire safe shutdown analysis.

Generic Letter 81-12 specifies consideration of associated circuits of concern with the potential for spurious equipment operation and/or loss of power source, and the common enclosure failures. As described above, spurious operations/actuators can affect the accomplishment of the required safe shutdown functions listed above. Typical examples of the effects of the spurious operations of concern are the following:

- A loss of reactor pressure vessel/reactor coolant inventory in excess of the safe shutdown makeup capability.
- A flow loss or blockage in the inventory makeup or decay heat removal systems being used for the required safe shutdown path.

Spurious operations are of concern because they have the potential to directly affect the ability to achieve and maintain hot shutdown, which could affect the fuel and cause damage to the reactor pressure vessel or the primary containment. To address the issue of multiple spurious operations, Section 4 provides a Resolution Methodology for developing a Plant Specific List of MSOs for evaluation. Appendix B provides the circuit failure criteria applicable to the evaluation of the Plant Specific list of MSOs.

Common power source and common enclosure concerns could also affect the safe shutdown path and must be addressed.

In addition to the tools described for components classified as required for hot shutdown, fire-induced impacts to cables and components classified as important to SSD may be mitigated using some additional tools. For important to SSD component failures, operator manual actions, fire modeling and/or a focused-scope fire PRA may be used to mitigate the impact. (If the use of a Focused-Scope Fire PRAs is not permitted in the Plants Current License Basis, then, a License Amendment Request (LAR) will be necessary to use the Focused-Scope Fire PRA).

Applicability	Comments
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Applicable	None
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Alignment Statement

Aligns

Alignment Basis

To achieve post-fire safe shutdown, the Safe Shutdown Systems, their functions, and components required to support the safe shutdown functions were identified. P&IDs and Electrical drawings were marked up and annotated to select equipment and specific flow paths for each system required to support safe shutdown. This information was populated into a computer database to provide a database oriented approach to model Appendix R data relationships.

Safe shutdown systems, components, and cables were selected using the criteria and assumptions of NEI 00-01, Rev. 2, Sections 3.1.1 and 3.1.2 to satisfy each safe shutdown function performance goals, including process monitoring and support systems for each path. NEI 00-01 was used as the guidance in developing the Safe Shutdown Equipment List and the Safe Shutdown success paths. Safe Shutdown paths were designed based on the combination of systems in the respective fire area.

The ability to achieve post-fire Safe Shutdown (SSD) is assured by having at least one safe shutdown path of the required systems, structures, and components to remain free of fire damage. This assurance that the safe shutdown equipment is available supports the required performance goals identified in the guidance, maintains the integrity of the fuel, reactor pressure vessel and primary containment. The SSD path used to achieve post-fire safe shutdown is comprised of SSD systems and components that remain free of fire damage.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.0, 5.1, 5.2, 8.6.2, and 8.6.3
HNP RAI 3-6, RAI 3-9, RAI 3-10, and RAI 3-11, NRC Requests for Additional Information dated August 6, 2009 (ML092170715)
Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 06-0006 (ML070030117)
ONS RAI 3-35, NRC Request for Additional Information dated November 18, 2009 (ML092920347)

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1 Criteria/Assumptions

The following criteria and assumptions should be considered, as applicable, when identifying systems available and necessary to perform the required safe shutdown functions and combining these systems into safe shutdown paths. This list provides recognized examples of criteria/assumptions but should not be considered an all-inclusive list. The final set of criteria/assumptions should be based on regulatory requirements and the performance criteria for post-fire safe shutdown for each plant.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

3.1.1.1 Safe Shutdown Paths For BWRs

NEI 00-01 Guidance

[BWR] GE Report GE-NE-T43-00002-00-01-R01 entitled "Original Safe Shutdown Paths For The BWR" addresses the systems and equipment originally designed into the GE boiling water reactors (BWRs) in the 1960s and 1970s, that can be used to achieve and maintain safe shutdown per Section III.G.1 of 10CFR 50, Appendix R. Any of the shutdown paths (methods) described in this report are considered to be acceptable methods for achieving redundant safe shutdown.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

The primary means of achieving and maintaining hot shutdown following a fire coincident with a Loss of Offsite Power (LOOP) is via the Emergency Condenser (EC) system. The EC system consists of two redundant emergency cooling loops; each loop is capable of independently accomplishing hot shutdown. Therefore, this option provides two redundant paths for obtaining hot shutdown.

The EC system operates by natural circulation. Steam flows from the vessel through the EC tubes. Condensate returns to the vessel through a reactor recirculation loop. Boiling of water in the secondary side of the ECs, which is vented to the atmosphere, provides the necessary cooling.

In the event the preferred shutdown method is not available, the plant can be shut down by opening three Electromatic Relief Valves (ERVs) and discharging steam to the Torus to reduce pressure. When reactor pressure reaches approximately 365psig, Core Spray (CS) may be initiated. CS is a two loop system. Operation of one LOOP is adequate to achieve shutdown. Eventually, the reactor vessel floods to the point where the ERVs are passing fluid to the Torus rather than steam, in essence placing the Reactor Coolant System in recirculation through the Torus. During this process, decay heat is removed by operation of the Containment Spray System in conjunction with the Containment Spray Raw Water system. This shutdown method will bring the plant directly to CSD. Fully flooding the Reactor Pressure Vessel negates the need for another system to provide inventory makeup. AC power is required to initiate this shutdown method.

Reference Document

EIR 51-9133191, NSCA, Sections 5.1 and 5.2

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

3.1.1.2 SRVs and LPCI/CS

NEI 00-01 Guidance

[BWR] GE Report GE-NE-T43-00002-00-03-R01 provides a discussion on the BWR Owners' Group (BWROG) position regarding the use of Safety Relief Valves (SRVs) and low pressure systems (LPCI/CS) for safe shutdown. The BWROG position is that the use of SRVs and low pressure systems is an acceptable methodology for achieving redundant safe shutdown in accordance with the requirements of 10 CFR 50 Appendix R Sections III.G.1 and III.G.2. The NRC has accepted the BWROG position and issued an SER dated Dec. 12, 2000.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

For NMP1, using the Electromatic Relief Valves (ERVs) to remove decay heat to the torus and low pressure Core Spray system is an acceptable method for achieving safe shutdown. The Emergency Condensers provide one shutdown flow path while the ERVs provide an Alternate Shutdown method.

Reference Document

EIR 51-9133191, NSCA, Section 4.0
NMP1 Safety Evaluation 84-18, ADS Logic Modification

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.3 Pressurizer Heaters

[PWR] Generic Letter 86-10, Enclosure 2, Section 5.3.5 specifies that hot shutdown can be maintained without the use of pressurizer heaters (i.e., pressure control is provided by controlling the makeup/charging pumps). Hot shutdown conditions can be maintained via natural circulation of the RCS through the steam generators. The cooldown rate must be controlled to prevent the formation of a bubble in the reactor head. Therefore, feedwater (either auxiliary or emergency) flow rates as well as steam release must be controlled.

Applicability

Comments

Not Applicable

NMP1 is a BWR plant.

Alignment Statement

Not Required

Alignment Basis

NMP1 is a BWR plant.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection**NEI 00-01 Ref****NEI 00-01 Guidance****3.1.1.4 Alternative Shutdown Classification**

The classification of shutdown capability as alternative/dedicated shutdown is made independent of the selection of systems used for shutdown. Alternative/dedicated shutdown capability is determined based on an inability to assure the availability of a redundant safe shutdown path. Compliance to the separation requirements of Sections III.G.1 and III.G.2 may be supplemented by the use of operator manual actions to the extent allowed by the regulations and the licensing basis of the plant (see Appendix E), repairs (cold shutdown only), exemptions, deviations, GL 86-10 fire hazards analyses or fire protection design change evaluations permitted by GL 86-10, as appropriate. These may also be used in conjunction with alternative/dedicated shutdown capability. A discussion of time zero for the fire condition, as it relates to operator manual actions and repairs, is contained in Appendix E.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The criteria of 10CFR50 Appendix R, Section III.G.3, requires alternate or dedicated shutdown capability for all plant areas where the protection of systems for hot shutdown does not satisfy the requirements of Sections III.G.1 and III.G.2 of Appendix R. The hot shutdown system to be used for a control room evacuation event is the EC system.

NMP1 has two Remote Shutdown Panels installed for the purpose of monitoring the Plant Shutdown in the event of a Control Room evacuation. Modifications were performed which hardened the EC system from spurious isolations due to the effects of a control complex fire. Upon receiving either a high reactor pressure signal or a low-low reactor water level signal, the ECs will automatically initiate, independent of the control complex, due to the shutdown supervisory control system redundant initiation logic located in the reactor building, although Operator action will initiate the safe shutdown systems prior to its automatic initiation to conserve reactor vessel inventory.

Reference Document

EIR 51-9133191, NSCA, Section 2.1.1

NMP1 Safety Evaluation 83-29, Emergency Condensers

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.5 Operable and Available

At the onset of the postulated fire, all safe shutdown systems (including applicable redundant trains) are assumed operable and available for post-fire safe shutdown. Systems are assumed to be operational with no repairs, maintenance, testing, Limiting Conditions for Operation, etc. in progress. The units are assumed to be operating at full power under normal conditions and normal lineups.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

As stated in the Fire Area Assessments at the onset of the fire, all systems not affected by the fire are considered to be available and capable of functioning as designed. All safe shutdown systems (including redundant trains) are assumed to be operational and available for post-fire safe shutdown. Systems are assumed to be operational with no repairs, maintenance, testing, Limiting Conditions for Operation, etc. The unit is assumed to be operating at full power under normal conditions and normal lineups.

Reference Document

EIR 51-9133191, NSCA, Section 4.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.6 No concurrent DBAs

No Final Safety Analysis Report accidents or other design basis events (e.g. loss of coolant accident, earthquake), single failures or nonfire induced transients need be considered in conjunction with the fire.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

No accidents or other design basis events (e.g. loss of coolant accident, earthquake), single failures or non-fire induced transients are considered in conjunction with the fire.

The fire does not occur simultaneously or coincident with any other transient or abnormal condition, except for loss of offsite power (LOOP) and those conditions resulting directly from the effects of a fire. No credit is taken for offsite power availability; however, offsite power is considered to be available if the fire effects produce more conservative results.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.7 Offsite Power Availability

For the case of redundant shutdown, offsite power may be credited if demonstrated to be free of fire damage. Offsite power should be assumed to remain available for those cases where its availability may adversely impact safety (i.e., reliance cannot be placed on fire causing a loss of offsite power if the consequences of offsite power availability are more severe than its presumed loss). No credit should be taken for a fire causing a loss of offsite power. For areas where train separation cannot be achieved and alternative shutdown capability is necessary, shutdown must be demonstrated both where offsite power is available and where offsite power is not available for 72 hours.

Applicability

Comments

Applicable

ONS RAI 3-40 is addressed; No credit is taken for offsite power.

Alignment Statement

Aligns

Alignment Basis

For redundant safe shutdown, offsite power is presumed lost. However, offsite power is assumed to remain available for those cases where its availability may adversely impact safety (i.e., reliance cannot be placed on fire causing a loss of offsite power if the consequences of offsite power availability are more severe than its presumed loss). No credit is taken for a fire causing a loss of offsite power. For areas where train separation cannot be achieved and alternative shutdown capability is necessary, shutdown is demonstrated both where offsite power is available and where offsite power is not available (NFPA 805 requires maintaining the fuel in a safe and stable condition, i.e., there is no requirement to achieve and maintain CSD, and therefore no 72-hour coping time requirement). Offsite power has not been specifically analyzed. There are no fire areas where offsite power is credited.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

ONS RAI 3-40, NRC Request for Additional Information dated July 30, 2010 (ML102110394)

Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 08-0054 (ML110140183)

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.8 Safety Related Classification Post-fire safe shutdown systems and components are not required to be safety-related.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Credited safe shutdown systems and components are not always safety related. Most components are safety related due to their emergency functions, but they are not required to be safety-related.

Reference Document

EIR 51-9133191, NSCA, Section 4.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.9 72-hour Coping Period

The post-fire safe shutdown analysis assumes a 72-hour coping period starting with a reactor scram/trip. Fire-induced impacts that provide no adverse consequences to hot shutdown within this 72-hour period need not be included in the post-fire safe shutdown analysis. At least one train can be repaired or made operable within 72 hours using onsite capability to achieve cold shutdown.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Appendix R requires cold shutdown of the reactor within 72 hours for fire events, with or without offsite power available. The original NMP1 Safe Shutdown Analysis identifies the safe shutdown systems and components which are powered by on-site sources, where at least one train can be repaired or made operable within the 72 hours. However, NFPA 805 does not require a 72-hour coping period. Rather, the requirement is to maintain the fuel in a safe and stable condition (i.e., there is neither a requirement nor timeframe to reach and maintain cold shutdown). Refer to Section 4.2.1.2 for a description of safe and stable as applied to NMP1. NMP1 demonstrates the ability to maintain for each fire area the fuel in a safe and stable condition with one of four designated shutdown paths. Offsite power is not credited with providing any power or beneficial effects.

Shutdown Paths:

- A. Train 11 – Emergency cooling, CRD system (makeup).
- B. Train 12 – Emergency cooling, CRD system (makeup).
- C. Train 11 - ERVs, core spray, containment spray, containment spray raw water.
- D. Train 12 - ERVs, core spray, containment spray, containment spray raw water.

Note: As part of the NMP1 defense-in-depth approach to fire protection, provisions have been made for permanent installation of a feedwater/fire protection water spool piece, which will provide an emergency makeup source from the diesel fire pump for cold shutdown inventory control.

Reference Document

EIR 51-9133191, NSCA, Section 4.0 and 5.0
HNP RAI 3-7 and RAI 3.8, NRC Request for Additional Information dated August 6, 2009 (ML092170715)
Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 08-0054 (ML110140183)

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection**NEI 00-01 Ref****NEI 00-01 Guidance**

3.1.1.10 Manual Initiation of Systems Manual initiation from the main control room or emergency control stations of systems required to achieve and maintain safe shutdown is acceptable where permitted by current regulations or approved by NRC (See Appendix E); automatic initiation of systems selected for safe shutdown is not required but may be included as an option, if the additional cables and equipment are also included in the analysis. Spurious actuation of automatic systems (Safety Injection, Auxiliary Feedwater, High Pressure Coolant Injection, Reactor Core Isolation Cooling, etc.) due to fire damage, however, should be evaluated.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Manual initiation of safe shutdown related equipment from either the control room, emergency control stations or approved locations other than the primary control stations is an acceptable means for compliance based on the current regulations. The safe shutdown performance and design requirements for the reactivity control function can be met without automatic scram capability. The post-fire safe shutdown analysis need only provide the capability to manually scram the reactor. Automatic functions of components have been included for selected systems. Impacts due to spurious actuation of automatic systems are included in the evaluation of the analysis.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.1, 5.2, and 5.4

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.1.11 Multi-unit Plant

Where a single fire can impact more than one unit of a multi-unit plant, the ability to achieve and maintain safe shutdown for each affected unit must be demonstrated.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

As stated in the UFSAR, simultaneous fires affecting NMP1 and NMP2 are not anticipated, due to the spatial separation between the two units and the designed separation (fire barrier) at facility interfaces. NMP1 and NMP2 do not share common facilities for the support of reactor operation or generation of electricity. However, there is the capability to cross-tie the firewater system between NMP1 and NMP2 via cross-tie valves.

Reference Document

UFSAR, Appendix 10A, Section 2.1.9

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2 Shutdown Functions

The following discussion on each of these shutdown functions provides guidance for selecting the systems and equipment required for hot shutdown. For additional information on BWR system selection, refer to GE Report GENE-T43-00002-00-01-R01 entitled "Original Safe Shutdown Paths for the BWR."

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.1 Reactivity Control

[BWR] Control Rod Drive System

The safe shutdown performance and design requirements for the reactivity control function can be met without automatic scram/trip capability. Manual scram/reactor trip is credited. The post-fire safe shutdown analysis must only provide the capability to manually scram/trip the reactor. Each licensee should have an operator manual action to either vent the instrument air header or to remove RPS power in their post-fire safe shutdown procedures. The presence of this action precludes the need to perform circuit analysis for the reactivity control function and is an acceptable way to accomplish this function. If this action is a "time critical" action, the timing must be justified.

[PWR] Makeup/Charging

There must be a method for ensuring that adequate shutdown margin is maintained from initial reactor SCRAM to cold shutdown conditions, by controlling Reactor Coolant System temperature and ensuring borated water is utilized for RCS makeup/charging.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns With Intent

Alignment Basis

As documented in the current NMP1 Safe Shutdown Analysis, the reactivity control function is capable of achieving and maintaining cold shutdown reactivity conditions. The safe shutdown performance and design requirements for the reactivity control function can be met without automatic scram capability. The post-fire safe shutdown analysis provides the capability to manually scram the reactor. Manual reactor scram is accomplished via the scram valves. Plant operators can manually scram the plant from the control room or the remote shutdown panel. The capability to manually scram/trip the reactor is provided in NMP1 Special Operating Procedures N1-SOP-21.1, Fire in Plant, and N1-SOP-21.2, Control Room Evacuation, with reference to the Emergency Operating Procedures for operators to manually vent the instrument air header or to remove RPS power. This action is not considered a "time critical" action because the Mode switch is placed in shutdown and all control rods inserted prior to evacuating the control room. Also, NMP1 complies with the position in BWROG document BWROG-TP-11-011 entitled "BWROG Assessment of Generic Multiple Spurious Operations (MSOs) in Post-Fire Safe Shutdown Circuit Analysis for the Operation of BWR Plants" for manual scram; thereby, supporting that this is not a time critical action.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 5.3
 NMP1 Emergency Operating Procedure N1-EOP-2, RPV Control
 NMP1 Emergency Operating Procedure 3, Failure to Scram
 NMP1 Emergency Operating Procedure 3.1, Alternate Control Rod Insertion
 NMP1 Special Operating Procedure, N1-SOP-21.2, Control Room Evacuation, pg. 3
 NMP1 Special Operating Procedure, N1-SOP-21.1, Fire in Plant, pg. 2

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.2 Pressure Control Systems

The systems discussed in this section are examples of systems that can be used for pressure control. This does not restrict the use of other systems for this purpose.

[BWR] Safety Relief Valves (SRVs)

Initial pressure control may be provided by the SRVs mechanically cycling at their setpoints (electrically cycling for EMRVs). Mechanically-actuated SRVs require no electrical analysis to perform their overpressure protection function. The SRVs may also be opened to maintain hot shutdown conditions or to depressurize the vessel to allow injection using low pressure systems. These are operated manually. Automatic initiation of the Automatic Depressurization System (ADS) is not a required function. Automatic initiation of the ADS may be credited, if available. If automatic ADS is not available and use of ADS is desired, an alternative means of initiation of ADS separate from the automatic initiation logic for accomplishing the pressure control function should be provided.

[PWR] Makeup/Charging

RCS pressure is controlled by controlling the rate of charging/makeup to the RCS. Although utilization of the pressurizer heaters and/or auxiliary spray reduces operator burden, neither component is required to provide adequate pressure control. Pressure reductions are made by allowing the RCS to cool/shrink, thus reducing pressurizer level/pressure. Pressure increases are made by initiating charging/makeup to maintain pressurizer level/pressure. Manual control of the related pumps is acceptable.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The pressure control function is capable of safely reducing reactor vessel pressure.

For the preferred shutdown method, pressure control is achieved through control of the cooldown rate of the emergency condensers. The Electromatic Relief Valves (ERVs) are maintained closed.

In the event the preferred shutdown method is not available, the plant can be shut down by opening three ERVs and discharging steam to the Torus to reduce pressure. For this secondary method, the ERVs are opened manually to depressurize the vessel to allow injection using low pressure systems. Automatic initiation of the ADS is not a required function.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.1, 5.2, and 5.3

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.3 Inventory Control

[BWR] Systems selected for the inventory control function should be capable of supplying sufficient reactor coolant to achieve and maintain hot shutdown. Manual initiation of these systems is acceptable. Automatic initiation functions are not required. Spurious actuation of automatic systems, however, should be evaluated (High Pressure Coolant Injection, High Pressure Core Spray, Reactor Core Isolation Cooling, etc.).

[PWR]: Systems selected for the inventory control function should be capable of maintaining level to achieve and maintain hot shutdown. Typically, the same components providing inventory control are capable of providing pressure control. Manual initiation of these systems is acceptable. Automatic initiation functions are not required. Spurious actuation of automatic systems, however, should be evaluated (Safety Injection, High Pressure Injection, Auxiliary Feedwater, Emergency Feedwater, etc.).

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

For the preferred hot shutdown method, reactor vessel make-up is required 8 hours after operation of the Emergency Condensers (EC) ensues. A Control Rod Drive pump is used to provide vessel make-up. The inventory makeup provided by the CRD pump is also used to raise the Reactor water level at such time that the shutdown cooling system is placed in service.

NMP1 has a defense-in-depth inventory control approach for fire protection by using the firewater to feedwater connection in accordance with NMP1 operating procedures, which provides an emergency makeup source from the diesel fire pump for shutdown inventory control.

As a secondary method, the vessel can be flooded by the Core Spray system after depressurization. This fulfills the vessel inventory make-up by default.

Spurious Actuations are addressed specifically in the Fire Area Assessments. They are considered to exist from the onset of the fire and for the duration of the shutdown process.

Reference Document

EIR 51-9133191, NSCA, Sections 5.3 and 8.6

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.4 Decay Heat Removal

[BWR] Systems selected for the decay heat removal function(s) should be capable of:

- Removing sufficient decay heat from primary containment, to prevent containment over-pressurization and failure.
- Satisfying the net positive suction head requirements of any safe shutdown systems taking suction from the containment (suppression pool).
- Removing sufficient decay heat from the reactor to achieve cold shutdown. (This is not a hot shutdown requirement).

[PWR] Systems selected for the decay heat removal function(s) should be capable of:

- Removing sufficient decay heat from the reactor to reach hot shutdown conditions. Typically, this entails utilizing natural circulation in lieu of forced circulation via the reactor coolant pumps and controlling steam release via the Atmospheric Dump valves.
- Removing sufficient decay heat from the reactor to reach cold shutdown conditions. (This is not a hot shutdown requirement).

This does not restrict the use of other systems.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The decay heat removal function is capable of achieving and maintaining safe and stable conditions. The EC system operates by natural circulation where steam flows upward to the condenser(s) and returns as condensate to the Reactor Pressure Vessel. Decay heat is removed through the transfer of heat from the reactor coolant to the shell side water of the EC which vents the developed steam to atmosphere. Operation of either EC loop can sustain Hot Shutdown conditions for 8 hours without the need for makeup from the Condensate Storage Tank or Fire Water System. The decay heat removal process also reduces reactor pressure. When reactor pressure is reduced to 120 psig and reactor temperature is reduced to 350 degrees F, the plant can be transitioned to shutdown cooling. The EC system can be used to maintain Hot Shutdown conditions for an extended period of time by using the diesel fire pump to refill the Emergency Condensers as needed. The diesel fire pump draws water from Lake Ontario (essentially an infinite source) and need only be refueled periodically to maintain this method of decay heat removal. Note that Emergency Condenser level monitoring is a credited function.

In the event the preferred shutdown method is not available, the plant can be shut down by opening three ERVs and discharging steam to the Torus to reduce pressure. When reactor pressure reaches approximately 365 psig, Core Spray (CS) may be initiated. CS is a two loop system. Operation of one loop is adequate to achieve shutdown. Eventually, the reactor vessel floods to the point where the ERVs are passing fluid to the Torus rather than steam, in essence placing the Reactor Coolant System in recirculation through the Torus. During this process, decay heat is removed by operation of the Containment Spray System in conjunction with the Containment Spray Raw Water system. Containment spray and containment spray raw water systems are utilized to remove heat from the torus water and maintain it within the core spray and containment spray pumps' net positive suction head (NPSH) requirements. This shutdown method will bring the plant directly to cold shutdown. Fully flooding the Reactor Pressure Vessel negates the need for another system to provide inventory makeup. AC power is required to initiate this shutdown method.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 5.1

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.5 Process Monitoring

The process monitoring function is provided for all safe shutdown paths. IN 84-09, Attachment 1, Section IX "Lessons Learned from NRC Inspections of Fire Protection Safe Shutdown Systems (10 CFR 50 Appendix R)" provides guidance on the instrumentation acceptable to and preferred by the NRC for meeting the process monitoring function. This instrumentation is that which monitors the process variables necessary to perform and control the functions specified in Appendix R Section III.L.1. Such instrumentation must be demonstrated to remain unaffected by the fire. The IN 84-09 list of process monitoring is applied to alternative/dedicated shutdown (III.G.3). The use of this same list for III.G.2 redundant Post-Fire Safe Shutdown is acceptable, but the analyst needs to review the specific license basis for the plant under evaluation. In general, process monitoring instruments similar to those listed below are needed to successfully use existing operating procedures (including Abnormal Operating Procedures).

BWR

- Reactor coolant level and pressure
- Suppression pool level and temperature
- Emergency or isolation condenser level
- Diagnostic instrumentation for safe shutdown systems
- Level indication for tanks needed for safe shutdown

PWR

- Reactor coolant temperature (hot leg / cold leg)
- Pressurizer pressure and level
- Neutron flux monitoring (source range)
- Level indication for tanks needed for safe shutdown
- Steam generator level and pressure
- Diagnostic instrumentation for safe shutdown systems

The specific instruments required may be based on operator preference, safe shutdown procedural guidance strategy (symptomatic vs. prescriptive), and systems and paths selected for safe shutdown.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The process monitoring function is to be provided for all safe shutdown paths. NEI 00-01 refers to NRC IN 84-09, Attachment 1, Section IX, as providing guidance on the instrumentation acceptable to and preferred by the NRC for meeting the process monitoring function. This instrumentation is that which monitors the process variables necessary to perform and control the functions specified in Appendix R Section III.L.1. Such instrumentation must be demonstrated to remain unaffected by the fire. The IN 84-09 list of process monitoring is applied to alternative shutdown (III.G.3). In general, process monitoring instruments similar to those listed below are needed to successfully use existing operating procedures related to post-fire shutdown (including Abnormal Operating Procedures).

- Reactor coolant level and pressure
- Suppression pool level and temperature
- Level indication for tanks needed for safe shutdown
- Diagnostic instrumentation for safe shutdown systems

The Reactor Protection System is utilized to satisfy the process monitoring objectives throughout hot and cold shutdown. The specific instruments required may be based on operator preference, safe shutdown procedural guidance strategy (symptomatic vs. prescriptive), and systems and paths selected for safe shutdown.

The following process monitoring functions are provided to support post-fire shutdown:

Primary and Secondary Methods

- Reactor coolant level
- Reactor coolant pressure
- Reactor coolant temperature
- Emergency Diesel Generator parameters

Primary Method

- Emergency Condenser level

Secondary Method

- Torus level
- Torus temperature
- Drywell pressure
- Drywell temperature
- Containment Spray water temperature
- Containment Spray pump discharge pressure

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 5.3

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.6 Support Systems

Blank Heading - No Specific Guidance

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

Generic Heading: Alignment discussed in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.6.1 Electrical Systems

AC Distribution System

Power for the Appendix R safe shutdown equipment is typically provided by a medium voltage system such as 4.16 KV Class 1E busses either directly from the busses or through step down transformers/load centers/distribution panels for 600, 480 or 120 VAC loads. For redundant safe shutdown performed in accordance with the requirements of Appendix R Section III.G.1 and 2, power may be supplied from either offsite power sources or the emergency diesel generator depending on which has been demonstrated to be free of fire damage. No credit should be taken for any beneficial effects of a fire causing a loss of offsite power. Refer to Section 3.1.1.7.

DC Distribution System

Typically, the 125VDC distribution system supplies DC control power to various 125VDC control panels including switchgear breaker controls. The 125VDC distribution panels may also supply power to the 120VAC distribution panels via static inverters. These distribution panels may supply power for instrumentation necessary to complete the process monitoring functions.

For fire events that result in an interruption of power to the AC electrical bus, the station batteries are necessary to supply any required control power during the interim time period required for the diesel generators to become operational. Once the diesels are operational, the 125VDC distribution system can be powered from sources feed from the diesels through the battery chargers.

[BWR] Certain plants are also designed with a 250VDC Distribution System that supplies power to Reactor Core Isolation Cooling and/or High Pressure Coolant Injection equipment.

The DC control centers may also supply power to various small horsepower Appendix R safe shutdown system valves and pumps. If the DC system is relied upon to support safe shutdown without battery chargers being available, it must be verified that sufficient battery capacity exists to support the necessary loads for sufficient time (either until power is restored, or the loads are no longer required to operate).

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

No credit has been taken for the loss of offsite power, however in the event that offsite power is lost, NMP1 has two Emergency Diesel Generators (EDGs). The EDGs will supply the required medium and low voltage safe shutdown loads with AC power. The EDGs are designed to start automatically on loss of offsite power to re-energize emergency busses 102 and 103.

The 125V DC distribution panels supply power to the 120V AC distribution panels via static inverters. These distribution panels typically supply power for instrumentation necessary to complete process monitoring functions. The 125V DC distribution system supplies control power to various 125V DC control panels including switchgear breaker controls. Vital AC power can be provided via RPS uninterruptible power supplies (UPS) 162A, 162B, 172A and 172B.

This 125V DC distribution system is credited to support post fire safe shutdown. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the EDGs to become operational. Once the EDGs are operational, the 125V DC distribution system can be powered from the diesels through the battery chargers.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 5.3

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.6.2 Cooling Systems

Various cooling water systems may be required to support safe shutdown system operation, based on plant-specific considerations.

Typical uses include:

- RHR/SDC/DH Heat Exchanger cooling water
- Safe shutdown pump cooling (seal coolers, oil coolers)
- Diesel generator cooling

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Various cooling water systems are required to support safe shutdown system operation:

- The Reactor Building Closed Loop Cooling and Emergency Service Water Systems provide cooling to the control room ventilation system and Shutdown Cooling Heat Exchangers
- The EDGs are cooled by the EDG Raw Water pumps
- The Containment Spray and Containment Spray Raw Water Systems cool the torus for the secondary cooldown method
- The Chilled Water System is provided for control room ventilation

Reference Document

EIR 51-9133191, NSCA, Section 5.3

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.2.6.3 HVAC Systems

HVAC Systems may be required to assure that safe shutdown equipment remains within its operating temperature range, as specified in manufacturer's literature or demonstrated by suitable test methods, and to assure protection for plant operations staff from the effects of fire (smoke, heat, toxic gases, and gaseous fire suppression agents).

HVAC systems, however, are not required to support post-fire safe shutdown in all cases. The need for HVAC system operation is based on plant specific configurations and plant specific heat loads. Typical potential uses include:

- Main control room, cable spreading room, relay room
- ECCS pump compartments
- Diesel generator rooms
- Switchgear rooms

Plant specific evaluations are necessary to determine which HVAC systems could be required or useful in supporting post-fire safe shutdown. Transient temperature response analyses are often utilized to demonstrate that specific HVAC systems would or would not be required. If HVAC systems are credited, the potential for adverse fire effects to the HVAC system must also be considered, including:

- Dampers closing due to direct fire exposure or due to hot gases flowing through ventilation ducts from the fire area to an area not directly affected by the fire. Where provided, smoke dampers should consider similar effects from smoke.
- Recirculation or migration of toxic conditions (e.g., smoke from the fire, suppressants such as Carbon Dioxide).

In certain situations, adequate time exists to open doors to provide adequate cooling to allow continued equipment operation. Therefore, the list of required safe shutdown components as it relates to HVAC Systems may be determined based on transient temperature analysis. Should this analysis demonstrate that adequate time exists to open doors to provide the necessary cooling, this is an acceptable approach to achieving HVAC Cooling. The temperature analysis must demonstrate the adequacy of the cooling effect from opening the door within the specified time. Only those components whose operation is required to provide HVAC Cooling for required safe shutdown components in a time frame that cannot be justified for operator manual actions are considered themselves to be required safe shutdown components. This latter set of HVAC Cooling Components are required to meet the criteria for required safe shutdown components with regard to the available mitigating tools.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

HVAC Systems required to support post-fire shutdown are:

- Main control room ventilation (except for control room evacuation)
- EDG rooms (fans and roll-up doors)

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. Paths for the ventilation system are as follows:

- Path A – Recirculation flow path
- Path B – Smoke purge flow path

- Path C – Train 11 positive pressure flow path.
- Path D – Train 12 positive pressure flow path

Given the failure modes of dampers and EDG power requirement, Paths C & D are generally credited for post-fire shutdown. Any ventilation path can be supported by Train 11 or Train 12 Chilled Water.

Reference Document

EIR 51-9133191, NSCA, Section 5.3

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection**NEI 00-01 Ref****NEI 00-01 Guidance**

3.1.3 Methodology For Shutdown
System Collection

Refer to Figure 3-2 for a flowchart illustrating the various steps involved in selecting safe shutdown systems and developing the shutdown paths. The following methodology may be used to define the safe shutdown systems and paths for an Appendix R analysis:

Applicability**Comments**

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.3.1 Identify Safe Shutdown Functions

Review available documentation to obtain an understanding of the available plant systems and the functions required to achieve and maintain safe shutdown. Documents such as the following may be reviewed:

- Operating Procedures (Normal, Emergency, Abnormal)
- System descriptions
- Fire Hazard Analysis
- Single-line electrical diagrams
- Piping and Instrumentation Diagrams (P&IDs)
- [BWR] GE Report GE-NE-T43-00002-00-01-R02 entitled "Original Shutdown Paths for the BWR"

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Safe shutdown systems and functions required to satisfy the safe shutdown performance goals were developed and identified from available plant documentation. This documentation includes but is not limited to electrical one line diagrams, schematics, piping and instrumentation diagrams (P&IDs), operating procedures, UFSAR, Fire Hazards Analysis, and the systems descriptions.

Reference Document

EIR 51-9133191, NSCA, Section 5.4

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

3.1.3.2 Identify Combinations of Systems That Satisfy Each Safe Shutdown Function

NEI 00-01 Guidance

Given the criteria/assumptions defined in Section 3.1.1, identify the available combinations of systems capable of achieving the safe shutdown functions of reactivity control, pressure control, inventory control, decay heat removal, process monitoring and support systems such as electrical and cooling systems (refer to Section 3.1.2). This selection process does not restrict the use of other systems. In addition to achieving the required safe shutdown functions, consider other equipment whose mal-operation or spurious operation could impact the required safe shutdown function. The components in this latter set are classified as either required for hot shutdown or as important to SSD as explained in Appendix H.

Applicability

Applicable

Comments

Alignment Statement

Aligns

Alignment Basis

Safe shutdown systems, components, and cables were selected using the criteria and assumptions of NEI 00-01, Sections 3.1.1 and 3.1.2 to satisfy each safe shutdown function performance goal, including process monitoring and support systems. NEI 00-01 was used as the guidance in developing the Safe Shutdown Equipment List and the Safe Shutdown success paths.

The following combination of systems are capable of achieving safe shutdown functions.

1) Reactivity Control – Control Rod Drive System

The safe shutdown performance and design requirements for the reactivity control function can be met without automatic scram capability. The post-fire safe shutdown analysis need only provide the capability to manually scram the reactor.

2) Pressure Control Systems - ERVs

The ERVs are opened to maintain hot shutdown conditions or to depressurize the vessel to allow injection using low pressure systems. These are operated manually. Automatic initiation of the ADS is not a required function.

3) Inventory Control

Systems selected for the inventory control function are capable of supplying sufficient reactor coolant to maintain the fuel in a safe and stable condition. Manual initiation of these systems is acceptable. Automatic initiation functions are not required.

4) Decay Heat Removal

Systems selected for the decay heat removal function(s) are capable of:

- Removing sufficient decay heat from primary containment to prevent containment over-pressurization and failure.
- Satisfying the net positive suction head requirements of any safe shutdown systems taking suction from the torus.
- Removing sufficient decay heat from the reactor to maintain the fuel in a safe and stable condition.

5) Process Monitoring

The process monitoring function is to be provided for all safe shutdown paths. NEI 00-01 refers to NRC IN 84-09, Attachment 1, Section IX, as providing guidance on the instrumentation acceptable to and preferred by the NRC for meeting the process monitoring function. This instrumentation is that which monitors the process variables necessary to perform and control the functions specified in Appendix R Section III.L.1. Such instrumentation must be demonstrated to remain unaffected by the fire. The IN 84-09 list of process monitoring functions is applied to alternative shutdown (III.G.3). In general, process monitoring instruments similar to those listed below are needed to successfully use existing operating procedures related to post-fire shutdown (including Abnormal Operating Procedures).

- Reactor coolant level and pressure
- Torus level and temperature
- Level indication for tanks needed for safe shutdown
- Diagnostic instrumentation for safe shutdown systems

The specific instruments required may be based on operator preference, safe shutdown procedural guidance strategy (symptomatic vs. prescriptive), and systems and paths selected for safe shutdown.

Note – For NMP1, Emergency Condenser level is a required process monitoring function.

6) Support Systems**A. Electrical Systems****AC Distribution System**

Power for safe shutdown equipment is supplied from either offsite power sources or the emergency diesel generator. No credit is taken for a fire causing a loss of offsite power.

DC Distribution System

The 125V DC distribution system supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels also supply power to the 120V AC distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to complete process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries are necessary to supply any required control power during the interim time period required for the diesel generators to become operational. Once the diesels are operational, the 125V DC distribution systems can be powered from the diesels through the battery chargers.

B. Cooling Systems

Various cooling water systems are required to support safe shutdown system operation, based on plant-specific considerations. Cooling system uses include:

- SDC Heat Exchanger cooling water
- Safe shutdown pump cooling (seal coolers, oil coolers)
- Diesel generator cooling
- HVAC system cooling water

C. HVAC Systems

HVAC Systems are required to assure that safe shutdown equipment remains within its operating temperature range, as specified in manufacturer's literature or demonstrated by suitable test methods, and to assure protection for plant operations staff from the effects of fire (smoke, heat, toxic gases, and gaseous fire suppression agents).

HVAC uses include:

- Main control room, cable spreading room, relay room
- ECCS pump compartments
- Diesel generator rooms
- Switchgear Rooms

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. Paths for the ventilation system are as follows:

- Path A – Recirculation flow path
- Path B – Smoke purge flow path
- Path C – Train 11 positive pressure flow path.
- Path D – Train 12 positive pressure flow path

Given the failure modes of dampers and EDG power requirement, Paths C & D are generally credited for post-fire shutdown. Any ventilation path can be supported by Train 11 or Train 12 Chilled Water.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.0, and 5.4

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.1.3.3 Define Combination of Systems for Each Safe Shutdown Path

Select combinations of systems with the capability of performing all of the required safe shutdown functions and designate this set of systems as a safe shutdown path. In many cases, paths may be defined on a divisional basis since the availability of electrical power and other support systems must be demonstrated for each path. During the equipment selection phase, identify any additional support systems and list them for the appropriate path.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Safe shutdown systems, components, and cables were selected using the criteria and assumptions of NEI 00-01, Sections 3.1.1 and 3.1.2 to satisfy each safe shutdown function performance goal, including process monitoring and support systems for each path. NEI 00-01 was used as the guidance in developing the Safe Shutdown Equipment List and the Safe Shutdown success paths. The shutdown paths and equipment selection for the shutdown performance goals are identified in the NSCA.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 5.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref**NEI 00-01 Guidance**

3.1.3.4 Assign Shutdown Paths to Each Combination of Systems

Assign a path designation to each combination of systems. The path will serve to document the combination of systems relied upon for safe shutdown in each fire area. Refer to Attachment 1 to this document for an example of a table illustrating how to document the various combinations of systems for selected shutdown paths.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Safe shutdown systems, components, and cables were selected using the criteria and assumptions of NEI 00-01, Sections 3.1.1 and 3.1.2 to satisfy each safe shutdown function performance goal, including process monitoring and support systems for each path. NEI 00-01 was used as the guidance in developing the Safe Shutdown Equipment List and the Safe Shutdown success paths. Safe Shutdown Paths were designed based on the combination of systems in the respective fire area.

The major systems for safe shutdown success paths are as follows:

- **SUCCESS PATH "A"**

Hot shutdown is achieved via the use of ECs 111 & 112 for Decay Heat Removal. The DFP is used as an inventory source for the EC system. The Train 11 CRD pump or the DFP is used for inventory control/RPV makeup. Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system while other components may require local operator action due to a potential loss of instrument air.

- **SUCCESS PATH "B"**

Hot shutdown is achieved via the use of ECs 121 & 122 for Decay Heat Removal. The DFP is used as an inventory source for the EC system. The Train 12 CRD pump or the DFP is used for inventory control/RPV makeup. Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system while other components may require local operator action due to a potential loss of instrument air.

- **SUCCESS PATH "C"**

Hot shutdown is achieved via use of the Train 11 ERVs (PSV-01-102A, PSV-01-102B, PSV-01-102E) to depressurize the reactor. When pressure drops to the appropriate level, the CS System is used to flood the vessel and place the RCS in a recirculation mode to the Torus. Torus cooling is provided by the CTS system supported by the CTSRW System. These systems can be maintained in service to directly achieve cold shutdown conditions. Path C is generally supported by the Train 11 AC and DC power systems. Some components in Path C systems are powered by the Train 12 AC and/or DC power system.

- **SUCCESS PATH "D"**

Hot shutdown is achieved via use of the Train 12 ERVs (PSV-01-102C, PSV-01-102D, PSV-01-102F) to depressurize the reactor. When pressure drops to the appropriate level, the CS System is used to flood the vessel and place the RCS in a recirculation mode to the Torus. Torus cooling is provided by the CTS System supported by the CTSRW System.

These systems can be maintained in service to directly achieve cold shutdown conditions. Path D is generally supported by the Train 12 AC and DC power systems. Some components in Path D systems are powered by the Train 11 AC and/or DC power system.

Path A and Path B are the preferred shutdown paths to maintain the fuel in a safe and stable condition as these paths present the least thermal hydraulic impact to the plant.

It is possible that for some fire areas, one Path may be employed for hot shutdown and another for cold shutdown. This depends upon the impacts to power supplies and other components in any particular fire area, the controls design of credited components and the use of damage repair procedures. Consequently, it is possible that Path B may be credited for hot shutdown and Path D for cold shutdown, or any other combination. However, if Path C or D is credited for hot shutdown, that path would also be credited for cold shutdown due to the dynamics of the shutdown process.

Reference Document

EIR 51-9133191, NSCA, Section 5.3

Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 08-0054 (ML110140183)

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection**NEI 00-01 Ref****NEI 00-01 Guidance****3.2 Safe Shutdown Equipment Selection**

The previous section described the methodology for selecting the systems and paths necessary to achieve and maintain safe shutdown for an exposure fire event (see Section 5.0 DEFINITIONS for "Exposure Fire"). This section describes the criteria/assumptions and selection methodology for identifying the specific safe shutdown equipment necessary for the systems to perform their Appendix R functions. The selected equipment should be related back to the safe shutdown systems that they support and be assigned to the same safe shutdown path as that system. The list of safe shutdown equipment will then form the basis for identifying the cables necessary for the operation or that can cause the mal-operation of the safe shutdown systems. For each path it will be important to understand which components are classified as required safe shutdown components and which are classified as important to safe shutdown components. When evaluating the fire-induced impact to each affected cable/component in each fire area, this classification dictates the tools available for mitigation the affects.

Applicability**Comments**

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1 Criteria/Assumptions

Consider the following criteria and assumptions when identifying equipment necessary to perform the required safe shutdown functions:

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1.1 Safe Shutdown Equipment Categories

Safe shutdown equipment can be divided into two categories. Equipment may be categorized as (1) primary components or (2) secondary components. Typically, the following types of equipment are considered to be primary components:

- Pumps, motor operated valves, solenoid valves, fans, gas bottles, dampers, unit coolers, etc.
- All necessary process indicators and recorders (i.e., flow indicator, temperature indicator, turbine speed indicator, pressure indicator, level recorder).
- Power supplies or other electrical components that support operation of primary components (i.e., diesel generators, switchgear, motor control centers, load centers, power supplies, distribution panels, etc.).

Secondary components are typically items found within the circuitry for a primary component. These provide a supporting role to the overall circuit function. Some secondary components may provide an isolation function or a signal to a primary component via either an interlock or input signal processor. Examples of secondary components include flow switches, pressure switches, temperature switches, level switches, temperature elements, speed elements, transmitters, converters, controllers, transducers, signal conditioners, hand switches, relays, fuses and various instrumentation devices.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Safe Shutdown Equipment List (SSEL) is a list of analyzed components that are utilized in the post-fire safe shutdown analysis to ensure that one success path (structures, systems, and components) necessary to achieve safe shutdown is free of fire damage without crediting plant or system repair.

The current NMP1 SSEL and Safe Shutdown Analysis was reviewed against the criteria outlined in NEI 00-01 (Sections 3.1 and 3.2) for safe shutdown systems and equipment selection. This review addressed potential fire induced circuit failure issues, either within or beyond the plant's existing licensing basis. Additional equipment has been included to address any multiple spurious operation concerns.

The SSEL is divided into primary and secondary components. Primary and secondary components were defined as being consistent with NEI 00-01 guidance. Equipment identified as primary components is included in the SSEL. Equipment identified as secondary components is included in the SSEL Database with the primary component(s) that would be affected by fire damage to the secondary component. By doing this, the SSEL is kept to a manageable size and the equipment included in the SSEL can be readily related to required post-fire safe shutdown systems and functions.

Secondary components were generally combined with primary components except where groups of secondary components were defined as "pseudo-components."

A "pseudo-component" is an artificial association of equipment and cables that perform a common function as a single entity for analysis purposes. The "pseudo-component" is assigned for analysis purposes only and is not an actual plant hardware designation. The concept of a "pseudo-component" was developed to account for those cables which constitute a circuit common to several components. The use of "pseudo-components" precludes the need to repeat cable selection and circuit analysis of these cables for each primary component. This generic name is interlocked with the affected primary components for analysis purposes and it inherits the attributes (path, system, train, etc.) of the components that it may affect. The nomenclature of the "pseudo-component" is similar to other equipment as defined in the plant equipment database.

Reference Document

EIR 51-9133191, NSCA, Section 5.4
EIR 51-9177678, Definitions Section

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1.2 Manual Valves and Piping

Assume that exposure fire damage to manual valves and piping does not adversely impact their ability to perform their pressure boundary or safe shutdown function (heat sensitive piping materials, including tubing with brazed or soldered joints, are not included in this assumption). Fire damage should be evaluated with respect to the ability to manually open or close the valve should this be necessary as a part of the post-fire safe shutdown scenario. For example, post-fire coefficients of friction for rising stem valves cannot be readily determined. Handwheel sizes and rim pulls are based on well lubricated stems. Any post-fire operation of a rising stem valve should be well justified using an engineering evaluation.

Applicability

Comments

Applicable

Instrument tubing failure damage due to a fire is addressed in NSCA (EIR 51-9133191, Section 8.4).

Alignment Statement

Aligns With Intent

Alignment Basis

The NMP1 fire area assessments assume that an exposure fire does not adversely affect the ability of manual valves and piping to perform their pressure boundary or safe shutdown function. Fire damage to valves has been evaluated with respect to the ability to manually open or close the valve should this be necessary as a part of the post-fire safe shutdown scenario. Post-fire operation of manual valves within the affected fire area has been evaluated in the Fire Area Analysis.

Instrument sensing lines were reviewed for susceptibility to physical fire damage that may cause a loss of inventory. Sensing lines for SSEL components are constructed of either stainless steel or carbon steel. Consequently, they are not susceptible to physical damage as the result of a postulated fire.

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 8.4

HNP RAI 3-15, NRC Request for Additional Information dated August 6, 2009 (ML092170715)

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1.3 Valves in Normal Position

Assume that all components, including manual valves, are in their normal position as shown on P&IDs or in the plant operating procedures, that there are no LCOs in effect, that the Unit is operating at 100% power and that no equipment has been taken out of service for maintenance.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Manual valves are assumed to be in their normal operating position as shown on P&IDs or as identified in the plant operating procedures.

Comments

None

Reference Document

EIR 51-9133191, NSCA, Sections 5.4, 8.1, and 9.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1.4 Check Valves

Assume that a check valve closes in the direction of potential flow diversion and seats properly with sufficient leak tightness to prevent flow diversion. Therefore, check valves do not adversely affect the flow rate capability of the safe shutdown systems being used for inventory control, decay heat removal, equipment cooling or other related safe shutdown functions.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Check valves are assumed to close in the direction of potential flow diversion and seat properly with sufficient leak tightness to prevent flow diversion or inventory loss. Check valves do not adversely affect flow rate capability of the safe shutdown systems.

Comments

None

Reference Document

EIR 51-9133191, NSCA, Section 5.4

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.1.5 Instrument Failure

Instruments (e.g., resistance temperature detectors, thermocouples, pressure transmitters, and flow transmitters) are assumed to fail upscale, midscale, or downscale as a result of fire damage, whichever is worse. An instrument performing a control function is assumed to provide an undesired signal to the control circuit.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Instruments are assumed to fail in the most undesirable worst state, whether upscale, downscale, or mid-scale. An instrument providing a control function is assumed to provide an undesired signal to the control circuit.

Comments

None

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 8.1

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.2 Methodology For Equipment Selection

Refer to Figure 3-3 for a flowchart illustrating the various steps involved in selecting safe shutdown equipment. Use the following methodology to select the safe shutdown equipment for a post-fire safe shutdown analysis:

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.2.1 Identify the System Flow Path for Each Shutdown Path

Mark up and annotate a P&ID to highlight the specific flow paths for each system in support of each shutdown path. Refer to Attachment 2 for an example of an annotated P&ID illustrating this concept. When developing the SSEL, determine which equipment should be included on the Safe Shutdown Equipment List (SSEL). As an option, include secondary components with a primary component(s) that would be affected by fire damage to the secondary component. By doing this, the SSEL can be kept to a manageable size and the equipment included on the SSEL can be readily related to required post-fire safe shutdown systems and functions.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Safe Shutdown Equipment List (SSEL) is a list of analyzed components that are utilized in the post-fire safe shutdown analysis to ensure that one success path (structures, systems, and components) necessary to maintain the fuel in a safe and stable condition. The SSEL is divided into primary and secondary components. Primary and secondary components were defined as being consistent with NEI 00-01 section 3.2.1.1 guidance. Secondary components were generally combined with primary components.

Combinations of components and systems with the capability to satisfy the required NFPA 805 performance goals were designated as safe shutdown flow paths. P&IDs and Electrical drawings were marked up and annotated to highlight the selected primary safe shutdown equipment and flow paths for each system in support of each shutdown path. The specific group of equipment supporting each system was populated into the safe shutdown database.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 6.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.2.2 Identify the Equipment in Each Safe Shutdown System Flow Path

Review the applicable documentation (e.g. P&IDs, electrical drawings, instrument loop diagrams) to assure that all equipment in each system's flow path has been identified. Assure that any equipment that could spuriously operate and adversely affect the desired system function(s) is also identified. Additionally, refer to Section 4 for the Resolution Methodology for determining the Plant Specific List of MSOs requiring evaluation. Criteria for making the determination as to which of these components are to be classified as required for hot shutdown or as important to SSD is contained in Appendix H. If additional systems are identified which are necessary for the operation of the safe shutdown system under review, include these as required for hot shutdown systems. Designate these new systems with the same safe shutdown path as the primary safe shutdown system under review (Refer to Figure 3-1).

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The safe shutdown flow paths identify the primary components that are required to meet the safe shutdown performance goals. The safe shutdown components were compiled based on each system's performance and safe shutdown function. These components establish the primary safe shutdown flowpath for system operation. Also included in the safe shutdown flow paths are those components whose spurious operation could impact safe shutdown system operability. Systems identified as necessary for the operation of the safe shutdown system under review are included in the safe shutdown equipment list and designated with the same shutdown path as the primary safe shutdown system. These components may involve branch flow paths that must be isolated and remain isolated to assure that flow will not be diverted from the primary flow path. The list of primary components may also include selected mechanical components required to support safe shutdown.

The criteria used in evaluating spurious actuation of components are those identified in NEI 00-01, Section 4, Identification and Treatment of Multiple Spurious Operations (MSO). The Nuclear Safety Capability Fire Area Assessments includes the potential impact of multiple spurious component actuations per the guidance of NEI 00-01. MSO component combinations, as documented in the Technical Report on Identification & Classification of the NMP1 MSO Scenarios Using an Expert Panel - Review of New Generic Scenarios, were addressed in EIR 51-9133191 and included in the fire area assessments.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.0, 6.0, 8.6.1, and 8.6.3

Technical Report on Identification & Classification of the NMP-1 MSO Scenarios Using an Expert Panel - Review of New Generic Scenarios

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.2.3 Assign Safe Shutdown Flow Paths

Prepare a table listing the equipment identified for each system and the shutdown path that it supports. Identify any valves or other equipment that could spuriously operate and impact the operation of that safe shutdown system. Criteria for making the determination as to which of these components are to be classified as required for hot shutdown or as important to SSD is contained in Appendix H. Assign the safe shutdown path for the affected system to this equipment. During the cable selection phase, identify additional equipment required to support the safe shutdown function of the path (e.g., electrical distribution system equipment). Include this additional equipment in the safe shutdown equipment list. Attachment 3 to this document provides an example of a (SSEL). The SSEL identifies the list of equipment within the plant considered for post-fire safe shutdown and it documents various equipment-related attributes used in the analysis.

Identify instrument tubing that may cause subsequent effects on instrument readings or signals as a result of fire. Determine and consider the fire area location of the instrument tubing when evaluating the effects of fire damage to circuits and equipment in the fire area.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Safe Shutdown Equipment List (SSEL) includes equipment for each system supporting the flow paths needed to achieve safe shutdown. This equipment, identified from the highlighted P&IDs, includes both the normal and diversion flow paths required to meet the system performance goals and safe shutdown functions. These components also include valves or equipment that could impact safe shutdown by spuriously operating or whose failure would threaten the capability to achieve safe shutdown. The components were populated into the SSEL database and assigned to safe shutdown system success paths.

During the cable selection process additional support components such as electrical distribution equipment were added to the SSD paths and populated into the database. The database reports produce tables listing equipment and related information which is very similar to the table provided in Attachment 3, of NEI 00-01. This group of components and the various equipment related attributes makes up the SSEL.

Instrument sensing lines for level, pressure, flow, etc. that are exposed to a fire are considered to have the potential of causing erratic or unreliable indication. The instrument tubing lines were traced and their routes correlated to fire areas. Cable identifications were given to the sensing lines and were subjected to the same compliance issues and analytical techniques as safe shutdown cables and similarly analyzed for separation in the fire area assessments.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.3, 6.0, and 8.4

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

NEI 00-01 Guidance

3.2.2.4 Identify Equipment Information Required for the Safe Shutdown Analysis

Collect additional equipment-related information necessary for performing the post-fire safe shutdown analysis for the equipment. In order to facilitate the analysis, tabulate this data for each piece of equipment on the SSEL. Refer to Attachment 3 to this document for an example of a SSEL. Examples of related equipment data should include the equipment type, equipment description, safe shutdown system, safe shutdown path, drawing reference, fire area, fire zone, and room location of equipment. Other information such as the following may be useful in performing the safe shutdown analysis: normal position, hot shutdown position, cold shutdown position, failed air position, failed electrical position, high/low pressure interface concern, and spurious operation concern. Criteria for making the determination as to which of these components are to be classified as required for hot shutdown or as important to SSD is contained in Appendix H.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The systems and components of the Safe Shutdown Equipment List (SSEL) were selected to meet the NFPA 805 performance goals to ensure the fuel remains in a safe and stable condition. Additional secondary components which are modeled as a result of the primary component selections were also populated into the database.

This additional equipment related information necessary to perform the Fire Area Assessments was collected and included in the SSEL. The SSEL contains the following information; system, train, component, component description, path, Hi/Lo pressure interface determination, normal position, hot shutdown position, cold shutdown position, failed electrical position, failed air position, Fire Area, and Fire Zone.

The SSEL database contains equipment and related information similar to the information identified in Attachment 3 of NEI 00-01. The SSEL contains the primary components which are required for hot shutdown. The secondary components are typically items found within the circuitry for a primary component and provide a supporting role. Components that are important to safe shutdown are all components not classified as required for hot shutdown.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0 and 6.0

2.4.2.1 Nuclear Safety Capability Systems and Equipment Selection

NEI 00-01 Ref

3.2.2.5 Identify Dependencies Between Equipment, Supporting Equipment, Safe Shutdown Systems and Safe Shutdown Paths.

NEI 00-01 Guidance

In the process of defining equipment and cables for safe shutdown, identify additional supporting equipment such as electrical power and interlocked equipment. As an aid in assessing identified impacts to safe shutdown, consider modeling the dependency between equipment within each safe shutdown path either in a relational database or in the form of a Safe Shutdown Logic Diagram (SSLD). Attachment 4 provides an example of a SSLD that may be developed to document these relationships.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

As part of the process of preparing the Safe Shutdown Equipment List (SSEL) and defining equipment and cables for safe shutdown, additional equipment and cables that support the SSEL components were identified (such as interlocked components, normal and alternate electrical power supplies, cascading power supplies). The process included development of a cascading interlock analysis.

This information was populated into a relational type database necessary to analyze for post-fire safe shutdown.

Reference Document

EIR 51-9133191, NSCA, Sections 4.0, 5.0, and 6.0

2.4.2.2 Nuclear Safety Capability Circuit Analysis

2.4.2.2.1 Circuits Required in Nuclear Safety Functions. Circuits required for the nuclear safety functions shall be identified. This includes circuits that are required for operation, that could prevent the operation, or that result in the mal-operation of the equipment identified in 2.4.2.1. This evaluation shall consider fire-induced failure modes such as hot shorts (external and internal), open circuits, and shorts to ground, to identify circuits that are required to support the proper operation of components required to achieve the nuclear safety performance criteria, including spurious operation and signals. This will ensure that a comprehensive population of circuitry is evaluated.

2.4.2.2.2 Other Required Circuits. Other circuits that share common power supply and/or common enclosure with circuits required to achieve nuclear safety performance criteria shall be evaluated for their impact on the ability to achieve nuclear safety performance criteria.

(a) Common Power Supply Circuits. Those circuits whose fire induced failure could cause the loss of a power supply required to achieve the nuclear safety performance criteria shall be identified. This situation could occur if the upstream protection device (i.e., breaker or fuse) is not properly coordinated with the downstream protection device.

(b) Common Enclosure Circuits. Those circuits that share enclosures with circuits required to achieve the nuclear safety performance criteria and whose fire-induced failure could cause the loss of the required components shall be identified. The concern is that the effects of a fire can extend outside of the immediate fire area due to fire-induced electrical faults on inadequately protected cables or via inadequately sealed fire area boundaries.

NEI 00-01 Ref

NEI 00-01 Guidance

3.3 Safe Shutdown Cable Selection
And Location

This section provides industry guidance on one acceptable approach for selecting safe shutdown cables and determining their potential impact on equipment required for achieving and maintaining safe shutdown of an operating nuclear power plant for the condition of an exposure fire. The Appendix R safe shutdown cable selection criteria are developed to ensure that all cables that could affect the proper operation or that could cause the mal-operation of safe shutdown equipment are identified and that these cables are properly related to the safe shutdown equipment whose functionality they could affect. Through this cable-to-equipment relationship, cables become part of the safe shutdown path assigned to the equipment affected by the cable. The classification of a cable as either an important to SSD circuit cable or a required safe shutdown cable is also derived from the classification applied to the component that it supports. This classification can vary from one fire area to another depending on the approach used to accomplish post-fire safe shutdown in the area. Refer to Appendix H for the criteria to be used for classifying required and important to SSD components.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1 Criteria/Assumptions

To identify an impact to safe shutdown equipment based on cable routing, the equipment must have cables that affect it identified. Carefully consider how cables are related to safe shutdown equipment so that impacts from these cables can be properly assessed in terms of their ultimate impact on safe shutdown system equipment.

Consider the following criteria when selecting cables that impact safe shutdown equipment:

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1.1.1 Cable Failures

The list of cables whose failure could impact the operation of a piece of safe shutdown equipment includes more than those cables connected to the equipment. The relationship between cable and affected equipment is based on a review of the electrical or elementary wiring diagrams. To assure that all cables that could affect the operation of the safe shutdown equipment are identified, investigate the power, control, instrumentation, interlock, and equipment status indication cables related to the equipment. Review additional schematic diagrams to identify additional cables for interlocked circuits that also need to be considered for their impact on the ability of the equipment to operate as required in support of post-fire safe shutdown. As an option, consider applying the screening criteria from Section 3.5 as a part of this section.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The cables necessary to operate and/or maintain the status of each Safe Shutdown component were evaluated by a detailed review of the drawings. Cables that could impact safe shutdown equipment were identified using the component's control schematic, instrument loop, wiring diagram, if available, or the component's electrical elementary wiring diagrams, one-line drawings, or other available wiring diagrams. These drawings were used as a guide to perform a point to point review of the associated connection diagrams. Cables associated with power, control, instrumentation, indication, interlock and any other cable that could impact the component were considered.

Fault analysis during cable identification led to the cable fault codes P, L, O, C, and I as defined in EIR 51-9133191. This made the final compliance analysis bounding. Further analysis determined the effects of a fire induced hot short, open circuit and short to ground during the fire area compliance assessment task. Additional schematic diagrams were reviewed for secondary or interlocked circuits, as necessary, which could impact the operation of components required for safe shutdown.

Reference Document

EIR 51-9133191, NSCA, Sections 2.6, 7.0, and 8.0
CNG-FES-017, NFPA 805 Safe Shutdown Equipment Cable Selection

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.3.1.1.2 Cable Failures Affecting
Multiple Safe Shutdown Equipment

NEI 00-01 Guidance

In cases where the failure (including spurious operations) of a single cable could impact more than one piece of safe shutdown equipment, associate the cable with each piece of safe shutdown equipment.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns With Intent

Alignment Basis

For cases where single cables have the potential to impact multiple components, the cable would be listed against each component. For control logic circuits, where multiple components receive signals from common control logic, the control logic was analyzed as a primary component and given a pseudo-component identification.

A pseudo-component is an artificial association of equipment and cables that performs a common function that is combined into a single entity for analysis purposes only and is not an actual plant hardware designation. The pseudo-component was interlocked to the other associated primary components so that the effect of the control logic could be evaluated on an individual component level.

This methodology was used for similar circuit scenarios such as common power supplies. Whereas this approach does not assign the cable to each individual component, the effect on each component due to fire damage is analyzed. This method serves to reduce the duplication of cable data when the same cables are assigned to multiple components.

Pseudo-components and other primary components, whose associated cabling can affect another primary component based on interposing contacts, were identified on the Cable Selection Worksheet of the affected component as an interlocked primary component.

Reference Document

EIR 51-9133191, NSCA, Section 6.0

EIR 51-9177678, Definitions Section

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1.1.2.1 Electrical Devices

Electrical devices such as relays, switches and signal resistor units are considered to be acceptable isolation devices. In the case of instrument loops and electrical metering circuits, review the isolation capabilities of the devices in the loop to determine that an acceptable isolation device has been installed at each point where the loop must be isolated so that a fault would not impact the performance of the safe shutdown instrument function. Refer to Section 3.5 for the types of faults that should be considered when evaluating the acceptability of the isolation device being credited.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Cables were identified and selected using the component's control schematic, electrical elementary diagrams, one-lines, and/or instrument loop diagrams. These drawings were used as a guide while performing a point to point review of the associated connection diagrams.

Electrical isolation devices prevent malfunctions in one section of a circuit from causing unacceptable effects in other portions of the circuit or other circuits (e.g., open contacts, fuses, switches, instrument isolation modules). Devices credited as providing electrical isolation were identified in the circuit analysis for the affected component.

Fault analysis during cable identification led to the P, L, O, C, and I fault codes. All circuits/cables that are electrically connected to the circuit under the analysis are identified up to a credited isolation device including the instrument loops.

Reference Document

EIR 51-9133191, NSCA, Sections 2.6 and 8.3

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1.1.3 Screening Out Cables With No Impact

Screen out cables for circuits that do not impact the safe shutdown function of a component (i.e., annunciator circuits, space heater circuits and computer input circuits) unless some reliance on these circuits is necessary. To be properly screened out, however, the circuits associated with these devices must be isolated from the component's control scheme in such a way that a cable fault would not impact the performance of the circuit. Refer to Section 3.5 for the types of faults that should be considered when evaluating the acceptability of the isolation device being credited.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Cables necessary to operate and/or maintain the status of each safe shutdown component were identified and evaluated by a detailed review of the component's control schematic, elementary diagrams, one-lines, instrument loop diagrams or other available wiring diagrams. These drawings were used as a guide while performing a point to point review of the associated connection diagrams. Cables associated with outputs from auxiliary contacts to computer points, annunciators or motor heaters were excluded from the cable selection when it was concluded that the cable failure would not impact the primary component or performance of the circuit.

Panel wires that are completely contained within a panel were not explicitly listed as SSD cables. These wires are inherently included in the analysis in the same manner as secondary components.

Reference Document

EIR 51-9133191, NSCA, Sections 7.0 and 8.3

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.3.1.1.4 Power Supply to Safe Shutdown Equipment

NEI 00-01 Guidance

For each circuit requiring power to perform its safe shutdown function, identify the cable supplying power to each safe shutdown and/or required interlock component. Initially, identify only the power cables from the immediate upstream power source for these interlocked circuits and components (i.e., the closest power supply, load center or motor control center). Review further the electrical distribution system to capture the remaining equipment from the electrical power distribution system necessary to support delivery of power from either the offsite power source or the emergency diesel generators (i.e., onsite power source) to the safe shutdown equipment. Add this equipment to the safe shutdown equipment list. The set of cables described above are classified as required safe shutdown cables. Evaluate the power cables for breaker coordination concerns. The non-safe shutdown cables off of the safe shutdown buses are classified as required for hot shutdown or as important to SSD based on the criteria contained in Appendix H.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

The power cables were selected using the component's control schematic or electrical elementary diagrams, one-lines, or instrument loop diagrams or other available wiring diagrams. During the cable selection process, the supporting power sources and interlocks for each primary component were identified. The cascading power supplies (pseudo-components created for power supply interlocks) and the cascading interlocks all serve to identify required power supplies to ensure safe shutdown components are supplied with electrical power. The relationship between the power source and their load components was documented and their dependency was considered during the Fire Area Assessment phase by reviewing the power source load list report from the database.

Breaker coordination calculation 32-9151404-000, Nine Mile Point Unit 1 - NFPA 805 Coordination Study, reviewed the existing and any new electrical circuits that could impact safe shutdown. This calculation identified fire protection program breaker coordination issues concerning proper coordination between the supply breaker/fuse and the load breaker/fuses for power sources required for hot shutdown. This document meets the nuclear safety capability requirements of NFPA-805 and guidance of NEI 00-01.

Reference Document

EIR 51-9133191, NSCA, Section 8.0
 EIR 51-9177678, Definitions Section
 EIR 32-9151404, Nine Mile Point Unit 1 - NFPA 805 Coordination Study

2.4.2.2 Nuclear Safety Capability Circuit Analysis**NEI 00-01 Ref****NEI 00-01 Guidance**

3.3.1.1.4.1 Automatic Initiation Logics The automatic initiation logics for the credited post-fire safe shutdown systems are generally not required to support safe shutdown. Typically, each system can be controlled manually by operator actuation in the main control room or emergency control station. The emergency control station includes those plant locations where control devices, such as switches, are installed for the purpose of operating the equipment. If operator actions to manually manipulate equipment at locations outside the MCR or the emergency control station are necessary, those actions must conform to the regulatory requirements on operator manual actions (See Appendix E). If not protected from the effects of fire, the fire-induced failure of automatic initiation logic circuits should be considered for their potential to adversely affect any post-fire safe shutdown system function.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Safe Shutdown Analysis takes credit for automatic transfer to an alternate power source if the transfer circuit and power source is not affected by the fire. As an example, the EC system can be initiated either manually or automatically. The RPS instruments and logic that automatically initiate the EC system on high reactor pressure or low-low reactor level have been included in the analysis. Manual initiation of the EC system can be accomplished from either the Control Room or RSP depending on the fire location. AC power is not required to manually initiate DHR via the ECs.

Adverse effects due to fire have been considered for the automatic initiation logic circuits. Fire area compliance assessments demonstrate that safe shutdown capability is not adversely affected by a fire in any plant area that disables automatic functions (including initiation logic).

Reference Document

EIR 51-9133191, NSCA, Section 4.0

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1.1.5 Associated Circuits

Cabling for the electrical distribution system is a concern for those breakers that feed circuits and are not fully coordinated with upstream breakers. With respect to electrical distribution cabling, two types of cable associations exist. For safe shutdown considerations, the direct power feed to a primary safe shutdown component is associated with the primary component and classified as a required safe shutdown cable. For example, the power feed to a pump is necessary to support the pump. Similarly, the power feed from the load center to an MCC supports the MCC. However, for cases where sufficient branch-circuit coordination is not provided, the same cables discussed above would also support the power supply. For example, the power feed to the pump discussed above would support the bus from which it is fed because, for the case of a common power source analysis, the concern is the loss of the upstream power source and not the connected load. Similarly, the cable feeding the MCC from the load center would also be necessary to support the load center. Additionally, the non-safe shutdown circuits off of each of the required safe shutdown components in the electrical distribution system can impact safe shutdown if not properly coordinated. These cables are classified as required for hot shutdown based on the criteria contained in Appendix H.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The concern for cabling of the electrical distribution system for primary safe shutdown components involves those breakers that feed associated circuits and may not be fully coordinated with upstream breakers. This involves circuits that are the direct power feed to primary safe shutdown components and/or the power feed to motor control centers that support components or other motor control centers. The concern for these circuits is not the load itself but the upstream power source.

For the NMP1 electrical distribution system, it was assumed that the safe shutdown components and their associated power load were coordinated with their upstream power supplies when identifying cables for all existing and any new safe shutdown components.

For safe shutdown circuits, the cables included the direct power feed from the load center to the component and any cables associated with that component. In addition, coordination was also assumed for any branch circuits related to the safe shutdown component's power source.

Associated circuits are those circuits which are not completely independent of the safe shutdown systems or components. Failure or spurious operation of these circuits could potentially defeat the safe shutdown capability of a safety system. A fire in a given fire area could potentially affect systems and components thought to be independent of that particular fire area.

For the purpose of this analysis, an associated circuit must be associated with both a fire area and a safe shutdown system or component. The associated circuits include circuits which share a common power supply with safe shutdown component and circuits whose spurious operation would adversely affect the safe shutdown capability.

Breaker coordination calculation 32-9151404-000, Nine Mile Point Unit 1 - NFPA 805 Coordination Study, demonstrates the existing coordination status (including any new electrical circuits) for required common power supplies that could impact safe shutdown. This calculation identifies if there are any fire protection program breaker coordination issues concerning proper coordination between the supply breaker/fuse and the load breaker/fuses for power sources required for hot shutdown. This document meets the nuclear safety capability requirements of NEI 00-01 and NFPA-805.

Reference Document

EIR 51-9133191, NSCA, Section 8.5

EIR 32-9151404, Nine Mile Point Unit 1 - NFPA 805 Coordination Study

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.1.1.6 Exclusion Analysis

Exclusion analysis may be used to demonstrate a lack of potential for any impacts to post-fire safe shutdown from a component or group of components regardless of the cable routing. For these cases, rigorous cable searching and cable to component associations may not be required.

Applicability

Comments

Not Applicable

None

Alignment Statement

Not Required

Alignment Basis

Exclusion analysis was not used to demonstrate a lack of potential for any impacts to post-fire safe-shutdown.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.2 Associated Circuit Of Concern Cables

Appendix R, through the guidance provided in NRC Generic Letter 81-12, requires that separation features be provided for associated non-safety circuits that could prevent operation or cause mal-operation due to hot shorts, open circuits, or shorts to ground, of redundant trains of systems necessary to achieve hot shutdown. The three types of associated circuits were identified in Reference 7.1.5 and further clarified in a NRC memorandum dated March 22, 1982 from R. Mattson to D. Eisenhut, Reference 7.1.6. They are as follows:

- Spurious actuations
- Common power source
- Common enclosure.

Each of these cables is classified as an associated circuit of concern cable.

Cables Whose Failure May Cause Spurious Operations

Safe shutdown system spurious operation concerns can result from fire damage to a cable whose failure could cause the spurious operation/mal-operation of equipment whose operation could affect safe shutdown. These cables are identified in Section 3.3.3 together with the remaining safe shutdown cables required to support control and operation of the equipment.

Common Power Source Cables

The concern for the common power source associated circuits of concern is the loss of a safe shutdown power source due to inadequate breaker/fuse coordination. In the case of a fire-induced cable failure on a non-safe shutdown load circuit supplied from the safe shutdown power source, a lack of coordination between the upstream supply breaker/fuse feeding the safe shutdown power source and the load breaker/fuse supplying the non-safe shutdown faulted circuit can result in loss of the safe shutdown bus. This would result in the loss of power to the safe shutdown equipment supplied from that power source preventing the safe shutdown equipment from performing its required safe shutdown function. Identify these cables together with the remaining safe shutdown cables required to support control and operation of the equipment. Refer to Section 3.5.2.4 for an acceptable methodology for analyzing the impact of these cables on post-fire safe shutdown.

Common Enclosure Cables

The concern with common enclosure associated circuits of concern is fire damage to a cable whose failure could propagate to other safe shutdown cables in the same enclosure either because the circuit is not properly protected by an isolation device (breaker/fuse) such that a fire-induced fault could result in ignition along its length, or by the fire propagating along the cable and into an adjacent fire area. This fire spread to an adjacent fire area could impact safe shutdown equipment in that fire area, thereby resulting in a condition that exceeds the criteria and assumptions of this methodology (i.e., multiple fires). Refer to Section 3.5.2.5 for an acceptable methodology for analyzing the impact of these cables on post-fire safe shutdown.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This section is a generic discussion concerning the separation of Associated Circuit Cables and non-safety circuits of components required for safe shutdown. This information is discussed in more detail in subsequent sub-sections 3.3.3, 3.5.2.4 and 3.5.2.5.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.3 Methodology for Cable
Selection and Location

Refer to Figure 3-4 for a flowchart illustrating the various steps involved in selecting the cables necessary for performing a post-fire safe shutdown analysis.

Use the following methodology to define the cables required for safe shutdown including cables that may be circuits of concerns for a post-fire safe shutdown analysis. Criteria for making the determination as to which circuits are to be classified as required for hot shutdown or as important to SSD is contained in Appendix H.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.3.3.1 Identify Circuits Necessary for the Operation of the Safe Shutdown Equipment

NEI 00-01 Guidance

For each piece of safe shutdown equipment defined in section 3.2, review the appropriate electrical diagrams including the following documentation to identify the circuits (power, control, instrumentation) required for operation or whose failure may impact the operation of each piece of equipment:

- Single-line electrical diagrams
- Elementary wiring diagram
- Electrical connection diagrams
- Instrument loop diagrams.

For electrical power distribution equipment such as power supplies, identify any circuits whose failure may cause a coordination concern for the bus under evaluation.

If power is required for the equipment, include the closest upstream power distribution source on the safe shutdown equipment list. Through the iterative process described in Figures 3-2 and 3-3, include the additional upstream power sources up to either the offsite or the emergency power source.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

Cable selection was performed to identify all conductors/wires that may be required for a component to perform its safe shutdown function, or whose failure could be adverse to the component's safe shutdown function. The cables were selected by a point-to-point review of the applicable connection diagrams, single line electrical diagrams, elementary wiring diagrams or instrument loop wiring diagrams.

During the initial review, any cable that had a potential to impact the safe shutdown component was identified and associated to that component. Cables identified for each Safe Shutdown component, including any additional reference drawings, were populated in the database during the cable selection process. Cables that are computer inputs or that have adequate isolation are excluded.

Figures 3-2 and 3-3 of NEI 00-01 were used to develop the Safe Shutdown Systems, the systems Paths and Safe Shutdown Equipment List. These lists included electrical distribution equipment identified for circuits whose failure may cause a coordination concern. The power related electrical equipment included upstream power sources up to either offsite power or the emergency power source.

Coordination of power supplies was assumed when assigning cables to the safe shutdown components; however, this may not encompass any new components and circuits being added to the program. Breaker coordination calculation 32-9151404-000, Nine Mile Point Unit 1 - NFPA 805 Coordination Study, demonstrates the existing coordination status for the required common power sources. This calculation identifies if there are any fire protection program breaker coordination issues concerning proper coordination between the supply breaker/fuse and the load breaker/fuses for power sources required for hot shutdown. This document meets the nuclear safety capability requirements of NEI 00-01, Section 3.5.2.4 and Figure 3.5.2-6, and NFPA 805, Section 2.4.2.2.2.

Reference Document

EIR 51-9133191, NSCA, Sections 7.0 and 8.0
EIR 32-9151404, Nine Mile Point Unit 1 - NFPA 805 Coordination Study

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.3.3.2 Identify Interlocked Circuits and Cables that Could Affect Safe Shutdown

NEI 00-01 Guidance

In reviewing each control circuit, investigate interlocks that may lead to additional circuit schemes, cables and equipment. Assign to the equipment any cables for interlocked circuits that can affect the equipment.

While investigating the interlocked circuits, additional equipment or power sources may be discovered. Include these interlocked equipment or power sources in the safe shutdown equipment list (refer to Figure 3-3) if they can impact the operation of the equipment under consideration in an undesirable manner that impacts post-fire safe shutdown.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns With Intent

Alignment Basis

For control logic circuits where multiple components receive signals from a common logic, the control logic was analyzed as a primary component and a pseudo-component identification was created for the control logic. A pseudo-component is an artificial association of equipment and cables that performs a common function into a single entity for analysis purposes. The pseudo-component is not an actual plant hardware designation.

The pseudo-component was interlocked to the other associated primary components so that the effect of the control logic could be evaluated on an individual component level. This methodology was used for similar circuit scenarios such as common power supplies. Whereas this approach does not assign the cable to each individual component, the effect on each component due to fire damage is analyzed. This method serves to reduce the duplication of cable data when the same cables are assigned to multiple components.

Pseudo-components and other primary components whose associated cabling can affect another primary component based on interposing contacts were identified on the Cable Selection Worksheet of the affected component as an interlocked primary component. This meets the intent of the guidance.

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 6.0
EIR 51-9177678, Definitions Section

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.3.3.3 Assign Cables to Safe Shutdown Equipment

NEI 00-01 Guidance

Given the criteria/assumptions defined in Section 3.3.1, identify the cables required to operate or that may result in mal-operation of each piece of safe shutdown equipment. Cables are classified as either required for hot shutdown or important to SSD based on the classification of the component to which they are associated and the function of that component in supporting post-fire safe shutdown in each particular fire area. Refer to Appendix H for additional guidance.

Tabulate the list of cables potentially affecting each piece of equipment in a relational database including the respective drawing numbers, their revision and any interlocks that are investigated to determine their impact on the operation of the equipment. In certain cases, the same cable may support multiple pieces of equipment. Relate the cables to each piece of equipment, but not necessarily to each supporting secondary component.

If adequate coordination does not exist for a particular circuit, relate the power cable to the power source. This will ensure that the power source is identified as affected equipment in the fire areas where the cable may be damaged. Criteria for making the determination as to which cables are to be classified as required for hot shutdown or as important to SSD is contained in Appendix H.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

Cable selection for Safe Shutdown components was performed by identifying all cables required for a component to perform its safe shutdown function. These cables were selected by a point-to-point review using the component's elementary diagram. The cables were selected in accordance with NEI 00-01, Section 3.3.1 and then entered into the database. For cases where cables affected multiple components, either the cable was assigned to each component or a pseudo-component was used with the cables assigned to the pseudo-component instead of the primary component.

In addition to the cables, any component interlocks were identified to investigate their impact on the operation of the safe shutdown component. The relationship between these interlocks and the primary component were documented and their dependency was considered during the Fire Area Compliance Assessment.

Coordination of power supplies is addressed in Section 3.5.2.4 of this document.

Reference Document

EIR 51-9133191, NSCA, Section 8.0
EIR 51-9177678, Definitions Section

2.4.2.2 Nuclear Safety Capability Circuit Analysis**NEI 00-01 Ref****NEI 00-01 Guidance****3.5 Circuit Analysis and Evaluation**

This section on circuit analysis provides information on the potential impact of fire on circuits used to monitor, control and power required for hot shutdown and important to safe shutdown equipment. Applying the circuit analysis criteria will lead to an understanding of how fire damage to the cables may affect the ability to achieve and maintain post-fire safe shutdown in a particular fire area. This section should be used in conjunction with Section 3.4, to evaluate the potential fire-induced impacts that require mitigation. Additionally, when assessing fire-induced damage to circuits that could potentially result in MSOs, the circuit failure criteria in Appendix B should be used.

Appendix R Section III.G.2 identifies the fire-induced circuit failure types that are to be evaluated for impact from exposure fires on safe shutdown equipment. Section III.G.2 of Appendix R requires consideration of hot shorts, shorts-to-ground and open circuits.

Applicability**Comments**

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.1 Criteria/Assumptions

Apply the following criteria/assumptions when performing fire-induced circuit failure evaluations. Refer to the assessment of the NEI/EPRI and CAROLFIRE Cable Test Results in Appendix B to this document for the basis for these criteria and for further elaboration on the application of the criteria.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.1.1 Circuit Failure Criteria

Circuit Failure Criteria: The criteria provided below addresses the effects of multiple fire-induced circuit failures impacting circuits for components classified as either "required for hot shutdown" or "important to safe shutdown". Consider the following circuit failure types on each conductor of each unprotected cable. Criteria differences, however, do apply depending on whether the component is classified as required for hot shutdown or important to safe shutdown.

- A hot short may result from a fire-induced insulation breakdown between conductors of the same cable, a different cable or from some other external source resulting in a compatible but undesired impressed voltage or signal on a specific conductor. A hot short may cause a spurious operation of safe shutdown equipment.
 - A hot short in the control circuitry for an MOV can bypass the MOV protective devices, i.e. torque and limit switches. This is the condition described in NRC Information Notice 92-18. In this condition, the potential exists to damage the MOV motor and/or valve. Damage to the MOV could result in an inability to operate the MOV either remotely, using separate controls with separate control power, or manually using the MOV hand wheel. This condition could be a concern in two instances: (1) For fires requiring Control Room evacuation and remote operation from the Remote Shutdown Panel, the Auxiliary Control Panel or Auxiliary Shutdown Panel; (2) For fires where the selected means of addressing the effects of fire induced damage is the use of an operator manual action. In each case, analysis must be performed to demonstrate that the MOV can be subsequently operated electrically or manually, as required by the safe shutdown analysis.
- An open circuit may result from a fire-induced break in a conductor resulting in the loss of circuit continuity. An open circuit may prevent the ability to control or power the affected equipment. An open circuit may also result in a change of state for normally energized equipment. (e.g. [for BWRs] loss of power to the Main Steam Isolation Valve (MSIV) solenoid valves due to an open circuit will result in the closure of the MSIVs). [Note: Open circuits as a result of conductor melting have not occurred in any of the recent cable fire testing and they are not considered to be a viable form of cable failure.]
- A short-to-ground may result from a fire-induced breakdown of a cable insulation system, resulting in the potential on the conductor being applied to ground potential. A short-to-ground may have all of the same effects as an open circuit and, in addition, a short-to-ground may also cause an impact to the control circuit or power train of which it is a part. A short-to-ground may also result in a change of state for normally energized equipment.

Circuits for "required for hot shutdown" components: Because Appendix R Section III.G.1 requires that the hot shutdown capability remain "free of fire damage", there is no limit on the number of concurrent/simultaneous fire-induced circuit failures that must be considered for circuits for components "required for hot shutdown: located within the same fire area. For components classified as "required for hot shutdown", there is no limit on the duration of the hot short. It must be assumed to exist until an action is taken to mitigate its effects. Circuits required for the operation of or that can cause the mal-operation of "required for hot shutdown" components that are impacted by a fire are considered to render the component unavailable for performing its hot shutdown function unless these circuits are properly protected as described in the next sentence. The required circuits for any "required for hot shutdown" component, if located within the same fire area where they are credited for achieving hot shutdown, must be protected in accordance with one of the requirements of Appendix R Section III.G.2 or plant specific license conditions.

Circuits for "important to safe shutdown" components: Circuits for components classified as "important to safe shutdown" are not specifically governed by the requirements of Appendix R Section III.G.1, III.G.2 or III.G.3. To address fire-induced impacts on these circuits, consider the three types of circuit failures identified above to occur individually on each conductor with the potential to impact any "important to safe shutdown" component with the potential to impact components "required for hot shutdown". In addition, consider the following additional circuit failure criteria for circuits for "important to safe shutdown" components located within the same fire area with the potential to impact components "required for hot shutdown":

- As explained in Figure 3.5.2-3, multiple shorts-to-ground are to be evaluated for their impact on ungrounded circuits.
- As explained in Figure 3.5.2-5, for ungrounded DC circuits, a single hot short from the same source is assumed to occur unless it can be demonstrated that the occurrence of a same source short is not possible in the affected fire area. If this approach is used, a means to configuration control this condition must be developed and maintained.
- For the double DC break solenoid circuit design discussed in the NRC Memo from Gary Holahan, Deputy Director Division of Systems Technology, dated December 4, 1990 and filed under ML062300013, the effect of two hot shorts of the proper polarity in the same multi-conductor cable should be analyzed for non-high low pressure interface components. [Reference Figure B.3.3 (f) of NFPA 805-2001.]
- Multiple spurious operations resulting from a fire-induced circuit failure affecting a single conductor must be included in the post-fire safe shutdown analysis.
- Multiple fire-induced circuit failures affecting multiple conductors within the same multi-conductor cable with the potential to cause a spurious operation of an "important to safe shutdown" component must be assumed to exist concurrently.
- Multiple fire-induced circuit failures affecting separate conductors in separate cables with the potential to cause a spurious operation of an "important to safe shutdown" component must be assumed to exist concurrently when the effect of the fire-induced circuit failure is sealed-in or latched.
- Conversely, multiple fire-induced circuit failures affecting separate conductors in separate cables with the potential to cause a spurious operation of an "important to safe shutdown" component need not be assumed to exist concurrently when the effect of the fire-induced circuit failure is not sealed-in or latched. This criterion applies to consideration of concurrent hot shorts in secondary circuits and to their effect on a components primary control circuit. It is not to be applied to concurrent single hot shorts in primary control circuit for separate components in an MSO combination.
- For components classified as "important to safe shutdown", the duration of a hot short may be limited to 20 minutes. (If the effect of the spurious actuation involves a "sealing in" or "latching" mechanism, that is addressed separately from the duration of the spurious actuation, as discussed above.)
- For any impacted circuits for "important to safe shutdown" components that are located within the same fire area, protection in accordance with the requirements of Appendix R Section III.G.2 or plant specific license conditions may be used. In addition, consideration may be given to the use of fire modeling or operator manual actions, as an alternative to the requirements of Appendix R Section III.G.2. (Other resolution options may also be acceptable, if accepted by the Authority Having Jurisdiction.)

Applicability	Comments
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Applicable	None
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Alignment Statement

Aligns

Alignment Basis

During the cable selection process, a circuit fault analysis for each component cable was initially performed to determine the effects of a fire-induced hot short, open circuit and short to ground, as applicable. Per the NEI 00-01 guidance, all combinations of circuit failures (hot shorts, open circuit, and short-to ground) on each conductor for each unprotected safe shutdown cable were considered. Further analysis was performed, as required, for secondary or interlocked circuits.

The circuit failures were evaluated to determine the potential impact of a fire on the safe shutdown equipment (including the path) that is associated with that cable/conductor. In some cases, the cables and components had adequate separation from their redundant circuits and components as required by the regulations and were not required to be analyzed.

It was assumed that fire damage results in an unusable cable that cannot be considered functional with regard to ensuring proper circuit operation. The insulation and external jacket material of electrical cables are susceptible to fire damage. Damage may assume several forms including deformation, loss of structure, cracking, and ignition. The relationship between exposure of electrical cable insulation to fire conditions, the failure mode, and time to failure may vary with the configuration and cable type. To accommodate these uncertainties in a consistent and conservative manner, the circuit analysis assumes that the functional integrity of electrical cables is lost when cables are exposed to a fire, except where protected by a fire rated barrier.

The types of circuit failures considered for this analysis are those identified in NEI 00-01, Appendix B, Table B.1.0, "Types of Fire-Induced Circuit Failures Required to Be Considered." Consistent with NEI 00-01, hot shorts were considered to be either internal cable wire-to-wire shorts or external cable-to-cable shorts. No credit was taken for physical cable attributes (armored, thermo-set, etc.) preventing cable-to-cable hot shorts.

Reference Document

EIR 51-9133191, NSCA, Section 8.2

HNP RAI 3-16, NRC Request for Addition Information (ML092170715)

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.1.2 Spurious Operation Criteria

Spurious Operation Criteria: The following criteria address the effect of multiple spurious operations of components classified as either "required for hot shutdown" or "important to safe shutdown" on post-fire safe shutdown. These criteria are to be applied to the population of components whose spurious operation has been determined to be possible based on an application of the circuit failure criteria described above when assessing impacts to post-fire safe shutdown capability in any fire area.

- The set of concurrent combinations of spurious operations provided through the MSO Process outlined in Section 4 and the list of MSOs contained in Appendix G must be included in the analysis of MSOs.
- MSOs do not need to be combined, except as explained in Section 4.4.3.4 of this document.
- Section 4.4.3.4 states that the expert panel should review the plant specific list of MSOs to determine whether any of the individual MSOs should be combined due to the combined MSO resulting in a condition significantly worse than either MSO individually.
- In this review, consideration of key aspects of the MSOs should be factored in, such as the overall number of spurious operations in the combined MSOs, the circuit attributes in Appendix B, and other physical attributes of the scenarios.
 - Specifically, if the combined MSOs involve more than a total of four components or if the MSO scenario requires consideration of sequentially selected cable faults of a prescribed type, at a prescribed time, in a prescribed sequence in order for the postulated MSO combination to occur, then this is considered to be beyond the required design basis for MSOs.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

An MSO Expert panel reviewed the generic list of scenarios listed in NEI-00-01 Appendix G, screening out any scenario that was a combination of five or more spurious operations. There were no screening criteria based on number, timing, or type of circuit failures. The result of the review was a list of MSO scenarios, both generic and site specific, that were included in the Fire Area Analysis for further evaluation.

Reference Document

EIR 51-9133191, NSCA, Section 8.1

ONS RAI 3-38, NRC Request for Additional Information dated July 30, 2010 (ML102110394)

Technical Report on Identification & Classification of the NMP-1 MSO Scenarios Using an Expert Panel - Review of New Scenarios, Rev.1

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.1.3 Circuit Contact Position

Assume that circuit contacts are initially positioned (i.e., open or closed) consistent with the normal mode/position of the "required for hot shutdown" or "important to safe shutdown" equipment as shown on the schematic drawings. The analyst must consider the position of the "required for hot shutdown" and "important to safe shutdown" equipment for each specific shutdown scenario when determining the impact that fire damage to a particular circuit may have on the operation of the "required for hot shutdown" and "important to safe shutdown equipment".

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The analysis assumes that the circuit contacts are positioned (i.e., open or closed) consistent in the normal mode/position of the safe shutdown equipment as shown on the schematic drawings or defined by procedure. The fire damage impact on the position of the safe shutdown equipment was considered for each shutdown scenario.

Reference Document

EIR 51-9133191, NSCA, Section 8.6.1

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.5.2 Types Of Circuit Failures

NEI 00-01 Guidance

Appendix R requires that nuclear power plants must be designed to prevent exposure fires from defeating the ability to achieve and maintain post-fire safe shutdown. Fire damage to circuits that provide control and power to equipment required for hot shutdown and important to safe shutdown in each fire area must be evaluated for the effects of a fire in that fire area. Only one fire at a time is assumed to occur. The extent of fire damage is assumed to be limited by the boundaries of the fire area. Given this set of conditions, it must be assured that one redundant train of equipment necessary to achieve and maintain hot shutdown is free of fire damage for fires in every plant location. To provide this assurance, Appendix R requires that equipment and circuits required for hot shutdown be free of fire damage and that these circuits be designed for the fire-induced effects of a hot short, short-to-ground, or an open circuit. With respect to the electrical distribution system, the issue of breaker coordination must also be addressed. Criteria for making the determination as to which breakers are to be classified as required for hot shutdown is contained in Appendix H.

This section will discuss specific examples of each of the following types of circuit failures:

- Open circuit
- Short-to-ground
- Hot short

Also, refer to Appendix B for the circuit failure criteria to be applied in assessing the impact of the Plant Specific List of MSOs on post-fire safe shutdown.

Applicability

Applicable

Comments

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.2.1 Circuit Failures Due to an Open Circuit

This section provides guidance for addressing the effects of an open circuit for required for hot shutdown and important to safe shutdown equipment. An open circuit is a fire-induced break in a conductor resulting in the loss of circuit continuity. An open circuit will typically prevent the ability to control or power the affected equipment. An open circuit can also result in a change of state for normally energized equipment. For example, a loss of power to the main steam isolation valve (MSIV) solenoid valves [for BWRs] due to an open circuit will result in the closure of the MSIV.

- Loss of electrical continuity may occur within a conductor resulting in de-energizing the circuit and causing a loss of power to, or control of, the required for hot shutdown and important to safe shutdown equipment.
- In selected cases, a loss of electrical continuity may result in loss of power to an interlocked relay or other device. This loss of power may change the state of the equipment. Evaluate this to determine if equipment fails safe.
- Open circuit on a high voltage (e.g., 4.16 kV) ammeter current transformer (CT) circuit may result in secondary damage, possibly resulting in the occurrence of an additional fire in the location of the CT itself.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Open circuits are analyzed as referenced in the NEI 00-01 guidance, Section 3.5.2.1 and Figure 3.5.2-1. An open circuit is a condition experienced when an individual conductor within a cable loses electrical continuity due to a fire induced break. This could cause the loss of power from de-energizing the circuit or the ability to control affected components, or on energized equipment could cause a change of position of the component. In addition, as stated in the guidance, an open circuit on a high voltage ammeter CT circuit may result in secondary damage to that circuit.

The Nuclear Safety Capability Assessment (NSCA) assumed that fire damage results in an unusable cable that cannot be considered functional with regard to ensuring proper circuit operation. The insulation and external jacket material of electrical cables are susceptible to fire damage. Damage may assume several forms including deformation, loss of structure, cracking, and ignition. The relationship between exposure of electrical cable insulation to fire conditions, the failure mode, and time to failure may vary with the configuration and cable type. To accommodate these uncertainties in a consistent and conservative manner, the circuit analysis assumes that the functional integrity of electrical cables was lost when cables are exposed to a fire, except where protected by a fire rated barrier.

Other associated circuit concerns are related to open secondary circuits and 4 KV bus CT that may result in high currents producing an additional fire at the transformer location. This associated circuit concern is related to CT where an open secondary circuit may develop high voltages within a transformer potentially resulting in a secondary fire at the transformer location. This issue is evaluated in Fire Protection Engineering Evaluation FPPE-1-04-002, Rev. 0, Fire Effects on CTs and Instrument Sensing Lines and The Plant Safe Shutdown Capability. The evaluation concludes that, for all CTs in use at NMP1, an open transformer secondary will not develop voltages that are high enough to threaten the Safe Shutdown capability.

Reference Document

EIR 51-9133191, NSCA, Sections 8.2 and 8.5
 Fire Protection Engineering Evaluation FPPE-1-04-002, Rev. 0, Fire Effects on CTs
 ONS RAI 3-48, NRC Request for Additional Information dated July 30, 2010 (ML102110394)
 HNP RAI 3-17, NRC Request for Additional Information dated August 6, 2009 (ML092170715)

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

3.5.2.2 Circuit Failures Due to a Short-to-Ground

NEI 00-01 Guidance

This section provides guidance for addressing the effects of a short-to-ground on circuits for required for hot shutdown and important to safe shutdown equipment. A short-to-ground is a fire-induced breakdown of a cable insulation system resulting in the potential on the conductor being applied to ground potential. A short-to-ground can cause a loss of power to or control of required safe shutdown equipment. In addition, a short-to-ground may affect other equipment in the electrical power distribution system in the cases where proper coordination does not exist.

There is no limit to the number of shorts-to-ground that could be caused by the fire.

Consider the following consequences in the post-fire safe shutdown analysis when determining the effects of circuit failures related to shorts-to-ground:

- A short to ground in a power or a control circuit may result in tripping one or more isolation devices (i.e. breaker/fuse) and causing a loss of power to or control of required safe shutdown equipment.
- In the case of certain energized equipment such as HVAC dampers, a loss of control power may result in loss of power to an interlocked relay or other device that may cause one or more spurious operations.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

The methodology assumes multiple fire induced failures including short-to-ground. The short-to-ground issue incorporates circuit failures for both ungrounded and grounded circuits. Postulated cable and component failures were identified utilizing the techniques referenced in NEI 00-01 Figure 3.5.2-2 and Figure 3.5.2-3. The safe shutdown analysis may exclude certain cables if their postulated fire induced faults have no adverse effect on the component.

A short-to-ground fault for grounded circuits could cause the tripping of a circuit thereby causing a loss of power to the control circuit. For certain cases of energized components, a loss of control power may result in a loss of power to relays and other devices interlocked with the device.

Unless otherwise justified by circuit analysis, short- to-ground for ungrounded circuits are treated the same as short- to-ground for grounded circuits, and are postulated to result in a loss of motive power or control power. This is consistent with NFPA 805 Appendix B, Section B.3.2.g which states: "For ease of analysis when analyzing an ungrounded DC circuit for the effects of a short-to-ground, it should be assumed that an existing ground fault from the same power source is present."

Reference Document

EIR 51-9133191, NSCA, Sections 8.1 and 8.2
NFPA 805, Appendix B, Section B.3.2.g

2.4.2.2 Nuclear Safety Capability Circuit Analysis

NEI 00-01 Ref

NEI 00-01 Guidance

3.5.2.3 Circuit Failures Due to a Hot Short

This section provides guidance for analyzing the effects of a hot short on circuits for required for hot shutdown and important to safe shutdown equipment. A hot short is defined as a fire-induced insulation breakdown between conductors of the same cable, a different cable or some other external source resulting in an undesired impressed voltage on a specific conductor. The potential effect of the undesired impressed voltage would be to cause equipment to operate or fail to operate in an undesired manner.

Consider the following specific circuit failures related to hot shorts as part of the post-fire safe shutdown analysis:

- A hot short between an energized conductor and a de-energized conductor within the same cable may cause a spurious operation of equipment. The spuriously operated device (e.g., relay) may be interlocked with another circuit that causes the spurious operation of other equipment. This type of hot short is called an intra-cable hot short (also known as conductor-to-conductor hot short or an internal hot short).
- A hot short between any external energized source such as an energized conductor from another cable and a de-energized conductor may also cause a spurious operation of equipment. This is called an inter-cable hot short (also known as cable-to-cable hot short/external hot short).
- A hot short in the control circuitry for an MOV can bypass the MOV protective devices, i.e. torque and limit switches. This is the condition described in NRC Information Notice 92-18. In this condition, MOV motor damage can occur. Damage to the MOV motor could result in an inability to operate the MOV either remotely, using separate controls with separate control power, or manually using the MOV hand wheel. This condition could be a concern in two instances: (1) For fires requiring Control Room evacuation and remote operation from the Remote Shutdown Panel; (2) For fires where the selected means of addressing the effects of fire induced damage is the use of an operator manual action. In this latter case, analysis must be performed to demonstrate that the MOV thrust at motor failure does not exceed the capacity of the MOV hand wheel. For either case, analysis must demonstrate the MOV thrust at motor failure does not damage the MOV pressure boundary.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

A hot short is a condition experienced when an energized individual conductor of the same or different cable comes into contact with another conductor of the same or different cable resulting in electrical continuity between the conductors. The potential effect is that the energized conductor becomes an undesired source of power for the circuit being analyzed. Hot shorts were considered to be either internal conductors of the same cable, identified as internal shorts, or shorts between conductors of different cables, identified as external shorts. The potential of circuit failures due to hot shorts can cause components to operate or cause them to fail to operate in an undesired manner.

The Nuclear Safety Capability Assessment (NSCA) assumed that fire damage results in an unusable cable that cannot be considered functional with regard to ensuring proper circuit operation. The insulation and external jacket material of electrical cables are susceptible to fire damage. Damage may assume several forms including deformation, loss of structure, cracking, and ignition. The relationship between exposure of electrical cable insulation to fire conditions, the failure mode, and time to failure may vary with the configuration and cable type. To accommodate these uncertainties in a consistent and conservative manner, the circuit analysis assumes that the functional integrity of electrical cables is lost when cables are exposed to a fire, except where protected by a fire rated barrier.

Consistent with NEI 00-01, hot shorts were considered to be either internal cable wire-to-wire shorts or cable-to-cable (external) shorts. No credit was taken for physical cable attributes (armored, thermo-set, etc.) preventing cable-to-cable hot shorts.

For cable failures due to hot shorts on grounded or ungrounded circuits, the methodology initially assumes the hot short would have sufficient potential to cause a spurious operation of the component. Two types of cable hot short conditions are considered to be of sufficiently low likelihood that they are not assumed credible, except for analysis involving high/low pressure interface components. These hot shorts are 3-phase AC power circuit cable-to-cable proper phase sequence faults and 2-wire ungrounded DC circuit cable-to-cable proper polarity faults.

Instrument circuits that operate at low signal levels (4-20 mA, 0-1 V, 1-5 V, etc.) and are enclosed in a grounded metal shield are not considered to be susceptible to hot shorts from other adjacent instrument circuits external to the shield. External circuits are assumed to short to ground via the shield and do not have the potential of creating a signal of proper polarity and amplitude to simulate a valid instrument signal.

Reference Document

EIR 51-9133191, NSCA, Section 8.2

ONS RAI 3-41, NRC Request for Additional Information dated July 30, 2010 (ML102110394)

2.4.2.3 Nuclear Safety Equipment and Cable Location

Physical location of equipment and cables shall be identified.

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.3.4 Identify Routing of Cables

Identify the routing for each cable including all raceway and cable endpoints. Typically, this information is obtained from joining the list of safe shutdown cables with an existing cable and raceway database.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

This task involved identifying the routing and location for all raceways and endpoints for cables associated with safe shutdown equipment. The cable routes and their endpoint location were populated into the database. The database is a relational database that contains all the required information for safe shutdown cable routing and endpoint information. The original cable routing and cable endpoint data was provided from the NMP1 cable raceway database (TRAK2000).

Comments

None

Reference Document

EIR 51-9133191, NSCA, Sections 2.1 and 8.4
TRAK2000, Revision 6.01

2.4.2.3 Nuclear Safety Equipment and Cable Location

NEI 00-01 Ref

NEI 00-01 Guidance

3.3.3.5 Identify Raceway and Cables by Fire Area

Identify the fire area location of each raceway and cable endpoint identified in the previous step and join this information with the cable routing data. For raceway and cable endpoints in multiple fire areas, each fire area where the raceway or cable endpoint exists must be included. In addition, identify the location of field-routed cable by fire area. This produces a database containing all of the cables requiring fire area analysis, their locations by fire area, and their raceway.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Fire area locations were identified for each cable raceway and cable endpoint by obtaining the location coordinates from applicable cable tray, conduit or equipment layout arrangement drawings or by field walkdown, if necessary. The fire area locations were identified by comparing the cable tray/conduit arrangement drawings, equipment arrangement drawings, or field walkdown data with Fire Area Floor Plans drawings. This correlation between cable raceway locations and Fire Areas and Rooms was populated into the database to produce computer generated reports. The reports contained the cable related raceway information required to prepare the Fire Area Analysis.

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 8.4
Fire Area Floor Plans Drawings B40141C through B40148C

2.4.2.3 Nuclear Safety Equipment and Cable Location

NEI 00-01 Ref

3.5.2.4 Circuit Failures Due to Inadequate Circuit Coordination

NEI 00-01 Guidance

The evaluation of circuits of a common power source consists of verifying proper coordination between the supply breaker/fuse and the load breakers/fuses for power sources that are required for hot shutdown. The concern is that, for fire damage to a single power cable, lack of coordination between the supply breaker/fuse and the load breakers/fuses can result in the loss of power to a safe shutdown power source that is required to provide power to safe shutdown equipment.

A coordination study should demonstrate the coordination status for each required common power source. For coordination to exist, the time-current curves for the breakers, fuses and/or protective relaying must demonstrate that a fault on the load circuits is isolated before tripping the upstream breaker that supplies the bus. Furthermore, the available short circuit current on the load circuit must be considered to ensure that coordination is demonstrated at the maximum fault level.

The methodology for identifying potential circuits of a common power source and evaluating circuit coordination cases on a single circuit fault basis is as follows:

- Identify the power sources required to supply power to safe shutdown equipment.
- For each power source, identify the breaker/fuse ratings, types, trip settings and coordination characteristics for the incoming source breaker supplying the bus and the breakers/fuses feeding the loads supplied by the bus.
- For each power source, demonstrate proper circuit coordination using acceptable industry methods. For example, for breakers that have internal breaker tripping devices and do not require control power to trip the breaker, assure that the time-current characteristic curve for any affected load breaker is to the left of the time-current characteristic curve for the bus feeder breaker and that the available short circuit current for each affected breaker is to the right of the time-current characteristic curve for the bus feeder breaker or that the bus feeder breaker has a longer time delay in the breaker instantaneous range than the load breaker. For breakers requiring control power for the breaker to trip, the availability of the required control power must be demonstrated in addition to the proper alignment of the time-current characteristic curves described above. The requirement for the availability of control power would apply to load breakers fed from each safe shutdown bus where a fire-induced circuit failure brings into questions the availability of coordination for a required for hot shutdown component.
- For power sources not properly coordinated, tabulate by fire area the routing of cables whose breaker/fuse is not properly coordinated with the supply breaker/fuse. Evaluate the potential for disabling power to the bus in each of the fire areas in which the circuit of concern are routed and the power source is required for hot shutdown. Prepare a list of the following information for each fire area:
 - Cables of concern.
 - Affected common power source and its path.
 - Raceway in which the cable is enclosed.
 - Sequence of the raceway in the cable route.
 - Fire zone/area in which the raceway is located.

For fire zones/areas in which the power source is disabled, the effects are mitigated by appropriate methods.

- Develop analyzed safe shutdown circuit dispositions for the circuit of concern cables routed in an area of the same path as required by the power source. Evaluate adequate separation and other mitigation measures based upon the criteria in Appendix R, NRC staff guidance, and plant licensing bases.

Applicability	Comments
Applicable	None

Alignment Statement

Aligns

Alignment Basis

The NMP1 Fire Area Assessments are performed to support transition to a performance based fire protection licensing basis. While performing the primary component circuit analysis for safe shutdown components, it was assumed that electrical coordination exists for all power supplies for each level of electrical power.

Breaker coordination calculation 32-9151404-000, Nine Mile Point Unit 1 - NFPA 805 Coordination Study, demonstrates the existing coordination status for the required common power sources. This calculation identifies any fire protection program breaker coordination issues concerning proper coordination between the supply breaker/fuse and the load breaker/fuses for power sources required for hot shutdown. This document meets the nuclear safety capability requirements of NEI 00-01, Section 3.5.2.4, Figure 3.5.2-6 and NFPA 805, Section 2.4.2.2.2. Any identified issues have been addressed in the NSCA.

Other potential coordination concerns involve associated non-safe shutdown circuits that are not independent of safe shutdown circuits that could also potentially defeat the functions of safe shutdown circuits if not properly protected. These circuits must be associated with both a fire area and a safe shutdown system or component to warrant consideration. These associated circuits are divided into three categories.

- Circuits that share a common power supply with safe shutdown circuits.
- Circuits that share a common enclosure with safe shutdown circuits.
- Circuits for components the spurious operation of which would adversely affect the shutdown process.

The associated circuits are defined in the NMP1 Coordination study which reviews the 4.16 kV, 600 VAC, 480 VAC, 208/120 VAC and 125 VDC power supplies credited for post-fire shutdown.

Proper circuit coordination for power supplies was reviewed, analyzed and addressed in EIR 51-9133191, NSCA.

Reference Document

EIR 51-9133191, NSCA, Section 8.5
HNP RAI 3-18 and RAI 3-19, NRC Request for Additional Information dated August 6, 2009 (ML092170715)
EIR 32-9151404, Nine Mile Point Unit 1 - NFPA 805 Coordination Study

2.4.2.3 Nuclear Safety Equipment and Cable Location

NEI 00-01 Ref

3.5.2.5 Circuit Failures Due to Common Enclosure Concerns

NEI 00-01 Guidance

The common enclosure concern deals with the possibility of causing secondary failures due to fire damage to a circuit either whose isolation device fails to isolate the cable fault or protect the faulted cable from reaching its ignition temperature, or the fire somehow propagates along the cable into adjoining fire areas.

The electrical circuit design for most plants provides proper circuit protection in the form of circuit breakers, fuses and other devices that are designed to isolate cable faults before ignition temperature is reached. Adequate electrical circuit protection and cable sizing are included as part of the original plant electrical design maintained as part of the design change process. Proper protection can be verified by review of as-built drawings and change documentation. Review the fire rated barrier and penetration designs that preclude the propagation of fire from one fire area to the next to demonstrate that adequate measures are in place to alleviate fire propagation concerns.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

Circuit failures due to common enclosure concerns are addressed by breaker coordination calculation 32-9151404-000, Nine Mile Point Unit 1 - NFPA 805 Coordination Study. This calculation demonstrates the existing coordination status for electrical circuits that could impact safe shutdown concerning proper coordination between the supply breaker/fuse and the load breaker/fuses for power sources required for hot shutdown. This document meets the nuclear safety capability requirements of NEI 00-01, Section 3.5.2.4, Figure 3.5.2-6 and NFPA 805, Section 2.4.2.2.2.

Reference Document

EIR 51-9133191, NSCA, Section 8.5

HNP RAI 3-18 and RAI 3-19, NRC Request for Additional Information dated August 6, 2009 (ML092170715)

EIR 32-9151404, Nine Mile Point Unit 1 - NFPA 805 Coordination Study

2.4.2.4 Fire Area Assessment

Fire Area Assessment. An engineering analysis shall be performed in accordance with the requirements of Section 2.3 for each fire area to determine the effects of fire or fire suppression activities on the ability to achieve the nuclear safety performance criteria of Section 1.5. [See Chapter 4 for methods of achieving these performance criteria (performance-based or deterministic).

NEI 00-01 Ref

3.4 Fire Area Assessment and Compliance Strategies

NEI 00-01 Guidance

By determining the location of each component and cable by fire area and using the cable to equipment relationships described above, the affected safe shutdown equipment in each fire area can be determined. Using the list of affected equipment in each fire area, the impacts to safe shutdown systems, paths and functions can be determined. Based on an assessment of the number and types of these impacts, the required safe shutdown path for each fire area can be determined. The specific impacts to the selected safe shutdown path can be evaluated using the circuit analysis and evaluation criteria contained in Section 3.5 of this document. Knowing which components and systems are performing which safe shutdown functions, the required and important to SSD components can be classified. Once these component classifications have been made the tools available for mitigating the effects of fire induced damage can be selected. Refer to Appendix H for additional guidance on classifying components as either required for hot shutdown or important to safe shutdown. For MSOs the Resolution Methodology outlined in Section 4, Section 5, Appendix B and Appendix G should be applied. Components in each MSO are classified as either required for hot shutdown or important to safe shutdown components using the criteria from Appendix H. Similarly, this classification determines the available tools for mitigating the effects of fire-induced damage to the circuits for these components.

Having identified all impacts to the required safe shutdown path in a particular fire area, this section provides guidance on the techniques available for individually mitigating the effects of each of the potential impacts.

Applicability

Applicable

Comments

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

NEI 00-01 Guidance

3.4.1 Criteria/Assumptions

The following criteria and assumptions apply when performing "deterministic" fire area compliance assessment to mitigate the consequences of the circuit failures identified in the previous sections for the required safe shutdown path in each fire area.

Applicability

Comments

Applicable

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

NEI 00-01 Guidance

3.4.1.1 Assume a Single Fire

Assume only one fire in any single fire area at a time.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Only one fire is assumed to occur in any single fire area at a time.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

NEI 00-01 Guidance

3.4.1.2 Fire Affects All Unprotected Cables and Equipment

Assume that the fire may affect all unprotected cables and equipment within the fire area. This assumes that neither the fire size nor the fire intensity is known. This is conservative and bounds the exposure fire that is postulated in the regulation.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

For a conservative approach which bounds the exposure fire required by the regulations, the analysis assumes a fully involved fire and that all equipment and unprotected cabling within a given fire area are damaged by the fire.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

3.4.1.3 Address all Cable and Equipment Impacts Affecting the Required Safe Shutdown Path

NEI 00-01 Guidance

Address all cable and equipment impacts affecting the required safe shutdown path in the fire area. All potential impacts within the fire area must be addressed. The focus of this section is to determine and assess the potential impacts to the required safe shutdown path selected for achieving post-fire safe shutdown and to assure that the required safe shutdown path for a given fire area is properly protected.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

Fire Area Assessments were performed on a Fire Area basis in order to ensure compliance in accordance with the safe shutdown requirements of NFPA 805. The Safe Shutdown System and Component drawings were analyzed for each Fire Area to ensure that a success path is available based upon the postulated equipment and/or cable losses in the area. The potentially affected equipment and cables in each Fire Area were reviewed and impacts on safe shutdown success paths analyzed.

The route and location of all safe shutdown cables were loaded into the safe shutdown database. This data was used to generate Fire Area Component Impact Reports, which identified affected systems and components on a Fire Area basis. The Fire Area Component Impact Reports were used as a means to determine the least impacted safe shutdown path for each fire area.

The Fire Area Analysis methodology assumed multiple fire-induced failures and multiple spurious actuations, based on the cables and components present in the fire area of concern. All postulated cable and component failures were identified and a resolution provided at the component level.

The least impacted safe shutdown success path was analyzed so that mitigating strategies could be developed and documented in the Fire Area Assessment. A success path determination for all safe shutdown functions was performed. Generally the path with the least amount of failures was recovered to demonstrate a success path for safe shutdown. Support systems were reviewed in order to assess the impact on the systems being supported. The credited safe shutdown success path was documented in the fire area compliance assessment.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment**NEI 00-01 Ref****NEI 00-01 Guidance**

3.4.1.4 Classify Each
Cable/Component

Use the criteria from Appendix H to classify each impacted cable/component as either a required or important to SSD cable/component.

Applicability**Comments**

Applicable

None

Alignment Statement

Not Required

Alignment Basis

Using the criteria from Appendix H to classify each impacted cable/component as either a required or important to SSD cable/component was not required to support the transition to NFPA 805. Therefore, cables and components were not classified as "required for safe shutdown" or "important for safe shutdown." The safe shutdown flow paths identify the primary components that are required to meet the safe shutdown performance goals. The safe shutdown cables/components were compiled based on each system's performance and safe shutdown function. These components establish the primary safe shutdown flowpath for system operation. Also included in the safe shutdown flow paths are those cables/components whose spurious operation could impact safe shutdown system operability. Systems, components, and cables identified as necessary for the operation of the safe shutdown system under review are included in the safe shutdown equipment and cables lists and are designated with the same shutdown path as the primary safe shutdown system. The components may involve branch flow paths that must be isolated and remain isolated to assure that flow will not be diverted from the primary flow path. The list of primary components may also include selected mechanical components required to support safe shutdown.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment**NEI 00-01 Ref****NEI 00-01 Guidance**

3.4.1.5 Manual Actions

Use operator manual actions where appropriate, for cable/component impacts classified as important to SSD cable/components, to achieve and maintain post-fire safe shutdown conditions in accordance with NRC requirements (refer to Appendix E). For additional criteria to be used when determining whether an operator manual action may be used for a flow diversion off of the primary flow path, refer to Appendix H.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

Manual actions performed as prescribed in procedures or otherwise are documented in each Fire Area Assessment (FAA). Included in each FAA was the identification of any required operator actions outside the Main Control Room. The operator actions are those directed by operating procedures, repair procedures, or otherwise identified as necessary during the course of the individual FAA. Actions performed at locations other than primary control stations are identified as recovery actions requiring further review as part of the fire risk evaluations. These actions are identified in the Report of Manual Actions and Report of Procedure Directed Manual Actions included in each FAA.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment**NEI 00-01 Ref****NEI 00-01 Guidance****3.4.1.6 Repairs**

Where appropriate to achieve and maintain cold shutdown within 72 hours, use repairs to equipment required in support of post-fire shutdown.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns with Intent

Alignment Basis

Repairs to achieve and maintain cold shutdown are directed by plant procedures. However, NFPA 805 requires only that the plant be maintained in a safe and stable condition. Nor does NFPA 805 require that the plant achieve cold shutdown in 72 hours. Refer to Section 4.2.1.2 for a description of safe and stable as applied to NMP1. NMP1 demonstrates the ability to maintain for each fire area the fuel in a safe and stable condition with one of four designated shutdown paths.

Reference Document

EIR 51-9133191, NSCA, Sections 2.1, 8.5, and 9.0

Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 08-0054 (ML110140183)

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

3.4.1.7 Appendix R Compliance Criteria

NEI 00-01 Guidance

For the components on the required safe shutdown path classified as required hot shutdown components as defined in Appendix H, Appendix R compliance requires that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage (III.G.1.a). When cables or equipment are within the same fire area outside primary containment and separation does not already exist, provide one of the following means of separation for the required safe shutdown components impacted circuit(s):

- Separation of cables and equipment and associated non-safety circuits of redundant trains within the same fire area by a fire barrier having a 3-hour rating (III.G.2.a)
- Separation of cables and equipment and associated non-safety circuits of redundant trains within the same fire area by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area (III.G.2.b).
- Enclosure of cable and equipment and associated non-safety circuits of one redundant train within a fire area in a fire barrier having a one-hour rating. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area (III.G.2.c).

For fire areas inside non-inerted containments, the following additional options are also available:

- Separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards (III.G.2.d);
- Installation of fire detectors and an automatic fire suppression system in the fire area (III.G.2.e);
- Separation of cables and equipment and associated non-safety circuits of redundant trains by a noncombustible radiant energy shield (III.G.2.f).

Use exemptions, deviations, LARs and licensing change processes to satisfy the requirements mentioned above and to demonstrate equivalency depending upon the plant's license requirements.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns With Intent

Alignment Basis

Each NMP1 fire area containing safe shutdown equipment or cables was reviewed in a deterministic fashion for the ability to achieve post-fire safe shutdown. The affected shutdown related cables and components in each area were identified and the resultant information used to determine the preferred shutdown path to achieve safe shutdown.

The credited safe shutdown success paths were analyzed and mitigating strategies were developed and documented in the Safe Shutdown Analysis, fire area compliance assessments. The results of the assessments confirm that in the event of a postulated exposure fire, the safe shutdown capability of NMP1 will be maintained such that the fuel remains in a safe and stable condition..

The non-safe shutdown circuits which are not completely independent of safe shutdown circuits are associated circuits. These associated circuits are those circuits that could adversely affect the safe shutdown capability or components. These circuits would be associated with a safe shutdown system or component and analyzed the same as other safe shutdown circuits affected within that fire area.

Reference Document

EIR 51-9133191, NSCA, Sections 5.1, 5.2, and 5.3

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

3.4.1.8 Alternate/Backup Equipment Selection

NEI 00-01 Guidance

Consider selecting other equipment that can perform the same safe shutdown function as the impacted equipment. In addressing this situation, each equipment impact, including spurious operation, is to be addressed in accordance with regulatory requirements and the NPP's current licensing basis. With respect to MSOs, the criteria in Section 4, Appendix B, Appendix G and Appendix H should be used.

Applicability

Applicable

Comments

Consideration of Multiple Spurious Operations is addressed in the NSCA (EIR 51-9133191, Section 8.6).

Alignment Statement

Aligns

Alignment Basis

Component selection was performed for all fire areas in order to populate the database with equipment information required to be analyzed against the requirements of NFPA 805. The components selected are documented in the Safe Shutdown Equipment List (SSEL). The objective of the SSEL is to provide a list of analyzed components that are utilized in the NFPA 805 NSCA to demonstrate the fuel can be maintained in safe and stable condition. The current SSEL was reviewed against the criteria outlined in NEI 00-01 and considered where additional equipment may need to be included to address multiple spurious operation concerns or other separation concerns.

Consideration of component spurious actuation is not limited to the licensing basis criteria documented in UFSAR Appendix 10B, Section 5.9.4. As part of the transition to a NFPA 805 licensing basis, the criteria used in evaluating spurious actuation of components are those identified in NEI 00-01, Section 4, Identification and Treatment of Multiple Spurious Operations, which envelopes the plant licensing basis as discussed in the UFSAR. MSO component combinations were included in the assessments.

The number of potential spuriously operating valves in a line was not limited by number. The NSCA incorporates equipment identified during the review and the cable selection phase by providing an updated SSEL Report of the safe shutdown primary components and the Safe Shutdown Success Paths. In addition, the NSCA supports incorporation of secondary components into the database that were modeled as a result of the primary component selections.

A success path determination for all safe shutdown functions was performed. Generally the path with the least amount of failures was utilized to demonstrate a success path for safe shutdown. Support systems were reviewed in order to assess the impact on the systems being supported.

Primary and secondary shutdown methodologies have been developed. The primary method employs the use of Emergency Condensers. The secondary method employs the use of ERVs and ECCS equipment. This approach provides for versatility by employing diverse equipment resulting in four potential shutdown success paths.

Reference Document

EIR 51-9133191, NSCA, Section 8.6

HNP RAI 3-14, NRC Request for Additional Information dated August 6, 2009 (ML092170715)

Technical Report on Identification & Classification of the NMP-1 MSO Scenarios Using an Expert Panel - Review of New Scenarios, Rev.1

Closure of National Fire Protection Association 805 Transition Program Frequently Asked Question Number 08-0054 (ML110140183)

UFSAR Appendix 10B, Section 5.9.4

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

NEI 00-01 Guidance

3.4.1.9 Fluid Density Effects

Consider the effects of the fire on the density of the fluid in instrument tubing and any subsequent effects on instrument readings or signals associated with the protected safe shutdown path in evaluating postfire safe shutdown capability. This can be done systematically or via procedures such as Emergency Operating Procedures.

Applicability

Comments

Applicable

Instrument tubing failure due to a fire is addressed in the NSCA (EIR 51-9133191, Section 1.14).

Alignment Statement

Aligns

Alignment Basis

Instrument sensing lines for level, pressure, flow, etc. that are exposed to a fire are considered to have the potential of causing erratic or unreliable signals or indication, unless a fire hazards analysis demonstrates that this failure is not credible. Fire damage to instrument sensing lines can be as detrimental to the instruments as fire damage is to safe shutdown cables and components. Even though the integrity of the tubing is expected to withstand the fire, the accuracy of the instrument may not be reflected correctly due to the heating of the fluid.

The instrument sensing lines route locations are developed and inputted as design input to the analysis. The input consisted of a list of instrument sensing lines (located outside Containment) including the fire areas and associated routing locations through the plant. This information was entered into the database as cables using fictitious cable numbers, including the route and endpoint identifications.

The analysis treated the tubing like cables and associated it with the instrument. The sensing lines are subject to the same compliance issues and similar analytical techniques as safe shutdown cables. Sensing lines of instruments required for safe shutdown are included within the scope of a fire area assessment. In this manner, the sensing lines are included for consideration along with cables when performing the fire area assessments. If instruments were impacted by the fire, then alternate instruments, not impacted by the fire, would be relied upon for safe shutdown.

Instrument sensing lines were reviewed for susceptibility to physical fire damage that may cause a loss of inventory. Sensing lines for SSEL components are constructed of either stainless steel or carbon steel. Consequently, they are not susceptible to physical damage as the result of a postulated fire.

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 8.4

HNP RAI 3-15, NRC Request for Additional Information dated August 6, 2009 (ML092170715)

2.4.2.4 Fire Area Assessment**NEI 00-01 Ref**

3.4.2 Methodology for Fire Area Assessment

NEI 00-01 Guidance

Refer to NEI 00-01 Figure 3-5 for a flowchart illustrating the various steps involved in performing a fire area assessment. Use the following methodology to assess the impact to safe shutdown and demonstrate Appendix R compliance

Applicability

Applicable

Comments

None

Alignment Statement

Not Required

Alignment Basis

This paragraph provides introductory information and contains no specific requirements. Discussion is provided in subsequent sub-sections.

Reference Document

2.4.2.4 Fire Area Assessment**NEI 00-01 Ref**

3.4.2.1 Identify the Affected Equipment by Fire Area

NEI 00-01 Guidance

Identify the safe shutdown cables, equipment and systems located in each fire area that may be potentially damaged by the fire. Provide this information in a report format. The report may be sorted by fire area and by system in order to understand the impact to each safe shutdown path within each fire area.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

The information needed to support the Post Fire Safe Shutdown Analysis is maintained in a safe shutdown database which contains the safe shutdown systems, components, cables, and their associated fire area location. This information is available in report format and can be sorted by fire area, system, train, component, cable, safe shutdown path, or various combinations of each. These reports are used to assess potential damage due to fire in each area of the plant. The database reports provide the same information identified on Attachment 5 of NEI 00-01.

Reference Document

EIR 51-9133191, NSCA, Sections 5.4 and 9.0

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

NEI 00-01 Guidance

3.4.2.2 Determine the Least Impacted Shutdown Path

Based on a review of the systems, equipment and cables within each fire area, determine which shutdown paths are either unaffected or least impacted by a postulated fire within the fire area. Typically, the safe shutdown path with the least number of cables and equipment in the fire area would be selected as the required safe shutdown path. Consider the circuit failure criteria and the possible mitigating strategies, however, in selecting the required safe shutdown path in a particular fire area. Review support systems as a part of this assessment since their availability will be important to the ability to achieve and maintain safe shutdown. For example, impacts to the electric power distribution system for a particular safe shutdown path could present a major impediment to using a particular path for safe shutdown. By identifying this early in the assessment process, an unnecessary amount of time is not spent assessing impacts to the frontline systems that will require this power to support their operation. Determine which components are required hot shutdown components and which components are important to SSD components using the guidance in Appendix H.

Based on an assessment as described above, designate the required safe shutdown path(s) for the fire area. Classify the components on the required safe shutdown path necessary to perform the required safe shutdown functions as required safe shutdown components. Identify all equipment not in the safe shutdown path whose spurious operation or mal-operation could affect the shutdown function. Criteria for classifying these components as required for hot shutdown or as important to SSD is contained in Appendix H. Include the affected cables in the shutdown function list. For each of the safe shutdown cables (located in the fire area) that are part of the required safe shutdown path in the fire area, perform an evaluation to determine the impact of a fire-induced cable failure on the corresponding safe shutdown equipment and, ultimately, on the required safe shutdown path.

When evaluating the safe shutdown mode for a particular piece of equipment, it is important to consider the equipment's position for the specific safe shutdown scenario for the full duration of the shutdown scenario. It is possible for a piece of equipment to be in two different states depending on the shutdown scenario or the stage of shutdown within a particular shutdown scenario. Document information related to the normal and shutdown positions of equipment on the safe shutdown equipment list.

Applicability

Comments

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Fire Area Compliance Assessments demonstrate the ability to achieve safe shutdown by ensuring at least one safe shutdown success path is available to accomplish the performance goals identified in NEI 00-01. NEI 00-01, Section 3 was used as guidance in performing the assessments. The elements of the assessments performed for NMP1 reflect the NEI 00-01 guidance as discussed in the following.

Fire Area Assessments were performed on a Fire Area basis in order to ensure compliance in accordance with the requirements of NFPA 805. The safe shutdown database reports provide the potentially affected equipment and cables in each Fire Area, which were analyzed for impacts on safe shutdown success paths.

The Safe Shutdown Equipment List (SSEL) contains equipment data such as the equipment type, description, safe shutdown path, drawing reference, fire area, fire zone, and room location. Other equipment information would include normal position, hot shutdown position, cold shutdown position, failed air position, failed electrical position, high/low pressure interface concern, and spurious operation concern.

The route and location of all Appendix R cables (located by Fire Area) was used to generate the Fire Area Component Impact Reports, which identified affected systems and components on a Fire Area basis. The Fire Area Component Impact Reports were used as a means to determine the least impacted safe shutdown path for each fire area.

The cable selection task involved identifying all cables associated with the control and operation of a safe shutdown component. These cables were analyzed to determine the impact of fire induced cable failure on the selected equipment. A circuit analysis was performed as part of the scope for selected cables/components, as required, in order to demonstrate that the cable is or is not required so that the analyzed component can be credited to perform its required function for the safe shutdown path.

The Fire Area Analysis methodology identified fire-induced component and cable failures and spurious actuations, based on the cables and components present in the fire area of concern. All postulated cable and component failures were assessed and a resolution provided at the component level.

Once the above was complete, the least impacted safe shutdown success path was identified so that mitigating strategies could be developed and documented in the Fire Area Assessment.

Reference Document

EIR 51-9133191, NSCA, Sections 5.1, 5.2, 5.3, and 5.4

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref**NEI 00-01 Guidance**

3.4.2.3 Determine Safe Shutdown Equipment Impacts

Using the circuit analysis and evaluation criteria contained in Section 3.5 of this document, determine the equipment that can impact safe shutdown and that can potentially be impacted by a fire in the fire area, and what those possible impacts are.

Applicability**Comments**

Applicable

None

Alignment Statement

Aligns

Alignment Basis

The Safe Shutdown Equipment List was developed based on system requirements and other plant impacts. During the identification of the Safe Shutdown Equipment List for component cables, a circuit fault analysis for each component's cables was performed to determine the effects of a fire-induced hot short, open circuit and short-to-ground. The circuits associated with the components operation and whose failure could affect the components operation was considered as required. The fire area analysis assumed multiple fire-induced failures and multiple spurious actuations (MSOs), based on the cables and components present in the fire area of concern. The cable and component failures were evaluated and a resolution and disposition was provided for component and cable impacted in that fire area.

In addition, spurious operating equipment concerns are addressed in the "MSO Expert Panel Report," which consists of the multiple spurious operation review. The purpose of this review is to document the potential Multiple Spurious Operation combinations.

The results of this activity identifies equipment, whose fire-induced spurious operation could result in consequences that may be adverse to both the Fire PRA risk models and meeting the nuclear safety performance criteria of NFPA 805. The equipment identified in this task that could affect the Fire PRA will be integrated into the Fire PRA Equipment list.

Reference Document

EIR 51-9133191, NSCA, Sections 5.0, 8.0, and 9.0

ONS RAI 3-41 and RAI 3-43, NRC Request for Additional Information dated July 30, 2000 (ML102110394)

Technical Report on Identification & Classification of the NMP-1 MSO Scenarios Using an Expert Panel - Review of New Scenarios, Rev.1

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

3.4.2.4 Develop a Compliance Strategy or Disposition

NEI 00-01 Guidance

The available deterministic methods for mitigating the effects of circuit failures are summarized as follows (see Figure 1-1):

Required for Hot Shutdown Components:

- Re-design the circuit or component to eliminate the concern. This option will require a revision to the post-fire safe shutdown analysis.
- Re-route the cable of concern. This option will require a revision to the post-fire safe shutdown analysis.
- Protect the cable in accordance with III.G.2.
- Provide a qualified 3-fire rated barrier.
- Provide a 1-hour fire rated barrier with automatic suppression and detection.
- Provide separation of 20 feet or greater with automatic suppression and detection and demonstrate that there are no intervening combustibles within the 20 foot separation distance.
- Perform a cold shutdown repair in accordance with regulatory requirements.
- Identify other equipment not affected by the fire capable of performing the same safe shutdown function.
- Develop exemptions, deviations, LARs, Generic Letter 86-10 evaluation or fire protection design change evaluations with a licensing change process.

Important to Safe Shutdown Components:

- Any of the options provided for required for hot shutdown components.
- Perform and operator manual action in accordance with Appendix E.
- Address using fire modeling or a focused-scope fire PRA using the methods of Section 5 for MSO impacts. [Note: The use of fire modeling will require a review by the Expert Panel and the use of a focused-scope fire PRA will require a LAR.]

Additional options are available for non-inerted containments as described in 10 CFR 50 Appendix R section III.G.2.d, e and f.

Applicability

Applicable

Comments

None

Alignment Statement

Aligns

Alignment Basis

The safe shutdown analysis provides a compliance strategy and various deterministic methods used for mitigating the effects of circuit failures. Potential impacts to safe shutdown were addressed by using the path least impacted by the fire to assure at least one success path for safe shutdown. This was accomplished by using a combination of the strategies listed in the guidance and taking credit for any existing features whenever possible.

Circuit failures having the potential to adversely impact the shutdown process were identified as Open Items to be transitioned to the Fire Risk Evaluations.

Reference Document

EIR 51-9133191, NSCA, Section 9.0

2.4.2.4 Fire Area Assessment

NEI 00-01 Ref

3.4.2.5 Document the Compliance Strategy or Disposition

NEI 00-01 Guidance

Assign compliance strategy statements or codes to components or cables to identify the justification or mitigating actions proposed for achieving safe shutdown. The justification should address the cumulative effect of the actions relied upon by the licensee to mitigate a fire in the area. Provide each piece of safe shutdown equipment, equipment not in the path whose spurious operation or mal-operation could affect safe shutdown, and/or cable for the required safe shutdown path with a specific compliance strategy or disposition. Refer to Attachment 6 for an example of a Fire Area Assessment Report documenting each cable disposition.

Applicability

Applicable

Comments

Alignment Statement

Aligns

Alignment Basis

For the Safe Shutdown Analysis, success paths were developed and analyzed for each component impacted by a fire in the subject area using disposition codes that represent consistent standardized compliance statements. The compliance statement reflects the credited fire protection features, analysis of credible cable failures, and serves as the basis for achieving safe shutdown conditions for the analyzed fire areas. The disposition codes (i.e., resolution of component hits) and associated statements were entered into the safe shutdown database. The following is a sample of generic disposition codes used for the Fire Area Compliance Assessment:

- Cable protected by rated fire barrier.
- Failure of cable may result in loss of power/control of component.
- Failure of cable may result in loss of indication or erroneous indication.
- Component fails in desired SSD position/mode.
- Series isolation valve(s) available and can be closed.
- Capability to close valve is available from the MCR.
- Component remains in desired SSD position.
- Valve can spuriously open. Series isolation valve remains closed

Reference Document

EIR 51-9133191, NSCA, Section 9.0

REVISIONS TO TRANSITION REPORT ATTACHMENT F
FIRE-INDUCED MULTIPLE SPURIOUS OPERATIONS RESOLUTION

Re-typed Pages F-6 and F-7.

Results of Step 3:

The results of the expert panel were included in Task 7.3.1 (NUREG/CR-6850 Task 2) and Task 7.4 (NUREG/CR-6850 Task 3) within the scope of the NMP1 Fire PRA, and in Task 4.2.2, Table B-3 and Fire Area Analysis within the scope of the NMP1 NSCA. Task 7.3.1 addressed spurious operations, including multiple spurious operations identified in the post-fire safe shutdown analysis, and those that resulted from the expert panel review.

The results of the Fire PRA model update are included in NMP1 Fire PRA Notebook, "Equipment Selection," which includes the following MSO related information:

- Identification and disposition of equipment from the review of MSOs (Table D-1 of the "Equipment Selection" notebook); and
- Fire PRA equipment list, which includes MSO identified components and their associated basic events (Table G-1 of the "Equipment Selection" notebook).

The MSO combination components were also evaluated for inclusion into the NMP1 NSCA. As necessary, components were added to the NSCA Equipment List and Logics, and the appropriate circuit analysis and cable routing were performed.

Step 4 – Evaluate for NFPA 805 Compliance

The MSO combinations included in the NSCA should be evaluated with respect to compliance with the deterministic requirements of NFPA 805, as discussed in Section 4.2.3 of NFPA 805. For those situations in which the MSO combination does not meet the deterministic requirements of NFPA 805 (VFDR), the issue with the components and associated cables should be mitigated by other means (e.g., performance-based approach per Section 4.2.4 of NFPA 805, plant modification, etc.).

The performance-based approach may include the use of feasible and reliable recovery actions. The use of recovery actions to demonstrate the availability of a success path for the nuclear safety performance criteria requires that the additional risk presented by the use of these recovery actions be evaluated (NFPA 805 Section 4.2.4).

Results of Step 4:

The MSO combination components of concern were evaluated as part of the NMP1 NSCA and NPO analyses. For NSCA cases where the pre-transition MSO combination components did not meet the deterministic compliance, the MSO combination components were added to the scope of the fire risk evaluations. The process and results for Fire Risk Evaluations are summarized in Section 4.5 of the Transition Report. MSO scenarios impacting NPO POSs are associated with Key Safety Function (KSF) success paths in the NPO analysis. A fire induced loss of these KSF success paths is addressed through the FAQ 07-0040 resolution process, wherein recommendations are provided to best manage fire risk in pinch point plant areas where KSFs may be impacted by a fire (EIR 51-9171174).

Step 5 - Document Results

The results of the process should be documented. The results should provide a detailed description of the MSO identification, analysis, disposition, and evaluation

results (e.g., references used to identify MSOs; the composition of the expert panel, the expert panel process, and the results of the expert panel process; disposition and evaluation results for each MSO, etc.). High level methodology utilized as part of the transition process should be included in the 10 CFR 50.48(c) License Amendment Request/Transition Report.

Results of Step 5:

The NMP1 Results are documented in:

- “Resolution of Issues Related to Fire-Induced Circuit Failures, Technical Report on Identification & Classification of the NMP1 MSO Scenarios using an Expert Panel”
- NMP1 Fire PRA Notebook, N1-ES-F001, “Equipment Selection (ES)”
- NMP1 Fire PRA Notebook, N1-CS-F001, “Cable Selection, Detailed Circuit Analysis and Route Location (CS)”
- NMP1 Fire PRA Notebook, N1-PRM-F001, “Plant Response Model”
- NMP1 Fire Area Transition – See Attachment C (NEI 04-02 Table B-3) of the Transition Report
- EIR 51-9133191, NMP1 Nuclear Safety Capability Assessment (NSCA) Report
- EIR 51-9137629, NMP1 Non-Power Operations KSF Equipment List
- EIR 51-9171174, NMP1 NFPA 805 Transition- Non-Power Operations Component Pinch Point Analysis

REVISIONS TO TRANSITION REPORT ATTACHMENT G
RECOVERY ACTIONS TRANSITION

Re-typed Pages G-1 through G-32.

(Replaces the original Attachment G in its entirety.)

G. Recovery Actions Transition

31 Pages Attached

In accordance with the guidance provided in NEI 04-02, FAQ 07-0030, Revision 5, and RG 1.205, the following methodology was used to determine recovery actions required for compliance (i.e., determining the population of post-transition recovery actions). The methodology consisted of the following steps:

- Step 1: Define the primary control station(s) and determine which pre-transition OMAs are taken at primary control station(s) (Activities that occur in the Main Control Room are not considered pre-transition OMAs). Activities that take place at primary control station(s) or in the Main Control Room are not recovery actions, by definition.
- Step 2: Determine the population of recovery actions that are required to resolve VFDRs (to meet the risk acceptance criteria or maintain a sufficient level of defense-in-depth).
- Step 3: Evaluate the additional risk presented by the use of recovery actions required to demonstrate the availability of a success path.
- Step 4: Evaluate the feasibility of the recovery actions.
- Step 5: Evaluate the reliability of the recovery actions.

An overview of these steps and the results of their implementation are provided below.

Step 1 - Clearly define the primary control station(s) and determine which pre-transition OMAs are taken at primary control station(s)

The first task in the process of determining the post-transition population of recovery actions was to apply the NFPA 805 definition of recovery action and the RG 1.205 definition of primary control station to determine those activities that are taken at primary control station(s).

Results of Step 1:

Based on the definition provided in RG 1.205, and the additional guidance provided in FAQ 07-0030, the following locations are considered as taking place at the primary control station(s):

1. Remote Shutdown Panel 11 is located in Fire Area 7, Fire Zone T2B, Turbine Building Elevation 250'-0".
2. Remote Shutdown Panel 12 is located in Fire Area 5, Fire Zone T4A, Turbine Building Elevation 277'-0".

The remote shutdown panels were approved by the NRC in SER entitled "Subject Modifications and Alternate Safe Shutdown Capabilities to Comply with the Requirements of Appendix R", dated March 3, 1983.

Table G-1 - "Recovery Actions and Activities Occurring at the Primary Control Station(s)" identifies the activities that occur at the primary control station(s). Activities necessary to enable the primary control station(s) are also identified in Table G-1 as primary control station(s) activities. These activities do not require the treatment of additional risk and are compliant with NFPA 805, Section 4.2.3.1.

Note that the Remote Shutdown Panels (RSPs) are primary control station(s) only for a fire in Fire Area 11 for which a MCR evacuation is credited.

Step 2 – Determine the population of recovery actions that are required to resolve VFDRs (to meet the risk or defense-in-depth criteria)

On a fire area basis, all VFDRs were identified in the NEI 04-02 Table B-3 (see Attachment C). Each VFDR not brought into compliance with the deterministic approach was evaluated using the performance-based approach of NFPA 805 Section 4.2.4. The performance-based evaluations resulted in the need for recovery actions to meet the risk acceptance criteria or maintain a sufficient level of defense-in-depth.

Results of Step 2:

The FRE report provides the determination of recovery actions required to resolve VFDRs. These recovery actions are listed in Table G-1, "Recovery Actions and Activities Occurring at the Primary Control Station(s)."

The actions contained in Table G-1 are identified on a fire area basis. Many of the same actions are repeated in different fire areas. To assist in understanding the various types of recovery actions contained in Table G-1, Table 4-1 has been created. Table 4-1 is a list of unique recovery actions only and does not include primary control station actions. It is important to note that not every component listed in the Components column of Table 4-1 is associated with every fire area listed in the Fire Areas of Concern column. The Fire Areas of Concern reflects the aggregate list of fire areas where the type of unique recovery action is credited to support shutdown. It is also important to note that item 12 in Table 4-1 is a proposed modification identified in Attachment S, specifically Table S-1. The final set of recovery actions is provided in Table G-1 - Recovery Actions and Activities Occurring at the Primary Control Station(s).

Table 4-1: Unique Operator Recovery Actions

No.	Action Description	Components	Fire Areas of Concern
1	Operator determines vital parameters at RSP	LI-36-26, LI-36-28, LI-60-22C, LI-60-23C, PI-201.2-94, PI-201.2-5, PI-36-25, PI-36-27, TI-201-50B, TI-201-51B TI-201.2-521B, TI-201.2-522B, TI-32-02B, TI-32-03B, TI-32-04B, TI-32-05B	1, 2, 5, 10
2	Valve locally throttled to control make-up to the Emergency Condensers	VLV-60-11, VLV-60-12	4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16A, 16B, 17A, 17B, 18, 19, 20, 21, 22, 23, 24
3	Connect portable charger to charge Batteries	BAT-B11, BAT-B12	5, 6, 7, 9, 10, 11
4	Manually isolate to prevent inventory loss	FCV-39-15, FCV-39-16, VLV-05-31, VLV-05-32	5, 6, 9, 10, 11, 18, 22, 23, 24
5	Vent air to close valve to prevent inventory loss	IV-01-03, IV-01-04	5, 6, 7, 9, 10, 11, 18, 22, 23, 24
6	Vent air to open to establish Emergency Condensers on failure to open	IV-39-05, IV-39-06	5, 10
7	Verify tripped for load shedding	PB-BB11, PB-BB12, UPS-UPS162A , UPS-UPS162B, UPS-UPS172A , UPS-UPS172B	5, 6, 7, 9, 10, 11
8	Shut down locally for load shedding	PMP-79.1-01, PMP-79.1-07, PMP-79.1-20, PMP-79.1-26	5, 6, 7, 9, 10, 11
9	Locally operate to establish decay heat removal through Emergency Condensers	IV-39-07R, IV-39-08R, IV-39-09R, IV-39-10R	10
10	Emergency Condenser Level Control Transfer switch to local	LCV-60-17, LCV-60-18	10
11	Operate manually to isolate Containment spray on spurious start	VLV-93-13, VLV-93-16	5, 11, 24
12	Open NEW Disconnect to load Emergency Diesel Generator to Dead bus (Currently a Damage Repair Procedure action)	Recover Emergency Diesel Generator	5, 7, 9, 10, 11
13	Scram control rods by venting the scram air header	BV-113-3091, VLV-113-230	5, 7, 10, 11
14	Locally operate the Fire Water System using the DFP to provide long term Emergency Condenser makeup tank supply	BV-100-68, BV-100-69, PMP-100-02	4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16A, 16B, 17A, 17B, 18, 19, 20, 21, 22, 23, 24

Step 3: Evaluate the Additional Risk of the Use of Recovery Actions

NFPA 805 Section 4.2.3.1 does not allow recovery actions when using the deterministic approach to meet the nuclear safety performance criteria. However, the use of recovery actions is allowed by NFPA 805 using a risk informed, performance-based, approach,

provided that the additional risk presented by the recovery actions is evaluated in accordance with NFPA 805 Section 4.2.4.

Results of Step 3:

The set of recovery actions that are necessary to demonstrate the availability of a success path for the nuclear safety performance criteria (see Table G-1) were evaluated for additional risk using the process described in NEI 04-02, FAQ 07-0030, Revision 5, and RG 1.205 and compared against the guidelines of RG 1.174 and RG 1.205. None of the recovery actions were found to have an adverse impact on the Fire PRA. The additional risk of recovery actions is provided in Attachment W.

Step 4: Evaluate the Feasibility of Recovery Actions

Recovery actions were evaluated against the feasibility criteria provided in NEI 04-02, FAQ 07-0030, Revision 5, and RG 1.205. Note that since actions taken at the primary control station are not recovery actions their feasibility is evaluated in accordance with procedures for validation of off normal procedures.

Results of Step 4:

The HRA evaluated the feasibility of recovery actions modeled in the Fire PRA and used to resolve VFDRs identified in the B-3 Table. This includes recovery actions related to AC power, Emergency Diesel Generators, and long-term decay heat removal among others. Feasibility of these recovery actions were evaluated in the HRA against the criteria outlined in NEI 04-02, FAQ 07-0030 Revision 5, and RG 1.205, making extensive use of HEP quantifications.

Recovery actions that are required by the FRE but not addressed in the HRA were evaluated for feasibility using the NEI 04-02, FAQ 07-0030 Revision 5, and RG 1.205 criteria and documented in EIR 51-9156521 entitled, "Recovery Action Review for Nine Mile Point Nuclear Power Station Unit 1 Transition to NFPA 805."

Since actions taken at primary control stations are not recovery actions, no independent feasibility evaluation is required.

Results of the feasibility assessments in the HRA and in the EIR demonstrate that all credited NFPA 805 recovery actions are feasible.

Implementation items resulting from the feasibility evaluation include:

Modify, as needed, the following procedures for recovery actions being evaluated:

- N1-SOP-21.1
- N1-SOP-21.2

Operators will be trained and qualified on the revised procedures.

These items are included as implementation items in Attachment S.

Step 5: Evaluate the Reliability of Recovery Actions

The evaluation of the reliability of recovery actions depends upon its characterization.

- The reliability of recovery actions that were modeled specifically in the Fire PRA were addressed using Fire PRA methods (i.e., HRA).

- The reliability of recovery actions not modeled specifically in the Fire PRA are bounded by the treatment of additional risk associated with the applicable VFDR. In calculating the additional risk of the VFDR, the compliant case recovers the fire-induced failure(s) as if the variant condition no longer exists. The resulting delta risk between the variant and compliant condition bounds any additional risk for the recovery action even if that recovery action were modeled.

Results of Step 5:

The reliability of recovery actions that were modeled specifically in the Fire PRA were addressed using Fire PRA methods. The HRA addresses the reliability of these recovery actions, with consideration taken for various performance shaping factors, including cues and instrumentation, timing, procedures and training, complexity, workload pressure and stress, human-machine interface, environment, special equipment, specific fitness needs, as well as crew communications, staffing, and dynamics. Accordingly, the HRA also evaluates recovery actions depending on whether they correspond or not to main control room abandonment situations.

Recovery actions that are required by the FRE but not addressed in the HRA are evaluated for reliability and documented in EIR 51-9156521 entitled, "Recovery Action Review for Nine Mile Point Nuclear Power Station Unit 1 Transition to NFPA 805."

Since actions taken at primary control stations are not recovery actions, no independent reliability evaluation is required. It should however be noted that a reliability evaluation documented in the HRA was made for those actions taken at PCSs that are credited and modeled in the Fire PRA.

Results of the reliability assessments in the HRA and in EIR 51-9156521 demonstrate that all credited NFPA 805 recovery actions are reliable.

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
1	LI-36-28 TI-201-50B	REACTOR VESSEL LEVEL DRYWELL TEMPERATURE	Operator determines vital parameters from PNL-RSP 11.	VFDR-01-009 VFDR-01-011	RA
1	LI-36-26 TI-201-51B	REACTOR VESSEL LEVEL DRYWELL TEMPERATURE	Operator determines vital parameters from PNL-RSP12.	VFDR-01-009 VFDR-01-011	RA
2	LI-36-28 TI-201-50B TI-201.2-521B	REACTOR VESSEL LEVEL DRYWELL TEMPERATURE TORUS TEMPERATURE	Operator determines vital parameters from PNL-RSP11.	VFDR-02-007 VFDR-02-008 VFDR-02-009	RA
2	LI-36-26 TI-201-51B TI-201.2-522B	REACTOR VESSEL LEVEL DRYWELL TEMPERATURE TORUS TEMPERATURE	Operator determines vital parameters from PNL-RSP12.	VFDR-02-007 VFDR-02-008 VFDR-02-009	RA
4	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-04-009	RA
4	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-04-009	RA
4	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-04-004	RA
4	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-04-003	RA
5	BAT-B11	125 VOLT DC STATION BATTERY 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-05-035	RA
5	BAT-B12	125 VOLT DC STATION BATTERY NUMBER 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-05-035	RA
5	BKR-(103/1-1) R1032/581	DIESEL GEN 103 OUTPUT BREAKER 103/1-1(R1032/581) to PB-103	Operate disconnect switch locally.	VFDR-05-040 VFDR-05-043	RA
5	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-05-047	RA
5	BV-113-3091	BLOCKING VALVE FOR AIR SUPPLY TO SCRAM AIR SYSTEM	Operator unlocks and closes BV-113-3091. Operator removes the vent pipe cap, unlocks, and opens VLV-113-	VFDR-05-046	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
	VLV-113-230	BALL VALVE - SCRAM VALVE PILOT HEADER VENT	230 to vent the SCRAM air header to insert the control rods.		
5	EG-EDG103	EMERGENCY GENERATOR – EMERGENCY DIESEL GENERATOR UNIT 103	Operate disconnect switch locally.	VFDR-05-037 VFDR-05-038	RA
5	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-05-003	RA
5	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-05-002	RA
5	IV-01-03	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM ISOLATION VALVE 3	Air vented manually at MSIV IV-01-03 to close valve to prevent inventory loss.	VFDR-05-009	RA
5	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-05-009	RA
5	IV-39-05	EMERGENCY COOLING LOOP 11 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-05 is manually opened by venting air from the valve to establish a decay heat removal path using EC's 111 & 112.	VFDR-05-012 VFDR-05-013 VFDR-05-014	RA
5	IV-39-06	EMERGENCY COOLING LOOP 12 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-06 is manually opened by venting air from the valve to establish a decay heat removal path using EC's 121 & 122.	VFDR-05-012 VFDR-05-013 VFDR-05-014	RA
5	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-05-028	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
5	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-05-047	RA
5	LI-36-26 PI-36-27	REACTOR VESSEL LEVEL REACTOR VESSEL PRESSURE	Operator determines vital parameters from PNL-RSP12.	VFDR-05-016 VFDR-05-017	RA
5	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-05-028	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
5	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-05-028	RA
5	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-05-004	RA
5	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the EC's 121 & 122 RCS steam supply vent line.	VFDR-05-004	RA
5	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to EC's 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-05-018	RA
5	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-05-018	RA
5	VLV-93-16	12" GATE VALVE - 112 CONTAINMENT SPRAY RAW WATER PUMP DISCHARGE VALVE	VLV-93-16 closed locally via the hand wheel to isolate CTSRW flow to Containment Spray Header #12.	VFDR-05-022	RA
6	BAT-B11	125 VOLT DC STATION BATTERY 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-06-017	RA
6	BAT-B12	125 VOLT DC STATION BATTERY 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-06-017	RA
6	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-06-019	RA
6	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-06-001	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
		LINE DRAIN			
6	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-06-002	RA
6	IV-01-03	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM ISOLATION VALVE 3	Air vented manually at MSIV IV-01-03 to close valve to prevent inventory loss.	VFDR-06-007	RA
6	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-06-008	RA
6	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-06-017	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
6	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-06-019	RA
6	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-06-017	RA
6	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-06-004 VFDR-06-006	RA
6	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-06-003 VFDR-06-005	RA
6	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-06-011	RA
6	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-06-011	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
7	BAT-B11	125 VOLT DC STATION BATTERY 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-07-012	RA
7	BAT-B12	125 VOLT DC STATION BATTERY 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-07-012	RA
7	BV-113-3091 VLV-113-230	BLOCKING VALVE FOR AIR SUPPLY TO SCRAM AIR SYSTEM BALL VALVE - SCRAM VALVE PILOT HEADER VENT	Operator unlocks and closes BV-113-3091. Operator removes the vent pipe cap, unlocks, and opens VLV-113-230 to vent the SCRAM air header to insert the control rods.	VFDR-07-013	RA
7	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-07-014	RA
7	IV-01-03	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM ISOLATION VALVE 3	Air vented manually at MSIV IV-01-03 to close valve to prevent inventory loss.	VFDR-07-001	RA
7	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-07-002	RA
7	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-07-012	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
7	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-07-014	RA
7	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-07-012	RA
7	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-07-007	RA
7	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-07-007	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
9	BAT-B11	125 VOLT DC STATION BATTERY 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-09-018	RA
9	BAT-B12	125 VOLT DC STATION BATTERY 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-09-018	RA
9	BKR-(102/2-1) R1022/571	DIESEL GEN 102 OUTPUT BREAKER 2-1(R1022/571) to PB102	Operate disconnect switch locally to allow for recovery of diesel generator.	VFDR-09-019	RA
9	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-09-022	RA
9	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-09-002	RA
9	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-09-003	RA
9	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-09-008	RA
9	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-09-018	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
9	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-09-022	RA
9	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-09-018	RA
9	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-09-005 VFDR-09-007	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
9	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-09-004 VFDR-09-006	RA
9	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-09-011	RA
9	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-09-011	RA
10	BAT-B11	125 VOLT DC STATION BATTERY 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-10-014	RA
10	BAT-B12	125 VOLT DC STATION BATTERY 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-10-014	RA
10	BKR-(102/2-1) R1022/571	DIESEL GEN 102 OUTPUT BREAKER 2-1(R1022/571) TO PB102	Operate disconnect switch locally to allow for recovery of diesel generator.	VFDR-10-021	RA
10	BV-113-3091 VLV-113-230	BLOCKING VALVE FOR AIR SUPPLY TO SCRAM AIR SYSTEM BALL VALVE - SCRAM VALVE PILOT HEADER VENT	Operator unlocks and closes BV-113-3091. Operator removes the vent pipe cap, unlocks, and opens VLV-113-230 to vent the SCRAM air header to insert the control rods.	VFDR-10-028	RA
10	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-10-029	RA
10	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-10-007	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
10	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-10-008	RA
10	IV-01-03	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM ISOLATION VALVE 3	Air vented manually at MSIV IV-01-03 to close valve to prevent inventory loss.	VFDR-10-009	RA
10	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-10-010	RA
10	IV-39-05	EMERGENCY COOLING LOOP 11 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-05 is manually opened by venting air from the valve to establish a decay heat removal path using ECs 111 & 112.	VFDR-10-012	RA
10	IV-39-06	EMERGENCY COOLING LOOP 12 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-06 is manually opened by venting air from the valve to establish a decay heat removal path using ECs 121 & 122.	VFDR-10-012	RA
10	IV-39-07R	MOTOR OPERATED LOOP 11 STEAM OUTLET OUTSIDE ISOLATION VALVE 112	IV-39-07R is operated locally via the hand wheel to establish a decay heat removal flowpath using ECs 111 & 112.	VFDR-10-012	RA
10	IV-39-08R	MOTOR OPERATED LOOP 12 STEAM OUTLET OUTSIDE ISOLATION VALVE 122	IV-39-08R is operated locally via the hand wheel to establish a decay heat removal flowpath using ECs 121 & 122.	VFDR-10-012	RA
10	IV-39-09R	MOTOR OPERATED LOOP 11 STEAM OUTLET INSIDE ISOLATION VALVE 111	IV-39-09R is operated locally via the hand wheel to establish a decay heat removal flowpath using ECs 111 & 112.	VFDR-10-012	RA
10	IV-39-10R	MOTOR OPERATED LOOP 12 STEAM OUTLET INSIDE ISOLATION VALVE 121	IV-39-10R is operated locally via the hand wheel to establish a decay heat removal flowpath using ECs 121 & 122.	VFDR-10-012	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
10	LCV-60-17	EMERGENCY CONDENSER 111 - 112 LEVEL CONTROL VALVE (LOOP 11) - AIR ACTUATED FAIL OPEN	Place EC 111/112 Level Control Transfer switch to Local and verify Auto control by observing "A" on status panel at PNL-RSP11 to override false EC high level signal to support decay heat removal via EC's 111 & 112.	VFDR-10-012	RA
10	LCV-60-18	EMERGENCY CONDENSER 121 - 122 LEVEL CONTROL VALVE (LOOP 12) - AIR ACTUATED FAIL OPEN	Place EC 121/122 Level Control Transfer switch to Local and verify Auto control by observing "A" on status panel at PNL-RSP12 to override false EC high level signal to support decay heat removal via EC's 121 & 122.	VFDR-10-012	RA
10	LI-36-28 PI-36-25	REACTOR VESSEL LEVEL REACTOR VESSEL PRESSURE	Operator determines vital parameters from PNL-RSP11.	VFDR-10-013	RA
10	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-10-014	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
10	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-10-029	RA
10	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-10-014	RA
10	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-10-005 VFDR-10-006	RA
10	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-10-003 VFDR-10-004	RA
10	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-10-017	RA
10	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-10-017	RA
11	BAT-B11	125 VOLT DC STATION BATTERY NUMBER 11	Portable charger with a generator connected directly to Battery Board PB-BB11 to charge Battery B11.	VFDR-11-020 VFDR-11-030	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
11	BAT-B12	125 VOLT DC STATION BATTERY NUMBER 12	Portable Charger with Generator connected directly to Battery Board PB-BB12 to charge Battery B12.	VFDR-11-020 VFDR-11-030	RA
11	BV-113-3091 VLV-113-230	BLOCKING VALVE FOR AIR SUPPLY TO SCRAM AIR SYSTEM BALL VALVE - SCRAM VALVE PILOT HEADER VENT	Operator unlocks and closes BV-113-3091. Operator removes the vent pipe cap, unlocks, and opens VLV-113-230 to vent the SCRAM air header to insert the control rods.	VFDR-11-036	RA
11	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-11-037	RA
11	EMERGENCY COOLING ISOLATION BYPASS SWITCH	EMERGENCY COOLING ISOLATION BYPASS SWITCH	Place Emergency Cooling Isolation Bypass Switch in bypass to enable operation of IV-39-05, IV-39-07, and IV-39-09 from PNL-RSP11.	N/A	PCS
11	EMERGENCY COOLING ISOLATION BYPASS SWITCH	EMERGENCY COOLING ISOLATION BYPASS SWITCH	Place Emergency Cooling Isolation Bypass Switch in bypass to enable operation of IV-39-06, IV-39-08, and IV-39-10 from PNL-RSP12.	N/A	PCS
11	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-11-009	RA
11	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-11-010	RA
11	IV-01-03	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM ISOLATION VALVE 3	Air vented manually at MSIV IV-01-03 to close valve to prevent inventory loss.	VFDR-11-003	RA
11	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-11-004	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
		4			
11	IV-39-05	EMERGENCY COOLING LOOP 11 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-05 operated from PNL-RSP11 to establish a decay heat removal path through ECs 111 & 112.	N/A	PCS
11	IV-39-06	EMERGENCY COOLING LOOP 12 CONDENSATE RETURN AIR OPERATED ISOLATION VALVE (GLOBE)	IV-39-06 operated from PNL-RSP12 to establish a decay heat removal path through ECs 121 & 122.	N/A	PCS
11	IV-39-07R	MOTOR OPERATED LOOP 11 STEAM OUTLET OUTSIDE ISOLATION VALVE 112	IV-39-07R operated from PNL-RSP11 to establish a decay heat removal path through ECs 111 & 112.	N/A	PCS
11	IV-39-08R	MOTOR OPERATED LOOP 12 STEAM OUTLET OUTSIDE ISOLATION VALVE 122	IV-39-08R operated from PNL-RSP12 to establish a decay heat removal path through ECs 121 & 122.	N/A	PCS
11	IV-39-09R	MOTOR OPERATED LOOP 11 STEAM OUTLET INSIDE ISOLATION VALVE 111	IV-39-09R operated from PNL-RSP11 to establish a decay heat removal path through ECs 111 & 112.	N/A	PCS
11	IV-39-10R	MOTOR OPERATED LOOP 12 STEAM OUTLET INSIDE ISOLATION VALVE 121	IV-39-10R operated from PNL-RSP12 to establish a decay heat removal path through ECs 121 & 122.	N/A	PCS
11	LCV-60-17	EMERGENCY CONDENSER 111 - 112 LEVEL CONTROL VALVE (LOOP 11) - AIR ACTUATED FAIL OPEN	Place EC 111/112 Level Control Transfer switch to Local and verify Auto control by observing "A" on status panel at PNL-RSP11.	N/A	PCS
11	LCV-60-18	EMERGENCY CONDENSER 121 - 122 LEVEL CONTROL VALVE (LOOP 12) - AIR ACTUATED FAIL OPEN	Place EC 121/122 Level Control Transfer switch to Local and verify Auto control by observing "A" on status panel at PNL-RSP12.	N/A	PCS

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
11	LI-36-26 LI-60-23C PI-201.2-94 PI-36-27 TI-201-51B TI-201.2-522B TI-32-04B TI-32-05B	REACTOR VESSEL LEVEL EMERGENCY CONDENSER 121 & 122 DRYWELL PRESSURE REACTOR VESSEL PRESSURE DRYWELL TEMPERATURE TORUS TEMPERATURE REACTOR COOLANT TEMPERATURE REACTOR COOLANT TEMPERATURE	Operator determines vital parameters from PNL-RSP12.	N/A	PCS
11	MG-MG131	MG SET 131	Place MG Set #131 switch in the TRIP position and confirm CONTROL RODS IN white light lit on PNL-RSP11.	N/A	PCS
11	MG-MG141	MG SET 141	Place MG Set #141 switch in the TRIP position and confirm CONTROL RODS IN white light lit on PNL-RSP12.	N/A	PCS
11	PB-BB11	125VDC BATTERY BOARD 11	MG 167 motor BKR-MG167(BB11/E03) verified tripped for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	PB-BB12	125VDC BATTERY BOARD 12	MG 167 motor BKR-MG167(BB12/F03) verified tripped for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	PMP-79.1-01	EMERGENCY DIESEL GENERATOR 102 TURBO LUBE OIL PUMP	PMP-79.1-01 shutdown locally for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	PMP-79.1-07	EMERGENCY DIESEL GENERATOR 102 CIRCULATING LUBE OIL PUMP (6 GALLONS PER MINUTE)	PMP-79.1-07 shutdown locally for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	PMP-79.1-20	EMERGENCY DIESEL GENERATOR 103 TURBO LUBE OIL PUMP	PMP-79.1-20 shutdown locally for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
11	PMP-79.1-26	EDG 103 CIRCULATING LUBE OIL PUMP (6 GPM)	PMP-79.1-26 shutdown locally for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-11-037	RA
11	UPS-UPS162A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162A switches HDS-UPS162A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	UPS-UPS162B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 162B switches HDS-UPS162B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	UPS-UPS172A	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172A switches HDS-UPS172A-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	UPS-UPS172B	POWER SUPPLY - UNINTERRUPTABLE POWER SUPPLY	UPS 172B switches HDS-UPS172B-OS, BS, DC, IS opened for battery load shedding to extend battery capability.	VFDR-11-020 VFDR-11-030	RA
11	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-11-005 VFDR-11-007	RA
11	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-11-006 VFDR-11-008	RA
11	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-11-015	RA
11	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-11-015	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
11	VLV-93-13	12" GATE VALVE - 121 CONTAINMENT SPRAY RAW WATER PUMP DISCHARGE VALVE	VLV-93-13 closed locally via the hand wheel to isolate CTSRW flow to Containment Spray Header #11.	VFDR-11-018	RA
11	VLV-93-16	12" GATE VALVE - 112 CONTAINMENT SPRAY RAW WATER PUMP DISCHARGE VALVE	VLV-93-16 closed locally via the hand wheel to isolate CTSRW flow to Containment Spray Header #12.	VFDR-11-017	RA
12	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-12-009	RA
12	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-12-009	RA
12	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-12-004	RA
12	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-12-003	RA
13	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-13-011	RA
13	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-13-011	RA
13	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-13-004	RA
13	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-13-003	RA
14	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-14-009	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
14	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-14-009	RA
14	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-14-004	RA
14	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-14-003	RA
15	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-15-009	RA
15	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-15-009	RA
15	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to EC's 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-15-004	RA
15	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-15-003	RA
16A	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-16A-009	RA
16A	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-16A-009	RA
16A	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-16A-004	RA
16A	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-16A-003	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
16B	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-16B-007	RA
16B	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-16B-007	RA
16B	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-16B-004	RA
16B	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-16B-003	RA
17A	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-17A-009	RA
17A	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-17A-009	RA
17A	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-17A-004	RA
17A	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-17A-003	RA
17B	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-17B-007	RA
17B	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-17B-007	RA
17B	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to EC's 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-17B-004	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
17B	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to EC's 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-17B-003	RA
18	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-18-011	RA
18	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the EC's 111 & 112 RCS return path drain line.	VFDR-18-005	RA
18	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-18-004	RA
18	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-18-002	RA
18	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-18-011	RA
18	VLV-05-31	LOOP 11 VENT LINE MANUAL ISOLATION VALVE DOWN STREAM OF 05-01R AND 05-11	VLV-05-31 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS steam supply vent line.	VFDR-18-003	RA
18	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-18-003	RA
18	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to EC's 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-18-008	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
18	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to EC's 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-18-008	RA
19	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-19-007	RA
19	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-19-007	RA
19	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-19-001	RA
19	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-19-001	RA
20	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-20-008	RA
20	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-20-008	RA
20	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-20-002	RA
20	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-20-002	RA
21	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-21-008	RA
21	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-21-008	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
21	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to EC's 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-21-002	RA
21	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to EC's 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-21-002	RA
22	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-22-008	RA
22	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the EC's 121 & 122 RCS return path drain line.	VFDR-22-004	RA
22	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-22-002	RA
22	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-22-008	RA
22	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the EC's 121 & 122 RCS steam supply vent line.	VFDR-22-003	RA
22	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-22-007	RA
22	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-22-007	RA
23	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-23-008	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
23	FCV-39-16	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 12 STEAM LINE DRAIN	FCV-39-16 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS return path drain line.	VFDR-23-003	RA
23	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-23-002	RA
23	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-23-008	RA
23	VLV-05-32	LOOP 12 VENT LINE MANUAL ISOLATION VALVE DOWNSTREAM OF 05-04R AND 05-12	VLV-05-32 is operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 121 & 122 RCS steam supply vent line.	VFDR-23-004	RA
23	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-23-006	RA
23	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-23-006	RA
24	BV-100-68 BV-100-69	LOOP 111 & 112 AND LOOP 121 & 122 MANUAL VALVES	BV-100-68 and BV-100-69 are locally opened to periodically refill the Emergency Condenser Makeup tanks.	VFDR-24-007	RA
24	FCV-39-15	EMERGENCY CONDENSER STEAM LINE DRAIN PRESSURE CONTROL VALVE - FLOW CONTROL VALVE 11 STEAM LINE DRAIN	FCV-39-15 operated locally via the hand wheel to isolate an inventory loss flow path from the ECs 111 & 112 RCS return path drain line.	VFDR-24-003	RA
24	IV-01-04	24" AIR OPERATED (ANGLE) ISOLATION VALVE WITH SOLENOID VALVES - MAIN STEAM OUT ISOLATION VALVE 4	Air vented manually at MSIV IV-01-04 to close valve to prevent inventory loss.	VFDR-24-002	RA

Table G-1 Recovery Actions and Activities Occurring at the Primary Control Station(s)

Fire Area	Component	Component Description	Actions	VFDR	RA/PCS
24	PMP-100-02	DIESEL DRIVEN VERTICAL TURBINE FIRE PUMP	PMP-100-02 is manually started and run as needed to supply fire water to Emergency Condenser Makeup tanks.	VFDR-24-007	RA
24	VLV-60-11	MAKEUP VALVE TO LOOP 12 EMERGENCY CONDENSERS	VLV-60-11 is locally throttled to control makeup to ECs 121 & 122 to provide a RCS heat sink for decay heat removal.	VFDR-24-004	RA
24	VLV-60-12	MAKEUP VALVE TO LOOP 11 EMERGENCY CONDENSERS	VLV-60-12 is locally throttled to control makeup to ECs 111 & 112 to provide a RCS heat sink for decay heat removal.	VFDR-24-004	RA
24	VLV-93-13	12" GATE VALVE - 121 CONTAINMENT SPRAY RAW WATER PUMP DISCHARGE VALVE	VLV-93-13 closed locally via the hand wheel to isolate CTSRW flow to Containment Spray Header #11.	VFDR-24-006	RA

ENCLOSURE 5

REVISIONS TO THE REDACTED VERSION OF THE LAR TRANSITION REPORT - ATTACHMENT C AND ATTACHMENT W

The following are revisions to the redacted version of the Transition Report (included with the License Amendment Request (LAR) submitted by Nine Mile Point Nuclear Station, LLC (NMPNS) letter dated June 11, 2012) resulting from the response to NRC request for additional information (RAI) Safe Shutdown / Circuit Analysis RAI 01. The revised, re-typed Transition Report pages, with the changes incorporated, replace the originally submitted pages of the redacted version of the Transition Report, as noted.

- Attachment C (Page C-1 and pages 1 through 268 - replaces in its entirety the originally submitted redacted version)
- Attachment W (Page W-1)

REVISIONS TO TRANSITION REPORT ATTACHMENT C

NEI 04-02 Table B-3, FIRE AREA TRANSITION

(REDACTED VERSION)

Re-typed Page C-1 and Pages 1 through 268.

(Replaces the original redacted version of Attachment C in its entirety.)

C. NEI 04-02 Table B-3 – Fire Area Transition

268 Pages Attached

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
FBZR237N (FA 01)	REACTOR BUILDING EL 237-0 COL N-Q, ROW 8-9
FBZR261N (FA 01)	REACTOR BUILDING EL 261-0 COL N-Q, ROW 8-9
FBZR281N (FA 01)	REACTOR BUILDING EL 281-0 COL M-Q, ROW 6-7
FBZR281S (FA 01)	REACTOR BUILDING EL 281-0 COL K-L, ROW 7-8
FBZR298N (FA 01)	REACTOR BUILDING EL 298-0 COL N-Q, ROW 7.5-8.5
FBZR298S (FA 01)	REACTOR BUILDING EL 298-0 COL K-L, ROW 7-8
FBZR318N (FA 01)	REACTOR BUILDING EL 318-0 COL M-Q, ROW 6-7
FBZR318S (FA 01)	REACTOR BUILDING EL 318-0 COL K-M, ROW 6-7
FBZR340N (FA 01)	REACTOR BUILDING EL 340-0 COL M-Q, ROW 6-7
FBZR340S (FA 01)	REACTOR BUILDING EL 340-0 COL L-N, ROW 7-8
R1A	CTS PUMP ROOM AND GENERAL FLOOR AREA EAST EL 198-0 & 237-0
R1C	ACCESS STAIRWELL SOUTHEAST EL 237-0 & 261-0
R1D	CS PUMP ROOM AND PROTECTIVE CLOTHING CHANGE AREA EL 198-0 & 237-0
R2A	GENERAL FLOOR AREA EAST EL 261-0
R3A	GENERAL FLOOR AREA EAST EL 281-0
R4A	GENERAL FLOOR AREA EAST EL 298-0
R4C (FA 01)	EMERGENCY CONDENSER ISOLATION VALVE ROOM EL 298-0
R5A	GENERAL FLOOR AREA EAST EL 318-0
R6A	GENERAL FLOOR AREA EAST EL 340-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Path C is credited to achieve HSD. Path C is accomplished via the use of Train 11 Systems, ERVs, CS, CTS and CTSRW systems. Path C control Room Ventilation is credited to support shutdown.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control is accomplished by ensuring the Path C ERVs are functional and Path D ERVs maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions.	No comments.
(d) Decay Heat Removal Function	Path C is credited to achieve HSD. Path C is accomplished via the use of Train 11 Systems. The ERVs are opened, CS is used to flood the vessel, CTS and CTSRW are used to remove decay heat from the Torus.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Torus temperature • Drywell pressure • Drywell temperature • Containment Spray water temperature • Containment Spray pump discharge pressure 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 11 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system. • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	Document ID	
	51-9133191 - NMP1 Nuclear Safety Capability Assessment	
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis	
	N1-FRE-F001 - Fire Risk Evaluation Report	
	N1-FSS-F001 - Detailed Fire Modeling	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA1 of a Fire Originating In FA1**

The activation of a preaction sprinkler or Halon 1301 suppression system would not adversely impact equipment/components credited by the NSCA in the Reactor Building. Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Suppression effects are not expected to extend beyond the area of fire origin.

- **Scenario 2: Suppression Affects in FA1 of a Fire Originating Outside of FA1**

Based on the limited and localized area affected by fire suppression system activation, operation of a fire suppression system outside of FA1 is not expected to impact fire suppression systems within FA1 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-00-004 Engineering Evaluation of Alternate Fire Protection Systems for the Nine Mile</p> <p>Evaluation conducted for the existing Halon protected areas to determine if alternate types of fixed fire suppression systems can be utilized to replace Halon 1301 extinguishing systems. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-85-003 This evaluation documents the acceptability of negligible intervening combustibles between Fire Areas</p> <p>This evaluation documents the acceptability of negligible intervening combustibles between Fire Areas 1 and 2. This evaluation reflects the CENG interpretation of the NRC position on the acceptability of negligible intervening combustibles.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-89-003 Fire Protection Engineering Evaluation [Existing 12" x 16" Duct Passing Through Reactor Building Airlock]</p> <p>FPEE 1-89-003 - Existing 12" x 16" Duct Passing Through Reactor Building Airlock</p> <p>Evaluation justifies lack of fire damper in HVAC duct penetrating 2-hour rated Reactor Building stair tower enclosure. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

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Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID	FPEE 1-92-001 Penetration Seal Enlarged Boot Detail	
Summary	Evaluation determines the acceptability of boot seal designs for pipe sizes larger than those qualified by test. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0
Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions

Required Fire Protection Systems and Features

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-4026 RB 198 R1A	Risk Criteria	Fire Zones: R1A
Detection	D-4046 RB 198 R1D	DID Criteria	Fire Zones: R1D
Detection	D-4116PL RB 261 R1C	DID Criteria	Fire Zones: R1C
Detection	D-4156 RB 281 R3A	DID Criteria	Fire Zones: R3A
Detection	D-4156 RB 281 R3A	Risk Criteria	Fire Zones: FBZR281N (FA 01)
Detection	D-4156 RB 281 R3A	Separation	Fire Zones: FBZR281N (FA 01)
Detection	D-4166 RB 281 R3A	DID Criteria	Fire Zones: R3A
Detection	D-4197 RB 298 R4A	DID Criteria	Fire Zones: R4A
Detection	D-4207 RB 298 R4A	DID Criteria	Fire Zones: R4A
Detection	D-4267 RB 340 R6A	DID Criteria	Fire Zones: FBZR340N (FA 01), FBZR340S (FA 01)
Detection	D-4267 RB 340 R6A	DID Criteria	Fire Zones: R6A
Detection	DA-4076E RB 237 R1D	DID Criteria	Fire Zones: R1D
Detection	DA-4076E RB 237 R1D	Risk Criteria	Fire Zones: R1A
Detection	DA-4076E RB 237 R1D	DID Criteria	Fire Zones: R1C, R6A
Detection	DA-4076W RB 237 FBZ237N	Risk Criteria	Fire Zones: FBZR237N (FA 01)
Detection	DA-4076W RB 237 FBZ237N	Separation	Fire Zones: FBZR237N (FA 01)
Detection	DA-4116E RB 261 R1C	Risk Criteria	Fire Zones: FBZR261N (FA 01)
Detection	DA-4116E RB 261 R1C	Separation	Fire Zones: FBZR261N (FA 01)
Detection	DA-4116E RB 261 R1C	DID Criteria	Fire Zones: R1C
Detection	DA-4116E RB 261 R2A	Risk Criteria	Fire Zones: R2A
Detection	DA-4116W RB 261 FBZ	Risk Criteria	Fire Zones: FBZR261N (FA 01)
Detection	DA-4116W RB 261 FBZ	Separation	Fire Zones: FBZR261N (FA 01)
Detection	DA-4116W RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281N (FA 01), FBZR281S (FA 01)
Detection	DA-4116W RB 281 FBZ	Separation	Fire Zones: FBZR281N (FA 01), FBZR281S (FA 01)
Detection	DA-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298N (FA 01), FBZR298S (FA 01)
Detection	DA-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298N (FA 01), FBZR298S (FA 01)
Detection	DA-4237 RB 318 R5A	Risk Criteria	Fire Zones: FBZR318N (FA 01), FBZR318S (FA 01)
Detection	DA-4237 RB 318 R5A	Separation	Fire Zones: FBZR318N (FA 01), FBZR318S (FA 01)
Detection	DA-4237 RB 318 R5A	DID Criteria	Fire Zones: R5A
Detection	DX-4217A/B RB 298 R4C	DID Criteria	Fire Zones: R4C (FA 01)
Gaseous Suppression	H-4217 RB 298 R4C	DID Criteria	Fire Zones: R4C (FA 01)
Water Suppression	WP-4076 RB 237 FBZ	Risk Criteria	Fire Zones: FBZR237N (FA 01)
Water Suppression	WP-4076 RB 237 FBZ	Separation	Fire Zones: FBZR237N (FA 01)
Water Suppression	WP-4076 RB 237 R1A	DID Criteria	Fire Zones: R1A
Water Suppression	WP-4076 RB 237 R1C	DID Criteria	Fire Zones: R1D
Water Suppression	WP-4116 RB 261 R2A	DID Criteria	Fire Zones: R2A
Water Suppression	WP-4116 RB 261 R2A	Risk Criteria	Fire Zones: FBZR261N (FA 01)
Water Suppression	WP-4116 RB 261 R2A	Separation	Fire Zones: FBZR261N (FA 01)
Water Suppression	WP-4116 RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281N (FA 01), FBZR281S (FA 01)
Water Suppression	WP-4116 RB 281 FBZ	Separation	Fire Zones: FBZR281N (FA 01), FBZR281S (FA 01)

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0		Required Fire Protection Systems and Features
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
Required FP System(s)/Feature(s)	Description	Required By	Comments	
Water Suppression	WP-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298N (FA 01), FBZR298S (FA 01)	
Water Suppression	WP-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298N (FA 01), FBZR298S (FA 01)	
Water Suppression	WP-4237 RB 318 FBZ	Risk Criteria	Fire Zones: FBZR318N (FA 01), FBZR318S (FA 01)	
Water Suppression	WP-4237 RB 318 FBZ	Separation	Fire Zones: FBZR318N (FA 01), FBZR318S (FA 01)	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 01	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. A proposed modification was also credited to reduce the risk associated with VFDR-01-002.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. Negligible intervening combustibles between Fire Areas 1 and 2 per FPEE 1-85-003. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-01-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-01-002	
VFDR	<p>A separation concern exists for a postulated fire in this area between RWCU isolation valves IV-33-02R, IV-33-04, and BV-33-41. One of these valves is required closed to support inventory control. Fire damage to cables 161-204, 161-205, 161-216, 167-6, or 167-7 can fail isolation valve IV-33-02R open. Fire damage to cables 12DV-26, 12DV-44, or 12DV-45 can fail isolation valve IV-33-04 open. Fire damage to cable 11-99, external hot short, or cable 1S-1581, internal hot short, can maintain blocking valve BV-33-41 open.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a plant modification to help reduce the delta risk. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-01-003	
VFDR	<p>A deterministic assumption assumes a loss of instrument air for a fire in any area of the plant. A loss of instrument air fails CTS valve BV-80-44 closed, preventing the available CTS pump, Pump 80-04, from discharging to the spray header. The redundant Path C flow paths are not available due to following: Prior to a loss of instrument air an internal wire-to-wire short on cable 1K-10 can close IV-80-16 isolating the normal CTS PMP-80-04 flow path. Prior to a loss of instrument air an internal wire-to-wire short on cable 1K-65 can close IV-80-35 isolating the PMP-80-04 alternate flow path. An internal wire-to-wire short on cable 167-271 can close PMP-80-24 suction valve IV-80-21. Bypass to Torus isolation valve FCV-80-118 may not be available due to a ground or open on cable 167-196 or 167-197. The result is a loss of Torus cooling.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-01-004	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the ERV's with regards to pressure control. ERV's PSV-01-102C, PSV-01-102D and PSV-01-102F may spuriously open. If this occurs in conjunction with, or any time after, the operator opening the Train 11 ERV's, fuel exposure may exceed desired limits. PSV-01-102C may spuriously open due to a cable-to-cable short on cable 1F-156 or 1F-177 in conjunction with an open in cable 1F-181 or 1F-179. Also individual wire-to-wire shorts on the following cables can cause PSV-01-102C to open: 1F-20, 1F-127, and 1F-174. An external cable-to-cable short on cable 1F-181 or 1F-176 will also open the valve. PSV-01-102D may spuriously open due to a cable-to-cable short on cable 1F-156 or 1F-177 or 1F-181 in conjunction with an open in cable 1F-183. Also individual wire-to-wire shorts on the followings cables can cause PSV-01-102D to open: 1F-20, 1F-174, and 1F-128. An external cable-to-cable short on cable 1F-176 will also open the valve. PSV-01-102F may spuriously open due to a cable-to-cable short on cable 1F-156 or 1F-177 in conjunction with an open in cable 1F-179 or 1F-183. Also individual wire-to-wire shorts on the followings cables can cause PSV-01-102F to open: 1F-21, 1F-129, and 1F-175. An external cable-to-cable short on cable 1F-183 will also open the valve.</p> <p>51-9133191 Appendix A.5, Section A.5.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-01-005	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-01-006	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the reactor drain valves BV-37-08R and BV-37-09R resulting in an inventory control concern. These valves are required closed for inventory control. An internal wire-to-wire short on cable 155-34 or a cable-to-cable three phase short to cable 155-32 spuriously opens BV-37-08R. A cable-to-cable three phase short to cable 155-36 spuriously opens BV-37-09R. The result is a loss of inventory to a Drywell Equipment Drain Tank.</p> <p>51-9133191 Appendix A.5, Section A.5.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-01-007	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the reactor head vent valves BV-37-01 and BV-37-02 resulting in an inventory control concern. These valves are required closed for inventory control. A cable-to-cable three phase short to cable 171-174 spuriously opens BV-37-01. An internal wire-to-wire short on cable 171-179, or a cable-to-cable three phase short to cable 171-177 opens BV-37-02. The result is an inventory loss to a Drywell Equipment Drain Tank.</p> <p>51-9133191 Appendix A.5, Section A.5.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-01-008	
VFDR	<p>A separation concern exists for a postulated fire in this area for process monitoring associated with Torus level. Both trains of Torus level indication are lost due to fire damage. CTS Pump PMP-80-03 discharge pressure indicator PI-80-54A is credited to monitor level. PI-80-54A is powered from UPS-172A or UPS-172B. However, the power supplies to both UPS's are impacted by a fire in this area resulting in no Torus level indication available after Battery 12 drains. Torus level indication is a required indication to support the credited Path C shutdown method. Components and related cables or instrument sensing lines affected: LI-58-06A (Train 11): 1K-106, LI-58-06A-LINEH, LI-58-06A-LINEL; LI-58-05A (Train 12): 1K-107, LI-58-05A-LINEH, LI-58-05A-LINEL. Components lost due to loss of power supply: PI-80-54A (Train 12): Power source PB-RSP12 affected due to Power Board 17 in the fire area. Loss of Power Board 17 results in loss of UPS-UPS172A and UPS-UPS172B, and battery chargers BC-B12-1 and BC-B12-2.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	01 - REACTOR BUILDING EAST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-01-009	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Drywell temperature. All trains of Drywell temperature indication are lost due to fire damage. Drywell temperature indication is a required indication to support the credited Path C shutdown method. Components and related cables affected: TI-201-27B (Train 11): 1S-1968, 1S-2261; TI-201-50B (Train 11): 1S-1968, RSP-4; TI-201-33B (Train 12): 1S-2260, RSP-62; TI-201-51B (Train 12): 1S-1968, RSP-33, RSP-88.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-01-010	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Reactor temperature. All trains of Reactor temperature indication are lost due to fire damage. Reactor temperature indication is a required indication to support the credited Path C shutdown method. Components and related cables affected: TI-32-03B (Train 11): 1S-1968, RSP-2; TI-32-03D (Train 12): 171-135, 171-140, 1U-187; TI-32-04B (Train 12): RSP-30, RSP-62. Components lost due to loss of power supply: TI-32-04D (Train 12): Power source PB-RSP-12 affected due to Power Board 17 in the fire area. Loss of Power Board 17 results in loss of UPS-UPS172A and UPS-172B, and battery chargers BC-B12-1 and BC-B12-2.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-01-011	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Reactor fuel zone indication. Both trains of Reactor fuel zone level indication may be lost. Reactor fuel zone level is a required indication to support the credited Path C shutdown method which credits opening ERV's and steaming to the Torus. Components and related cables or instrument sensing lines affected: LI-36-43: 1S-1932, LI-36-43-LINEL; LI-36-44: 1S-1936, 1S-1937, 1S-1941, 1S-1969, LI-36-44-LINEL, RSP-62.</p> <p>51-9133191 Appendix A.5, Section A.5.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-01-012	
VFDR	Number intentionally left blank	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Area Definition
Fire Zone ID	Description		
FBZR237N (FA 02)	REACTOR BUILDING EL 237-0 COL N-Q, ROW 8-9		
FBZR261N (FA 02)	REACTOR BUILDING EL 261-0 COL N-Q, ROW 8-9		
FBZR281N (FA 02)	REACTOR BUILDING EL 281-0 COL M-Q, ROW 6-7		
FBZR281S (FA 02)	REACTOR BUILDING EL 281-0 COL K-L, ROW 7-8		
FBZR298N (FA 02)	REACTOR BUILDING EL 298-0 COL N-Q, ROW 7.5-8.5		
FBZR298S (FA 02)	REACTOR BUILDING EL 298-0 COL K-L, ROW 7-8		
FBZR318N (FA 02)	REACTOR BUILDING EL 318-0 COL M-Q, ROW 6-7		
FBZR318S (FA 02)	REACTOR BUILDING EL 318-0 COL K-M, ROW 6-7		
FBZR340N (FA 02)	REACTOR BUILDING EL 340-0 COL M-Q, ROW 6-7		
FBZR340S (FA 02)	REACTOR BUILDING EL 340-0 COL L-N, ROW 7-8		
R1B	CTS PUMP ROOM, CS PUMP ROOM, GENERAL FLOOR AREA WEST EL 198-0 & 237-0		
R2B	GENERAL FLOOR AREA WEST EL 261-0		
R2C	SHUTDOWN COOLING ROOM EL 261-0		
R2D	REACTOR BUILDING TRACK BAY EL 261-0		
R3B	GENERAL FLOOR AREA WEST EL 281-0		
R4B	GENERAL FLOOR AREA WEST EL 298-0		
R4C (FA 02)	EMERGENCY CONDENSER ISOLATION VALVE ROOM EL 298-0		
R5B	GENERAL FLOOR AREA WEST EL 318-0		
R6B	GENERAL FLOOR AREA WEST EL 340-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required. However, the Reactor Mode Switch in the Main Control Room is utilized to actuate the Primary Scram SOVs to meet the Performance Goal in Fire Zone R1B for the Reactivity Control Function.
(b) Inventory Control Function	Path D is credited to achieve HSD. Path D is accomplished via the use of Train 12 Systems. The ERVs are opened, CS is used to flood the vessel, CTS and CTSRW are used to remove decay heat from the Torus. Path D Control room ventilation is credited to support shutdown.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control is accomplished by ensuring the Path D ERVs are functional and Path C ERVs maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(d) Decay Heat Removal Function	Path D is credited to achieve HSD. Path D is accomplished via the use of Train 12 Systems. The ERVs are opened, CS is used to flood the vessel, CTS and CTSRW are used to remove decay heat from the Torus.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Torus temperature • Drywell pressure • Drywell temperature • Containment Spray water temperature • Containment Spray pump discharge pressure 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 12 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system. • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA2 of a Fire Originating In FA2**

The activation of a preaction sprinkler or Halon 1301 suppression system would not adversely impact equipment/components credited by the NSCA in the Reactor Building. Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Suppression effects are not expected to extend beyond the area of fire origin.

- **Scenario 2: Suppression Affects in FA2 of a Fire Originating Outside of FA2**

Based on the limited and localized area affected by fire suppression system activation, operation of a fire suppression system outside of FA2 is not expected to impact fire suppression systems within FA2 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-85-003 This evaluation documents the acceptability of negligible intervening combustibles between Fire Areas</p> <p>This evaluation documents the acceptability of negligible intervening combustibles between Fire Areas 1 and 2. This evaluation reflects the CENG interpretation of the NRC position on the acceptability of negligible intervening combustibles.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-005 Penetration Seal Detail FS-2 for Penetration 3RF-80</p> <p>Evaluation justifies method for sealing penetration 3RF-80 located in the Reactor Building 298 ft. elevation floor slab separating the area around Heat Exchanger No. 13 and the West Instrument Room. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-92-001 Penetration Seal Enlarged Boot Detail</p> <p>Evaluation determines the acceptability of boot seal designs for pipe sizes larger than those qualified by test. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-4016 RB 198 R1B	Risk Criteria	Fire Zones: R1B
Detection	D-4036 RB 198 R1B	Risk Criteria	Fire Zones: R1B
Detection	D-4156 RB 281 R3B	EEEE/LA	Fire Zones: R3B
Detection	D-4156 RB 281 R3B	Risk Criteria	Fire Zones: R3B
Detection	D-4156 RB 281 R3B	Risk Criteria	Fire Zones: FBZR281N (FA 02)
Detection	D-4156 RB 281 R3B	Separation	Fire Zones: FBZR281N (FA 02)
Detection	D-4197 RB 298 R4B	DID Criteria	Fire Zones: R4B
Detection	D-4207 RB 298 R4B	DID Criteria	Fire Zones: R4B
Detection	D-4267 RB 340 R6B	DID Criteria	Fire Zones: FBZR340N (FA 02)
Detection	D-4267 RB 340 R6B	DID Criteria	Fire Zones: FBZR340S (FA 02)
Detection	D-4267 RB 340 R6B	DID Criteria	Fire Zones: R6B
Detection	DA-4076W RB 237 R1B	Risk Criteria	Fire Zones: FBZR237N (FA 02)
Detection	DA-4076W RB 237 R1B	Separation	Fire Zones: FBZR237N (FA 02)
Detection	DA-4076W RB 237 R1B	Risk Criteria	Fire Zones: R1B
Detection	DA-4116E RB 261 FBZ	Risk Criteria	Fire Zones: FBZR261N (FA 02)
Detection	DA-4116E RB 261 FBZ	Separation	Fire Zones: FBZR261N (FA 02)
Detection	DA-4116W RB 261 R2B	Risk Criteria	Fire Zones: FBZR261N (FA 02)
Detection	DA-4116W RB 261 R2B	Separation	Fire Zones: FBZR261N (FA 02)
Detection	DA-4116W RB 261 R2B	Risk Criteria	Fire Zones: R2B
Detection	DA-4116W RB 261 R2C	DID Criteria	Fire Zones: R2C
Detection	DA-4116W RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281N (FA 02)
Detection	DA-4116W RB 281 FBZ	Separation	Fire Zones: FBZR281N (FA 02)
Detection	DA-4116W RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281S (FA 02)
Detection	DA-4116W RB 281 FBZ	Separation	Fire Zones: FBZR281S (FA 02)
Detection	DA-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298N (FA 02)
Detection	DA-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298N (FA 02)
Detection	DA-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298S (FA 02)
Detection	DA-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298S (FA 02)
Detection	DA-4237 RB 318 R5B	Risk Criteria	Fire Zones: FBZR318N (FA 02)
Detection	DA-4237 RB 318 R5B	Separation	Fire Zones: FBZR318N (FA 02)
Detection	DA-4237 RB 318 R5B	Risk Criteria	Fire Zones: FBZR318S (FA 02)
Detection	DA-4237 RB 318 R5B	Separation	Fire Zones: FBZR318S (FA 02)
Detection	DA-4237 RB 318 R5B	DID Criteria	Fire Zones: R5B
Detection	DX-4217A/B RB 298 R4C	DID Criteria	Fire Zones: R4C (FA 02)
Gaseous Suppression	H-4217 RB 298 R4C	DID Criteria	Fire Zones: R4C (FA 02)
Water Suppression	SP-4126 RB 261 R2D	DID Criteria	Fire Zones: R2D
Water Suppression	WP-4076 RB 237 FBZ	Risk Criteria	Fire Zones: FBZR237N (FA 02)
Water Suppression	WP-4076 RB 237 FBZ	Separation	Fire Zones: FBZR237N (FA 02)
Water Suppression	WP-4116 RB 281 FBZ	Risk Criteria	Fire Zones: FBZR261N (FA 02)
Water Suppression	WP-4116 RB 281 FBZ	Separation	Fire Zones: FBZR261N (FA 02)

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Water Suppression	WP-4116 RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281N (FA 02)
Water Suppression	WP-4116 RB 281 FBZ	Separation	Fire Zones: FBZR281N (FA 02)
Water Suppression	WP-4116 RB 281 FBZ	Risk Criteria	Fire Zones: FBZR281S (FA 02)
Water Suppression	WP-4116 RB 281 FBZ	Separation	Fire Zones: FBZR281S (FA 02)
Water Suppression	WP-4116W RB 261 R2B	Risk Criteria	Fire Zones: FBZR261N (FA 02)
Water Suppression	WP-4116W RB 261 R2B	Separation	Fire Zones: FBZR261N (FA 02)
Water Suppression	WP-4116W RB 261 R2B	DID Criteria	Fire Zones: R2B
Water Suppression	WP-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298N (FA 02)
Water Suppression	WP-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298N (FA 02)
Water Suppression	WP-4237 RB 298 FBZ	Risk Criteria	Fire Zones: FBZR298S (FA 02)
Water Suppression	WP-4237 RB 298 FBZ	Separation	Fire Zones: FBZR298S (FA 02)
Water Suppression	WP-4237 RB 318 FBZ	Risk Criteria	Fire Zones: FBZR318N (FA 02)
Water Suppression	WP-4237 RB 318 FBZ	Separation	Fire Zones: FBZR318N (FA 02)
Water Suppression	WP-4237 RB 318 FBZ	Risk Criteria	Fire Zones: FBZR318S (FA 02)
Water Suppression	WP-4237 RB 318 FBZ	Separation	Fire Zones: FBZR318S (FA 02)
Water Suppression	WP-4237 RB 318 R5B	DID Criteria	Fire Zones: R5B

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 02	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. Negligible intervening combustibles between Fire Areas 1 and 2 per FPEE 1-85-003. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-02-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-02-002	
VFDR	<p>A separation concern exists for a postulated fire in the area between the credited Containment Spray flow paths. Containment Spray is required to ensure inventory control and decay heat removal. Credited Path D CTS pump PMP-80-03 may not be available due to damage to its power cable (103-17) or spurious closure of suction isolation valve IV-80-02 due to an internal wire-to-wire short on cable 167-273. Path D CTS pump PMP-80-23 is available to support Torus cooling. However, the credited CTS flow path utilizing Pump PMP-80-23 may not be available. An internal wire-to-wire short on cable 1K-65 closes IV-80-35. An internal wire-to-wire short on either cable 1K-131 or 1K-132 closes BV-80-45. This results in isolation of the credited Path D CTS flow path.</p> <p>51-9133191 Appendix A.6, Section A.6.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-02-003	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the ERVs with regards to pressure control. ERVs PSV-01-102A, PSV-01-102B and PSV-01-102E may spuriously open. If this occurs in conjunction with, or any time after, the operator opening the Train 12 ERVs, fuel exposure may exceed desired limits. PSV-01-102A may spuriously open due to a cable-to-cable short on cable 1F-151 or 1F-180 in conjunction with an open in cable 1F-178. Also individual wire-to-wire shorts on the following cables can cause PSV-01-102A to open: 1F-124, 1F-170, and 1F-184. An external cable-to-cable short on cable 1F-172 or 1F-180 will also open the valve PSV-01-102A. The ERV PSV-01-102B may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-182 or 1F-178. Also individual wire-to-wire shorts on the followings cables can cause PSV-01-102B to open: 1F-125, 1F-170, and 1F-184. An external cable-to-cable short on cable 1F-172 or 1F-180 will also open the valve PSV-01-102B. The ERV PSV-01-102E may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178 or 1F-182. Also individual wire-to-wire shorts on the followings cables can cause PSV-01-102E to open: 1F-126, 1F-171, and 1F-185. An external cable-to-cable short on cable 1F-173 or 1F-182 will also open the valve.</p> <p>51-9133191 Appendix A.6, Section A.6.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-02-004	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area that affects the inventory control function. Various combinations of cable-to-cable shorts on cables 1S-1041, 1S-1042, 1S-1891 and 1S-1892 cause IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18 to spuriously open (post scram) resulting in an inventory loss.</p> <p>51-9133191 Appendix A.6, Section A.6.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-02-005	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-02-006	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the reactor blocking valve BV-37-08R and reactor blowdown valve BV-37-09R resulting in an inventory control concern. These valves are required closed for inventory control. An internal wire-to-wire short on cable 155-34 or a cable-to-cable three phase short to cable 155-32 spuriously opens BV-37-08R. A cable-to-cable three phase short to cable 155-36 spuriously opens BV-37-09R. The result is a loss of inventory to a Drywell Equipment Drain Tank.</p> <p>51-9133191 Appendix A.6, Section A.6.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-02-007	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Drywell temperature. All trains of Drywell temperature indication in the control room are lost due to fire damage or a loss of power. Drywell temperature indication is a required indication to support the credited Path D shutdown method. Indication is available at RSP12. Dispatching an operator to the RSP to observe the indication is classified as a recovery action per NEI 04-02 and shall be evaluated in the Fire Risk Assessment for this fire area.</p> <p>Components and related cables affected: TI-201-27B (Train 11): Loss of Power. Power source PB-RPS-11 affected due to UPS-UPS162A and UPS-UPS162B, and battery chargers BC-B11-1 and BC-B11-2; TI-201-33B (Train 12): 1U-284. Component available at RSP12: TI-201-51B (Train 12).</p> <p>51-9133191 Appendix A.6, Section A.6.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-02-008	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Reactor level. All trains of Reactor level indication are lost due to fire damage. Reactor level indication is a required indication to support the credited Path D shutdown method.</p> <p>Components and related cables or instrument sensing lines affected: LI-36-09 (Train 11): 1F-60A, 1M-175, 1S-1749, LI-36-09-LINEH, LI-36-09-LINEL; LI-36-19 (Train 11): 1F-151, 1S-1749, 1S-2073, RSP-27; LI-26-28 (Train 11): 1F-151, 1S-1749, 1S-2073, RSP-27, RSP-8; LI-36-10 (Train 12): 1S-1748; LI-36-20 (Train 12): 1F-117, 1M-185, 1S-1748, RSP-55, LI-36-20-LINEH, LI-36-20-LINEL; LI-36-26 (Train 12): 1M-182, 1S-1748, RSP-37, RSP-55; LI-36-43 (Train 11): 1S-1934, 1S-1935, 1S-1940, LI-36-43-LINEH, LI-36-43-LINEL; LI-36-44 (Train 12): 1S-1937, 1S-1941, LI-36-44-LINEH, LI-36-44-LINEL.</p> <p>51-9133191 Appendix A.6, Section A.6.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	02 - REACTOR BUILDING WEST EL 198-0 THRU EL 340-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-02-009	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Torus water temperature indication. All trains of Torus water temperature indication may be lost. Torus water temperature indication is a required indication to support the credited Path D shutdown method. Components and related cables affected: T1-201.2-519 (Train 11): 1S-1979, 1S-1980, 1S-1982, 1S-1983, 1S-1984, 1S-1985, 1S-1986, 1S-1987, 1S-1988, 1S-1989, 1S-1990, 1S-1991, 1S-1993; T1-201.2-521B (Train 11): 1S-1984, RSP-3A, RSP-3B; T1-201.2-520 (Train 12): 1S-1994, 1S-1995; T1-520.2-522B (Train 12): RSP-32A, RSP-32B.</p> <p>51-9133191 Appendix A.6, Section A.6.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-02-010	
VFDR	<p>A separation concern exists for a postulated fire in the area for Control Room cooling. Control Room cooling capability may be lost due to fire damage to cabling for all three RBCLC pumps, PMP-70-01, PMP-70-02, and PMP-70-03.</p> <p>51-9133191 Appendix A.6, Section A.6.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-02-011	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the reactivity control performance goal for reactor scram. Various combinations of cable-to-cable shorts on cables 1S-1041, 1S-1042, 1S-1891 and 1S-1892 impact Channel 11 scram solenoids SOV-113-272, SOV-113-273 and SOV-113-275; and Channel 12 scram solenoids SOV-113-271, SOV-113-274 and SOV-113-276 associated with IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18. The SOV's remaining energized prevents venting the scram air header which, in turn, prevents reactor scram from the control room.</p> <p>51-9133191 Appendix A.6, Section A.6.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		03 - DRYWELL EL 237-0 THRU 318-0	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.3.1 - Deterministic Approach	
Fire Zone ID	Description		
R1	DRYWELL EL 237 - 318		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	03 - DRYWELL EL 237-0 THRU 318-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	

References	Document ID
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
	N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA3 of a Fire Originating In FA3
There are no installed fire suppression systems in FA3 that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA3 of a Fire Originating Outside of FA3
There are no installed fire suppression systems in FA3 that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA3, there is no flooding potential resulting from the fire suppression systems.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	03 - DRYWELL EL 237-0 THRU 318-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	
Title	Not Applicable - Deterministic Fire Area	
Risk Summary	N/A - The Drywell atmosphere is maintained inert during normal power operation; therefore, no fires are postulated.	
Δ CDF		
Δ LERF		
DID Maintained		
Safety Margin Maintained		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description	
AB1F	FOAM ROOM EL 261-0	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it</p>	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
	<p>supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system. • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. • Path D – Train 12 positive pressure flow path. 	
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA4 of a Fire Originating In FA4
There are no installed fire suppression systems in FA4 that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA4 of a Fire Originating Outside of FA4
There are no installed fire suppression systems in FA4 that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA4, there is no flooding potential resulting from the fire suppression systems.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-8151 AB 261 AB1F	DID Criteria	Fire Zones: AB1F

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 04	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-04-001	
VFDR	A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18 locally to provide makeup from the CRD system. 51-9133191 Appendix A.7, Section A.7.6 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-04-002	
VFDR	A deterministic assumption exists for potential loss of instrument air. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13. 51-9133191 Appendix A.7, Section A.7.6 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-04-003	
VFDR	A deterministic assumption exists for potential loss of instrument air. LCV-60-17 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-12. 51-9133191 Appendix A.7, Section A.7.6 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-04-004	
VFDR	A deterministic assumption exists for potential loss of instrument air. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-11. 51-9133191 Appendix A.7, Section A.7.6 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	04 - FOAM ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-04-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-04-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-04-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-04-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-04-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		05 - TURBINE BUILDING EL 240-0 THRU 369-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Area Definition
Fire Zone ID	Description		
FBZT261N	TURBINE BUILDING FIRE BREAK ZONE NORTH EL 261-0		
FBZT261S	TURBINE BUILDING FIRE BREAK ZONE SOUTH EL 261-0		
OG1	GENERAL FLOOR AREA EL 232-0		
OG2	GENERAL FLOOR AREA EL 247-0		
OG3	GENERAL FLOOR AREA EL 261-0		
T1	TURBINE CONDENSER/HEATER BAY AREA EL 250-0		
T1A	TURBINE BUILDING EL 240-261 MSIV ROOM & STEAM TUNNEL		
T3A	GENERAL FLOOR AREA EAST OF MSIV ROOM AND FIRE ZONE T1 EL 261-318		
T3B	GENERAL FLOOR AREA WEST OF MSIV ROOM; ALSO SOUTH AND WEST OF FIRE ZONE 1 EL 237-0 & 261-0		
T4A	GENERAL FLOOR AREA EAST OF FIRE ZONE T1 EL 277-0		
T4B	GENERAL FLOOR AREA WEST OF FIRE ZONE T1 EL 277-0		
T4C	HYDROGEN SEAL OIL UNIT ROOM EL 277-0		
T4D	BATTERY ROOM EL 277		
T5A	GENERAL FLOOR AREA NORTH EL 291-0		
T6A	GENERAL FLOOR AREA NORTH EL 305-6		
T6B	TURBINE LAYDOWN AREA EAST EL 300-0		
T6C	GENERAL FLOOR AREA SOUTH EL 300-0		
T6D	MECHANICAL STORAGE AREA EL 300-0		
T7A	GENERAL FLOOR AREA SOUTH EL 320-0		
T8A	GENERAL FLOOR AREA NORTH EL 333-0, GENERAL FLOOR AREA NORTH EL 351-0, GENERAL FLOOR AREA EAST EL 369		
T8B	GENERAL FLOOR AREA WEST EL 369-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 05 - TURBINE BUILDING EL 240-0 THRU 369-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(d) Decay Heat Removal Function	Path A is credited to achieve HSD via use of ECs 111 and 112 Decay Heat Removal and Train 11 support system. Trains 11, 125V DC system is credited to support shutdown for the duration of Battery 11. Path D Control Room Ventilation is credited to support shutdown.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	The following process monitoring functions are provided to support post-fire shutdown: <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	05 - TURBINE BUILDING EL 240-0 THRU 369-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 11 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system. • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p> <p>P&ID C18045C,009 -</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA5 of a Fire Originating In FA5**

The activation of a suppression system would not be expected to adversely impact equipment/components credited by the NSCA in the Turbine Building.

- **Scenario 2: Suppression Affects in FA5 of a Fire Originating Outside of FA5**

Based on the limited impact a fire can have on plant suppression systems, the operation of fire suppression systems outside of FA5 would not be expected to cause activation of a fire protection system within FA5 that could have an impact on the nuclear safety performance criteria.

Water spray systems in FA5 are designed to spray on specific hazards. Water runoff from fire suppression activities in these areas would drain through floor drains, floor grating, or down stairwells to floor drain sumps. A floor drain sump, having a capacity of 1,600 gallons is provided in the Off-Gas Building. Two floor drain sumps with a 1,170 gallon capacity and 6 floor drain sumps with a 980 gallon capacity are located in the lower elevations of the Turbine Building (elev. 243'). The associated sump pumps automatically transfer to the UTILITY COLLECTOR TANK (normal line-up), the WASTE NEUTRALIZER TANK, or the FLOOR DRAIN COLLECTOR TANK where it is stored prior to processing by the liquid waste system.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>EIR 51-9156616 Nine Mile Point Unit 1 Code Compliance Evaluation for NFPA 30</p> <p>Evaluation for NFPA 30, Flammable and Combustible Liquids Code, 2000 Edition Evaluation provides comparison of the plant combustible liquid storage configurations and methods to applicable NFPA 30 requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-01-003 Turbine Building – Diesel Generator Building Separation Above 300 ft.</p> <p>Evaluation determines that adequate fire protection features exist to mitigate spread of a fire between the east wall of the Turbine Building 300 ft. elevation to the roof of the Diesel Generator Building. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-85-007 Waste Building Truck Bay West Wall</p> <p>Evaluation justifies method to seal conduit penetrations through the west wall of the Waste Building Truck Bay and the north wall of the Turbine Building at the 261-ft. elevation. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-89-004 Thermal Shield Walls</p> <p>Evaluation justifies use of thermal shield walls in the subject fire areas due to unsealed or non-rated penetrations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-003 Excessive Door Gap at Floor for Fire Doors D-84, D-108, D-111, D-245, and D-246</p> <p>Evaluation determines adequacy of gaps under fire doors that exceed those allowed by NFPA 80. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-95-002 Deviations to Appendix R 3-Hour Fire Barriers</p> <p>Evaluation justifies not testing 3-hour rated Promat-H ERFBS in accordance with GL 86-10, Supplement 1 fire test methodology and acceptance criteria and minor differences between installed ERFBS and HVAC duct fire barriers from tested configurations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

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Fire Area ID: 05 - TURBINE BUILDING EL 240-0 THRU 369-0
 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions

Required Fire Protection Systems and Features

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-1011 TB 277 T1	EEEE/LA	Fire Zones: T1
Detection	D-1011 TB 277 T1	Risk Criteria	Fire Zones: T1
Detection	D-1021 TB 277 T1	EEEE/LA	Fire Zones: T1
Detection	D-1021 TB 277 T1	Risk Criteria	Fire Zones: T1
Detection	D-1031 TB 277 T1	EEEE/LA	Fire Zones: T1
Detection	D-1031 TB 277 T1	Risk Criteria	Fire Zones: T1
Detection	D-1061 TB 250 T1	EEEE/LA	Fire Zones: T1
Detection	D-1061 TB 250 T1	Risk Criteria	Fire Zones: T1
Detection	D-1072 TB 250 T1	EEEE/LA	Fire Zones: T1
Detection	D-1072 TB 250 T1	Risk Criteria	Fire Zones: T1
Detection	D-1091 TB 277 T1	EEEE/LA	Fire Zones: T1
Detection	D-1091 TB 277 T1	Risk Criteria	Fire Zones: T1
Detection	D-1114 TB 277 T1	EEEE/LA	Fire Zones: T4C
Detection	D-1114 TB 277 T1	Risk Criteria	Fire Zones: T4C
Detection	D-1131 TB 261 T1	EEEE/LA	Fire Zones: T3A
Detection	D-1131 TB 261 T1	Risk Criteria	Fire Zones: T3A
Detection	D-1155 TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-1155 TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-1165 TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-1165 TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-1175 TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-1175 TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-1195 TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-1195 TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-1195EX TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-1195EX TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-2083PL TB 261 T3A	EEEE/LA	Fire Zones: T3A
Detection	D-2083PL TB 261 T3A	Risk Criteria	Fire Zones: T3A
Detection	D-2092PL TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	D-2092PL TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	D-2131 TB 261 T3A	EEEE/LA	Fire Zones: T3A
Detection	D-2131 TB 261 T3A	Risk Criteria	Fire Zones: T3A
Detection	D-2194 TB 277 T4A	EEEE/LA	Fire Zones: T4A
Detection	D-2194 TB 277 T4A	Risk Criteria	Fire Zones: T4A
Detection	D-2194 TB 277 T4D	EEEE/LA	Fire Zones: T4D
Detection	D-2194 TB 277 T4D	DID Criteria	Fire Zones: T4D
Detection	D-2204 TB 277 T4B	EEEE/LA	Fire Zones: T4B
Detection	D-2204 TB 277 T4B	Risk Criteria	Fire Zones: T4B
Detection	D-2214 TB 277 T4A	EEEE/LA	Fire Zones: T4A
Detection	D-2214 TB 277 T4A	Risk Criteria	Fire Zones: T4A

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-2224 TB 277 T4B	EEEE/LA	Fire Zones: T4B
Detection	D-2224 TB 277 T4B	Risk Criteria	Fire Zones: T4B
Detection	D-2224PL TB 277 T4B	EEEE/LA	Fire Zones: T4B
Detection	D-2224PL TB 277 T4B	Risk Criteria	Fire Zones: T4B
Detection	D-2263 TB 289 T4A	EEEE/LA	Fire Zones: T4A
Detection	D-2263 TB 289 T4A	Risk Criteria	Fire Zones: T4A
Detection	D-2263FL TB 289 T4A	EEEE/LA	Fire Zones: T4A
Detection	D-2263FL TB 289 T4A	Risk Criteria	Fire Zones: T4A
Detection	D-2294 TB 291 T5A	EEEE/LA	Fire Zones: T5A
Detection	D-2294 TB 291 T5A	DID Criteria	Fire Zones: T5A
Detection	D-2304 TB 291 T5A	EEEE/LA	Fire Zones: T5A
Detection	D-2304 TB 291 T5A	DID Criteria	Fire Zones: T5A
Detection	D-2345 TB 305 T6A	EEEE/LA	Fire Zones: T6A
Detection	D-2345 TB 305 T6A	Risk Criteria	Fire Zones: T6A
Detection	D-2355 TB 300 T6B	EEEE/LA	Fire Zones: T6B
Detection	D-2355 TB 300 T6B	DID Criteria	Fire Zones: T6B
Detection	D-2385 TB 300 T6C	EEEE/LA	Fire Zones: T6C
Detection	D-2385 TB 300 T6C	DID Criteria	Fire Zones: T6C
Detection	D-2385 TB 300 T6C	EEEE/LA	Fire Zones: T1
Detection	D-2385 TB 300 T6C	Risk Criteria	Fire Zones: T1
Detection	D-2395 TB 300 T6C	EEEE/LA	Fire Zones: T6C
Detection	D-2395 TB 300 T6C	DID Criteria	Fire Zones: T6C
Detection	D-2395FL TB 300 T6C	EEEE/LA	Fire Zones: T6C
Detection	D-2395FL TB 300 T6C	DID Criteria	Fire Zones: T6C
Detection	D-2395PL TB 300 T6C	EEEE/LA	Fire Zones: T6C
Detection	D-2395PL TB 300 T6C	DID Criteria	Fire Zones: T6C
Detection	D-2405 TB 300 T1	EEEE/LA	Fire Zones: T1
Detection	D-2405 TB 300 T1	Risk Criteria	Fire Zones: T1
Detection	D-2405 TB 300 T6B	EEEE/LA	Fire Zones: T6B
Detection	D-2405 TB 300 T6B	DID Criteria	Fire Zones: T6B
Detection	D-2425 TB 320 T7A	EEEE/LA	Fire Zones: T7A
Detection	D-2425 TB 320 T7A	DID Criteria	Fire Zones: T7A
Detection	D-2445 TB 333 T8A	EEEE/LA	Fire Zones: T8A
Detection	D-2445 TB 333 T8A	DID Criteria	Fire Zones: T8A
Detection	D-2485 TB 369 T8A	EEEE/LA	Fire Zones: T8A
Detection	D-2485 TB 369 T8A	DID Criteria	Fire Zones: T8A
Detection	D-2485 TB 369 T8A	EEEE/LA	Fire Zones: T8B
Detection	D-2485 TB 369 T8A	DID Criteria	Fire Zones: T8B
Detection	D-3054 TB 277 T4A	EEEE/LA	Fire Zones: T4A
Detection	D-3054 TB 277 T4A	Risk Criteria	Fire Zones: T4A

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-7013 OG 247 OG2	EEEE/LA	Fire Zones: OG1
Detection	D-7013 OG 247 OG2	DID Criteria	Fire Zones: OG1
Detection	D-7013 OG 247 OG2	EEEE/LA	Fire Zones: OG2
Detection	D-7013 OG 247 OG2	DID Criteria	Fire Zones: OG2
Detection	D-7043 OG 261 OG3	EEEE/LA	Fire Zones: OG3
Detection	D-7043 OG 261 OG3	Risk Criteria	Fire Zones: OG3
Detection	DA-1114 TB 277 T1	EEEE/LA	Fire Zones: T4C
Detection	DA-1114 TB 277 T1	Risk Criteria	Fire Zones: T4C
Detection	DA-1131 TB 277 T1	EEEE/LA	Fire Zones: T3A
Detection	DA-1131 TB 277 T1	Risk Criteria	Fire Zones: T3A
Detection	DA-2081S TB 261 T3A	EEEE/LA	Fire Zones: T3A
Detection	DA-2081S TB 261 T3A	Risk Criteria	Fire Zones: T3A
Detection	DA-2081S TB 261 T3A	EEEE/LA	Fire Zones: FBZT261N
Detection	DA-2081S TB 261 T3A	Risk Criteria	Fire Zones: FBZT261N
Detection	DA-2081S TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2081S TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2083M TB 261 T3A	EEEE/LA	Fire Zones: FBZT261N
Detection	DA-2083M TB 261 T3A	Risk Criteria	Fire Zones: FBZT261N
Detection	DA-2083M TB 261 T3A	EEEE/LA	Fire Zones: T3A
Detection	DA-2083M TB 261 T3A	Risk Criteria	Fire Zones: T3A
Detection	DA-2083M TB 277 T4A	EEEE/LA	Fire Zones: T4A
Detection	DA-2083M TB 277 T4A	Risk Criteria	Fire Zones: T4A
Detection	DA-2083N TB 261 T3A	EEEE/LA	Fire Zones: T3A
Detection	DA-2083N TB 261 T3A	Risk Criteria	Fire Zones: T3A
Detection	DA-2083N TB 261 T3A	EEEE/LA	Fire Zones: FBZT261N
Detection	DA-2083N TB 261 T3A	Risk Criteria	Fire Zones: FBZT261N
Detection	DA-2092E TB 261 T3B	EEEE/LA	Fire Zones: T3B, T4A
Detection	DA-2092E TB 261 T3B	Risk Criteria	Fire Zones: T3B, T4A
Detection	DA-2092MG TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2092MG TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2092W TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2092W TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2092W TB 261 T3B	EEEE/LA	Fire Zones: T4B
Detection	DA-2092W TB 261 T3B	Risk Criteria	Fire Zones: T4B
Detection	DA-2102 TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2102 TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2161E TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2161E TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2161E TB 261 T3B	EEEE/LA	Fire Zones: FBZT261S
Detection	DA-2161E TB 261 T3B	DID Criteria	Fire Zones: FBZT261S

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2161M TB 261 T3B	EEEE/LA	Fire Zones: T3A
Detection	DA-2161M TB 261 T3B	Risk Criteria	Fire Zones: T3A
Detection	DA-2161M TB 261 T3B	EEEE/LA	Fire Zones: FBZT261S
Detection	DA-2161M TB 261 T3B	DID Criteria	Fire Zones: FBZT261S
Detection	DA-2162W TB 261 T3B	EEEE/LA	Fire Zones: T3B
Detection	DA-2162W TB 261 T3B	Risk Criteria	Fire Zones: T3B
Detection	DA-2234 TB 277 T4B	EEEE/LA	Fire Zones: T4B
Detection	DA-2234 TB 277 T4B	Risk Criteria	Fire Zones: T4B
Detection	DA-2365 TB 305 T6A	EEEE/LA	Fire Zones: T6A
Detection	DA-2365 TB 305 T6A	Risk Criteria	Fire Zones: T6A
Detection	DA-2375 TB 300 T6D	EEEE/LA	Fire Zones: T6D
Detection	DA-2375 TB 300 T6D	DID Criteria	Fire Zones: T6D
Detection	DX-1011A/B TB 250 T1	EEEE/LA	Fire Zones: T1
Detection	DX-1011A/B TB 250 T1	Risk Criteria	Fire Zones: T1
Detection	DX-1091A/B TB 277 T1	EEEE/LA	Fire Zones: T1
Detection	DX-1091A/B TB 277 T1	Risk Criteria	Fire Zones: T1
Gaseous Suppression	C-1114 TB 277 T4C	DID Criteria	Fire Zones: T4C
Gaseous Suppression	C-1131 TB 261 T1	DID Criteria	Fire Zones: T3A
Gaseous Suppression	C-1131TK TB 261 T1	DID Criteria	Fire Zones: T3A
Gaseous Suppression	C-1155 TB 300 T1	Risk Criteria	Fire Zones: T1
Gaseous Suppression	C-1185 TB 300 T1	Risk Criteria	Fire Zones: T1
Gaseous Suppression	C-2092MG TB 261 T3B	DID Criteria	Fire Zones: T3B
Gaseous Suppression	C-2365 TB 305 T6A	DID Criteria	Fire Zones: T6A
Water Suppression	SP-2131 TB 261 T3A	EEEE/LA	Fire Zones: T3A
Water Suppression	SP-2131 TB 261 T3A	Risk Criteria	Fire Zones: T3A
Water Suppression	SP-2314 TB 291 T5A	EEEE/LA	Fire Zones: T5A
Water Suppression	SP-2314 TB 291 T5A	DID Criteria	Fire Zones: T5A
Water Suppression	SP-2314 TB 305 T6A	EEEE/LA	Fire Zones: T6A
Water Suppression	SP-2314 TB 305 T6A	DID Criteria	Fire Zones: T6A
Water Suppression	SP-2324 TB 291 T5A	EEEE/LA	Fire Zones: T5A
Water Suppression	SP-2324 TB 291 T5A	DID Criteria	Fire Zones: T5A
Water Suppression	SP-2465 TB 351 T8A	EEEE/LA	Fire Zones: T8A
Water Suppression	SP-2465 TB 351 T8A	DID Criteria	Fire Zones: T8A
Water Suppression	SP-5033 TB 261 T3A	EEEE/LA	Fire Zones: T3A
Water Suppression	SP-5033 TB 261 T3A	Risk Criteria	Fire Zones: T3A
Water Suppression	SP-7053 TB 261 OG3	EEEE/LA	Fire Zones: OG3
Water Suppression	SP-7053 TB 261 OG3	DID Criteria	Fire Zones: OG3
Water Suppression	WD-101F TB 250 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-101F TB 250 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-102F TB 250 T1	EEEE/LA	Fire Zones: T1

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Water Suppression	WD-102F TB 250 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-103F TB 250 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-103F TB 250 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-109F TB 250 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-109F TB 250 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-115F TB 277 T4C	EEEE/LA	Fire Zones: T4C
Water Suppression	WD-115F TB 277 T4C	Risk Criteria	Fire Zones: T4C
Water Suppression	WD-115F TB 300 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-115F TB 300 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-116F TB 300 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-116F TB 300 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-117F TB 300 T1	EEEE/LA	Fire Zones: T1
Water Suppression	WD-117F TB 300 T1	Risk Criteria	Fire Zones: T1
Water Suppression	WD-2102 TB 261 T3B	EEEE/LA	Fire Zones: T3B
Water Suppression	WD-2102 TB 261 T3B	Risk Criteria	Fire Zones: T3B
Water Suppression	WD-2161 TB 261 T3B	EEEE/LA	Fire Zones: T3B
Water Suppression	WD-2161 TB 261 T3B	Risk Criteria	Fire Zones: T3B
Water Suppression	WD-2263FL TB 289 T4A	EEEE/LA	Fire Zones: T3A
Water Suppression	WD-2263FL TB 289 T4A	Risk Criteria	Fire Zones: T3A
Water Suppression	WD-2263FL TB 289 T4A	EEEE/LA	Fire Zones: T4A
Water Suppression	WD-2263FL TB 289 T4A	Risk Criteria	Fire Zones: T4A
Water Suppression	WD-2395FL TB 300 T6C	EEEE/LA	Fire Zones: T6C
Water Suppression	WD-2395FL TB 300 T6C	DID Criteria	Fire Zones: T6C
Water Suppression	WP-2083 TB 261 T3A	EEEE/LA	Fire Zones: FBZT261N
Water Suppression	WP-2083 TB 261 T3A	Risk Criteria	Fire Zones: FBZT261N
Water Suppression	WP-2083 TB 261 T3A	EEEE/LA	Fire Zones: T3A
Water Suppression	WP-2083 TB 261 T3A	Risk Criteria	Fire Zones: T3A
Water Suppression	WP-2083 TB 261 T3A	EEEE/LA	Fire Zones: T3B
Water Suppression	WP-2083 TB 261 T3A	Risk Criteria	Fire Zones: T3B
Water Suppression	WP-2092 TB 261 T3B	EEEE/LA	Fire Zones: T3B
Water Suppression	WP-2092 TB 261 T3B	Risk Criteria	Fire Zones: T3B
Water Suppression	WP-2092 TB 277 T4B	EEEE/LA	Fire Zones: T4B
Water Suppression	WP-2092 TB 277 T4B	DID Criteria	Fire Zones: T4B
Water Suppression	WP-2161 TB 261 T3B	EEEE/LA	Fire Zones: FBZT261S
Water Suppression	WP-2161 TB 261 T3B	DID Criteria	Fire Zones: FBZT261S
Water Suppression	WP-2161 TB 261 T3B	EEEE/LA	Fire Zones: T3B
Water Suppression	WP-2161 TB 261 T3B	Risk Criteria	Fire Zones: T3B
Water Suppression	WP-2234 TB 277 T4A	EEEE/LA	Fire Zones: T4A
Water Suppression	WP-2234 TB 277 T4A	Risk Criteria	Fire Zones: T4A
Water Suppression	WP-2375 TB 300 T6D	EEEE/LA	Fire Zones: T6D

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Water Suppression	WP-2375 TB 300 T6D	DID Criteria	Fire Zones: T6D
ERFBS	Promat-H enclosure	Separation	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 05	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Note that VFDR-05-011, VFDR-05-026, and VFDR-05-027 were completely resolved by crediting modifications to the plant. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-05-009, VFDR-05-014, VFDR-05-028, VFDR-05-031, VFDR-05-035, VFDR-05-037, VFDR-05-038, VFDR-05-040, and VFDR-05-043.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage, sprinkler systems for safety related cable trays stacked more than two deep and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-05-002	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-117 can maintain EC system isolation valves IV-39-13R and IV-39-14R open resulting in an inventory loss to Main Steam drain line.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-111 can maintain EC system isolation valves IV-39-11R and IV-39-12R open resulting in an inventory loss to Main Steam drain line.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-157 valve can maintain both EC system isolation valves IV-05-04R and IV-05-12 open. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-31 can maintain both EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-005	
VFDR	A separation concern exists for a postulated fire in this area for the MCR ventilating flow dampers BV-210-08 and BV-210-39 which are required to be closed. An external cable to cable short on cable 1671-95 maintains open or opens BV-210-08. An external cable to cable short on cable 1671-103 maintains open or opens BV-210-39. Maintaining both dampers open short circuits the ventilation flow to the MCR. 51-9133191 Appendix A.8, Section A.8.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-006	
VFDR	A separation concern exists for a postulated fire in this area for the damper BV-210-41 which is credited to open to provide ventilation flow to MCR. An internal wire to wire short on cable 1N-32 or an external cable to cable short on cable 1671-96 may cause the damper BV-210-41 to close. Closure of the damper BV-210-41 blocks all credited path-B (Train-12) ventilation flow to MCR. 51-9133191 Appendix A.8, Section A.8.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-007	
VFDR	A separation concern exists for the ventilation fan FN-210-02 (Train-12) which is credited to provide ventilation flow to MCR. Fire damage to cable 1671-99 or cable 1N-33 can cause loss of ventilation supply fan FN-210-02 (Train-12) resulting in the loss of ventilation flow to MCR. 51-9133191 Appendix A.8, Section A.8.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-008	
VFDR	A separation concern exists for the chilled water valves (CHW) BV-210.1-01 and BV-201.1-02 which are required to be open to provide CHW supply to the Control Room Coolers. An internal wire-to-wire short on either cable 1671-100, 1671-152 or 1N-28 can close CHW valve BV-210.1-01. An internal wire-to-wire on either cable 1671-100 or 1671-153 can close CHW valve BV-210.1-02. The result is a loss of CHW supply to the control room coolers. An open or ground of cable 161-46 can disable credited Chilled Water Pump PMP-210.1-36. An internal wire-to-wire short on cable 1671-44 can close RBCLC valve BV-70-26 resulting in loss of heat sink for credited MCR ventilation chiller compressors CMPR-210.1-120-A and CMPR-210.1-120-B. 51-9133191 Appendix A.8, Section A.8.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-009	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting Inboard MSIV's IV-01-01, IV-01-02 and outboard MSIV's IV-01-03 and IV-01-04 which are required closed for HSD to support inventory control. Inboard MSIV IV-01-01 and IV-01-02 may remain open due to a loss of Train 11 and Train 12 AC electrical systems below 4kV. Outboard MSIV IV-01-03 may remain open due to a cable-to-cable short on any of the following 125V DC cables: 1F-39, 1F-39A, 1F-51, 1F-52 and 1F-52A. Outboard MSIV IV-01-04 may remain open due to either an internal wire-to-wire short on cable 1F-44 or cable-to-cable short on any of the following 125V DC cables: 1F-45, 1F-45A, 1F-57 and 1F-57A.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-05-010	
VFDR	<p>A separation concern exists for postulated fire in this area for the Main Feed Water. Main Feed Water is required for inventory control. Feed Water Isolation Valves IV-31-07 and IV-31-08 may remain open due to loss of power due to fire damage to the following cables: IV-31-07: 101-5, 101-6, 101-66, 1A-147, 102-43, 102-49, 1A-124, 102-1, 102-2, 16-3, 102-47, 102-66; IV-31-08: 101-64, 1A-161, 103-29, 103-49, 12B-28, 1A-134, 103-1, 103-2, 17-3, 101-65, 101-87. Main Feed Water Pump PMP-29-02 may spuriously start due to an internal wire-to-wire short on cable 11-78. Main Feed Water Pump PMP-29-03 may spuriously start due to an internal wire-to-wire short on cable 12-78. The clutch of the turbine shaft driven pump 29-01 may remain engaged due to a short on cable 1F-110 or fire damage to any of the following cables: 141-298, 1F-110, 1F-4, 1F-4A and 1S-1730. The result is reactor vessel overfill that has the potential to compromise the ability of the credited EC train to achieve and maintain HSD. The clutch is disengaged by a procedure driven operator action.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-011	
VFDR	<p>A separation concern exists for postulated fire in this area impacting series RWCU isolation valves IV-33-02R, IV-33-04 and BV-33-41 which are required to be closed to support inventory control. Isolation valves IV-33-02R and IV-33-04 may remain open due to loss of AC power. Isolation valves IV-33-02R, IV-33-04 and BV-33-41 may remain open due to fire damage to any of the cables listed: Isolation valve IV-33-02R may remain open due a ground fault on cable 167-7. Isolation valve IV-33-04 may remain open due to an open circuit on cables 12B-24, 12DV-26, 12DV-44 or wire-to-wire short on cable 12DV-27. Isolation Valve BV-33-41 may remain open due to a cable-to-cable short on cable 11-99. The result is that the RCS remains connected to the Cleanup system.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>A proposed modification consisting of ensuring isolation capability of the RWCU system following a fire deterministically resolves this VFDR.</p>	

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-012	
VFDR	<p>A separation concern exists for postulated fire for the control circuit of the EC Valve IV-39-05. This valve is required to be open to support pressure control and decay heat removal functions. Both EC paths may be adversely affected by the fire and the credited EC's 111 and 112 may be impacted as follows: IV-39-05 may remain closed due to: A cable-to-cable short on cable 1K-48 can apply a potential to solenoid 39-05H. A ground on the neutral side of 39-05H on cable 1K-48 coupled with any other ground from a Battery 12 circuit completes the path to battery neutral through interposing contact R37D. Contact R37D may remain closed due to a wire-to-wire short in cable 12B-56 in the master logic RPS-EMER-COOL-12. The result is that 39-05H remains energized. This scenario defeats the auto initiation feature provided for EC's 111 and 112. Operation from the Remote Shutdown Panels (RSP's) may not be possible due to a loss of power to each panel from fire damage to power cables.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-013	
VFDR	<p>A separation concern exists for postulated fire for the control circuit of EC Valve IV-39-08R. This valve is required to be open. The non-credited EC's 121 and 122 may be impacted as follows: IV-39-08R may close due to: Internal wire-to-wire shorts (2) in conjunction with an open on cable 12DV-22, an internal wire-to-wire shorts (2) in conjunction with an open on cable 12DV-23, an internal wire-to-wire shorts (2) on cable RSP-83, an internal wire-to-wire short on cable RSP-76 in conjunction with an internal wire-to-wire short on cable RSP-83, an internal wire-to-wire short on cable 12DV-23 in conjunction with an internal wire-to-wire short on cable RSP-83, an internal wire-to-wire short on cable 12DV-41 in conjunction with an internal wire-to-wire short on cable RSP-83.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-014	
VFDR	<p>A separation concern exists for postulated fire in this area for the control circuit of EC Valve IV-39-10R. This valve is required to be open. The non-credited EC's 121 and 122 may be impacted as follows The EC valve may be closed due to an internal wire-to-wire short in conjunction with an open on cable 161-192, and an internal wire-to-wire short in conjunction with an open on cable 161-193, isolating EC 121 and 122.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	

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Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-015	
VFDR	<p>A separation concern exists for postulated fire in this area for process monitoring associated with Reactor Coolant Temperature indication. Reactor coolant temperature indication is a required indication to support transition from the credited Path A hot shutdown method to cold shutdown. All channels of Reactor Coolant Temperature Indication may be lost due to cable damage as follows: TI-32-03B (Train 11): Fire damage to cable RSP-25; TI-32-03D (Train 12): Fire damage to cable 11-60 or 11-65 or 1S-1907 or 1S-1909 or 1S-1910 or 1S-1911 or 1S-1912 or 1S-1913; TI-32-04B (Train 12): Fire damage to cable RSP-30 or RSP-54; TI-32-04D (Train 12): Fire damage to cable 12-40 or 12-45 or 1S-1907 or 1S-1909 or 1S-1910 or 1S-1911 or 1S-1912 or 1S-1913.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-05-016	
VFDR	<p>A separation concern exists for postulated fire in this area for process monitoring associated with Reactor Vessel Level indication. Reactor vessel level is a required indication to assure adequate level is maintained in the reactor vessel during the shutdown process. All channels of Reactor Level indication may be lost due to cable damage or loss of power supply as follows. LI-36-09 (Train 11): Loss of Power Supply to PB-RPS-11 from UPS-UPS-162A and UPS-UPS162B. Cables from UPS-UPS-162A affected are 11B-100, 11B-101, 11B-97, 11B-98, 11B-99, 16-125, 16-130, 16-131, 16-132, 16-133, 16-134, 16-135, 16-136, 16-137, 16-138, 16-139, 16-140, 16-141. Cables from UPS-UPS162B affected are 11B-100, 11B-102, 11B-97, 11B-98, 11B-99, 16-125, 16-130, 16-137, 16-138, 16-139, 16-140, 16-141, 16-142, 16-143; LI-36-19 (Train 11): Fire damage to cable 1F-118 or 1S-1750; LI-36-28 (Train 11): Fire damage to cable 1S-1750; LI-36-10 (Train 12): Fire damage to cable 1F-156 or 1F-188 or 1S-1748; LI-36-20 (Train 12): Fire damage to cable 1F-117 or 1F-156 or 1S-1748 or RSP-55; LI-36-26 (Train 12): Fire Damage to cable 1F-156 or 1S-1748 or RSP-37 or RSP-55; LI-36-43 (Train 11): Fire damage to cable 1S-1932; LI-36-44 (Train 12): Loss of Power Supply to PB-RPS-12 from UPS-UPS-172A and UPS-UPS172B. Cables from UPS-UPS-172A affected are 12B-100, 12B-102, 12B-68, 12B-69, 12B-70, 12B-71, 12B-97, 12B-98, 12B-99, 17-100, 17-101, 17-102, 17-103, 17-85, 17-90, 17-91, 17-92, 17-97, 17-98, 17-99. Cables from UPS-UPS172B affected are 12B-100, 12B-101, 12B-68, 12B-69, 12B-70, 12B-71, 12B-97, 12B-98, 12B-99, 17-85, 17-90, 17-91, 17-92, 17-93, 17-94, 17-95, 17-96, 17-97, 17-98, 17-99.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-017	
VFDR	<p>A separation concern exists for postulated fire in this area for process monitoring associated with Reactor Pressure indication. Reactor pressure indication is a required indication to assure reactor vessel parameters are maintained within acceptable bands during the shutdown process. All channels of Reactor Pressure indication may be lost due to cable damage or loss of power supply as follows: PI-36-25 (Train 11): Fire damage to cable RSP-25; PI-36-31A (Train 11): Loss of Power Supply to PB-RPS-11 from UPS-UPS-162A and UPS-UPS162B. Cables from UPS-UPS-162A affected are 11B-100, 11B-101, 11B-97, 11B-98, 11B-99, 16-125, 16-130, 16-131, 16-132, 16-133, 16-134, 16-135, 16-136, 16-137, 16-138, 16-139, 16-140, 16-141. Cables from UPS-UPS162B affected are 11B-100, 11B-102, 11B-97, 11B-98, 11B-99, 16-125, 16-130, 16-137, 16-138, 16-139, 16-140, 16-141, 16-142, 16-143; PI-36-27 (Train 12): Fire damage to cable 1F-156 or 1S-1748 or RSP-34 or RSP-54 or RSP-56; PI-36-32A (Train 12): Fire damage to cable 1S-669.</p> <p>51-9133191 Appendix A.8, Section A.8.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-018	
VFDR	A deterministic assumption assumes for potential loss of instrument air. A loss of air fails EC Level Control Valves, LCV-60-17 & LCV-60-18, open. This could deplete the inventory in the Emergency Condenser Make-Up Water Tanks prior to the eight hours required for the EC's to remove decay heat. Local operator action to manually throttle VLV-60-12, close VLV-60-11, and open/close BV-60-13 as required ensures availability of make-up inventory for EC's 111 & 112. 51-9133191 Appendix A.8, Section A.8.9 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-019	
VFDR	A deterministic assumption assumes for potential loss of instrument air. Control Rod Drive Flow control valve FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18. 51-9133191 Appendix A.8, Section A.8.9 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-020	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-05-021	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-05-022	
VFDR	A separation concern exists for a postulated fire in this area for CTSRW pump PMP-93-01 and CTS cross connect valve FCV-93-72. CTSRW is required off for a fire in this area but has the potential to spuriously start and cross tie to the CTS system. If Train 11 power is available, an internal wire-to-wire short on cable 102-14 can spuriously start CTSRW pump PMP-93-01. An internal wire-to-wire short on cable 161-160 can spuriously open CTSRW to CTS cross connect valve FCV-93-72. The spurious start of the Path C (Train 11) CTSRW pump PMP-93-01 in conjunction with spurious opening of Path C (Train 11) FCV-93-72 causes an inadvertent CTS actuation which results in an increasing Torus water level. The increase in Torus water level will lead the Plant operators to enter the EOPs and will cause a deviation from the credited safe shutdown strategy. 51-9133191 Appendix A.8, Section A.8.5 Spurious Actuation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-023	
VFDR	A spurious actuation concern exists for postulated fire in the area for the ERV's with regards to pressure control. ERV's PSV-01-102C, PSV-01-102D, and PSV-01-102F may spuriously open resulting in blowdown to Torus. The PSV-01-102C may spuriously open due to a cable to cable short on cable 1F-156 in conjunction with an open on cable 1F-179. The PSV-01-102D may spuriously open due to a cable to cable short on cable 1F-156 in conjunction with an open on cable 1F-179. The PSV-01-102F may spuriously open due to a cable to cable short on cable 1F-156 in conjunction with an open on cable 1F-179. Spurious opening of ERV's can undermine the credited HSD flow path. 51-9133191 Appendix A.8, Section A.8.5 Spurious Actuation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-024	
VFDR	A spurious actuation concern exists for a postulated fire in this area that affects the inventory control function. Cable-to-cable shorts on cables 1S-1042 and 1S-1892 cause IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18 to spuriously open (post scram) resulting in an inventory loss. 51-9133191 Appendix A.8, Section A.8.5 Spurious Actuation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-025	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-05-026	
VFDR	The UFSAR states, "Administrative procedures have been implemented to prohibit bulk storage of combustible materials inside or adjacent to safety-related buildings or systems during operation or maintenance." The UFSAR also states, "Bulk gas storage is not permitted within structures housing safety-related equipment." Contrary to the UFSAR statements, bulk compressed hydrogen gas, the Hydrogen Stand-By Supply, is installed on the 261'-0" elevation of the Turbine Building. No prior NRC approval of the Hydrogen Stand-By Supply location was identified. UFSAR, Appendix 10A, Rev. 21, Sec. 2.2.2, 2.4.2.2	
Disposition	A proposed plant modification to remove the Hydrogen Stand-By Supply from Fire Area 05 deterministically resolves this VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-027	
VFDR	<p>The UFSAR states, "Bulk gas storage is not permitted within structures housing safety-related equipment. Bulk Hydrogen and nitrogen storage tanks are located outside."</p> <p>The hydrogen storage configurations that expose power block structures are the hydrogen tube rack located north of the Turbine Building and west of the Reactor Building, and the Hydrogen Stand-By Supply located on the 261'-0" elevation of the Turbine Building. These hydrogen storage configurations meet the applicable requirements of NFPA 50A.</p> <p>The outdoor containers are pressurized horizontal cylinders and the Hydrogen Stand-By Supply containers are pressurized vertical cylinders that meet the ASME Boiler and Pressure Vessel Code. They are permanently installed on a solid concrete foundation and provided with substantial steel supports.</p> <p>The outdoor containers are provided with pressure relief devices arranged to discharge above the containers, unobstructed to the open air in a manner to prevent impingement of escaping gas upon the containers, adjacent structures, or personnel. The pressure relief devices and vent piping are oriented or capped so that moisture cannot collect and freeze in a manner that would interfere with proper operation of the devices.</p> <p>The Hydrogen Stand-By Supply cylinders have the pressure relief device designed and manufactured into the cylinder valve to meet NFPA 50A requirements.</p> <p>The small amount of piping, tubing, and fittings that comprise the manifold systems are a combination of flanged, threaded, or welded construction suitable for hydrogen service and the pressures and temperatures involved. Cast-iron pipe and fittings are not used.</p> <p>Valves, gauges, regulators and other accessories are provided by the equipment manufacturer and/or hydrogen supplier. Periodic refilling of the outdoor tube rack is performed by trained personnel familiar with proper practices and the storage installation. Outdoor storage containers, piping, valves, regulating equipment and other accessories are readily accessible and are protected by chain link fencing. Neither hydrogen supply is located near electrical hazards, near flammable or combustible gases or liquids, or other hazardous materials. The outdoor tube rack is readily accessible for emergency vehicles. There is no dry vegetation or other combustibles in the vicinity of the tube rack.</p> <p>The outdoor tube rack and its unloading connections are located greater than the 5-ft. minimum distance allowed by NFPA 50A from the Turbine and Reactor Buildings. The six (6) storage cylinders that comprise the Hydrogen Stand-By Supply are located on the 261'-0" elevation of the Turbine Building.</p> <p>There is no requirement for operation of equipment by the user that would warrant special operating instructions. The equipment is inspected and maintained by qualified personnel during system replacement and when inspection and maintenance is warranted.</p> <p>Although the Hydrogen Stand-By Supply is located within the Turbine Building, the maximum total contained volume of hydrogen is less than 3500 scf. On this basis, Section 3-2.1 and Table 3-2.1 of NFPA 50A-1999 permit storage "inside buildings not in a special room or exposed to other occupancies."</p> <p>UFSAR Appendix 10A, Rev. 21, Sec. 2.4.2.2</p> <p>NFPA 50A-1999, "Standard for Gaseous Hydrogen Storage at Consumer Sites"</p>	
Disposition	A proposed plant modification to remove the Hydrogen Stand-By Supply from Fire Area 05 deterministically resolves this VFDR.	
VFDR ID	VFDR-05-028	
VFDR	<p>A postulated fire in this area may cause the loss of AC power and battery charging capability due to damage to the following cables: Train 11: 101-66, 101-6, 1A-147, 102-43, 102-49, 11B-28, 1A-124, 1A-147, 102-1, 102-2, 102-29, 102-42, 102-47, 102-51, 102-52, 102-56, 11B-28, 11B-82, 11B-83, 1A-116, 101-5, 16-3, 16-119, 16-120, 16-123, 16-124, 16-125, 16-20, 16-21, 16-27; Train 12: 101-64, 1A-161, 103-29, 103-49, 12B-28, 1A-134, 1A-161, 103-1, 103-2, 1A-130, 101-65, 101-87, 17-3, 17-10, 17-12, 17-35, 17-79, 17-80, 17-83, 17-84, 17-85. As a result, battery loads are shed per procedure N1-SOP-21.1 to extend battery capability.</p> <p>51-9133191, Table A.8.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 05 - TURBINE BUILDING EL 240-0 THRU 369-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		VFDRs
VFDR ID	VFDR-05-029	
VFDR	Fire damage to control power cables 12B-68, 12B-69, 12B-70 or 12B-71 can cause a loss of control power to credited power board PB 17. PB 17 control power is restored via N1-DRP-GEN-005, Attachment 3 or 4 or 5. 51-9133191, Appendix A.8.7 Report of Procedure Directed Operator Actions and Table A.8.2 Fire Area Cable Assessment Report	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-030	
VFDR	Fire damage to credited cooling water pump PMP-79-54 cable 171-63 or 171-66 adversely affects credited EG-EDG103 operation. EG-EDG103 cooling water is restored using the DFP via N1-DRP-GEN-005, Attachment 5. Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-031	
VFDR	A postulated fire in this area may cause the loss of credited Train 12 EG-EDG103 ventilation fans BLWROT-209-5 and BLWROT-209-6 and prevent door DOOR-D-034 from opening. Affected cables are: BLWROT-209-5: 11DV-34, 11DV-57, 11DV-57B, 11DV-58, 11DV-69, 171-71, 171-72, FP-584, FP-588, FP-598; BLWROT-209-6: 11DV-34, 11DV-57, 11DV-57B, 11DV-58, 11DV-69, 171-73, 171-74, FP-584, FP-588, FP-598; DOOR-D-034: 11DV-34, 11DV-57, 11DV-57B, 11DV-58, 171-81, 171-74, FP-584, FP-588, FP-598; CARDOX/HALON-PURGE: FP-545, FP-585, FP-590, FP-591, FP-599, FP-600. EG-EDG103 roof exhaust fans BLWROT-209-5 and BLWROT-209-6 are repaired and operated per N1-DRP-GEN-005, Attachment 6. As recommended by NEI 04-02, this action shall be classified as a recovery action and subsequently evaluated in the Fire Risk Evaluation for this fire area. DOOR-D-034 is manually opened per N1-SOP-21.1. Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a plant modification to help reduce the delta risk. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-032	
VFDR	Fire damage to credited ESW pump PMP-72-03 (Cable 12B-68, 12B-69, 12B-70, 12B-71 or 17-37) adversely affects decay heat removal using SDC. ESW is restored using the DFP via N1-DRP-GEN-005, Attachment 5 or Attachment 7. Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-033	
VFDR	A postulated fire in this area may cause the loss of credited EG-EDG103 cooling water pump PMP-79-54 and/or ESW pump PMP-72-03. The DFP is credited to supply EG 103 cooling water and/or ESW (See VFDR-05-030 and VFDR-05-032). The DFP control and control power supply cables are located in the fire area of concern. 51-9133191, Appendix A.8.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-034	
VFDR	A postulated fire in this area may cause isolation of the normal reactor inventory makeup line from CRD due to fire damage to cable 1S-2586 (FCV-44-149 and E/P-113-301), or cable 155-71 (PCV-44-04) or cable 155-74 (PCV-44-05). To support the reactor vessel inventory makeup function, CRD flow is controlled manually by operating VLV-28-18 locally per Procedure N1-SOP-21.1. Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-05-035	
VFDR	A postulated fire in this area may cause the loss of AC power and battery charging capability due to damage to the following cables: Train 11: 101-66, 101-6, 1A-147, 102-43, 102-49, 11B-28, 1A-124, 1A-147, 102-1, 102-2, 102-29, 102-42, 102-47, 102-51, 102-52, 102-56, 11B-28, 11B-82, 11B-83, 1A-116, 101-5, 16-3, 16-119, 16-120, 16-123, 16-124, 16-125, 16-20, 16-21, 16-27; Train 12: 101-64, 1A-161, 103-29, 103-49, 12B-28, 1A-134, 1A-161, 103-1, 103-2, 1A-130, 101-65, 101-87, 17-3, 17-10, 17-12, 17-35, 17-79, 17-80, 17-83, 17-84, 17-85. Credited battery BAT-B12 charging capability restored via N1-DRP-GEN-005, Attachment 1 or 2 or 3 or 4 or 5 using Computer MG set 167 or Attachment 7 using battery chargers BC-B11-1, BC-B11-2, BC-B12-1 or BC-B12-2. However, MG Set 167 control panel PNL-CPB167 and associated cables are located in this fire area. Ref: 51-9133191, Appendix A.8.4 Separation Concerns and Table A.8.7 Report of Procedure Directed Operator Actions.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-036	
VFDR	<p>Restoration of control power to PB 17 per N1-DRP-GEN-005 coupled with control cable fire damage to breakers R1052 (Cable 17-2) & R1051 (Cable 17-1) and offsite power available may result in tying PB 17A & PB 17B together out of phase affecting PB 17 availability.</p> <p>Ref: 51-9133191, Appendix A.8.4 Separation Concerns and Table A.8.2 Fire Area Cable Assessment Report</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-037	
VFDR	<p>A postulated fire in this area may adversely affect credited EG-EDG103 Breaker R1032 due to damage to the following cables: 101-64, 103-49, 12B-28, 1A-134 or 1A-161. EG-EDG103 is required to support various performance goals. The cable damage is repaired via N1-DRP-GEN-005, Attachment 1 or 2 or 4 or 6 and the breaker operated per N1-OP-45, Section H.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-05-038	
VFDR	<p>A postulated fire in this area may adversely affect credited EG-EDG103 due to fire damage to cable 103-49, 103-29, 12B-28, or 1A-134. EG-EDG103 is required to support various performance goals. EG-EDG103 is repaired via N1-DRP-GEN-005, Attachment 1 and operated per N1-OP-45, Section H.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-05-039	
VFDR	<p>A postulated fire in this area may adversely affect credited EG-EDG103 due to damage to its neutral breaker control cable 1A-130. EG-EDG103 is required to support various performance goals. The EG-EDG103 neutral breaker is repaired and closed per N1-DRP-GEN-005, Attachment 1.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	05 - TURBINE BUILDING EL 240-0 THRU 369-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	VFDRs
VFDR ID	VFDR-05-040	
VFDR	<p>A postulated fire in this area may adversely affect the credited Train 12 power system which is required to support various performance goals. Fire damage is related to the following components and cables:</p> <p>BKR-(101/2A-1)R013/161: 1A-161 and 101-64; BKR-(103/1-9)R1031/181: 103-2; BKR-(17/007B)R1052/612: 17-2; BKR-(17/002B)R1053/613: 17-3.</p> <p>The breakers are repaired and operated per N1-DRP-GEN-005, Attachment 1 or 2 or 4 or 6.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Table A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-05-041	
VFDR	<p>A fire in this area may cause a loss of normal AC power and a loss of instrument air. To support various shutdown performance requirements, AC power is required. In order to facilitate starting EG-EDG103, EG-EDG103 starting air is restored via N1-DRP-GEN-005, Attachment 1 and EG-EDG103 is operated per N1-OP-45, Section H.</p> <p>Ref: 51-9133191, Table A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-05-042	
VFDR	<p>A postulated fire in this area may damage credited Train 12 control power cable 12B-28 adversely affecting various PB 12 components. Electrical Train 12 is required to support various performance goals. Train 12 control power is isolated via N1-DRP-GEN-005, Attachment 2.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-05-043	
VFDR	<p>A postulated fire in this area may adversely affect credited Train 12 power availability via damage (fault) to cable 101-87 that feeds PB 103. Train 12 power is required to support various performance goals. Cable 101-87 is disconnected from PB 103 per procedure N1-DRP-GEN-005, Attachment 6 to allow EG 103 to supply PB 103.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	05 - TURBINE BUILDING EL 240-0 THRU 369-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-05-044	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-05-045	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-05-046	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the reactivity control performance goal for reactor scram. Cable-to-cable shorts on cables 1S-1042 and 1S-1892 impact Channel 12 scram solenoids SOV-113-271, SOV-113-274 and SOV-113-276 associated with IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18. The SOV's remaining energized prevents venting the scram air header which, in turn, prevents reactor scram from the control room.</p> <p>Ref: 51-9133191, Table A.8.2 Fire Area Cable Assessment Report and Appendix A.8.7 Report of Procedure Directed Operator Actions.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-05-047	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
T2A	TURBINE BUILDING EL 250-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 06 - TURBINE BUILDING NORTH EL 250-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is credited via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 11 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide</p>	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
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process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.

2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:

- RBCLC and ESW provide cooling to the control room ventilation system.
- The EDG's are cooled by the EDG Cooling Water pumps
- Chilled Water for control room ventilation

3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:

- Main control room ventilation (except for control room evacuation)
- Diesel generator rooms (fans operating and roll-up doors required open)

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:

- Path C – Train 11 positive pressure flow path.

References

Document ID

51-9133191 - NMP1 Nuclear Safety Capability Assessment
 51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
 N1-FRE-F001 - Fire Risk Evaluation Report
 N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA6 of a Fire Originating In FA6
 The activation of a water-based suppression system would not adversely impact equipment/components credited by the NSCA in the Turbine Building.
- Scenario 2: Suppression Affects in FA6 of a Fire Originating Outside of FA6
 Based on the limited impact a fire can have on plant suppression systems, the operation of fire suppression systems outside of FA6 would not be expected to cause activation of a fire protection system within FA6 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2013N TB 250 T2A	EEEE/LA	Fire Zones: T2A
Detection	DA-2013N TB 250 T2A	Risk Criteria	Fire Zones: T2A
Detection	DA-2013S TB 250 T2A	EEEE/LA	Fire Zones: T2A
Detection	DA-2013S TB 250 T2A	Risk Criteria	Fire Zones: T2A
Water Suppression	WP-2013 TB 250 T2A	Risk Criteria	Fire Zones: T2A

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 06	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-06-007, VFDR-06-008, and VFDR-06-017.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-06-001	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-114 for each valve can maintain EC system isolation valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-06-002	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-120 for each valve can maintain EC system isolation valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-06-003	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-159 for each valve can maintain EC system vent valves IV-05-04R and IV-05-12 open. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-22 for each valve can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-06-004	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-05-01R, IV-05-11, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-158 for each valve can maintain EC system isolation valves IV-05-01R and IV-05-11 open. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-22 for each valve can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-06-005	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-05-04R, IV-05-12, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-159 for each valve can maintain EC system isolation valves IV-05-04R and IV-05-12 open. An internal wire-to-wire hot short on cables 167-187, for valve BV-05-05, and 167-190, for valve BV-05-07, can maintain EC system isolation valves BV-05-05 and BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-06-006	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system isolation valves IV-05-01R, IV-05-11, BV-05-5, and BV-05-7. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-158 for each valve can maintain EC system isolation valves IV-05-01R and IV-05-11 open. An internal wire-to-wire hot short on cables 167-187, for valve BV-05-05, and 167-190, for valve BV-05-07, can maintain EC system isolation valves BV-05-05 and BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-06-007	
VFDR	<p>A separation concern exists for a postulated fire in this area between Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03 leaves the MS line open. Inboard MSIV IV-01-01 may remain open due to a loss of the Train 11 AC electrical system below 4 kV. An external cable-to-cable short to cable 1F-38 or 1F-51 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-03.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-06-008	
VFDR	<p>A separation concern exists for a postulated fire in this area between Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04 leaves the MS line open. Inboard MSIV IV-01-02 may remain open due to a loss of the Train 12 AC electrical system below 4 kV. An external cable-to-cable short to cable 1F-44, 1F-45, 1F-56 or 1F-57 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-06-009	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-06-010	
VFDR	<p>A separation concern exists for a postulated fire in this area between Train 11 and 12 power systems. AC and DC Power is a Vital Auxiliary system required to support the nuclear safety performance goals. The Power cables associated with the credited Train 11 power supply are impacted in this area and can fail the credited 600 Vac system. In addition, Train 12 power cables are also impacted in this area. Power is restored to Power Board 16B per procedure N1-DRP-GEN-001, "Fire Zones T2A and T2D Turbine Building Elevation 250' Detectors DA-2013S, DA-2013N and DA-2031."</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-06-011	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks prior to the eight hours required for EC's to remove decay heat. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	06 - TURBINE BUILDING NORTH EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	VFDRs
VFDR ID	VFDR-06-012	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. Flow control valve FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-06-013	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-06-014	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-06-015	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-06-016	
VFDR	<p>A separation concern exists for a postulated fire in this area for the credited Train 12 EC Loop Makeup capability. EC Makeup is required to ensure the emergency condensers are available for eight hours. Fire damage to cable 1S-272 may cause a false signal from level transmitter LT-60-29 that closes level control valve LCV-60-18. Closure of level control valve LCV-60-18 will isolate the EC Makeup Tank from the emergency condensers. An operator action is required to control makeup to EC's 121 & 122. Fire damage to cable 1S-272 results in a loss of EC 121 & 122 level indication in the MCR. EC 121 & 122 level indication is available at the RSP.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	06 - TURBINE BUILDING NORTH EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-06-017	
VFDR	<p>A postulated fire in this area may cause the loss of AC power and battery charging capability. Batteries are load shed per procedure N1-SOP-21.1 to extend battery capability.</p> <p>Ref: 51-9133191, Appendix A.9, Section A.9.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-06-018	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-06-019	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
T2B	TURBINE BUILDING SOUTH AND WEST EL 250-0
T2E	UPS BATTERY ROOM EL 250

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Fire Area ID: 07 - TURBINE BUILDING SOUTH & WEST EL 250-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 12 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These</p>	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
	<p>distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system. • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path 	
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA7 of a Fire Originating In FA7
The activation of a water-based suppression system would not adversely impact equipment/components credited by the NSCA in the Turbine Building.
- Scenario 2: Suppression Affects in FA7 of a Fire Originating Outside of FA7
Based on the limited impact a fire can have on plant suppression systems, the operation of fire suppression systems outside of FA7 would not be expected to cause activation of a fire protection system within FA7 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-92-002 Inaccessible Fire Damper Operability Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2013N TB 250 T2B	Risk Criteria	Fire Zones: T2B
Detection	DA-2022N TB 250 T2B	Risk Criteria	Fire Zones: T2B
Detection	DA-2022S TB 250 T2B	Risk Criteria	Fire Zones: T2B
Detection	DA-2022S TB 250 T2B	DID Criteria	Fire Zones: T2E
Detection	DA-2051E TB 250 T2B	Risk Criteria	Fire Zones: T2B
Detection	DA-2051W TB 250 T2B	Risk Criteria	Fire Zones: T2B
Water Suppression	WP-2022 TB 250 T2B	Risk Criteria	Fire Zones: T2B
Water Suppression	WP-2051 TB 250 T2B	Risk Criteria	Fire Zones: T2B

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 07	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-07-001, VFDR-07-002, and VFDR-07-012.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-07-001	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03. These valves are required closed for HSD to support inventory control. Fire damage to the control circuits of Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03 leaves the MS line open. Inboard MSIV IV-01-01 can suffer an internal wire-to-wire short on cable 161-50 maintaining the valve open. An external cable-to-cable short to cable 1F-38, 1F-39, 1F-51, or 1F-52 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-03.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-07-002	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04 leaves the MS line open. Inboard MSIV IV-01-02 may remain open due to a loss of the Train 12 AC electrical system below 4 kV. An external cable-to-cable short to cable 1F-45 or 1F-56 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-07-003	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-07-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting Train 11 and 12 power systems. AC and DC Power is a Vital Auxiliary system required to support the nuclear safety performance goals. Control power cables, 12B-83 and 12B-84, associated with the credited Train 12 power supply (EG-EDG-103) are impacted in this area and can fail the credited 4 kV AC system. In addition, Train 11 major power cables 101-5 power feed to PB-102 and 102-1 power feed to PB-16B are also impacted in this area and can fail 4KV and 600VAC system.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-07-005	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the inventory control function. Cable-to-cable shorts on cables 1S-1041 and 1S-1891 cause IV-44.2-15, IV-44.2-16, IV-44.2-17, and IV-44.2-18 to spuriously open (post scram) resulting in an inventory loss.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-07-006	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the ERV's with regards to pressure control. ERV's PSV-01-102A and PSV-01-102E may spuriously open. PSV-01-102A may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102E may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. The alternate cooling path using CS may not be available due to the loss of both electrical trains.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-07-007	
VFDR	<p>A deterministic assumption assumes a potential loss of instrument air for a fire in any area of the plant. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		VFDRs
07 - TURBINE BUILDING SOUTH & WEST EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
VFDR ID	VFDR-07-008	
VFDR	<p>A deterministic assumption assumes a potential loss of instrument air for a fire in any area of the plant. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open Manual Bypass Valve VLV-28-18 locally to provide reactor makeup from the CRD system.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-07-009	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-07-010	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-07-011	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-07-012	
VFDR	<p>A postulated fire in this area may cause the loss of AC power and battery charging capability. Batteries are load shed per procedure N1-SOP-21.1 to extend battery capability.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	07 - TURBINE BUILDING SOUTH & WEST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-07-013	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the reactivity control performance goal for reactor scram. Cable-to-cable shorts on cables 1S-1041 and 1S-1891 impact Channel 11 scram solenoids SOV-113-272, SOV-113-273 and SOV-113-275 associated with IV-44.2-15, IV-44.2-16, IV-44.2-17, and IV-44.2-18. The SOV's remaining energized prevents venting the scram air header which, in turn, prevents reactor scram from the control room.</p> <p>Ref: 51-9133191, Appendix A.10, Section A.10.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-07-014	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves, and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

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Fire Area ID:		09 - TURBINE BUILDING EAST EL 250-0	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
T2C	TURBINE BUILDING OFFGAS TUNNEL EL 250-0		
T2D	TURBINE BUILDING GENERAL AREA EAST EL 250-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 09 - TURBINE BUILDING EAST EL 250-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Path A (Train 11) CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems. Path C Control Room Ventilation is credited to support shutdown.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	The following process monitoring functions are provided to support post-fire shutdown: <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 11 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA9 of a Fire Originating In FA9

The activation of a water-based suppression system would not adversely impact equipment/components credited by the NSCA in the Turbine Building.

- Scenario 2: Suppression Affects in FA9 of a Fire Originating Outside of FA9

Based on the limited impact a fire can have on plant suppression systems, operation of fire suppression systems outside of FA9 would not be expected to cause activation of a fire protection system within FA9 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-92-002 Inaccessible Fire Damper Operability Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2013 TB 250 T2D	Risk Criteria	Fire Zones: T2D
Detection	DA-2031 TB 250 T2C	DID Criteria	Fire Zones: T2C
Detection	DA-2031 TB 250 T2D	Risk Criteria	Fire Zones: T2D
Water Suppression	WP-2031 TB 250 T2D	Risk Criteria	Fire Zones: T2D

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 09	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-09-008, VFDR-09-018, and VFDR-09-019.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-09-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-09-002	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-114 for each valve can maintain EC system isolation valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-09-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-120 can maintain EC system isolation valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-09-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-159 can maintain EC system isolation valves IV-05-04R and IV-05-12 open. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-22 can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line. All cables are 125VDC.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-09-005	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-01R, IV-05-11, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-158 for each valve can maintain EC system isolation valves IV-05-01R and IV-05-11 open. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-22 can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line. All cables are 125VDC.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-09-006	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-04R, IV-05-12, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. A cable-to-cable and an internal wire-to-wire hot short on cable 1K-159 can maintain EC system isolation valves IV-05-04R and IV-05-12 open. An internal wire-to-wire hot short on cables 167-187, for valve BV-05-05, and 167-190, for valve BV-05-07, can maintain EC system isolation valves BV-05-05 and BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus. All cables are 125VDC.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-09-007	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-01R, IV-05-11, BV-05-5, and BV-05-7. These valves are required closed for HSD to support inventory control. A cable-to-cable or an internal wire-to-wire hot short on cable 1K-158 can maintain EC system isolation valves IV-05-01R and IV-05-11 open. An internal wire-to-wire hot short on cables 167-187, for valve BV-05-05, and 167-190, for valve BV-05-07, can maintain EC system isolation valves BV-05-05 and BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus. All cables are 125VDC.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		VFDRs
09 - TURBINE BUILDING EAST EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
VFDR ID	VFDR-09-008	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04 leaves the MS line open. Inboard MSIV IV-01-02 may remain open due to a loss of the Train 12 AC electrical system below 4 kV. An external cable-to-cable short to cable 1F-56 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-09-009	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-09-010	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-09-011	
VFDR	<p>A deterministic assumption assumes a potential loss of instrument air for a fire in any fire area of the plant. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the Emergency Condenser make-up tanks from the eight hours to some time frame less than 8 hours. A loss of air fails EC Level Control Valves, LCV-60-17 & LCV-60-18, open. This could deplete the inventory in the Emergency Condenser Make-Up Water Tanks prior to the eight hours required for the EC's to remove decay heat. Local operator action to manually throttle VLV-60-11, close VLV-60-12, and open/close BV-60-13 as required ensures availability of make-up inventory for EC's 121 & 122.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-09-012	
VFDR	<p>A deterministic assumption assumes a potential loss of instrument air for a fire in any fire area of the plant. Flow control valve FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-09-013	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-09-014	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-09-015	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-09-016	
VFDR	<p>Separation concern exists for postulated fire in this area for the credited Train 12 EC Loop Make-up capability. EC make-up capability is required to ensure the Emergency Condensers are available for eight hours. Fire damage to cable 1S-272 will result in a loss of EC 121 & 122 level indication in the MCR. EC 121 and 122 level indication, however, is available at the Remote Shutdown Panel (RSP).</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		VFDRs
09 - TURBINE BUILDING EAST EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
VFDR ID	VFDR-09-017	
VFDR	<p>Separation concern exists for postulated fire in this area for the credited Train 12 EC's 121&122 Loop Make-up capability. EC make-up capability is required to ensure the Emergency Condensers are available for eight hours. Fire damage to cable 1S-272 may cause a false signal that closes LCV-60-18. Operator action is required to control makeup to EC's 121& 122.</p> <p>Ref: 51-9133191, Appendix A.11, Section A.11.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-09-018	
VFDR	<p>A postulated fire in this area may cause the loss of AC power and battery charging capability. Batteries are load shed per procedure N1-SOP-21.1 to extend battery capability.</p> <p>Ref: 51-9133191, Appendix A.11, Table A.11.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-09-019	
VFDR	<p>A postulated fire in this area may adversely affect credited Train 11 power availability via damage (fault) to cable 101-5 that feeds PB 102. Cable 101-5 is disconnected from PB 102 per procedure N1-DRP-GEN-001 to allow EG 102 to supply PB 102.</p> <p>Ref: 51-9133191, Table A.11.2 Cable Assessment Report and Table A.11.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-09-020	
VFDR	<p>Power cable 102-1 associated with the credited Train 11 power supply to PB 16B is impacted in this area and can fail the credited 600 VAC system. Power is restored to PB 16B per procedure N1-DRP-GEN-001, "Fire Zones T2A and T2D Turbine Building Elevation 250' Detectors DA-2013S, DA-2013N and DA-2031."</p> <p>Ref: 51-9133191, Table A.11.2 Cable Assessment Report and Table A.11.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

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Fire Area ID:	09 - TURBINE BUILDING EAST EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-09-021	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-09-022	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

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Fire Area ID:		10 - CABLE SPREADING ROOM EL 250-0	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
C1	CABLE SPREADING ROOM EL 250-0		

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(b) Inventory Control Function	The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(d) Decay Heat Removal Function	Path A HSD is credited via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Alternatively, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

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Fire Area ID: Compliance Basis:	10 - CABLE SPREADING ROOM EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A HSD is generally supported by the Train 11 DC power systems. Path B HSD is generally supported by the Train 12 DC power systems.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>Path A CSD is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by Train 12 AC and/or DC power system.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) <p>Diesel generator rooms (fans operating and roll-up doors required open) Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA10 of a Fire Originating In FA10**

The activation of a water-based suppression system would not adversely impact equipment/components credited by the NSCA in the Cable Spreading Room. Additionally, the CO2 system installed in this area is isolated by a manual valve and set to "Alarm Only", so a CO2 system actuation which could adversely impact equipment/components credited by the NSCA would not occur.

- **Scenario 2: Suppression Affects in FA10 of a Fire Originating Outside of FA10**

Based on the limited impact a fire can have on plant suppression systems, operation of fire suppression systems outside of FA10 would not be expected to cause activation of the preaction sprinkler system within FA10 that could have an impact on the nuclear safety performance criteria. Additionally, based on the fact that the CO2 system in FA10 is manually locked out, operation of fire suppression systems outside of FA10 would not be expected to cause activation of the CO2 system within FA10 that could have an impact on the nuclear safety performance criteria.

Precision sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DX-3011A/B CB 250 C1	EEEE/LA	Fire Zones: C1
Detection	DX-3011A/B CB 250 C1	Risk Criteria	Fire Zones: C1
Gaseous Suppression	C-3011 CB 250 C1	DID Criteria	Fire Zones: C1
Water Suppression	WP-3011 CB 250 C1	EEEE/LA	Fire Zones: C1
Water Suppression	WP-3011 CB 250 C1	Risk Criteria	Fire Zones: C1

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 10	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-10-009, VFDR-10-010, VFDR-10-012, VFDR-10-014, and VFDR-10-021.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for full coverage (sprinkler system) and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-10-002	
VFDR	<p>A separation concern exists for a postulated fire in the area for Main Feedwater. Main Feedwater is required to be isolated for inventory control. Main Feedwater valves IV-31-07 and IV-31-08 may remain open due to fire damage to the following cables: IV-31-07: 101-5, 161-57; IV-31-08: 103-18, 103-22, 103-28, 103-43, 103-44, 103-47, 103-66, 171-57.</p> <p>Main Feedwater pumps may spuriously start. Pump 29-02 may start due to an internal wire-to-wire short on cable 11-78. Pump 29-03 may spuriously start due to an internal wire-to-wire short on cable 12-78. The clutch of turbine shaft driven pump 29-01 may remain engaged due to shorts on cable 1F-110 or fire damage to any of the following cables 1F-110, 1S-1610, 1S-1730, 1S-1735, or 1S-1736. The result is reactor vessel overfill that has the potential to compromise the ability of the credited EC to achieve and maintain HSD.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-159 can maintain EC system isolation valve IV-05-12 open. A cable-to-cable hot short on cable 1K-159 or 1K-34 can maintain EC system isolation valve IV-05-04R open. A cable-to-cable hot short on cable 1K-22 for each valve can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-04R, IV-05-12, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-159 can maintain EC system isolation valve IV-05-12 open. A cable-to-cable hot short on cable 1K-159 or 1K-34 can maintain EC system isolation valve IV-05-04R open. An internal wire-to-wire hot short on cable 167-187 can maintain EC system isolation valve BV-05-05 open. An internal wire-to-wire hot short on cable 167-190 can maintain EC system isolation valve BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-005	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-01R, IV-05-11, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-158 or 1S-2017 or an internal wire-to-wire hot short on cable 1K-18 can maintain EC system isolation valve IV-05-01R open. Either an internal wire-to-wire short on cable 1K-18 or a cable-to-cable short on cable 1K-158 can maintain EC system isolation valve IV-05-11 open. An internal wire-to-wire hot short on cable 167-187 can maintain EC system isolation valve BV-05-05 open. An internal wire-to-wire hot short on cable 167-190 can maintain EC system isolation valve BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-006	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-01R, IV-05-11, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-158 or 1S-2017 or an internal wire-to-wire hot short on cable 1K-18 can maintain EC system isolation valve IV-05-01R open. Either an internal wire-to-wire short on cable 1K-18 or a cable-to-cable short on cable 1K-158 can maintain EC system isolation valve IV-05-11 open. A cable-to-cable hot short on cable 1K-22 for each valve can maintain EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-007	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-114 for each valve can maintain EC system isolation valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the Main Steam drain line.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

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Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-008	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-120 for each valve can maintain EC system isolation valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the Main Steam drain line.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-10-009	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03 leaves the MS line open. Inboard MSIV IV-01-01 may remain open due to a loss of the Train 11 AC electrical system below 4 kV. An internal wire-to-wire short to cable 1F-37 or 1F-38 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-03.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-10-010	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04 leaves the MS line open. Inboard MSIV IV-01-02 may remain open due to a loss of the Train 12 AC electrical system below 4 kV. An internal wire-to-wire short to cable 1F-55 or 1F-56 (125 VDC) results in preventing closure of series Outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-10-011	
VFDR	<p>This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.</p>	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-012	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the 11 and 12 Emergency Condenser Loops. EC Loop 11 or 12 is required to ensure decay heat removal. Path A – EC's 111 & 11 are not available due to: 1) An internal wire-to-wire short in conjunction with an open wire on either cable 171-194 or 171-195 closes IV-39-09R isolating EC's 111 and 11, 2) Internal wire-to-wire shorts (2) on cable RSP-82, or an internal wire-to-wire short on cable 11DV-92B in conjunction with an internal wire-to-wire short on cable RSP-82 will close IV-39-07R, 3) Fire damage to cable 1S-352 may cause a false signal that closes LCV-60-17. Operator action is required to control makeup to EC's 111 & 112.</p> <p>Path B - EC's 121 and 122 are not available due to: 1) Internal wire-to-wire shorts, 2) in conjunction with an open wire on cable 12DV-23 (125 VDC) will close IV -39-08R. Fire damage to cable 1S-272 may cause a false signal that closes LCV-60-18. Operator action is required to control makeup to EC's 121 & 122.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-10-013	
VFDR	<p>A separation concern exists for a postulated fire in the area for process monitoring associated with Reactor Level and Reactor Pressure. Fire damage to cable 16-146 results in a loss of credited Train 11 MCR instruments. The corresponding Train 12 MCR instruments are also adversely affected due to the loss of EDG -103. Reactor vessel level is a required indication to assure adequate level is maintained in the reactor vessel during the shutdown process. Reactor pressure indication is a required indication to assure reactor vessel parameters are maintained within acceptable bands during the shutdown process.</p> <p>Components affected are: LI-36-09, LI-36-19, LI-36-43, PI-36-31A.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-014	
VFDR	<p>A separation concern exists for a postulated fire in the area for battery charging capability to the credited Battery B-11. Battery B-11 is associated with vital auxiliaries to support the performance goals. A cable-to-cable short on cable 16-124 (125 VDC) can cause the feeder breaker to Battery Chargers BC-B11-1 and BC-B11-2 to open resulting in the loss of battery charging capability for credited Battery B-11. Also, an internal wire-to-wire short on cable 11B-95 (125 VDC) can cause the feeder breaker from Battery Chargers BC-B11-1 and BC-B11-2 to open resulting in the loss of battery charging capability for credited Battery B-11.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-015	
VFDR	<p>A spurious actuation concern exists for a postulated fire in the area for the ERVs with regards to pressure control. ERVs PSV-01-102A, PSV-01-102B, and PSV-01-102E may spuriously open. PSV-01-102A may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102B may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102E may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. The alternate cooling path using CS may not be available due to the loss of both electrical trains.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-016	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the inventory control function. Cable-to-cable shorts on cables 1S-1041 and 1S-1891 cause IV-44.2-15, IV-44.2-16, IV-44.2-17, and IV-44.2-18 to spuriously open (post scram) resulting in an inventory loss.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-017	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. EC level control valves LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-018	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open Manual Bypass Valve VLV-28-18 to provide reactor makeup from CRD system.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-10-019	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-10-020	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-10-021	
VFDR	<p>A separation concern exists for a postulated fire in the area for the AC Power System. The AC Power system is required to ensure success of various performance goals. The power cable from PB 101 to PB 102 (Cable 101-5) can be damaged by fire in this area preventing EDG 102 from supplying PB 102. A repair is required to ensure Train 11 power.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-022	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-10-023	
VFDR	<p>A postulated fire in this area may damage cable 16-49 adversely impacting credited CRD pump PMP-28-15. PMP-28-15 is required to provide inventory to the reactor vessel. CRD PMP-28-15 is repaired and operated locally at PB 16 per N1-DRP-GEN-003, Attachment 3.</p> <p>Ref: 51-9133191, Table A.12.2 Fire Area Cable Assessment Report and Table A.12.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-10-024	
VFDR	<p>A postulated fire in this area may damage cable 16-55 adversely impacting credited ESW pump PMP-72-04. PMP-72-04 is required to support decay heat removal from SDC. ESW PMP-72-04 is repaired and operated locally at PB 16 per N1-DRP-GEN-003, Attachment 4.</p> <p>Ref: 51-9133191, Table A.12.2 Fire Area Cable Assessment Report and Table A.12.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-10-025	
VFDR	<p>A postulated fire in this area may damage cable 16-43 or 16-76 adversely impacting credited RBCLC pump PMP-70-01. PMP-70-01 is required to support decay heat removal from SDC. RBCLC PMP-70-01 is repaired and operated locally at PB 16 per N1-DRP-GEN-003, Attachment 5.</p> <p>Ref: 51-9133191, Table A.12.2 Fire Area Cable Assessment Report and Table A.12.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	10 - CABLE SPREADING ROOM EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-10-026	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-10-027	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-10-028	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the reactivity control performance goal for reactor scram. Cable-to-cable shorts on cables 1S-1041 and 1S-1891 impact Channel 11 scram solenoids SOV-113-272, SOV-113-273 and SOV-113-275 associated with IV-44.2-15, IV-44.2-16, IV-44.2-17, and IV-44.2-18. The SOV's remaining energized prevents venting the scram air header which, in turn, prevents reactor scram from the control room.</p> <p>Ref: 51-9133191, Appendix A.12, Section A.12.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-10-029	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves, and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
C2	AUXILIARY CONTROL ROOM, COMPUTER ROOM 261-0
C3	CONTROL ROOM EL 277-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 11 - CONTROL COMPLEX EL 261-0 AND EL 277-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(d) Decay Heat Removal Function	Path A HSD is credited via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Alternatively, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:		Performance Goals
11 - CONTROL COMPLEX EL 261-0 AND EL 277-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Train 12 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C - Train 11 Positive Pressure Flow Path 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	Document ID	
	51-9133191 - NMP1 Nuclear Safety Capability Assessment	
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis	
	N1-FRE-F001 - Fire Risk Evaluation Report	
	N1-FSS-F001 - Detailed Fire Modeling	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA11 of a Fire Originating In FA11
Activation of a Halon 1301 suppression system would not adversely impact equipment/components credited by the NSCA. The CO2 system installed in this area is manually actuated and is a backup to the total flooding Halon 1301 system. It is not likely that activation as a result of a fire in the area could have an impact on the nuclear safety performance criteria.
- Scenario 2: Suppression Affects in FA11 of a Fire Originating Outside of FA11
Based on the limited impact a fire can have on plant suppression systems, operation of fire suppression systems outside of FA11 would not be expected to cause activation of a system within FA11 that could have an impact on the nuclear safety performance criteria. Additionally, based on the fact that the CO2 system in FA11 is mechanically isolated, operation of fire suppression systems outside of FA11 would not be expected to cause activation of the CO2 system within FA11 that could have an impact on the nuclear safety performance criteria.

Since there are no installed water-based fire suppression systems in FA11, there is no flooding potential resulting from the fire suppression systems.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-00-004 Engineering Evaluation of Alternate Fire Protection Systems for the Nine Mile</p> <p>Evaluation conducted for the existing Halon protected areas to determine if alternate types of fixed fire suppression systems can be utilized to replace Halon 1301 extinguishing systems. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-95-001 Fire Damper 211-54 Installation Deviation</p> <p>Evaluation justifies lack of retaining angles on all four sides of the sleeve of Damper 211-54. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID	FPEE 1-95-002 Deviations to Appendix R 3-Hour Fire Barriers	
Summary	Evaluation justifies not testing 3-hour rated Promat-H ERFBS in accordance with GL 86-10, Supplement 1 fire test methodology and acceptance criteria and minor differences between installed ERFBS and HVAC duct fire barriers from tested configurations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-3031PL CB 261 C2	EEEE/LA	Fire Zones: C2
Detection	D-3031PL CB 261 C2	Risk Criteria	Fire Zones: C2
Detection	D-3054 CB 277 C3	EEEE/LA	Fire Zones: C3
Detection	D-3054 CB 277 C3	Risk Criteria	Fire Zones: C3
Detection	DX-3031A/B CB 261 C2	EEEE/LA	Fire Zones: C2
Detection	DX-3031A/B CB 261 C2	Risk Criteria	Fire Zones: C2
Gaseous Suppression	C-3031 CB 261 C2	DID Criteria	Fire Zones: C2
Gaseous Suppression	H-3031 CB 261 C2	Risk Criteria	Fire Zones: C2
ERFBS	Promat-H enclosure	Separation	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 11	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Note that VFDR-11-011 was completely resolved by crediting a modification to the plant. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-11-003, VFDR-11-004, VFDR-11-020, and VFDR-11-030.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for the aux control room, C2, (Automatic Halon system) and manual suppression from the fire brigade. The control room, C3 has no automatic suppression. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-11-002	
VFDR	<p>A separation concern exists for a postulated fire in the area for Main Feedwater. Main Feedwater is required to be isolated for inventory control. If offsite power is available, Main Feedwater may continue to supply the reactor vessel. Valve IV-31-07 may remain open due to fire damage or an internal wire-to-wire short on either cable 161-57 or 161-58. IV-31-08 may remain open due to fire damage or an internal wire-to-wire short on either cable 171-57 or 171-58. Main Feedwater pumps may spuriously start. Pump 29-02 may start due to an internal wire-to-wire short on cable 11-78. Pump 29-03 may spuriously start due to an internal wire-to-wire short on either cable 12-78 or 12-79. The result is reactor vessel overfill that has the potential to compromise the ability of the credited EC to achieve and maintain HSD. The clutch of turbine shaft driven pump 29-01 may remain engaged due to cable shorts or fire damage to cables 1F-110, 1F-111, 1F-4, 1F-5, 1S-1610, 1S-1730, 1S-1735, 1S-1736, 1S-1766. The clutch is disengaged by a procedure driven operator action.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-01 and Outboard MSIV IV-01-03 leaves the MS line open. Inboard MSIV IV-01-01 may remain open due to a loss of the Train 11 AC electrical system below 4 kV or a cable-to-cable short on either cable 161-50 or 161-61. An internal wire-to-wire short to cable 1F-37, 1F-38, or 1F-50 (125 VDC) or a cable-to-cable short on cable 1F-51 (125 Vdc) prevents closure of series Outboard MSIV IV-01-03 and results in an inventory loss until manual action is taken to close the outboard MSIV IV-01-03.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-11-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the power supply or control circuits of Inboard MSIV IV-01-02 and Outboard MSIV IV-01-04 leaves the MS line open. Inboard MSIV IV-01-02 may remain open due to a loss of the Train 12 AC electrical system below 4 kV or a cable-to-cable short on either cable 171-50 or 171-61. An internal wire-to-wire short to cable 1F-43, 1F-44, or 1F-55, or a cable-to-cable short on cable 1F-56 (125 Vdc) prevents closure of series Outboard MSIV IV-01-04 and results in an inventory loss until a manual action is taken to close the outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-005	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system isolation valves IV-05-01R, IV-05-11, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-158 or 1S-2017 or an internal wire-to-wire hot short on cable 1K-18 can maintain EC system isolation valve IV-05-01R open. Either an internal wire-to-wire short on cable 1K-18, 1K-156, or 1K-154 or a cable-to-cable short on cable 1K-158 can maintain EC system isolation valve IV-05-11 open. An internal wire-to-wire hot short on cable 167-187 can maintain EC system isolation valve BV-05-05 open. An internal wire-to-wire hot short on cable 167-190 can maintain EC system isolation valve BV-05-07 open. The multiple spurious combination results in an inventory loss to the torus.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-006	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the EC system isolation valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-159 or an internal wire-to-wire short on cable 1K-155, 1K-157, or 1K-25 can maintain the EC system isolation valves IV-05-04R and IV-05-12 open. A cable-to-cable hot short on cable 1K-22 or 1K-31; or an internal wire-to-wire short on either cable 1K-21 or 1K-30 can maintain the EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-007	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the EC system isolation valves IV-05-01R, IV-05-11, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-158 or 1S-2017 or an internal wire-to-wire hot short on cable 1K-18 can maintain EC system isolation valve IV-05-01R open. Either an internal wire-to-wire short on cable 1K-18, 1K-156, or 1K-154 or a cable-to-cable short on cable 1K-158 can maintain EC system isolation valve IV-05-11 open. A cable-to-cable hot short on cable 1K-22 or 1K-31; or an internal cable wire-to-wire short on either cable 1K-21 or 1K-30 can maintain the EC system isolation valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	VFDRs
VFDR ID	VFDR-11-008	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the EC system isolation valves IV-05-04R, IV-05-12, BV-05-05, and BV-05-07. These valves are required closed for HSD to support inventory control. An internal wire-to-wire shorts on cable 1K-155 or 1K-157 or 1K-25; or a cable-to-cable short on cable 1K-159 can maintain the EC system isolation valves IV-05-04R and IV-05-12 open. An internal wire-to-wire hot short on cable 167-187 can maintain EC system isolation valve BV-05-05 open. An internal wire-to-wire hot short on cable 167-190 can maintain EC system isolation valve BV-05-07 open. The multiple spurious combination results in an inventory loss to the Torus.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-009	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the EC system isolation valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-111, 1K-114, 1K-139, or 1K-145 can maintain the EC system isolation valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the Main Steam drain line.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-010	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the EC system isolation valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-117, 1K-120, 1K-139, or 1K-145 can maintain the EC system isolation valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the Main Steam drain line.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-011	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting the RWCU isolation valves IV-33-02R, IV-33-04, and BV-33-41. One of these valves is required closed to support inventory control. IV-33-02R may remain open due to a cable-to-cable short on cable 167-7, or fire damage to cable 167-7 (ground) or 167-8 (ground or open). IV-33-04 may remain open due to an internal wire-to-wire short on cable 12DV-27 or 12DV-28. BV-33-41 may remain open due to a cable-to-cable short on cable 11-99 or 167-8. The result is that the RCS remains connected to the Clean-Up System.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.4 Separation Concerns</p>	
Disposition	A proposed modification consisting of ensuring isolation capability of the RWCU system following a fire deterministically resolves this VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-012	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-11-013	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area for the ERV's with regards to pressure control. ERV's PSV-01-102A, PSV-01-102B, PSV-01-102C, PSV-01-102D, PSV-01-102E, and PSV-01-102F may spuriously open, resulting in blowdown to Torus. The master ADS logic may actuate, or: PSV-01-102A may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102B may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102C may spuriously open due to a cable-to-cable short on cable 1F-156 in conjunction with an open in cable 1F-179. PSV-01-102D may spuriously open due to a cable-to-cable short on cable 1F-156 in conjunction with an open in cable 1F-179. PSV-01-102E may spuriously open due to a cable-to-cable short on cable 1F-151 in conjunction with an open in cable 1F-178. PSV-01-102F may spuriously open due to a cable-to-cable short on cable 1F-156 in conjunction with an open in cable 1F-179. The alternate cooling path using CS may not be available due to the loss of both electrical trains.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-014	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the inventory control function. Shorts on various combinations of the following cables can cause IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18 to spuriously open (post scram) resulting in an inventory loss. Cable-to-cable short on cable 1F-163, Cable-to-cable short on cable 1F-164, Cable-to-cable short on cable 1S-1041, Cable-to-cable short on cable 1S-1042, Cable-to-cable short on cable 1S-1891, Cable-to-cable short on cable 1S-1892, An internal wire-to-wire short on cable 1S-1020 in conjunction with an external cable-to-cable short on cable 1S-1078, An internal wire-to-wire short on cable 1S-1020 in conjunction with external cable-to-cable shorts (2) on cable 1S-1083, An internal wire-to-wire short on cable 1S-1025 in conjunction with an external cable-to-cable short on cable 1S-1093, An internal wire-to-wire short on cable 1S-1025 in conjunction with external cable-to-cable shorts (2) on cable 1S-1094.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-015	
VFDR	<p>A deterministic assumption assumes for potential loss of instrument air. A loss of air fails EC Level Control Valves, LCV-60-17 & LCV-60-18, open. This could deplete the inventory in the Emergency Condenser Make-Up Water Tanks prior to the eight hours required for the EC's to remove decay heat. Local operator action to manually close or throttle VLV-60-11 and VLV-60-12, and open/close BV-60-13 as required ensures availability of make-up inventory for the EC's chosen by the operator for HSD.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-016	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-11-017	
VFDR	<p>A separation concern exists for a postulated fire in the area for CTSRW. If Train 11 power is available, an internal wire-to-wire short on cable 102-14 or 102-15 can spuriously start CTSRW pump PMP-93-01. An internal wire-to-wire short on cable 161-160 can spuriously open CTSRW to CTS cross connect valve FCV-93-72. The spurious start of the Path C (Train 11) CTSRW pump, PMP-93-01, in conjunction with the spurious opening of Path C (Train 11) valve FCV-93-72 causes an inadvertent CTS actuation which results in an increasing Torus water level. The increase in Torus water level will lead the Plant operators to enter the EOPs and will cause a deviation from the credited safe shutdown strategy.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-018	
VFDR	<p>A separation concern exists for a postulated fire in the area for CTSRW. If Train 12 power is available, an internal wire-to-wire short on cable 103-22 or 103-23 can spuriously start CTSRW pump PMP-93-04. An internal wire-to-wire short on cable 171-160 spuriously opens CTSRW to CTS cross connect valve FCV-93-73. The spurious start of Path D (Train 12) CTSRW pump, PMP-93-04, in conjunction with the spurious opening of Path D (Train 12) valve FCV-93-73 causes an inadvertent CTS actuation which results in an increasing Torus water level. The increase in Torus water level will lead the Plant operators to enter the EOPs and will cause a deviation from the credited safe shutdown strategy.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	VFDRs
VFDR ID	VFDR-11-019	
VFDR	<p>A separation concern exists for a postulated fire in the area for the AC Power System. The AC Power system is required to ensure success of various performance goals. If offsite power is available, combinations of internal wire-to-wire shorts on cables 17-1, 17-2 and 17-3 can result in out of phase closure of Train 12 600 VAC breakers 1051, 1052 and 1053. The result is a loss of all credited Train 12 power below 4 kV.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-11-020	
VFDR	<p>A postulated fire in this area may cause the loss of AC power and battery charging capability due to damage to the following cables:</p> <p>Train 11: 101-6, 1A-147, 1A-60, 102-22, 102-28, 102-31, 102-43, 102-44, 102-49, 11B-28, 1A-124, 1B-126, 1S-2386, 102-2, 102-29, 102-42, 102-47, 102-51, 102-52, 102-55, 102-56, 1A-116, 16-124, 16-2, 16-3, 16-82.</p> <p>Train 12: 101-64, 1A-161, 103-18, 103-22, 103-28, 103-29, 103-30, 103-31, 103-43, 103-44, 103-49, 12B-28, 1A-134, 1B-121, 1S-2388, 103-2, 103-42, 103-47, 103-51, 103-52, 103-56, 1A-130, 1A-61, 17-12, 103-2, 17-2, 17-3, 17-67.</p> <p>As a result, battery loads are shed per procedure N1-SOP-21.1 to extend battery capability until the power system restored via N1-DRP-GEN-001.</p> <p>Ref: 51-9133191, Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-11-021	
VFDR	<p>A postulated fire in this area may cause the loss of credited Train 12 power board PB 17B due to fire damage to cable 103-2, 17-2, 17-3 or 17-67. Power restored to PB 17B per N1-DRP-GEN-004, Attachment 2.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-022	
VFDR	<p>A postulated fire in this area may cause the loss of credited RBCLC pump PMP-70-02 due to cable damage to either cable 17-29, 17-30, 17-60 or 17-65. To support the decay heat removal function, PMP-70-02 is operated locally per N1-DRP-GEN-004, Attachment 9.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-11-023	
VFDR	<p>A postulated fire in this area may cause the loss of PB 171B due to damage to the following power supply component cables:</p> <ul style="list-style-type: none"> • BKR-(17/007B)R1052/612: Cables 17-2, 17-67; • BKR-(17B/002B)R1053/613: Cable 17-3; • BKR-(103/1-9)R1031/181: Cables 101-64, 103-2; • BKR-(103/1-1)R1032/581: Cables 101-64, 103-18, 103-22, 103-28, 103-29, 103-30, 103-31, 103-43, 103-44, 103-45, 103-46, 103-49, 103-67, 12B-28, 1A-134, 1A-161, 1B-121, 1S-2388; • BKR-(101/2A-1)R1013/161: Cables 101-64, 12B-28, 1A-161. <p>This loss of power to PB-171B affects the following credited shutdown loads: PMP-79-54: EG-EDG103 Cooling Water Pump; BLWROT-209-05: EG-EDG103 Roof Exhaust Fan; BLWROT-209-06: EG-EDG103 Roof Exhaust Fan; DOOR-D-034: EG-EDG103 Roll-Up Door; BV-38-04: SDC Pump PMP-38-152 Suction Blocking Valve.</p> <p>In support of shutdown from outside the control room, power is restored to PB 171B via local breaker operations per N1-DRP-GEN-004, Attachment 3.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-11-024	
VFDR	<p>This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.</p>	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-025	
VFDR	<p>A postulated fire in this area may cause the loss of CRD pump PMP-28-17 due to fire damage to cable 17-32, 17-33, 17-66 or 1S-1057. In support of shutdown from outside the control room and to provide reactor vessel inventory makeup, CRD pump PMP-28-17 operated locally per N1-DRP-GEN-004, Attachment 5.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-11-026	
VFDR	<p>A postulated fire in this area may cause isolation of the normal reactor inventory makeup line from CRD due to fire damage to cables for the following valves:</p> <p>FCV-44-149: 1F-123, 1F-90, 1S-1765, 1S-2586, 1S-325, 1S-405, 1S-407, 1S-560, 1S-645, 1S-646; PCV-44-04: 155-71; PCV-44-05: 155-74.</p> <p>To support the reactor vessel inventory makeup function, CRD flow is controlled manually by operating VLV-28-18 locally per N1-DRP-GEN-004, Attachment 6.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-11-027	
VFDR	<p>A postulated fire in this area may cause a malfunction of credited ESW pump PMP-72-03 due to fire damage to cable 17-38, 17-39 or 17-65 resulting in the need for the DFP to supply ESW per N1-DRP-GEN-004, Attachment 8 to accomplish the decay heat removal function.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-11-028	
VFDR	<p>This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.</p>	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-029	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-11-030	
VFDR	<p>A postulated fire in this area may cause the loss of credited Train 12 battery chargers BC-B12-1 and BC-B12-2 due to fire damage to cable 17-12. The train 12 battery is required to support various shutdown performance goals. Computer MG Set 167 is used to charge BAT12 per N1-DRP-GEN-004, Attachment 17.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-11-031	
VFDR	<p>A fire in this area may cause a loss of normal AC power and a loss of starting air. To support various shutdown performance requirements, AC power is required. In order to facilitate starting EG-EDG103, EG-EDG103 starting air is restored per N1-DRP-GEN-004, Attachment 18.</p> <p>Ref: 51-9133191, Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-11-032	
VFDR	<p>A postulated fire in this area may adversely affect credited EG-EDG103 due to fire damage to numerous cables. EG-EDG103 is required to support various performance goals. EG-EDG103 local control restored via repair action associated with cables 103-28, 103-29, 103-49, 103-51 and 103-52 and output breaker R1032 is operated locally per N1-DRP-GEN-004, Attachment 1.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-033	
VFDR	<p>A postulated fire in this area may adversely affect the credited Train 12 electrical system due to damage to the following power supply and component cables:</p> <ul style="list-style-type: none"> • BKR-(101/2A-1)R1013/161: Cables 101-64, 12B-28, 1A-161; • BKR-(103/1-1)R1032/581: Cables 101-64, 103-18, 103-22, 103-28, 103-29, 103-30, 103-31, 103-43, 103-44, 103-45, 103-46, 103-49, 103-67, 12B-28, 1A-134, 1A-161, 1B-121, 1S-2388; • BKR-(103/1-9)R1031/181: Cables 101-64, 103-2; • PB-103: Cables 101-64, 103-22, 103-28, 103-31, 103-43, 103-44, 103-49, 12B-28, 1A-134, 1A-161, 1A-61, 1B-121, 1S-2388, 103-47 (UV Protection), 103-66 (UV Protection); • PMP-80-03: Cables 103-18, 103-19, 103-59; • PMP-80-23: Cables 103-10, 103-11; • PMP-81-04: Cables 103-6, 103-7; • PMP-81-24: Cables 103-26, 103-27; • PMP-81-49: Cables 103-61, 103-62; • PMP-81-52: Cables 103-58, 103-64, 103-65; • PMP-93-03: Cables 103-14, 103-15; • PMP-93-04: Cables 103-22, 103-23. <p>To facilitate shutdown from outside the control room, the identified power supply and component breakers are opened locally at PB101 and PB 103 per N1-DRP -GEN-004, Attachment 1.</p> <p>Ref: 51-9133191, Table A.13.2 Fire Area Cable Assessment Report and Table A.13.7 Report of Procedure Directed Operator Actions</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-034	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	11 - CONTROL COMPLEX EL 261-0 AND EL 277-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-11-035	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-11-036	
VFDR	<p>A spurious actuation concern exists for a postulated fire in this area that affects the reactivity control performance goal for reactor scram. Shorts on various combinations of the following cables impact Channel 11 scram solenoids SOV-113-272, SOV-113-273 and SOV-113-275; and Channel 12 scram solenoids SOV-113-271, SOV-113-274 and SOV-113-276 associated with IV-44.2-15, IV-44.2-16, IV-44.2-17 and IV-44.2-18. The SOV's remaining energized prevents venting the scram air header which, in turn, prevents reactor scram from the control room. Cable-to-cable short on cable 1F-163, Cable-to-cable short on cable 1F-164, Cable-to-cable short on cable 1S-1041, Cable-to-cable short on cable 1S-1042, Cable-to-cable short on cable 1S-1891, Cable-to-cable short on cable 1S-1892, An internal wire-to-wire short on cable 1S-1020 in conjunction with an external cable-to-cable short on cable 1S-1078, An internal wire-to-wire short on cable 1S-1020 in conjunction with external cable-to-cable shorts (2) on cable 1S-1083, An internal wire-to-wire short on cable 1S-1025 in conjunction with an external cable-to-cable short on cable 1S-1093, An internal wire-to-wire short on cable 1S-1025 in conjunction with external cable-to-cable shorts (2) on cable 1S-1094.</p> <p>Ref: 51-9133191, Appendix A.13, Section A.13.5 Spurious Actuation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-11-037	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
AB1A	RECORDS STORAGE AREA EL 250-0
AB1B	SAS EQUIPMENT AREA EL 252-0
AB1C	CPU EQUIPMENT AREA EL 252-0
AB1D	GENERAL AREA EL 250-0
AB1E	LOCKER AREA, LUNCH ROOM, OFFICES EL 261-0
AB2A	ACCESS PASSAGEWAY EL 248-0
AB2B	TECHNICAL SUPPORT AREA EL 248-0
AB2C	RADIATION RECORDS AREA EL 248-0
AB2D	WAREHOUSE AREA EL 248-0
AB3A	WAREHOUSE AREA EL 261-0
AB3B	OIL STORAGE ROOM EL 261-0
AB3C	STOREROOM TRUCK DOCK EL 261-0
AB3D	ELECTRICAL/MECHANICAL SHOP AREA, OFFICE AREAS, LOCKER ROOMS EL 261-0
AB3E	TELEPHONE ROOM 1 EL 261-0
AB3F	TELEPHONE ROOM 2 EL 261-0
AB4A	GENERAL OFFICE AREA EL 277-0
AB4B	FILE ROOM EL 277-0
AB4C	RECORDS PROCESSING AREA EL 277-0
AB4D	GENERAL OFFICE AREA EL 277-0
AB5	PENTHOUSE VENTILATION ROOM EL 290-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Both 11 and 12 CRD pumps are credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p>	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
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The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.

2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:

- RBCLC and ESW provide cooling to the control room ventilation system
- The EDG's are cooled by the EDG Cooling Water pumps
- Chilled Water for control room ventilation

3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:

- Main control room ventilation (except for control room evacuation)
- Diesel generator rooms (fans operating and roll-up doors required open)

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:

- Path C – Train 11 positive pressure flow path.
- Path D – Train 12 positive pressure flow path

References

Document ID

51-9133191 - NMP1 Nuclear Safety Capability Assessment
51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
N1-FRE-F001 - Fire Risk Evaluation Report
N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA12 of a Fire Originating In FA12
The activation of a water-based suppression system would not adversely impact equipment/components credited by the NSCA in the Administration Building.
- Scenario 2: Suppression Affects in FA12 of a Fire Originating Outside of FA12
Based on the limited impact a fire can have on plant suppression systems, the operation of fire suppression systems outside of FA12 would not be expected to cause activation of a fire protection system within FA12 that could have an impact on the nuclear safety performance criteria.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Water-based fire suppression systems installed in FA12 are adequately separated from other plant areas, such that there is expected to be no flooding potential resulting from the fire suppression systems that could negatively impact the nuclear safety performance criteria.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-92-002 Inaccessible Fire Damper Operability Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-95-001 Fire Damper 211-54 Installation Deviation Evaluation justifies lack of retaining angles on all four sides of the sleeve of Damper 211-54. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

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Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-9049 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Detection	D-9139 AB 277 AB4C	Risk Criteria	Fire Zones: AB4C
Detection	D-9169 AB 261 AB1E	DID Criteria	Fire Zones: AB1E
Detection	D-9179 AB 261 AB3D	Risk Criteria	Fire Zones: AB3D
Detection	D-9189 AB 261 AB3D	Risk Criteria	Fire Zones: AB3D
Detection	D-9199 AB 248 AB2C	DID Criteria	Fire Zones: AB2C
Detection	D-9249 AB 290 AB5	DID Criteria	Fire Zones: AB5
Detection	D-9249FL AB 290 AB5	DID Criteria	Fire Zones: AB5
Detection	D-9299 AB 248 AB2B	DID Criteria	Fire Zones: AB2B
Detection	D-9309 AB 248 AB2B	DID Criteria	Fire Zones: AB2B
Detection	D-9409 AB 248 AB2C	DID Criteria	Fire Zones: AB2C
Detection	D-9499 AB 248 AB2B	DID Criteria	Fire Zones: AB2B
Detection	DA-9019 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Detection	DA-9029 AB 277 AB4B	DID Criteria	Fire Zones: AB4B
Detection	DA-9029 AB 277 AB4C	Risk Criteria	Fire Zones: AB4C
Detection	DA-9039 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Detection	DA-9149 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Detection	DA-9219 AB 250 AB1D	DID Criteria	Fire Zones: AB1D
Detection	DA-9239 AB 277 AB4D	Risk Criteria	Fire Zones: AB4D
Detection	DX-9209A/B AB 250 AB1A	DID Criteria	Fire Zones: AB1A
Detection	DX-9229A/B AB 261 AB3E	DID Criteria	Fire Zones: AB3E
Detection	DX-9259A/B AB 261 AB3F	DID Criteria	Fire Zones: AB3F
Detection	DX-9279A/B AB 250 AB1C	DID Criteria	Fire Zones: AB1C
Detection	DX-9289A/B AB 250 AB1B	DID Criteria	Fire Zones: AB1B
Gaseous Suppression	H-9229 AB 261 AB3E	DID Criteria	Fire Zones: AB3E
Gaseous Suppression	H-9259 AB 261 AB3F	DID Criteria	Fire Zones: AB3F
Gaseous Suppression	H-9279 AB 250 AB1C	DID Criteria	Fire Zones: AB1C
Gaseous Suppression	H-9289 AB 250 AB1B	DID Criteria	Fire Zones: AB1B
Water Suppression	SP-9019 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Water Suppression	SP-9039 AB 277 AB4A	DID Criteria	Fire Zones: AB4A
Water Suppression	SP-9069 AB 261 AB1E	DID Criteria	Fire Zones: AB1E
Water Suppression	SP-9069 AB 261 AB3D	Risk Criteria	Fire Zones: AB3D
Water Suppression	SP-9079 AB 248 AB2A	DID Criteria	Fire Zones: AB2A
Water Suppression	SP-9079 AB 248 AB2B	DID Criteria	Fire Zones: AB2B
Water Suppression	SP-9079 AB 248 AB2C	DID Criteria	Fire Zones: AB2C
Water Suppression	SP-9079 AB 248 AB2D	DID Criteria	Fire Zones: AB2D
Water Suppression	SP-9089 AB 261 AB3A	DID Criteria	Fire Zones: AB3A
Water Suppression	SP-9089 AB 261 AB3B	DID Criteria	Fire Zones: AB3B
Water Suppression	SP-9089 AB 261 AB3D	Risk Criteria	Fire Zones: AB3D
Water Suppression	SP-9119 AB 261 AB3C	DID Criteria	Fire Zones: AB3C

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Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Water Suppression	SP-9219 AB 250 AB1D	DID Criteria	Fire Zones: AB1D
Water Suppression	SP-9239 AB 277 AB4D	Risk Criteria	Fire Zones: AB4D
Water Suppression	WD-9249FL AB 290 AB5	DID Criteria	Fire Zones: AB5
Water Suppression	WP-9029 AB 277 AB4B	DID Criteria	Fire Zones: AB4B
Water Suppression	WP-9029 AB 277 AB4C	Risk Criteria	Fire Zones: AB4C

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	12 - ADMINISTRATION BUILDING EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Risk Evaluation
Title Risk Summary	<p>Fire Risk Evaluation for Fire Area 12</p> <p>A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.</p>	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
Safety Margin Maintained	<p>No improvements required for DID.</p> <p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	12 - ADMINISTRATION BUILDING EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	VFDRs
VFDR ID	VFDR-12-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.14, Section A.14.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-12-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.14, Section A.14.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-12-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. LCV-60-17 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-12.</p> <p>Ref: 51-9133191, Appendix A.14, Section A.14.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-12-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-11.</p> <p>Ref: 51-9133191, Appendix A.14, Section A.14.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	12 - ADMINISTRATION BUILDING EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-12-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-12-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-12-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-12-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-12-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
S1	SCREENHOUSE EL 225-0 - 256-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 13 - SCREENHOUSE Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Performance Goals section	No comments.
(b) Inventory Control Function	Both 11 and 12 CRD pumps are credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Also credited, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system. The DFP can be used to provide cooling to the EDG's.</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p>	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
	<p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and DFP provide cooling to the control room ventilation system • The EDG's are cooled by the DFP • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. • Path D – Train 12 positive pressure flow path 	
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA13 of a Fire Originating In FA13
The activation of a wet-pipe sprinkler system would not adversely impact equipment/components credited by the NSCA.
- Scenario 2: Suppression Affects in FA13 of a Fire Originating Outside of FA13
Based on the limited impact a fire can have on plant suppression systems, the operation of a fire suppression system outside of FA13 is not expected to impact fire suppression systems within FA13 that could have an impact on the nuclear safety performance criteria.

Actuation of a wet-pipe sprinkler system would only impact a small number of sprinklers. Therefore, significant overflow or migration of fire suppression system

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		13 - SCREENHOUSE		Required Fire Protection Systems and Features
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		
Required FP System(s)/Feature(s)	Description	Required By	Comments	
Detection	D-5013 SH 250 S1	Risk Criteria	Fire Zones: S1	
Detection	D-5023 SH 256 S1	Risk Criteria	Fire Zones: S1	
Water Suppression	SP-5033 SH 273 S1	Risk Criteria	Fire Zones: S1	
Water Suppression	SP-5033 SH 273 S1	Separation	Fire Zones: S1	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	13 - SCREENHOUSE NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Risk Evaluation
Title	Fire Risk Evaluation for Fire Area 13	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	Results of the DID assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
	No improvements required for DID.	
Safety Margin Maintained	Results of the safety margin assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. 	
	Based on the above assessment, safety margin is maintained.	

NEI 04-02 Table B-3 - Fire Area Transition

		VFDRs
Fire Area ID:	13 - SCREENHOUSE	
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-13-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-13-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-13-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-12 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-13-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-11 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-13-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-13-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-13-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-13-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-13-009	
VFDR	<p>A separation concern exists between the ESW pumps. Also, normal SW is assumed not to be available in the deterministic analysis. A repair action is required to install the required piping spool pieces for the diesel fire pump (DFP) to support the RBCLC system with cooling water and to manually start the DFP. This action is in support of the decay heat removal function.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.2 Primary Shutdown Method</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	13 - SCREENHOUSE	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-13-010	
VFDR	<p>A separation concern exists between the diesel generator cooling water pumps. Pump PMP-79-53 is adversely affected by a fire in this area due to damage to its motor power cable 161-186. Pump PMP-79-54 is adversely affected by a fire in this area due to damage to its motor power cable 171-63. Also, normal SW is assumed not to be available in the deterministic analysis. A repair action is required to install the required piping spool pieces for the diesel fire pump (DFP) to support the EDG's with cooling water and to manually start the DFP. This action is in support of the vital auxiliaries, AC and DC distribution systems.</p> <p>Ref: 51-9133191, Appendix A.15, Section A.15.2 Primary Shutdown Method</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-13-011	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
S2	DIESEL FIRE PUMP ROOM EL 256-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 14 - DIESEL FIRE PUMP ROOM EL 256-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Both 11 and 12 CRD pumps are credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Also credited, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	14 - DIESEL FIRE PUMP ROOM EL 256-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. • Path D – Train 12 positive pressure flow path 	No comments.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA14 of a Fire Originating In FA14
The activation of a wet-pipe sprinkler system would not adversely impact equipment/components credited by the NSCA.
- Scenario 2: Suppression Affects in FA14 of a Fire Originating Outside of FA14
Based on the limited impact a fire can have on plant suppression systems, the operation of a fire suppression system outside of FA14 is not expected to impact fire suppression systems within FA14 that could have an impact on the nuclear safety performance criteria.

Actuation of a wet-pipe sprinkler system would only impact a small number of sprinklers. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>EIR 51-9156616 Nine Mile Point Unit 1 Code Compliance Evaluation for NFPA 30</p> <p>Evaluation for NFPA 30, Flammable and Combustible Liquids Code, 2000 Edition Evaluation provides comparison of the plant combustible liquid storage configurations and methods to applicable NFPA 30 requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-5023 SH 256 S2	DID Criteria	Fire Zones: S2
Detection	D-5023 SH 256 S2	Separation	Fire Zones: S2
Water Suppression	SP-5033 SH 256 S2	DID Criteria	Fire Zones: S2
Water Suppression	SP-5033 SH 256 S2	Separation	Fire Zones: S2

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 14	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems (automatic sprinklers) and manual suppression from the fire brigade. Pre-fire plans are documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
Safety Margin Maintained	<p>No improvements required for DID.</p> <p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-14-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.16, Section A.16.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-14-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.16, Section A.16.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-14-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-12 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.16, Section A.16.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-14-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-11 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.16, Section A.16.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	14 - DIESEL FIRE PUMP ROOM EL 256-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-14-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-14-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-14-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-14-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-14-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
RS1A	DRUM WASTE STORAGE VAULTS EL 252-0
RS1B	ELECTRICAL EQUIPMENT ROOM EL 252-0
RS1C	GENERAL FLOOR AREA SOUTH, DRUM STORAGE ROOM EL 252-0
RS2A	TRUCK LOADING AREA, NORTH EL 261-0
RS2B	TRUCK LOADING AREA, WEST EL 261-0
RS2C	GENERAL FLOOR AREA EL 261-0
RS2D	RADWASTE CONTROL ROOM, WEST EL 261-0
RS2E	GENERAL FLOOR AREA, SOUTH EL 261-0
RS3A	GENERAL FLOOR AREA, WEST EL 281-0
RS4A	GENERAL FLOOR AREA, NORTHWEST EL 292-0
RS5B	GENERAL FLOOR AREA, SOUTHWEST EL 292-0
WD1	GENERAL AREA EI 225-0 & 229-0
WD2	GENERAL AREA EL 247-0
WD3A	GENERAL AREA EL 261-0
WD3B	RADWASTE CONTROL ROOM EL 261-0
WD3C	BALER ROOM EL 261-0
WD3D	DOW SOLIDIFICATION AREA EL 261-0
WD3E	TRUCK BAY EL 261-0
WD4	WASTE BUILDING VENTILATION AREA EL 277-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Both 11 and 12 CRD pumps are credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Also credited, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. • Path D – Train 12 positive pressure flow path 	No comments.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA15 of a Fire Originating In FA15
The activation of a water-based or Halon 1301 suppression system would not adversely impact equipment/components credited by the NSCA.
- Scenario 2: Suppression Affects in FA15 of a Fire Originating Outside of FA15
Based on the limited impact a fire can have on plant suppression systems, the operation of a fire suppression system outside of FA15 is not expected to impact fire suppression systems within FA15 that could have an impact on the nuclear safety performance criteria.

Actuation of a dry-pipe or preaction sprinkler system would only impact a small number of sprinklers. The water spray system in FA15 is designed to spray on a specific charcoal filter hazard. The Radwaste Solidification Storage Building (RSSB) is equipped with floor drains throughout the building. Water runoff from fire suppression activities in the RSSB would drain through the floor drains or down stairwells to floor drain sumps. There are 2 floor drain sumps, each having a capacity of 700 gallons that are designed to contain normal floor drain leakage. The floor drain sump pumps will automatically transfer the potentially contaminated water to the Waste Collector Tank where it is stored prior to processing by the liquid waste system.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-92-002 Inaccessible Fire Damper Operability Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-85-007 Waste Building Truck Bay West Wall Evaluation justifies method to seal conduit penetrations through the west wall of the Waste Building Truck Bay and the north wall of the Turbine Building at the 261-ft. elevation. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-6013 WD 229 WD1	DID Criteria	Fire Zones: WD1
Detection	D-6013 WD 247 WD2	DID Criteria	Fire Zones: WD2
Detection	D-6043 WD 261 WD3A	DID Criteria	Fire Zones: WD3A
Detection	D-6043 WD 261 WD3B	DID Criteria	Fire Zones: WD3B
Detection	D-6043 WD 261 WD3C	DID Criteria	Fire Zones: WD3C
Detection	D-6043 WD 261 WD3E	EEEE/LA	Fire Zones: WD3E
Detection	D-6043 WD 261 WD3E	DID Criteria	Fire Zones: WD3E
Detection	D-6063 WD 261 WD3D	DID Criteria	Fire Zones: WD3D
Detection	D-6103 WD 275 WD3A	DID Criteria	Fire Zones: WD4
Detection	D-6104 WD 277 WD4	DID Criteria	Fire Zones: WD4
Detection	D-6148 WD 261 RS2C	DID Criteria	Fire Zones: RS2C
Detection	D-6148 WD 281 RS3A	DID Criteria	Fire Zones: RS3A
Detection	D-6158 WD 281 RS2E	DID Criteria	Fire Zones: RS3A
Detection	D-6198 WD 244 RS1C	DID Criteria	Fire Zones: RS1C
Detection	DA-6063HD WD 261 WD3D	DID Criteria	Fire Zones: WD3D
Detection	DA-6128 WD 292 RS4A	DID Criteria	Fire Zones: RS4A
Detection	DA-6128FL WD 292 RS4A	DID Criteria	Fire Zones: RS4A
Detection	DA-6138 WD 292 RS4A	DID Criteria	Fire Zones: RS5B
Detection	DX-6178A/B WD 261 RS2D	DID Criteria	Fire Zones: RS2D
Detection	DX-6188A/B WD 244 RS1B	DID Criteria	Fire Zones: RS1B
Gaseous Suppression	H-6178 WD 261 RS2D	DID Criteria	Fire Zones: RS2D
Gaseous Suppression	H-6188 WD 244 RS1B	DID Criteria	Fire Zones: RS1B
Water Suppression	SP-6043 WD 261 WD3A	DID Criteria	Fire Zones: WD3A
Water Suppression	SP-6073 WD 261 WD3E	EEEE/LA	Fire Zones: WD3E
Water Suppression	SP-6073 WD 261 WD3E	DID Criteria	Fire Zones: WD3E
Water Suppression	SP-6168 WD 261 RS2A	DID Criteria	Fire Zones: RS2A
Water Suppression	SP-6168 WD 261 RS2B	DID Criteria	Fire Zones: RS2B
Water Suppression	SP-6168 WD 261 RS2C	DID Criteria	Fire Zones: RS2C
Water Suppression	WD-6128FL WD 292 RS4A	DID Criteria	Fire Zones: RS4A
Water Suppression	WP-6063 WD 261 WD3C	DID Criteria	Fire Zones: WD3A
Water Suppression	WP-6063 WD 261 WD3C	DID Criteria	Fire Zones: WD3C
Water Suppression	WP-6063 WD 261 WD3D	DID Criteria	Fire Zones: WD3D

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 15	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed fire suppression systems for partial coverage in the area credited for DID only and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
Safety Margin Maintained	<p>No improvements required for DID.</p> <p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-15-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.17, Section A.17.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-15-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.17, Section A.17.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-15-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. LCV-60-17 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-12 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.17, Section A.17.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-15-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle or close for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle or close valve VLV-60-11 depending on the chosen HSD path.</p> <p>Ref: 51-9133191, Appendix A.17, Section A.17.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

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Fire Area ID:	15 - RADWASTE AND WASTE DISPOSAL BUILDINGS EL 252-0 THRU 292-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-15-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-15-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-15-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-15-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-15-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
B1A	BATTERY BOARD ROOM 12 EL 261-0

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Fire Area ID: 16A - BATTERY BOARD ROOM 12 EL 261-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These</p>	No comments

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
	<p>distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA16A of a Fire Originating In FA16A
There are no installed fire suppression systems in FA16A that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA16A of a Fire Originating Outside of FA16A
There are no installed fire suppression systems in FA16A that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA16A, there is no flooding potential resulting from fire suppression system actuation.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2161E B1A	EEEE/LA	Fire Zones: B1A
Detection	DA-2161E B1A	DID Criteria	Fire Zones: B1A

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 16A	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	Results of the DID assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
	No improvements required for DID.	
Safety Margin Maintained	Results of the safety margin assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. 	
	Based on the above assessment, safety margin is maintained.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-16A-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.18, Section A.18.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-16A-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.18, Section A.18.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-16A-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-12.</p> <p>Ref: 51-9133191, Appendix A.18, Section A.18.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-16A-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-11.</p> <p>Ref: 51-9133191, Appendix A.18, Section A.18.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16A - BATTERY BOARD ROOM 12 EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-16A-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16A-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16A-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16A-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16A-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		16B - BATTERY BOARD ROOM 11 EL 261-0	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
B1B	BATTERY BOARD ROOM 11 EL 261-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 16B - BATTERY BOARD ROOM 11 EL 261-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These</p>	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
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distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.

2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:

- RBCLC and ESW provide cooling to the control room ventilation system
- The EDG's are cooled by the EDG Cooling Water pumps
- Chilled Water for control room ventilation

3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:

- Main control room ventilation (except for control room evacuation)
- Diesel generator rooms (fans operating and roll-up doors required open)

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:

- Path D – Train 12 positive pressure flow path

References

Document ID

51-9133191 - NMP1 Nuclear Safety Capability Assessment
 51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
 N1-FRE-F001 - Fire Risk Evaluation Report
 N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria

- Scenario 1: Suppression Affects in FA16B of a Fire Originating In FA16B
 There are no installed fire suppression systems in FA16B that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA16B of a Fire Originating Outside of FA16B
 There are no installed fire suppression systems in FA16B that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA16B, there is no flooding potential resulting from fire suppression system actuation.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2161E B1B	EEEE/LA	Fire Zones: B1B
Detection	DA-2161E B1B	DID Criteria	Fire Zones: B1B

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 16B	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	Results of the DID assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
	No improvements required for DID.	
Safety Margin Maintained	Results of the safety margin assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. 	
	Based on the above assessment, safety margin is maintained.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-16B-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.19, Section A.19.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-16B-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.19, Section A.19.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-16B-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-12.</p> <p>Ref: 51-9133191, Appendix A.19, Section A.19.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-16B-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-11.</p> <p>Ref: 51-9133191, Appendix A.19, Section A.19.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	16B - BATTERY BOARD ROOM 11 EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-16B-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16B-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-16B-007	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		17A - BATTERY ROOM 12 EL 277-291	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
B2A	BATTERY ROOM 12 EL 277-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 17A - BATTERY ROOM 12 EL 277-291 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These</p>	No Comments

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
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distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.

2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:

- RBCLC and ESW provide cooling to the control room ventilation system
- The EDG's are cooled by the EDG Cooling Water pumps
- Chilled Water for control room ventilation

3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:

- Main control room ventilation (except for control room evacuation)
- Diesel generator rooms (fans operating and roll-up doors required open)

Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:

- Path C – Train 11 positive pressure flow path.

References

Document ID

51-9133191 - NMP1 Nuclear Safety Capability Assessment
51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
N1-FRE-F001 - Fire Risk Evaluation Report
N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA17A of a Fire Originating In FA17A
There are no installed fire suppression systems in FA17A that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA17A of a Fire Originating Outside of FA17A
There are no installed fire suppression systems in FA17A that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA17A, there is no flooding potential resulting from fire suppression system actuation.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-2224 TB 277 B2A	EEEE/LA	Fire Zones: B2A
Detection	D-2224 TB 277 B2A	DID Criteria	Fire Zones: B2A

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 17A	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling- Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance- The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model- The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-17A-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant . FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.20, Section A.20.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-17A-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.20, Section A.20.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-17A-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-12.</p> <p>Ref: 51-9133191, Appendix A.20, Section A.20.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-17A-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-11.</p> <p>Ref: 51-9133191, Appendix A.20, Section A.20.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17A - BATTERY ROOM 12 EL 277-291	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-17A-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17A-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17A-007	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17A-008	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17A-009	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		17B - BATTERY ROOM 11 EL 277-291	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
B2B	BATTERY ROOM 11 EL 277-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 17B - BATTERY ROOM 11 EL 277-291 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 12 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path B is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These</p>	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
	<p>distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path 	

References	Document ID
	51-9133191 - NMP1 Nuclear Safety Capability Assessment
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
	N1-FRE-F001 - Fire Risk Evaluation Report
	N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA17B of a Fire Originating In FA17B
There are no installed fire suppression systems in FA17B that could be actuated as a result of a fire originating within the fire area.
- Scenario 2: Suppression Affects in FA17B of a Fire Originating Outside of FA17B
There are no installed fire suppression systems in FA17B that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed fire suppression systems in FA17B, there is no flooding potential resulting from fire suppression system actuation.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-12-001 Evaluation of NMP1 Appendix R Exemptions for Transition to NFPA 805</p> <p>This Engineering Evaluation provides analysis of the existing NMP1 approved exemptions from 10CFR50, Appendix R and input to NFPA-805 Licensing Amendment Request (LAR) submittal with respect to previously-approved exemptions to Appendix R to 10 CFR Part 50. This document provides the evaluation, analysis and basis to demonstrate that current plant configuration and NMP1 Fire Protection Program complies with the requirements of 10CFR50.48(c), NFPA 805. The evaluation documents the similar requirements of 10CFR50, Appendix R and NFPA 805. This evaluation demonstrates that the current plant configuration and fire protection features comply with the 10CFR50.48(c) licensing basis.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-2224 TB 277 B2B	EEEE/LA	Fire Zones: B2B
Detection	D-2224 TB 277 B2B	DID Criteria	Fire Zones: B2B

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 17B	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	Results of the DID assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
	No improvements required for DID.	
Safety Margin Maintained	Results of the safety margin assessment are summarized as follows:	
	<ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. 	
	Based on the above assessment, safety margin is maintained.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-17B-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant . FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.21, Section A.21.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-17B-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. BV-60-13 may fail closed on loss of instrument air. Valve is required open for hot shutdown to support decay heat removal. A Recovery Action may be required to open valve BV-60-13.</p> <p>Ref: 51-9133191, Appendix A.21, Section A.21.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.</p>	
VFDR ID	VFDR-17B-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-17 may fail open on loss of instrument air. Valve is required to close for hot shutdown to support decay heat removal. A Recovery Action may be required to close valve VLV-60-12.</p> <p>Ref: 51-9133191, Appendix A.21, Section A.21.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-17B-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air for a fire in any fire area of the plant. LCV-60-18 may fail open on loss of instrument air. Valve is required to throttle for hot shutdown to support decay heat removal. A Recovery Action may be required to throttle valve VLV-60-11.</p> <p>Ref: 51-9133191, Appendix A.21, Section A.21.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	17B - BATTERY ROOM 11 EL 277-291	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-17B-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17B-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-17B-007	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D3	EDG 102 CONTROL CABLE MISSILE ENCLOSURE EL 271-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues. Path D is credited via the use of the Train 12 Systems. Train 12 ERVs are opened and CS is used to flood the vessel.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is credited via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Torus temperature • Drywell pressure • Drywell temperature 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>The Train 12 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.

References	Document ID
	51-9133191 - NMP1 Nuclear Safety Capability Assessment
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
	N1-FRE-F001 - Fire Risk Evaluation Report
	N1-FSS-F001 - Detailed Fire Modeling

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Supression Affects in FA18 of a Fire Originating in FA18

There are no installed fire suppression systems in FA18 that could be actuated as a result of a fire originating within the fire area.

- Scenario 2: Supression Affects in FA18 of a Fire Originating Outside of FA18

There are no installed fire suppression systems in FA18 that could be actuated as a result of a fire originating outside of the fire area.

Since there are no installed water-based fire suppression systems in FA18, there is no flooding potential resulting from fire suppression systems.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-95-002 Deviations to Appendix R 3-Hour Fire Barriers Evaluation justifies not testing 3-hour rated Promat-H ERFBS in accordance with GL 86-10, Supplement 1 fire test methodology and acceptance criteria and minor differences between installed ERFBS and HVAC duct fire barriers from tested configurations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	Nine Mile Point Unit 1 USFAR Safety Evaluation 83-02 Diesel Generator 103 Control Cable Protection This modification provided a 3-hr rated fire barrier around the conduits associated with DG 103. The evaluation concludes that the modification brings the area into compliance with the separation requirements of Appendix R, Section III.G.2. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	D-2151 DG 275 D3	EEEE/LA	Fire Zones: D3
Detection	D-2151 DG 275 D3	DID Criteria	Fire Zones: D3
ERFBS	Promat-H enclosure	Separation	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 18	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. Proposed modifications were also credited to reduce the risk associated with the following VFDRs: VFDR-18-002 and VFDR-18-010.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-18-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-18-002	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting MSIV's IV-01-02 and IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the control circuits of inboard MSIV IV-01-02 and outboard MSIV IV-01-04 leaves the Main Steam line open. Inboard MSIV IV-01-02 may remain open due to an internal wire-to-wire short or a ground of cable 171-50. An internal wire-to-wire short to cable 1F-44 results in preventing closure of series outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-18-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system vent valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable or an internal wire-to-wire hot short on cable 1K-157 can maintain EC system vent valves IV-05-04R and IV-05-12 open. A cable-to-cable or an internal wire-to-wire hot short on cable 1K-31 can maintain EC system vent valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-18-004	
VFDR	<p>A separation concern exists for a postulated fire in this area between EC system drain valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A single cable-to-cable hot short on cable 1K-117 can maintain EC system drain valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15 until local action is taken to close manual valve FCV-39-16.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-18-005	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system drain valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-111 can maintain EC system drain valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15 until local action is taken to close manual valve FCV 39-15.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-18-006	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-18-007	
VFDR	<p>This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.</p>	
Disposition		
VFDR ID	VFDR-18-008	
VFDR	<p>A deterministic assumption assumes a loss of instrument air. A loss of air fails EC Level Control Valves, LCV-60-17 & LCV-60-18, open. This could deplete the inventory in the Emergency Condenser Make-Up Water Tanks prior to the eight hours required for the EC's to remove decay heat. Local operator action to manually throttle VLV-60-11, close VLV60-12, and open/close BV-60-13 as required ensures availability of make-up inventory to EC's 121 & 122. A loss of instrument air prevents closure of CTS discharge header isolation valves IV-80-16 and IV 80-36.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	18 - EMERGENCY DIESEL GENERATOR 102 MISSILE ENCLOSURE EL 271	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-18-009	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-18-010	
VFDR	<p>A separation concern exists for the credited EDG EG-103 ventilating fans BLWROT-209-05 and BLRWOT-06 and for Door 34 proper operation due to a cable-to-cable short on the following cables: Fire damage to cable 171-75; or, an external cable-to-cable short on cable 11DV-57 or 11DV-57B or 11DV-58 stops credited EG 103 ventilation fans BLWROT-209-05 and BLWROT-209-06 and closes Door 34. Fire damage to cable 171-71 or 171-72 stops BLWROT-209-05. Fire damage to cable 171-73 or 171-74 stops BLWROT-209-06. Fire damage to cable 171-75 can stop both BLWROT-209-05 and BLWROT-209-06. Fire damage to cable 171-81 prevents opening Door 34.</p> <p>Ref: 51-9133191, Appendix A.22, Section A.22.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a plant modification to help reduce the delta risk. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-18-011	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D1A	EDG 103 FOUNDATION ROOM EL 250-0
D2A	EDG 103 ROOM EL 261-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is credited via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems. Alternatively, Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal and Train 12 Support Systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	No comments.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA19 of a Fire Originating in FA19**

It is not likely that activation as a result of a fire in the area could have an impact on the nuclear safety performance criteria.

- **Scenario 2: Suppression Affects in FA19 of a Fire Originating Outside of FA19**

Based on the limited impact a fire can have on plant suppression systems, operation of fire suppression systems outside of FA19 would not be expected to cause activation of a system within FA19 that could have an impact on the nuclear safety performance criteria. Additionally, based on the fact that the CO2 system in FA19 is mechanically isolated, operation of fire suppression systems outside of FA19 would not be expected to cause activation of the CO2 system within FA19 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>EIR 51-9156616 Nine Mile Point Unit 1 Code Compliance Evaluation for NFPA 30</p> <p>Evaluation for NFPA 30, Flammable and Combustible Liquids Code, 2000 Edition Evaluation provides comparison of the plant combustible liquid storage configurations and methods to applicable NFPA 30 requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-003 Excessive Door Gap at Floor for Fire Doors D-84, D-108, D-111, D-245, and D-246</p> <p>Evaluation determines adequacy of gaps under fire doors that exceed those allowed by NFPA 80. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2041S DG 250 D1A	EEEE/LA	Fire Zones: D1A
Detection	DA-2041S DG 250 D1A	DID Criteria	Fire Zones: D1A
Detection	DA-2151 DG 261 D2A	EEEE/LA	Fire Zones: D2A
Detection	DA-2151 DG 261 D2A	Risk Criteria	Fire Zones: D2A
Detection	DX-2151A/B DG 261 D2A	EEEE/LA	Fire Zones: D2A
Detection	DX-2151A/B DG 261 D2A	Risk Criteria	Fire Zones: D2A
Gaseous Suppression	C-2151 DG 261 D2A	Risk Criteria	Fire Zones: D2A
Water Suppression	WP-2041 DG 250 D1A	EEEE/LA	Fire Zones: D1A
Water Suppression	WP-2041 DG 250 D1A	DID Criteria	Fire Zones: D1A

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 19	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, and manual suppression from the fire brigade. A manually operated CO2 system is available but credited only for DID. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-19-001	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.23, Section A.23.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-19-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.23, Section A.23.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-19-003	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-19-004	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	19 - EMERGENCY DIESEL GENERATOR 103 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-19-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-19-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-19-007	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D1C	EDG 103 CABLE ROUTING AREA EL 250-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues. The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal. The Train 11, 125VDC System is credited to support shutdown for the duration of Battery 11. Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal. The Train 12, 125VDC System is credited to support shutdown for the duration of Battery 12.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Drywell pressure • Drywell temperature 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA20 of a Fire Originating in FA20

The activation of a suppression system would not adversely impact equipment/components credited by the NSCA.

- Scenario 2: Suppression Affects in FA20 of a Fire Originating Outside of FA20

Based on the limited impact a fire can have on the plant suppression systems, the operation of fire suppression systems outside of FA20 would not be expected to cause activation of a fire protection system within FA20 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews	
Summary	Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID	FPEE 0-92-002 Inaccessible Fire Damper Operability	
Summary	Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8	
Summary	Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID	FPEE 1-91-006 Interior Conduit Sealing Walkdowns	
Summary	Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2041N DG 250 D1C	DID Criteria	Fire Zones: D1C
Water Suppression	WP-2041 DG 250 D1C	DID Criteria	Fire Zones: D1C

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 20	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, fixed suppression credited for DID only and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-20-001	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-20-002	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.24, Section A.24.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-20-003	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18.</p> <p>Ref: 51-9133191, Appendix A.24, Section A.24.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-20-004	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	20 - DIESEL GENERATOR ENCLOSED CABLEWAY EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-20-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-20-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-20-007	
VFDR	<p>A separation concern exists for a postulated fire in the area for the Power Board 102 from the Emergency Diesel Generator EG-EDG102. The power feed cable 102-33 from EDG 102 to PB 102 is protected in this area by an underrated fire barrier. Therefore, the availability of EDG 102 cannot be assumed. The power feed cable 103-33 from EDG 103 to PB 103 is also in this fire area and unprotected. The result is no power available to either vital PB.</p> <p>Ref: 51-9133191, Appendix A.24, Section A.24.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-20-008	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves, and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D1D	ROOM BELOW PB'S 102 & 103 EL 250-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOV's.	No comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues. The Train 11 CRD pump is credited to provide makeup to the RPV.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal. Train 11, 125VDC system is credited to support shutdown for the duration of Battery 11. Path B HSD is achieved via use of ECs 121 & 122 for Decay Heat Removal. The Train 12, 125VDC system is credited to support shutdown for the duration of Battery 12.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Torus temperature • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path A is generally supported by the Train 11 AC and DC power systems. Some components in Path A systems are powered by the Train 12 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path. 	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
References	Document ID	
	<p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA21 of a Fire Originating in FA21**
The activation of a suppression system would not adversely impact equipment/components credited by the NSCA.
- **Scenario 2: Suppression Affects in FA21 of a Fire Originating Outside of FA21**
Based on the limited impact a fire can have on the plant suppression systems, the operation of fire suppression systems outside of FA21 would not be expected to cause activation of a fire protection system within FA21 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2041N DG 250 D1D	DID Criteria	Fire Zones: D1D
Water Suppression	WP-2041 DG 250 D1D	DID Criteria	Fire Zones: D1D

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Risk Evaluation
Title	Fire Risk Evaluation for Fire Area 21	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1- Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2- The fire area includes fire detection systems, fixed fire suppression systems (credited for DID only) and manual suppression from the fire brigade. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
Safety Margin Maintained	<p>No improvements required for DID.</p> <p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-21-001	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-21-002	
VFDR	A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-21-003	
VFDR	A deterministic assumption exists for potential loss of instrument air. FCV-44-149 may fail closed on loss of instrument air. Valve is required open to support inventory control. A Recovery Action may be required to open valve VLV-28-18. Ref: 51-9133191, Appendix A.25, Section A.25.6 Instrument Air	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. The delta risk was qualitatively evaluated as insignificant. No recovery action was credited to resolve the VFDR.	
VFDR ID	VFDR-21-004	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	21 - BELOW POWERBOARDS 102 & 103 EL 250-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-21-005	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-21-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-21-007	
VFDR	<p>A separation concern exists for a postulated fire in the area for the Power Board 102. The power feeds from Emergency Diesel Generator EG-EDG102 (cable 102-33) and Power Board 101 (Cable 101-5) are protected in this area by an underrated rated fire barrier. Therefore, the availability of EDG 102 cannot be assumed. The power feed cable 103-33 from EDG 103 to PB 103 is also in this fire area and unprotected. The result is no power available to either vital PB.</p> <p>Ref: 51-9133191, Appendix A.25, Section A.25.4 Separation Concerns</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed. No recovery action was credited to resolve the VFDR. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-21-008	
VFDR	The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D1B	EDG 102 FOUNDATION ROOM EL 250-0
D2B	EDG 102 ROOM EL 261-0

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues. Path D is credited via the use of the Train 12 Systems. Train 12 ERVs are opened and CS is used to flood the vessel.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is credited via use of ECs 121 & 122 for Decay Heat Removal.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Emergency Condenser level • Torus level • Torus temperature • Drywell pressure • Drywell temperature 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path B for HSD is generally supported by Train 12 DC power systems.</p> <p>Path D for CSD is generally supported by the Train 12 AC and DC power systems. Some components in Path B systems are powered by the Train 11 AC and/or DC power system.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path 	No comments.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- **Scenario 1: Suppression Affects in FA22 of a Fire Originating In FA22**

It is not likely that activation as a result of a fire in the area could have an impact on the nuclear safety performance criteria.

- **Scenario 2: Suppression Affects in FA22 of a Fire Originating Outside of FA22**

Based on the limited impact a fire can have on plant suppression systems, operation of fire suppression systems outside of FA22 would not be expected to cause activation of a system within FA22 that could have an impact on the nuclear safety performance criteria. Additionally, based on the fact that the CO2 system in FA22 is mechanically isolated, operation of fire suppression systems outside of FA22 would not be expected to cause activation of the CO2 system within FA22 that could have an impact on the nuclear safety performance criteria.

Preaction sprinkler systems require both the fusing of a sprinkler head and the opening of the preaction valve as a result of actuation of a heat or smoke detector. Therefore, significant overflow or migration of fire suppression system water discharge would not be expected to occur and adversely affect components or equipment credited in the NSCA in an adjacent or otherwise unaffected area.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2 Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 0-92-002 Inaccessible Fire Damper Operability Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8 Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-003 Excessive Door Gap at Floor for Fire Doors D-84, D-108, D-111, D-245, and D-246 Evaluation determines adequacy of gaps under fire doors that exceed those allowed by NFPA 80. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	
Engineering Evaluation ID Summary	FPEE 1-91-006 Interior Conduit Sealing Walkdowns Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 250-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DA-2041N DG 250 D1B	EEEE/LA	Fire Zones: D1B
Detection	DA-2041N DG 250 D1B	DID Criteria	Fire Zones: D1B
Detection	DA-2141 DG 261 D2B	EEEE/LA	Fire Zones: D2B
Detection	DA-2141 DG 261 D2B	Risk Criteria	Fire Zones: D2B
Detection	DX-2141A/B DG 261 D2B	EEEE/LA	Fire Zones: D2B
Detection	DX-2141A/B DG 261 D2B	Risk Criteria	Fire Zones: D2B
Gaseous Suppression	C-2141 DG 261 D2B	Risk Criteria	Fire Zones: D2B
Water Suppression	WP-2041 DG 250 D1B	EEEE/LA	Fire Zones: D1B
Water Suppression	WP-2041 DG 250 D1B	DID Criteria	Fire Zones: D1B

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 22	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. A proposed modification was also credited to reduce the risk associated with VFDR-22-002.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	<p>Results of the defense in DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, a manual CO2 system (credited for DID only) and manual suppression from the fire brigade fixed fire suppression systems for partial coverage. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-22-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-22-002	
VFDR	A separation concern exists for a postulated fire in this area impacting MSIV's IV-01-02 and IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the control circuits of MSIV's IV-01-02 and IV-01-04 leaves the MS line open. MSIV IV-01-02 may remain open due to an internal wire-to-wire short or a ground of cable 171-50. An internal wire-to-wire short to cable 1F-44 results in preventing closure of series MSIV IV-01-04. Ref: 51-9133191, Appendix A.26, Section A.26.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.	
VFDR ID	VFDR-22-003	
VFDR	A separation concern exists for a postulated fire in this area impacting the EC system vent valves IV-05-04R, IV-05-12, IV-05-02R, and IV-05-03R. These valves are required closed for HSD to support inventory control. A cable-to-cable or an internal wire-to-wire hot short on cable 1K-157 can maintain the EC system vent valves IV-05-04R and IV-05-12 open. A cable-to-cable or an internal wire-to-wire hot short on cable 1K-31 can maintain the EC system vent valves IV-05-02R and IV-05-03R open. The multiple spurious combination results in an inventory loss to the main steam line. Ref: 51-9133191, Appendix A.26, Section A.26.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-22-004	
VFDR	A separation concern exists for a postulated fire in this area impacting the EC system drain valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A cable-to-cable hot short on cable 1K-117 can maintain the EC system drain valves IV-39-13R and IV-39-14R open, resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15. Ref: 51-9133191, Appendix A.26, Section A.26.4 Separation Concerns	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	22 - EMERGENCY DIESEL GENERATOR 102 FOUNDATION ROOM EL 250-0 AND DIESEL GENERATOR ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-22-005	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-22-006	
VFDR	This VFDR was eliminated from further consideration due to the redefinition of safe and stable conditions made in response to Safe Shutdown/Circuit Analysis RAI 01.	
Disposition		
VFDR ID	VFDR-22-007	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser make up tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204 and NMP1 UFSAR Chapter V, Section E, Dated October 2001, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.26, Section A.26.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-22-008	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

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Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Zone ID	Description
D2C	POWER BOARD 102 ROOM EL 261-0

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Fire Area ID: 23 - POWER BOARD 102 ROOM EL 261-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No Comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path B HSD is credited via use of ECs 121 & 122 for Decay Heat Removal and Train 12 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Torus temperature • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	23 - POWER BOARD 102 ROOM EL 261-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Performance Goals
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution System</p> <p>Path B HSD is generally supported by the Train 12 DC power systems.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • RBCLC and ESW provide cooling to the control room ventilation system • The EDG's are cooled by the EDG Cooling Water pumps • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation (except for control room evacuation) • Diesel generator rooms (fans operating and roll-up doors required open) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path D – Train 12 positive pressure flow path. 	No comments.
References	Document ID	
	<p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA23 of a Fire Originating In FA23

It is not likely that activation as a result of a fire in the area could have an impact on the nuclear safety performance criteria.

- Scenario 2: Suppression Affects in FA23 of a Fire Originating Outside of FA23

Based on the limited impact a fire can have on plant suppression systems and the fact that the CO2 system in FA23 is mechanically isolated, operation of fire suppression systems outside of FA23 would not be expected to cause activation of the CO2 system within FA23 that could have an impact on the nuclear safety performance criteria.

Since there are no installed water-based fire suppression systems in FA23, there is no flooding potential resulting from fire suppression system actuation.

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Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-003 Excessive Door Gap at Floor for Fire Doors D-84, D-108, D-111, D-245, and D-246</p> <p>Evaluation determines adequacy of gaps under fire doors that exceed those allowed by NFPA 80. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

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Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DX-2123A/B DG 261 D2C	EEEE/LA	Fire Zones: D2C
Detection	DX-2123A/B DG 261 D2C	Risk Criteria	Fire Zones: D2C
Gaseous Suppression	C-2123 DG 261 D2C	DID Criteria	Fire Zones: D2C

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Title	Fire Risk Evaluation for Fire Area 23	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. A proposed modification was also credited to reduce the risk associated with VFDR-23-002.	
Δ CDF	██████████	
Δ LERF	██████████	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, a manual CO2 system (credited for DID only) and manual suppression from the fire brigade and fixed fire suppression systems for partial coverage. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. <p>No improvements required for DID.</p>	
Safety Margin Maintained	<p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-23-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-23-002	
VFDR	<p>A separation concern exists for a postulated fire in this area between MSIV's IV-01-02 and IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the control circuits of MSIV's IV-01-02 and IV-01-04 leaves the MS line open. MSIV IV-01-02 can suffer damage to its control circuit leaving the valve open. An external cable-to-cable short to cable 1F-44 results in SV 20-1/01-04 remaining energized preventing closure of series MSIV IV-01-04. The inventory loss continues until local manual action is taken to close IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.27, Section A.27.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-23-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system drain valves IV-39-13R and IV-39-14R. These valves are required closed for HSD to support inventory control. A single cable-to-cable hot short on cable 1K-117 can maintain EC system drain valves IV-39-13R and IV-39-14R open resulting in an inventory loss to the High Pressure Section of the Condenser at penetration 15.</p> <p>Ref: 51-9133191, Appendix A.27, Section A.27.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-23-004	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system vent valves IV-05-02R, IV-05-03R, IV-05-04R, and IV-05-12. These valves are required closed for HSD to support inventory control. Internal wire-to-wire shorts on cable 1K-31 can maintain EC system vent valves IV-05-02R and IV-05-03R open. Internal wire-to-wire shorts on cable 1K-157 can maintain EC system vent valves IV-05-04R and IV-05-12 open. The result is an open vent line from EC121 and EC122 to a main steam line.</p> <p>Ref: 51-9133191, Appendix A.27, Section A.27.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	23 - POWER BOARD 102 ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-23-005	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-23-006	
VFDR	<p>A deterministic assumption assumes a potential loss of instrument air for a fire in any area of the plant. A loss of air fails EC Level Control Valves, LCV-60-17 & LCV-60-18, open. This could deplete the inventory in the Emergency Condenser Make-Up Water Tanks prior to the eight hours required for the EC's to remove decay heat. Local operator action to manually throttle VLV-60-11, close VLV-60-12, and open/close BV-60-13 as required ensures availability of make-up inventory for EC's 121 & 122.</p> <p>Ref: 51-9133191, Appendix A.27, Section A.27.6 Instrument Air</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	
VFDR ID	VFDR-23-007	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-23-008	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		24 - POWER BOARD 103 ROOM EL 261-0	Fire Area Definition
Compliance Basis:		NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Fire Zone ID	Description		
D2D	POWER BOARD 103 ROOM EL 261-0		

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: 24 - POWER BOARD 103 ROOM EL 261-0 Compliance Basis: NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in Control Room which actuate Backup Scram SOVs.	No comments.
(b) Inventory Control Function	Reactor vessel make-up is required 8 hours after operation of the ECs ensues.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(c) Pressure Control	Pressure Control for HSD is accomplished by ensuring the ERVs are maintained closed while utilizing systems associated with the credited Inventory Control and Decay Heat Removal functions for HSD.	No comments.
(d) Decay Heat Removal Function	Path A HSD is achieved via use of ECs 111 & 112 for Decay Heat Removal and Train 11 support systems.	Variance from the deterministic requirements of NFPA 805 exists for this performance goal; Fire Risk Evaluation required.
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor coolant level • Reactor coolant pressure • Reactor coolant temperature • Emergency Diesel Generator parameters <ul style="list-style-type: none"> ◦ a) Generator Frequency or Speed, ◦ b) Generator Voltage and Current, ◦ c) Bypass Fuel Flow Glass, ◦ d) Engine Coolant Inlet Temperature, ◦ e) Fuel Oil Pressure, ◦ f) Lube Oil Temperature, ◦ g) Lube Oil Pressure, ◦ h) Raw Water Strainer D/P, ◦ i) Fuel Oil Day Tank Level, ◦ j) Fuel Oil Storage Tank Level • Torus level • Torus temperature • Drywell pressure • Drywell temperature • Emergency Condenser level 	No comments.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Performance Goal	Method of Accomplishment	Comments
(f) Vital Auxiliaries	<p>1) AC and DC Distribution Systems</p> <p>The Train 11 emergency diesel generator is credited for supplying power for the shutdown process when AC power is required to operate shutdown equipment.</p> <p>The vital 125V DC distribution system is credited to support shutdown as it supplies control power to various 125V DC control panels including switchgear breaker controls. The 125V DC distribution panels may also supply power to the 120V AC reactor protection distribution panels via static inverters. These distribution panels supply power for instrumentation necessary to provide process monitoring functions. For fire events that result in an interruption of power to the AC electrical bus, the station batteries supply any required control power during the interim time period required for the diesel generator to become operational. Once the diesel is operational, the 125V DC distribution system can be powered from the diesel through the battery chargers.</p> <p>2) Cooling Systems - Various cooling water systems to support safe shutdown system operation:</p> <ul style="list-style-type: none"> • The EDG is cooled by the EDG Cooling Water pump • Chilled Water for control room ventilation <p>3) HVAC Systems - HVAC Systems required to support post-fire shutdown are:</p> <ul style="list-style-type: none"> • Main control room ventilation • Diesel generator rooms (fans and roll-up doors) <p>Paths developed for the control room ventilation system do not necessarily match the paths for process systems. The paths of the ventilation systems that are credited are as follows:</p> <ul style="list-style-type: none"> • Path C – Train 11 positive pressure flow path 	No comments.
References	<p>Document ID</p> <p>51-9133191 - NMP1 Nuclear Safety Capability Assessment</p> <p>51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis</p> <p>N1-FRE-F001 - Fire Risk Evaluation Report</p> <p>N1-FSS-F001 - Detailed Fire Modeling</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

Fire suppression activities will have no impact on achieving the nuclear safety performance criteria.

- Scenario 1: Suppression Affects in FA24 of a Fire Originating In FA24

It is not likely that activation as a result of a fire in the area could have an impact on the nuclear safety performance criteria.

- Scenario 2: Suppression Affects in FA24 of a Fire Originating Outside of FA24

Based on the limited impact a fire can have on plant suppression systems and the fact that the CO2 system in FA24 is mechanically isolated, operation of fire suppression systems outside of FA24 would not be expected to cause activation of the CO2 system within FA24 that could have an impact on the nuclear safety performance criteria.

Since there are no installed water-based fire suppression systems in FA24, there is no flooding potential resulting from fire suppression system actuation.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
Engineering Evaluation ID Summary	<p>EIR 51-9077284 Nine Mile Point Unit 1 Code Compliance Reviews</p> <p>Evaluation provides comparison of the plant fire protection systems and design features to applicable NFPA 10, 12, 12A, 13, 14, 15, 20, 24, 72A, and 72E requirements. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-03-002 Evaluation of Interim Action To Prevent Personnel Injury From CO2</p> <p>Evaluation justifies use of temporarily placing automatic CO2 systems in alarm-only mode due to adverse trend of unplanned system actuations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 0-92-002 Inaccessible Fire Damper Operability</p> <p>Evaluation provides exception for testing fire dampers deemed inaccessible by extending testing to the next test interval provided previous test was satisfactory and damper has not been modified. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-04-002 Evaluation of Fire Effects on Current Transformers and Instrument Sensing Lines</p> <p>The analysis provided in this FPEE demonstrates that a postulated fire at NMP1 and the resultant fire effects on Current Transformers and instrument tubing lines will not affect the existing assumptions in the NMP1's present Appendix R Safe Shutdown Analysis. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-90-020 NMP-1 Fire-Rated Penetration Seal Detail FS-8</p> <p>Evaluation determines the acceptability of concrete penetration seals having a 6-1/2 in. depth versus the 8 in. depth tested by NMPC. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-003 Excessive Door Gap at Floor for Fire Doors D-84, D-108, D-111, D-245, and D-246</p> <p>Evaluation determines adequacy of gaps under fire doors that exceed those allowed by NFPA 80. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	
Engineering Evaluation ID Summary	<p>FPEE 1-91-006 Interior Conduit Sealing Walkdowns</p> <p>Evaluation documents plant-wide walkdown conducted to determine adequacy of internal conduit seal installations. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	Required Fire Protection Systems and Features
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	

Required FP System(s)/Feature(s)	Description	Required By	Comments
Detection	DX-2113A/B DG 261 D2D	EEEE/LA	Fire Zones: D2D
Detection	DX-2113A/B DG 261 D2D	Risk Criteria	Fire Zones: D2D
Gaseous Suppression	C-2113 DG 261 D2D	DID Criteria	Fire Zones: D2D

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: Compliance Basis:	24 - POWER BOARD 103 ROOM EL 261-0 NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	Fire Risk Evaluation
Title	Fire Risk Evaluation for Fire Area 24	
Risk Summary	A risk-informed, performance-based FRE was performed to address the VFDRs in this fire area. The acceptability of these VFDRs was based on 1) the measured change in CDF and LERF, which were within the acceptance guidelines given in Figures 4 and 5 of Regulatory Guide 1.174, and 2) the maintenance of DID and safety margin. The FRE determined that the applicable risk, DID and safety margin criteria were satisfied. A proposed modification was also credited to reduce the risk associated with VFDR-24-002.	
Δ CDF	[REDACTED]	
Δ LERF	[REDACTED]	
DID Maintained	<p>Results of the DID assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Echelon 1 - Combustible control implemented via Procedure GAP-INV-02. Hot work control implemented via Procedure GAP-FPP-02. • Echelon 2 - The fire area includes fire detection systems, a manual CO2 system (credited for DID only) and manual suppression from the fire brigade and fixed fire suppression systems for partial coverage. Pre-fire plans documented in N1-PFP-0101. • Echelon 3 - Walls, floors, ceilings, structural elements and penetration seals are rated or evaluated as adequate for the hazard. Guidance provided to operations personnel detailing the required success path(s), for applicable recovery actions. 	
Safety Margin Maintained	<p>No improvements required for DID.</p> <p>Results of the safety margin assessment are summarized as follows:</p> <ul style="list-style-type: none"> • Fire Modeling - Conservatism in the analysis ensure safety margins are maintained based on the fire modeling process/approach, fire modeling inputs, fire modeling tools as described in N1-FRE-F001 and the corresponding Fire PRA notebooks. • Plant System Performance - The safety margins inherent in the analyses for the plant design basis events are captured in the internal event PRA notebooks. See additional discussion related to this fire area in N1-FRE-F001. • PRA Logic Model - The Fire PRA was developed based on the internal events model which includes a success criteria consistent with design basis. The Fire PRA follows industry guidelines consistent with the Fire PRA peer review process. <p>Based on the above assessment, safety margin is maintained.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-24-001	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-24-002	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting MSIV's IV-01-02 and IV-01-04. These valves are required closed for HSD to support inventory control. Fire damage to the control circuits of inboard MSIV IV-01-02 and outboard MSIV IV-01-04 leaves the Main Steam line open. Inboard MSIV IV-01-02 may remain open either due to fire damage to cable 171-50, an internal wire-to-wire short or ground, or a loss of Train 12 power. An internal wire-to-wire short to cable 1F-44 results in preventing closure of series outboard MSIV IV-01-04.</p> <p>Ref: 51-9133191, Appendix A.28, Section A.28.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for plant modification and recovery action to help reduce the delta risk.</p>	
VFDR ID	VFDR-24-003	
VFDR	<p>A separation concern exists for a postulated fire in this area impacting EC system drain valves IV-39-11R and IV-39-12R. These valves are required closed for HSD to support inventory control. A single cable-to-cable hot short on cable 1K-111 can maintain EC system drain valves IV-39-11R and IV-39-12R open resulting in an inventory loss to the Main Steam Drain Line, until manual action is taken to close manual valve FCV-39-15.</p> <p>Ref: 51-9133191, Appendix A.28, Section A.28.4 Separation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-24-004	
VFDR	<p>A deterministic assumption exists for potential loss of instrument air. A loss of instrument air could fail the decay heat removal capability by limiting the availability of the emergency condenser make up tanks from the required eight hours to some time frame less than 8 hours. LCV-60-17 and LCV-60-18 fail open on loss of instrument air. This failure causes a run out concern for the inventory contained in the emergency condenser Make up Water Tanks. In addition, BV-60-13, which provides a cross tie between the EC Make up Tanks, fails closed on loss of air. Based on NMP1 design bases document, SDBD-204, the level control valves and the cross tie valve are required to be functional to meet the required eight hours.</p> <p>Ref: 51-9133191, Appendix A.28, Section A.28.6 Instrument Air</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	24 - POWER BOARD 103 ROOM EL 261-0	VFDRs
Compliance Basis:	NFPA 805 Section 4.2.4.2 - Performance-Based Approach - Fire Risk Evaluation with simplifying deterministic assumptions	
VFDR ID	VFDR-24-005	
VFDR	Number intentionally left blank	
Disposition		
VFDR ID	VFDR-24-006	
VFDR	<p>A spurious actuation concern exists for potential fire in this area for CTSRW Pump 93-04. If Train 12 power is available, Path D CTSRW may spuriously actuate. CTSRW Pump PMP-93-04 can spuriously start due to an internal wire-to-wire short on cable 103-22. In addition, an internal wire-to-wire short on cable 103-106 opens valve FCV-93-73 to connect the CTSRW system to the CTS header resulting in an increasing Torus water level. The increase in Torus water level will lead the Plant operators to enter the EOPs and will cause a deviation from the credited safe shutdown strategy.</p> <p>Ref: 51-9133191, Appendix A.28, Section A.28.5 Spurious Actuation Concerns</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	
VFDR ID	VFDR-24-007	
VFDR	<p>The Emergency Condensers (ECs) are credited for establishing long-term decay heat removal to maintain plant HSD conditions. After a period of 8 hours following the initiation of plant shutdown, inventory makeup from the Fire Protection Water System to the EC makeup water tanks is necessary to assure continued availability of the EC System. Valves 100-68 (loop 111 and 112) and 100-69 (loop 121 and 122) are normally closed manual valves , and are both required open to periodically refill the EC condenser makeup tanks. Additionally, availability of the Diesel Driven Fire Pump (DFP) from the Main Control Room is not assured.</p>	
Disposition	<p>This VFDR was evaluated for compliance using the performance-based approach of NFPA 805, Section 4.2.4.2. A delta risk evaluation was performed, with credit taken for a recovery action to help reduce the delta risk. No plant modification was credited to provide a specific delta risk reduction for the VFDR.</p>	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	EXT - EXTERNAL TO PLANT	Fire Area Definition
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	

Fire Zone ID	Description
EXT	EXTERNAL TO PLANT

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID: EXT - EXTERNAL TO PLANT Compliance Basis: NFPA 805 Section 4.2.3.1 - Deterministic Approach		Performance Goals
Performance Goal	Method of Accomplishment	Comments
(a) Reactivity Control Function	Manual Scram is credited via the push buttons in the Control Room, which actuate Backup Scram SOVs.	
(b) Inventory Control Function	All trains of Inventory Control capabilities remain available including Core Spray, Containment Spray Raw Water, Control Rod Drive, and Diesel Fire Pump.	
(c) Pressure Control	Pressure Control is accomplished by ensuring the ERVs are maintained closed while utilizing inventory control makeup and decay heat removal systems.	
(d) Decay Heat Removal Function	Path A is credited via operation of the ECs 111 and 112 for decay heat removal and Train 11 support systems. Alternatively, Path B can be credited via the use of ECs 121 and 122 for decay heat removal and Train 12 support systems.	
(e) Process Monitoring Function	<p>The following process monitoring functions are provided to support post-fire shutdown:</p> <ul style="list-style-type: none"> • Reactor vessel level • Reactor vessel pressure • Reactor coolant temperature • Emergency Diesel Generator parameters • Torus level • Drywell pressure and temperature • Emergency Condenser level • Containment Spray water temperature and pump discharge pressure 	
(f) Vital Auxiliaries	<p>All support systems remain available as follows:</p> <ol style="list-style-type: none"> 1. Onsite Electrical Distribution System (AC and DC) - Both Trains 11 and 12 remain available 2. Cooling Systems - All Trains of cooling systems to support safe shutdown remain available <ul style="list-style-type: none"> • Reactor Building Closed Loop Cooling (RBCLC) and Emergency Service Water (ESW) provide cooling to control room ventilation system and Shutdown Cooling heat exchangers • The EDGs are cooled by the EDG cooling water pumps • Chilled water for control room ventilation 3. HVAC Systems - All Trains of HVAC Systems required to support safe shutdown remain available as follows: <ul style="list-style-type: none"> • Main control room ventilation • Diesel Generator rooms (fans operating and roll-up doors required open) 	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	EXT - EXTERNAL TO PLANT	Performance Goals
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	

References	Document ID
	51-9133191 - NMP1 Nuclear Safety Capability Assessment
	51-9175332-000 - NMP-1 NFPA 805 Fire Suppression Effects Analysis
	N1-FSS-F001 - Detailed Fire Modeling

Fire Suppression Activities Effect on Nuclear Safety Performance Criteria

The Yard area contains the oil filled transformers which are located in the southwest corner of the Turbine Building. The transformers are each protected by an automatically-initiated water spray system. The Turbine Building wall at this location is 8-inch precast concrete up to elevation 285'. The metal wall above elevation 285' is provided with a manually initiated water curtain system. A runoff from suppression system actuation is initially contained with curbs and a basin around the transformer area and is then directed to the waste water treatment facility. Any actuation of the fire suppression system will not affect the safe shutdown equipment located in the adjacent Turbine Building or overall plant safe shutdown capability.

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	EXT - EXTERNAL TO PLANT	Engineering Evaluations
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	
Engineering Evaluation ID	FPEE 1-90-019 Hydrogen Storage Tank Explosion Potential, All	
Summary	Evaluation provides analysis of impact of a potential explosion involving the bulk hydrogen storage system on west wall of Reactor Building and the north wall of the Turbine Building. The conclusion is that there is insufficient hydrogen gas material to develop an unconfined vapor cloud explosion. Evaluation is an appropriate use of the engineering evaluation process, is judged to be of acceptable quality and reflects current plant conditions.	

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:		EXT - EXTERNAL TO PLANT		Required Fire Protection Systems and Features		
Compliance Basis:		NFPA 805 Section 4.2.3.1 - Deterministic Approach				
Required FP System(s)/Feature(s)	Description	Required By	Comments			
Detection	DA-8042	EEEE/LA	Fire Zones: EXT			
Water Suppression	WD-8042	EEEE/LA	Fire Zones: EXT			
Water Suppression	WD-8184	EEEE/LA	Fire Zones: EXT			

NEI 04-02 Table B-3 - Fire Area Transition

Fire Area ID:	EXT - EXTERNAL TO PLANT	Fire Risk Evaluation
Compliance Basis:	NFPA 805 Section 4.2.3.1 - Deterministic Approach	
Title	Not Applicable - Deterministic Fire Area	
Risk Summary	N/A	
Δ CDF		
Δ LERF		
DID Maintained		
Safety Margin Maintained		

REVISIONS TO TRANSITION REPORT ATTACHMENT W

FIRE PRA INSIGHTS

(REDACTED VERSION)

Re-typed Page W-1.

W. Fire PRA Insights

21 Pages Attached

Redacted Attachment W in its entirety.