FENOC™
FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
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December 21, 2015
L-15-371

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

SUBJECT:
Beaver Valley Power Station, Unit Nos. 1 and 2
Docket No. 50-334, License No. DPR-66
Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information Regarding License Amendment Request to Adopt National Fire Protection Association Standard 805
(CAC Nos. MF3301 and MF3302)

By letter dated December 23, 2013 (Accession No. ML14002A086), as supplemented by letters dated February 14, 2014; April 27, 2015; May 27, 2015; June 26, 2015; and November 6, 2015 (Accession Nos. ML14051A499, ML15118A484, ML15147A372, ML15177A110, and ML15313A306, respectively), FirstEnergy Nuclear Operating Company (FENOC) submitted a license amendment request to change the Beaver Valley Power Station, Unit Nos. 1 and 2, fire protection program to one based on the National Fire Protection Association Standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition.

By letter dated November 24, 2015 (Accession No. ML15320A413), the Nuclear Regulatory Commission (NRC) requested additional information to complete its review. FENOC's response to this request is attached.

There are no regulatory commitments included in this submittal. If there are any questions or if additional information is required, please contact Mr. Thomas A. Lentz, Manager - Fleet Licensing, at (330) 315-6810.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 21, 2015.

Sincerely,

Timothy F. Steed

Attachment:
Response to November 24, 2015 Request for Additional Information

cc: Regional Administrator, NRC Region I
NRC Resident Inspector
NRC Project Manager
Director BRP/DEP (without attachment)
Site BRP/DEP Representative (without attachment)

The Nuclear Regulatory Commission (NRC) staff provided a request for additional information (RAI) to FirstEnergy Nuclear Operating Company (FENOC) in a letter dated November 24, 2015 (Accession No. ML15320A413). The NRC requested information to complete its review of a FENOC license amendment request (LAR) for Beaver Valley Power Station (BVPS), Unit No. 1 (BVPS-1), and Unit No. 2 (BVPS-2). The LAR would change the current fire protection program to one based on the National Fire Protection Association NFPA Standard 805 (NFPA 805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition. The NRC staff's RAI questions are provided below in bold text followed by the corresponding FENOC response.

Fire Protection Engineering (FPE) Request for Additional Information (RAI) 04.01

In its response to FPE RAI 04(a) in letter dated June 26, 2015, the licensee stated that an engineering evaluation analyzed compliance with NFPA 805, Section 3.3.5.3, for the low population of cables with potentially non-qualified electrical cable insulation material installed in electrical raceways at BVPS-1 and BVPS-2 and determined the configuration to be acceptable. The licensee also stated that it will include the engineering evaluation as a reference and remove the "Submit for NRC Approval" compliance statement for this NFPA 805, Chapter 3, requirement. NFPA 805, Section 3.3.5.3, requires that electric cable construction comply with a flame propagation test as acceptable to the authority having jurisdiction (AHJ), and the guidance in NFPA 805 Frequently Asked Question (FAQ) 06-0022, "Electrical Cable Flame Propagation Tests," identifies the flame propagation tests that are acceptable to the AHJ (i.e., the NRC). In accordance with FAQ 06-0008, "Alternative Method for Fire Protection Engineering Analyses," Revision 9, and the limitations imposed in the NRC closure memorandum, dated March 12, 2009 (ADAMS Accession No. ML073380976), existing engineering equivalency evaluations (EEEEs) can only be self-approved by the licensee if the following conditions apply:

(1) The fire protection system or feature meets "Functional Equivalency" with the NFPA 805, Chapter 3, requirement; or

(2) The fire protection system or feature required by NFPA 805, Chapter 4, is determined to be "Adequate for the Hazard" (e.g., Fire Alarm and Detection Systems (Section 3.8), Automatic and Manual Water-Based Fire Suppression

Systems (Section 3.9), Gaseous Fire Suppression Systems (Section 3.10), and Passive Fire Protection Features (Section 3.11)).

In the engineering evaluation, the licensee concluded that the low population of cables that do not meet Institute of Electrical and Electronics Engineers (IEEE) Standard 383, 1974 Edition, or equivalent, were considered in the fire modeling evaluation and determined to be adequate for the hazard. In accordance with FAQ 06-0008, this type of EEEE cannot be self-approved by the licensee. If performance-based engineering analysis of the non-qualified electrical cable insulation materials is credited in the compliance with NFPA 805, Section 3.3.5.3, then submit a request for NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii), and discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth. If functional equivalency is credited in the compliance with NFPA 805, Section 3.3.5.3, then provide justification of the equivalency to this requirement.

Response:

The compliance strategy for NFPA 805, Section 3.3.5.3, for the low population of cables with potentially non-qualified electrical cable insulation material installed in electrical raceways at BVPS-1 and BVPS-2 will be revised to "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The approval request will be developed to demonstrate, by a performance-based analysis, that the subject cable configurations are adequate for the hazard. The approval request will also discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

A revision to the LAR for this changed item will be provided in a future submittal.

FPE RAI 05.01

In letter dated June 26, 2015, the licensee stated in its response to FPE RAI 05(a) that it is changing its compliance statement in LAR Attachment A from "Complies with Clarification" to "Complies with the use of EEEE" for certain NFPA 805, Chapter 3, requirements. In accordance with FAQ 06-0008, and the limitations imposed in the NRC closure memorandum for FAQ 06-0008, EEEEs can only be self-approved by the licensee if the following conditions apply:

(1) The fire protection system or feature meets "Functional Equivalency" with the NFPA 805, Chapter 3, requirement; or

(2) The fire protection system or feature required by NFPA 805, Chapter 4, is determined to be "Adequate for the Hazard" (e.g., Fire Alarm and Detection Systems (Section 3.8), Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9), Gaseous Fire Suppression Systems (Section 3.10), and Passive Fire Protection Features (Section 3.11)).

The NRC reviewed the EEEEs in the licensee's NFPA 805 LAR supporting documents that evaluated the following configurations. Additional information is requested to support the bases for changing the compliance statement to "Complies with the Use of EEEE" for the NFPA 805, Chapter 3, requirement:

(a) In its response to FPE RAI 05(a)(i), the licensee stated that for the BVPS-2 outdoor hydrogen storage tank orientation, an EEEE was performed for compliance with NFPA 55, "Compressed Gases and Cryogenic Fluids Code," which concluded that the orientation of the tanks is acceptable to meet compliance with NFPA 805, Section 3.3.7.2. The separation distances in NFPA 55 are associated with protection from radiant heat based on the storage volume, and the requirement in NFPA 805, Section 3.3.7.2, is associated with potential missile generation. Therefore, NFPA 55 is not applicable to this NFPA 805, Chapter 3, requirement, which goes beyond the requirements of NFPA 55. The EEEE for the NFPA 55 code evaluation determined that the configuration is adequate for the hazard. In accordance with FAQ 06-0008, this type of EEEE will need to be reviewed and approved by the NRC staff because "Adequate for the Hazard" EEEEs are associated with analyses performed under NFPA 805, Chapter 4, and this section provides requirements for fundamental fire protection program and design elements that require prior staff approval prior to making changes. Unless the design and installation of the hydrogen storage tanks is demonstrated by an EEEE to be functionally equivalent to the missile protection intended by the NFPA 805 requirement, provide the performance-based engineering analysis to obtain NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii). Discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

(b) In its response to FPE RAI 05(a)(iii), the licensee stated that the existing fire pump installations and control circuits were evaluated for compliance with NFPA 20, 1970 Edition, "Centrifugal Fire Pumps," in an EEEE, which concluded that the configuration of the BVPS fire pumps installation and separation of control circuits is acceptable. The EEEE does not demonstrate "Functional Equivalency" with the requirements of NFPA 805, Section 3.5.5, but instead, it concludes that the configuration is "Adequate for the Hazard." In accordance with FAQ 06-0008, this type of EEEE will need to be reviewed and approved by the NRC staff because "Adequate for the Hazard" EEEEs are associated with analyses performed under NFPA 805, Chapter 4, and this

section provides requirements for fundamental fire protection program and design elements that require prior staff approval prior to making changes. Since the design and installation of the fire pumps is not demonstrated by the EEEE to be functionally equivalent to the NFPA 805 requirement, provide the performance-based engineering analysis to obtain NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii). Discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

(c) In its response to FPE RAI 05(a)(iv), the licensee stated that it will include the results of the applicable fire hydrant evaluation in LAR Attachment A. The EEEE for the NFPA 24 code evaluation involved the acceptability of the distance between Yard Fire Hydrant 9 and the Intake Structure as being functionally equivalent to the requirements of NFPA 805, Section 3.5.15, since adequate flow and pressure will be provided for the hydrant if no more than 100 feet of 1½ inches diameter hose is used, and all additional hose used is 2½ inches or larger in diameter. However, the licensee stated in LAR Attachment A that it "Complies with Clarification" because the distance from Yard Fire Hydrant 10 to the Intake Structure exceeds the allowable distance and is approximately 350 feet away. Discuss how the EEEE, which evaluates the distance between Yard Fire Hydrant 9 and the Intake Structure, is credited as the basis for changing the compliance statement to "Complies with the Use of EEEE" in LAR Attachment A, which describes the distance between Yard Fire Hydrant 10 and the Intake Structure. In your discussion, address the discrepancy with the hydrant numbers (is it Hydrant 9 or Hydrant 10?).

(d) In its response to FPE RAI 05(a)(v), the licensee stated that an EEEE of the BVPS-1 and BVPS-2 interior standpipe and hose station systems determined that they are equivalent to the requirements of NFPA 14, "Standard for the Installation of Standpipe and Hose Systems." In LAR Attachment A, the licensee stated in the compliance basis for NFPA 805, Section 3.6.2, that pressure reducers are not provided at the hose stations, even though available pressure can exceed 100 pounds per square inch (psi) at some hose stations, and that the fire brigade members are trained and drilled using the expected pressures available at BVPS, and thus, the existing installation is considered adequate. Unless the EEEE that was performed for the NFPA 14 code evaluation demonstrates that the standpipe and hose station design is "Functionally Equivalent" to the requirements of NFPA 805, Section 3.6.2, provide the performance-based engineering analysis to obtain NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii), and discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives, and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

Response:

(a) The compliance strategy for NFPA 805, Section 3.3.7.2, for the hydrogen storage tank orientation will be revised to "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The LAR Attachment L approval request will be developed to demonstrate, by a performance-based analysis, that the orientation of the hydrogen storage tank configuration is adequate for the hazard. The approval request will also discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

A revision to the LAR for this changed item will be provided in a future submittal.

(b) The compliance strategy for NFPA 805, Section 3.5.5, for the fire pumps installation and separation of control circuits at BVPS-1 and BVPS-2 will be revised to "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The approval request will be developed to demonstrate, by a performance-based analysis, that the fire pump configurations are adequate for the hazard. The approval request will also discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

In addition to this issue, a FENOC-identified issue regarding NFPA 805, Section 3.7, for fire extinguisher type, spacing, and location has been discovered and was discussed with the NRC staff on the November 18, 2015 RAI clarification phone call. The initial compliance statement of "Complies with Clarification" will be changed to "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii).

The approval request will be developed to demonstrate, by a performance-based analysis, that the subject extinguisher configurations are adequate for the hazard. The approval request will also discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

The action described in the above FENOC-identified issue regarding NFPA 805, Section 3.7, supersedes the RAI response provided for FPE RAI 05(a)(vi) in the letter dated June 26, 2015 (Accession No. ML15177A110), which states:

> The NFPA 805 Section 3.7 requirements for NFPA 10, "Standard for Portable Fire Extinguishers" were analyzed in an EEEE that concluded the number,

size, and type of fire extinguishers throughout the power block are equivalent to the requirements of NFPA 805 Section 3.7.

The applicable portion of LAR Attachment A, Table B-1 supplement section 3.7 will be revised to read "Complies with the Use of EEEE" and include the results of the applicable fire extinguisher evaluation. A revision to the LAR will be provided in a future submittal.

A revision to the LAR for these changed items will be provided in a future submittal.

(c) As described in the response to FPE RAI 05(a)(iv) in the letter dated June 26, 2015 (Accession No. ML15177A110), the compliance statement of "Complies with Clarification" will be revised to read "Complies with the Use of EEEE" in LAR Attachment A, Table B-1 Section 3.5.15. Additionally, reference to yard fire hydrant 10 will be removed and replaced with information describing the distance between yard fire hydrant 9 and the intake structure. Although yard fire hydrant 10 is one of the first hydrants along the fire water system piping (which originates at the intake structure), it was determined that due to the physical layout, yard fire hydrant 9 is the closest hydrant to the intake structure.

The EEEE is credited in changing the compliance statement to "Complies with the Use of EEEE" in LAR Attachment A, Table B-1, Section 3.5.15, by concluding that the distance between yard fire hydrant 9 and the intake structure is functionally equivalent to the requirements of NFPA 805, Section 3.5.15, since adequate flow and pressure will be provided if no more than 100 feet of one and one-half inch diameter hose is used and all additional hose used is two and one-half inches or larger in diameter. There is a sufficient quantity of acceptable diameter hose to extend from yard fire hydrant 9 to the intake structure, as stated in the EEEE.

A revision to the LAR for this changed item will be provided in a future submittal.

(d) The compliance strategy for NFPA 805, Section 3.6.2, for the provision of hose station pressure reducers where necessary for the safety of plant industrial fire brigade members and off-site fire department personnel at BVPS-1 and BVPS-2 will be revised to "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The approval request will be developed to demonstrate, by a performance-based analysis, that the subject hose station configurations are adequate for the hazard. The approval request will also discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

A revision to the LAR for this changed item will be provided in a future submittal.

FPE RAI 05.02

In its response to FPE RAI 05(b) in letter dated June 26, 2015, the licensee stated that the compliance bases for each record identified in Table 5b, "BVPS-1 and BVPS-2 Revised Records From LAR Attachment A, Table B-1," will be revised to "Complies" and/or "Complies with Use of EEEE" for various NFPA 805, Chapter 3, elements. The guidance provided in FAQ 07-0036, "Incorporation of Pilot Plant Lessons Learned - Table B-1," states that the compliance statement to NFPA 805, Chapter 3, should be documented. In addition, FAQ 07-0033, "Transition of Existing Engineering Equivalency Evaluations" Revision 1, and FAQ 06-0008 provide guidance on when the use of an EEEE can be credited to satisfy the NFPA 805, Chapter 3, requirement without prior NRC approval. As described in FAQ 06-0008, and the limitations imposed in the NRC closure memorandum for FAQ 06-0008, EEEEs can only be self-approved by the licensee if the following conditions apply:

(1) The fire protection system or feature meets "Functional Equivalency" with the NFPA 805, Chapter 3, requirement; or

(2) The fire protection system or feature required by NFPA 805, Chapter 4, is determined to be "Adequate for the Hazard" (e.g., Fire Alarm and Detection Systems (Section 3.8), Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9), Gaseous Fire Suppression Systems (Section 3.10), and Passive Fire Protection Features (Section 3.11)).

Therefore, EEEEs that involve a bounding approach or are determined to be "adequate for the hazard" for fire protection systems and features that are not required by NFPA 805 Chapter 4 will require prior NRC staff approval, and the licensee may use the latitude provided in 10 CFR 50.48(c)(2)(vii) to obtain NRC staff approval of these types of EEEEs. The following information is requested to support the NRC staff's review of the licensee's response to FPE RAI 05(b):

(a) For each fire protection system and feature identified in Table 5b (except for the Carbon Dioxide (CO_2) system installed in Fire Compartment 2-SB-3 to meet the requirements of NFPA 805, Section 3.10.1), clearly identify if the NFPA 805, Chapter 3, compliance statement is either "Complies" or "Complies with Use of EEEE," and provide the compliance bases that will be credited to replace "Complies with Clarification" in LAR Attachment A. If the compliance statement involves "Complies with the Use of EEEE," then provide a summary of the fire protection feature or system that is evaluated in the EEEE, the bases for concluding whether the EEEE meets functional equivalency of the NFPA 805, Chapter 3; requirement or is adequate for the hazard, and the reference source.

(b) For the CO_2 system installed in Fire Compartment 2-SB-3, the licensee stated in LAR Attachment A that the testing frequency for the CO_2 system is every 18 months based on the performance of the system, and that the Electric Power Research Institute (EPRI) Technical Report (TR)-1006756, "Fire Protection Equipment Surveillance Optimization and Maintenance Guide for Fire Protection Systems and Features," suggests the use of this frequency as the basis for "Complies with Clarification." In its response to FPE RAI 05(b), the licensee stated that the compliance statement will change to "Complies" and/or "Complies with the Use of EEEE." The use of a performance-based method (i.e., EPRI TR-1006756) to determine acceptability of a testing frequency does not meet the criteria for "Complies" or "Complies with the Use of EEEE" and will require prior NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii). Provide the performance-based engineering analysis that evaluates the acceptability of the testing frequency for the CO_2 system in Fire Compartment 2-SB-3 for compliance with NFPA 805, Section 3.10.1, including the specific EPRI TR-1006756 reference, and obtain NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii). Discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

Response:

(a) For each fire protection system and feature identified in Table 5b (except for the CO_2 system), the compliance statements that will replace “Complies with Clarification,” are identified in Table 5b.01 beginning on the next page. In addition, the compliance statements that will be credited for replacing “Complies with Clarification” in LAR Attachment A have been identified. Where the compliance statement involves “Complies with the Use of EEEE,” a summary of the fire protection feature or system that is evaluated in the EEEE is provided. The basis for concluding whether the EEEE meets functional equivalency of the NFPA 805 Chapter 3 requirements, or is adequate for the hazard, and the applicable reference source is provided. Unless stated otherwise, this RAI response does not modify or replace any of the “Complies” compliance bases from the original LAR or those that will be modified by other RAI responses.

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
Chapter 3 - Section: 3.3 / Subsection: 3.3.3 - Interior Finishes The compliance basis will be changed to “Complies by Previous NRC Approval.” Please refer to the response provided for FPE RAI 06.01.
Chapter 3 - Section: 3.3 / Subsection: 3.3.5.3 System/Feature: Electrical Cable Construction Compliance Statement: Submit for NRC Approval A request for NRC approval will be submitted in an Attachment L evaluation. Please refer to the response provided for FPE RAI 04.01.
Chapter 3 - Section: 3.3 / Subsection: 3.3.6 System/Feature: Intake Structure Replacement Roofing Compliance Statement: Complies with Use of EEEE - Functionally Equivalent Compliance Basis: Technical Evaluation Report (TER) 12157 evaluated the new roofing system for the intake structure. This TER compared the heat conductance of the insulation, fire protection rating, and wind uplift rating of the replacement roof system to the original system and concluded it was equal to the original roofing system that was replaced. It states that the new roofing system has an UL Class A fire rating and a Factory Mutual Class 1-90 wind uplift rating. It also states that the new roofing system in specification 8700-DSS-0100 is acceptable.
Chapter 3 - Section: 3.4 / Subsection: 3.4.2.4 System/Feature: Coordination with other plant groups Compliance Statement: Complies Compliance Basis: Nuclear Engineering Institute (NEI) 04-02, frequently asked question (FAQ) 07-0036 cites the example of procedures providing an NFPA 805 requirement in lieu of pre-fire plans. This is an editorial issue and BVPS complies as follows: The pre-fire plans contain information on what the fire brigade will encounter in a location, but do not specifically address coordination with other plant groups. Site procedures address coordination with other plant groups during fire emergencies.

Table 5b.01 **BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1**
Chapter 3 - Section: 3.5 / Subsection: 3.5.10 System/Feature: Underground Yard Fire Main Loop Compliance Statement: Complies with Use of EEEE – Functional Equivalency Compliance Basis: There are procedures available requiring that water flow be directed back through the fire hydrants or the fire test manifold to pressurize the fire water system using portable pumps (for example, fire trucks) when the fire pumps are not available in lieu of using building fire department connections. Functional equivalency is demonstrated in FPPCE 15-026, "Engineering Evaluation of Specified NFPA 24 Requirements."
Chapter 3 - Section: 3.6 / Subsection: 3.6.4 System/Feature: Standpipe and Hose Stations – Manual Fire Suppression Subsection 3.6.4 was erroneously included in Table 5b. The compliance statement for this requirement will be changed to "Complies by Previous NRC Approval," and the compliance basis was provided in the response to FPE RAI 03 in the letter dated April 27, 2015 (Accession No. ML15118A484).
Chapter 3 - Section: 3.8 / Subsection: 3.8.1 System/Feature: Fire Alarm and Detection System – Primary and Secondary Power Supplies Compliance Statement: Complies with Use of EEEE – Functional Equivalency Compliance Basis: The primary and secondary power supplies have been evaluated as equivalent to NFPA 72D, 1973 Edition in engineering evaluation FPPCE 15-020, "BVPS NFPA 805 Requirements 3.8, 3.9.1, and 3.10.1 Code Critical Attribute EEEE Review."

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

Chapter 3 - Section: 3.11 / Subsection: 3.11.1

System/Feature:
Passive Fire Protection Features – Building Separation

Compliance Statement:
Complies

Compliance Basis:
Compliance with this subsection of NFPA 805 is also achieved by performing a performance-based analysis in accordance with NFPA 805, Section 4.2.4.2. The fire risk evaluation process reviews those fire protection features, such as barriers that do not meet the 3-hour criteria, which credit performance-based analysis as a means of acceptability.

FIRE FEATURES - Fire Compartment: 1-CR-2 - 3.11.2

System/Feature:
Passive Protection - Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier adequacy was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. The adequacy of the separation between compartments is documented in the following:

- 8700-01.062-0074, "Fire Risk Evaluation of Control Room HVAC Equipment Room (1-CR-2)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

The fire barriers for 1-CR-2 are periodically inspected.

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-CR-2 - 3.11.3

System/Feature:
Fire Barrier Penetrations – Ventilation shaft between 1-CR-2 and 3-CR-1

Compliance Statement:
Complies

Compliance Basis:
The ventilation shaft between 1-CR-2 and 3-CR-1 does not have a fire damper in it.

The fire barrier penetration adequacy between compartments 1-CR-2 and 3-CR-1 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0074, "Fire Risk Evaluation of Control Room HVAC Equipment Room (1-CR-2)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-CR-4 - 3.10.7

System/Feature:
Gaseous Suppression - Audible Alarm – Pre-discharge Alarm

Compliance Statement:
Complies

Compliance Basis:
The fire suppression for the sub-floor of 1-CR-4 is a total flooding Halon 1301 system, consisting of two subsystems: one for the process rack room sub-floor north (12B), and one for the process rack room sub-floor south (12A). There is an approximate 20-second discharge delay with audible pre-discharge alarms for each Halon subsystem for any personnel to exit the area or vicinity of the sub-floor. Due to the sub-floor configuration preventing human occupancy per NFPA 12A, 1980 Edition, the 20-second delay is acceptable.

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-CR-4 - 3.11.3

System/Feature:
Fire Barrier Penetrations – Fire Dampers – Ductwork between 1-CR-2 and 1-CS-1

Compliance Statement:
Complies

Replacement Compliance Basis:
The ductwork from fire compartment 1-CR-2 above elevation 725' extends into fire compartment 1-CS-1 and then goes down through the floor to fire compartment 1-CR-4. The ductwork returns into compartment 1-CR-2 at a lower elevation (elevation 721') through fire damper 1VS-D-119A. Since there is no fire damper present where the ductwork initially penetrates 1-CR-2 to 1-CS-1 or at the floor from 1-CS-1 to 1-CR-4, the exposed ductwork in 1-CS-1 and 1-CR-4 was encased with a 3-hour rated configuration per engineering memorandum 30448, "QA Audit BV-1-84-36; Fire Barrier Finding."

FIRE FEATURES - Fire Compartment: 1-CS-1 - 3.10.5

System/Feature:
Gaseous Suppression - Disarming automatic system

Compliance Statement:
Complies

Compliance Basis:
The lock-out switch station (LO-FE-3) is located just outside of the CO_2 protected area in the control room stairwell and upon lockout of the CO_2 system to the abnormal position, a main control room annunciator will alarm.

FIRE FEATURES - Fire Compartment: 1-CV-1 - 3.10.5

System/Feature:
Gaseous Suppression - Disarming Automatic System

Compliance Statement:
Complies

Compliance Basis:
The lock-out switch station (LO-FE-2A) is located just outside of the CO_2 protected area in the radiological/security-controlled area. Upon lockout of the CO_2 system to the abnormal position, a main control room annunciator will alarm.

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
FIRE FEATURES - Fire Compartment: 1-CV-2 - 3.10.5 System/Feature: Gaseous Suppression – Disarming Automatic System Compliance Statement: Complies Compliance Basis: The lock-out switch station (LO-FE-2B) is located just outside of the CO_2 protected area in the radiological/security controlled area. Upon lockout of the CO_2 system to the abnormal position, a main control room annunciator will alarm.
FIRE FEATURES - Fire Compartment: 1-CV-3 - 3.10.1 System/Feature: Gaseous Suppression – NFPA Standards Compliance Statement: Complies with Use of EEEE – Adequate for the Hazard Compliance Basis: The cable tunnel area of fire area 1-CV-3 includes a Halon 1301 system installed in accordance with NFPA 12A, 1980 Edition. The 1-CV-3 fire compartment gaseous fire suppression system is installed in accordance with NFPA 12A, as evaluated in FPPCE 15-020, “BVPS NFPA 805 Requirements 3.8, 3.9.1, and 3.10.1 Code Critical Attribute EEEE Review.”
FIRE FEATURES - Fire Compartment: 1-CV-3 - 3.10.3 System/Feature: Gaseous Suppression - Ventilation to Prevent Over-Pressurization. Compliance Statement: Complies Compliance Basis: The fire suppression for this area is a total flooding Halon 1301 system. Access to 1-CV-3 is through a locking, rapid entry access hatch located in the yard, south of the BVPS-2 control room. The area is not normally occupied, and the means of access is locked during plant operation with access controlled by control room operations personnel. Fire area 1-CV-3 has no permanently installed ventilation provisions. The floor is a concrete slab, and the walls have been sealed to provide fire-rated construction. The access hatch is located at the top of the cable tunnel/vault and since the Halon and air mixture in the tunnel will then be considerably denser than the air in the outdoor area above, the loss rate to the outdoor area would not be significantly high. This area is not a radiological controlled area, so it is not necessary to consider confinement of radioactive contaminants.

Table 5b.01 **BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1**
FIRE FEATURES - Fire Compartment: 1-CV-3 - 3.10.7 System/Feature: Gaseous Suppression – Pre-discharge Alarm and Delay Compliance Statement: Complies Compliance Basis: Fire area 1-CV-3 is protected by an automatic total flooding Halon 1301 system. The system is equipped with an audible pre-discharge alarm and discharge delay equal to approximately 20 seconds. This Halon 1301 system does not represent a personnel concern, because it does not create an immediate threat-to-life concern since its maximum Halon concentration is less than the 10 percent code requirement. This is a Halon system and not a carbon dioxide system; therefore, it does not require an odorizer.
FIRE FEATURES - Fire Compartment: 1-CV-3 - 3.11.5 Withdrawn per FPE RAI 05(b) (Accession No. ML15177A110) and moved to 3.11.2, 1-CV-3.
FIRE FEATURES - Fire Compartment: 1-DG-1 - 3.10.3 System/Feature: Gaseous Suppression – Ventilation to Prevent Over-Pressurization Compliance Statement: Complies Compliance Basis: According to Section 26 of NFPA 12, 1973 Edition, porosity and leakages such as at doors, windows, and dampers, though not readily apparent or easily calculated, have been found to provide sufficient relief for the normal CO_2 flooding systems without the need for additional venting. Therefore, 1-DG-1 is acceptable without additional vents. This area is not a radiologically controlled area.
FIRE FEATURES - Fire Compartment: 1-DG-1 - 3.10.5 System/Feature: Gaseous Suppression – Disarming Automatic System Compliance Statement: Complies Compliance Basis: An electrical lock out switch is located within the emergency diesel generator (EDG) room, which is locked and requires specific security access authorization to enter. Upon lockout of the CO_2 system, an annunciator will alarm on the building service panel in the main control room. The lock out annunciator alarm feature is tested periodically.

Table 5b.01 **BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1**
FIRE FEATURES - Fire Compartment: 1-DG-1 - 3.11.3 System/Feature: Passive Protection – Fire Dampers Compliance Statement: Complies Compliance Basis: Fire Dampers: There are no ventilation penetrations between the two rooms, and the only openings in the room that are not fire-rated are the intake and exhaust ventilation dampers and the muffler exhaust opening. Ventilation dampers 1VS-D-22-2A and 1VS-D-22-2B are above the front door to the outside, and 1VS-D-22-1A is associated with exhaust fan 1VS-F-22A, which exhausts through the ceiling.
FIRE FEATURES - Fire Compartment: 1-DG-2 - 3.10.3 System/Feature: Gaseous Suppression – Ventilation to Prevent Over-Pressurization Compliance Statement: Complies Compliance Basis: According to Section 26 of NFPA 12, 1973 Edition, porosity and leakages such as at doors, windows, and dampers, though not readily apparent or easily calculated, have been found to provide sufficient relief for the normal carbon dioxide flooding systems without the need for additional venting. Therefore, 1-DG-2 is acceptable without additional vents. This area is not a radiologically controlled area.
FIRE FEATURES - Fire Compartment: 1-DG-2 - 3.10.5 System/Feature: Gaseous Suppression – Disarming Automatic Suppression Compliance Statement: Complies Compliance Basis: An electrical lock out switch is located within the EDG room, which is locked and requires specific security access authorization to enter. Upon lockout of the CO_2 system, an annunciator will alarm on the building service panel in the main control room. The lock out annunciator alarm feature is tested periodically.

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-DG-2 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
Fire doors in series between 1-DG-1 and 1-DG-2 are 3-hour fire-rated.

The door to the outside yard is unrated. No fire hazards exist in the exterior area of the unrated doors.

FIRE FEATURES - Fire Compartment: 1-MG-1 - 3.11.2
System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 1-CS-1 and 1-MG-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0057, "Fire Risk Evaluation of Cable Spreading Area (725'-6") (1-CS-1)"
- 8700-01.062-0073, "Fire Risk Evaluation of Motor Generator Room (713'-6") (1-MG-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PA-1A - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1A, 1-PA-1G, and 1-PA-1C was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01 **BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1**
FIRE FEATURES - Fire Compartment: 1-PA-1A - 3.11.3 System/Feature: Passive Protection - Fire Barrier Penetration Compliance Statement: Complies Compliance Basis: The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1A, 1-PA-1G, and 1-PA-1C, as well as the elevator shaft with an unrated door, and a stairwell with a 1.5-hour fire-rated door on the west wall of 1-PA-1A (the shaft traverses all floors of the auxiliary building), was evaluated using a performance-based approach as allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0080, “Fire Risk Evaluation for BV1 Generic Fire Compartments” • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”
FIRE FEATURES - Fire Compartment: 1-PA-1C - 3.11.2 System/Feature: Passive Protection – Fire Barriers Compliance Statement: Complies Compliance Basis: The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1A, 1-PA-1E, 1-PA-1G, and 1-PA-1C was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0080, “Fire Risk Evaluation for BV1 Generic Fire Compartments” • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
FIRE FEATURES - Fire Compartment: 1-PA-1C - 3.11.3 System/Feature: Passive Protection – Fire Barrier Penetrations Compliance Statement: Complies Compliance Basis: The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1A, 1-PA-1E, 1-PA-1G, and 1-PA-1C, as well as the elevator shaft with an unrated door, and a stairwell with a 1.5-hour fire-rated door on the west wall of 1-PA-1C (the shaft traverses all floors of the auxiliary building), use a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments" • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis" Fire doors and dampers are inspected periodically.
FIRE FEATURES - Fire Compartment: 1-PA-1E - 3.11.2 System/Feature: Passive Protection – Fire Barriers Compliance Statement: Complies Compliance Basis: The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1E, 1-PA-1C, 1-PA-1G, and 1-PA-1GB was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)" • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-PA-1E - 3.11.3

System/Feature:
Passive Protection – Fire Protection Penetrations

Compliance Statement:
Complies

Compliance Basis:
The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1E, 1-PA-1C, 1-PA-1G, and 1-PA-1GB, as well as the elevator shaft with an unrated door, and a stairwell with a 1.5-hour fire-rated door on the west wall of 1-PA-1E (the shaft traverses all floors of the auxiliary building), was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi-Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PA-1G - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1A, 1-PA-1C, 1-PA-1E, 1-PA-1G, 1-PA-1GA, 1-PA-1GB, and 1-PA-1GC was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-PA-1G - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The unrated separation (floor and ventilation chase walls) between compartments 1-PA-1G and adjacent compartments, as well as the elevator shaft with an unrated door, and stairwell with a 1.5-hour fire-rated door on the west wall of 1-PA-1G (the shaft traverses all floors of the auxiliary building) was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PA-1GA - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 1-PA-1GA, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
FIRE FEATURES - Fire Compartment: 1-PA-1GA - 3.11.3 System/Feature: Passive Protection – Fire Barrier Penetrations Compliance Statement: Complies Compliance Basis: The fire barrier separation between compartments 1-PA-1GA, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)" • 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)" • 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments" • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"
FIRE FEATURES - Fire Compartment: 1-PA-1GB - 3.11.2 System/Feature: Passive Protection – Fire Barriers Compliance Statement: Complies Compliance Basis: The fire barrier separation between compartments 1-PA-1GB, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)" • 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)" • 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments" • 8700-01.062-0013, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-PA-1GB - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 1-PA-1GB, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PA-1GC - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 1-PA-1GC, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-PA-1GC - 3.11.3
System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 1-PA-1GC, 1-PA-1G, and 1-PA-1E was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0068, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1G)"
- 8700-01.062-0071, "Fire Risk Evaluation of Auxiliary Building General Area (1-PA-1E)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PT-1 - 3.11.2

System/Feature:
Passive Protection - Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
Part of the fire barrier separation between compartments 1-PT-1 and 1-QP-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0065, "Fire Risk Evaluation of Pipe Tunnel (1-PT-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-PT-1 - 3.11.3

System/Feature:
Passive Protection - Fire Barrier Penetration

Compliance Statement:
Complies

Compliance Basis:
The door located between 1-QP-1 and 1-PT-1 is unrated. Part of the fire barrier separation between compartments 1-PT-1 and 1-QP-1 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0065, "Fire Risk Evaluation of Pipe Tunnel (1-PT-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-QP-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The unrated separation (ceiling, wall, floor, and ventilation) between compartments 1-QP-1 and 1-PT-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0066, "Fire Risk Evaluation of Quench Spray / AFW Pump Room (1-QP-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-QP-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The door located between 1-QP-1 and 1-PT-1 is unrated. Part of the fire barrier separation between compartments 1-PT-1 and 1-QP-1 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0066, “Fire Risk Evaluation of Quench Spray / AFW Pump Room (1-QP-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-RC-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
1-RC-1 is not specifically identified in the inspection procedure as an area required to be included in the inspection; however, a general observation of the accessible interior and exterior surfaces, as well as a pressurized leak test, demonstrate the integrity of the primary containment. The containment structure perimeter consists of a 10 foot thick concrete mat, with 4 foot, 6 inch thick reinforced concrete walls to the dome transition that is a minimum thickness of 2 foot, 6 inches of reinforced concrete. A continuous steel liner is provided on the entire interior to assure leak tightness of the structure. BVPS-1 calculation 8700-B-084, "Fire Hazards Analysis" states that the concrete represents a 3-hour fire barrier.

FIRE FEATURES - Fire Compartment: 1-RC-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The equipment hatch and sub-assembly of the “emergency air lock" and the personnel air lock, although unrated by the Underwriters Laboratory (UL), are designed to withstand severe accident conditions that would typically exceed UL fire test standards and as such, are capable of providing adequate separation to adjacent fire areas. They are periodically tested to demonstrate the integrity of containment.

FIRE FEATURES - Fire Compartment: 1-S-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The stairwell doors leading to the different elevations of the primary auxiliary building and elevator shaft doors are 1.5 hour fire-rated doors on the east wall of 1-S-1. The acceptability of the separation was evaluated using performance-based methods allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-S-1 - 3.11.4

System/Feature:
Passive Protection – Through Penetrations Fire Stops

Compliance Statement:
Complies

Compliance Basis:
The absence of fire-rated penetration seals around the fire dampers does not pose a credible risk to the spread of fire at the upper elevation since the adjacent compartment is the outside.

FIRE FEATURES - Fire Compartment: 1-TB-1 - 3.9.1

System/Feature:
Water-Based Suppression – Sheet Metal Platform Under Turbine Mezzanine.

Compliance Statement:
Complies with Use of EEEE – Adequate for the Hazard

Compliance Basis:
The partial area water-based suppression systems located within the 1-TB-1 fire compartment provide acceptable coverage per the safe shutdown performance-based analysis results from NFPA 805, Section 4.2.4.2, as documented in the fire risk evaluation, 8700-01.062-0069, Rev. B, Attachment 3, Table DID-1 (Section-2/Echelon-2). The 1-TB-1 fire compartment water-based suppression systems are installed in accordance with NFPA 13 and NFPA 15, as evaluated in engineering evaluation FPPCE 15-020, “BVPS NFPA 805 Requirements 3.8, 3.9.1, and 3.10.1 Code Critical Attribute EEEE Review.”

FIRE FEATURES - Fire Compartment: 1-TB-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
Parts of the fire barrier separation between compartments 1-TB-1 and 1-TO-1, 1-TR-1, 1-TR-2, and 1-TR-3 use a performance-based approach in accordance with NFPA 805,
Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-TB-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetration

Compliance Statement:
Complies

Compliance Basis:
Fire Dampers: An analysis found 1VS-D-272 and 1VS-D-273 between 1-TB-1 and 1-TO-1 to be acceptable due to fire loading, physical design and location, and the existence of suppression and a dike to contain possible turbine oil spills. Part of the fire barrier separation between compartments 1-TB-1 and 1-TO-1 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-TB-1 - 3.11.4

System/Feature:
Passive Protection – Through Penetration Fire Stops

Compliance Statement:
Complies

Compliance Basis:
Part of the fire barrier separation between compartments 1-TB-1 and 1-TO-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-TO-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The roof of 1-TO-1 has a minimum thickness of 4 inches of concrete slab on top of 1.5 inch corrugated steel decking. Part of the fire barrier separation between compartments 1-TB-1 and 1-TO-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 1-TO-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
Part of the fire barrier separation between compartments 1-TB-1 and 1-TO-1 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 1-TO-1 - 3.11.4

System/Feature:
Passive Protection – Through Penetration Fire Stops

Compliance Statement:
Complies

Compliance Basis:
The unrated separations (wall, ceiling, and ventilation openings) between compartments 1-TO-1 and 1-TB-1 were evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separations between these compartments is documented in the following:

- 8700-01.062-0069, "Fire Risk Evaluation of Turbine Building General Area (1-TB-1)"
- 8700-01.062-0080, "Fire Risk Evaluation for BV1 Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 3-CR-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire loading for the main control room is less than the rating of the existing floor, walls, and ceiling. The PRA models both control rooms in a single fire compartment and addresses the main control room as part of the multi-compartment analysis. The absence of a wall separating the BVPS-1 and BVPS-2 main control rooms has been evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of this configuration is documented in the following:

- 2701.620-000-053, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0059, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 3-CR-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetration

Compliance Statement:
Complies

Compliance Basis:
Fire Dampers: The ventilation ductwork for the BVPS-1 portion of the control room, routed through a ventilation shaft between 1-CR-2 and 3-CR-1, does not have a fire damper in it. The absence of a fire damper to separate 3-CR-1 from 1-CR-2 and the combination of the BVPS-1 and BVPS-2 control rooms in the same fire compartment with no separating barrier was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0059, “Fire Risk Evaluation of Control Room (3-CR-1)”
- 2701.620-000-053, “Fire Risk Evaluation of Control Room (3-CR-1)”
- 8700-01.062-0074, “Fire Risk Evaluation of Control Room HVAC Equipment Room (1-CR-2)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"
- 2701.620-000-022, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

FIRE FEATURES - Fire Compartment: 3-IS-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetration

Compliance Statement:
Complies

Compliance Basis:
Fire Dampers: There are no ventilation penetrations between cubicles. There are two openings in the ceiling for ventilation. One opening is to the outside. The other opening is to 3-IS-6. The ventilation opening between compartments 3-IS-1 and 3-IS-6 was evaluated using a performance-based approach as allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments”
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
FIRE FEATURES - Fire Compartment: 3-IS-2 - 3.11.3 System/Feature: Passive Protection – Fire Barrier Penetrations Compliance Statement: Complies Compliance Basis: Fire Dampers: There are no ventilation penetrations between cubicles. There are two ventilation openings in the ceiling. One goes to the outside and the other into compartment 3-IS-6. The ventilation opening between compartments 3-IS-2 and 3-IS-6 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments" • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"
FIRE FEATURES - Fire Compartment: 3-IS-3 - 3.11.3 System/Feature: Passive Protection – Fire Barrier Penetrations Compliance Statement: Complies Compliance Basis: Fire Dampers: There are no ventilation penetrations between cubicles. There are ventilation openings in the ceiling. One goes to the outside and the other into compartment 3-IS-6. The ventilation opening between compartments 3-IS-3 and 3-IS-6 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following: • 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments" • 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 3-IS-4 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
Fire Dampers: There are no ventilation penetrations between cubicles. There are ventilation openings in the ceiling. One goes to the outside and the other into compartment 3-IS-6. The ventilation opening between compartments 3-IS-4 and 3-IS-6 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 3-IS-6 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetration

Compliance Statement:
Complies

Compliance Basis:
Fire Dampers: There are no ventilation penetrations between cubicles. The only opening for the ventilation system is from each cubicle into the main intake structure. The opening is a 12 inch wide and approximately 18 foot long slot in each ceiling to discharge air from the cubicles. Half of the opening is covered with a 7 foot high vent stack and the other half has a cover plate. These were installed to protect the cubicles from flooding. This open ventilation penetration was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 8700-01.062-0080, "Fire Risk Evaluation of Generic Fire Compartments"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 2-DG-1 - 3.10.1

System/Feature:
Gaseous Suppression

Compliance Statement:
Complies

Compliance Basis:
The subject regarding tripping off the room exhaust fans was removed from this requirement and is addressed in NFPA 805, Section 3.10.3, 2-DG-1.

Table 5b.01 BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1
FIRE FEATURES - Fire Compartment: 2-DG-1 - 3.10.3 System/Feature: Gaseous Suppression Compliance Statement: Complies Compliance Basis: The exhaust fans trip off on temperature switches before the CO_2 system activates.
FIRE FEATURES - Fire Compartment: 2-DG-2 - 3.10.1 Compliance Basis: The subject regarding tripping off the room exhaust fans was removed from this requirement and is addressed in NFPA 805, Section 3.10.3, 2-DG-2.
FIRE FEATURES - Fire Compartment: 2-DG-2 - 3.10.3 System/Feature: Gaseous Suppression Compliance Statement: Complies Compliance Basis: The exhaust fans trip off on temperature switches before the CO_2 system activates.
FIRE FEATURES - Fire Compartment: 2-SB-3 - 3.10.1 Refer to FPE RAI 05.02(b) response.
FIRE FEATURES - Fire Compartment: 2-SB-3 - 3.10.3 System/Feature: Gaseous Suppression – Ventilation to Prevent Over-Pressurization Compliance Statement: Complies Compliance Basis: There are no backdraft dampers present for the CO_2 system in 2-SB-3. The area is protected from overpressure by floor plugs in the ceiling of the room that will lift to relieve pressure and CO_2 and air mixture into the area above. Two of the doors were found to need additional reinforcement from the high energy line break analysis and were modified. The other doors for this area were calculated to be adequate for the pressures observed during the above mentioned scenarios. 2-SB-3 is not located in the radiologically controlled area of the plant; therefore, no radiological release from 2-SB-3 is expected.

Table 5b.01 **BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1**
FIRE FEATURES - Fire Compartment: 2-TB-1 - 3.9.1 System/Feature: Water-Based Suppression Compliance Statement: Complies Compliance Basis: The partial area water-based suppression system located within the 2-TB-1 fire compartment provides acceptable coverage per the safe shutdown performance based analysis in accordance with NFPA 805, Section 4.2.4.2, as documented in 2701.620-000-083, “Fire Risk Evaluation for Generic Fire Compartments.”
FIRE FEATURES - Fire Compartment: 2-TB-1 - 3.11.2 System/Feature: Passive Protection – Fire Barriers Compliance Statement: Complies Compliance Basis: The fire barrier separation between compartments 2-TB-1, 2-TR-1, 2-TR-2, and 2-TR-3 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following: • 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments” • 2701.620-000-022, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 2-TB-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 2-TB-1 and 2-TB-2 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

The multi-compartment fire analysis for 2-TB-1 assumes an opening at the top to represent the roof exhaust fans. Engineering evaluation 2701.620-000-106, “Performance Based Analysis of the Unit 2 Turbine Building Sprinkler Systems Credited by the Detailed Fire Model,” includes the roof ventilation dampers to protect the structural integrity of the turbine building during a catastrophic turbine generator oil fire event.

FIRE FEATURES - Fire Compartment: 2-TB-2 - 3.11.2

System/Feature:
Passive Protection - Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The floor of 2-TB-2 separating 2-TB-1 and 2-TB-2 has exposed steel that is not fireproofed. The unrated separation (floor and ventilation chase walls) between compartments 2-TB-1 and 2-TB-2 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 2-TB-2 - 3.11.3
System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 2-TB-1 and 2-TB-2 was evaluated using a performance-based approach allowed by the exception stated in NFPA 805, Section 3.11.3. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 2-TR-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 2-TR-1 and 2-TB-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 2-TR-2 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 2-TR-2 and 2-TB-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 2-TR-3 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
The fire barrier separation between compartments 2-TR-3 and 2-TB-1 was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-083, "Fire Risk Evaluation for Generic Fire Compartments"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

FIRE FEATURES - Fire Compartment: 3-CR-1 - 3.11.2

System/Feature:
Passive Protection – Fire Barriers

Compliance Statement:
Complies

Compliance Basis:
Fire compartment 3-CR-1 is common to both units. Therefore, the compliance summary is similar to BVPS-1 compartment 3-CR-1, subsection 3.11.2. The probabilistic risk assessment models both control rooms in a single fire compartment. Part of the fire barrier separation within compartment 3-CR-1 between BVPS-1 and BVPS-2 sections was evaluated using a performance-based approach in accordance with NFPA 805, Section 4.2.4.2. Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-053, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0059, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0013, “NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis”
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

Table 5b.01
BVPS-1 and BVPS-2 Revised Records from LAR Attachment A, Table B-1

FIRE FEATURES - Fire Compartment: 3-CR-1 - 3.11.3

System/Feature:
Passive Protection – Fire Barrier Penetrations

Compliance Statement:
Complies

Compliance Basis:
The ventilation ductwork for the BVPS-1 portion of the control room, routed through a ventilation shaft between 1-CR-2 and 3-CR-1, does not have a fire damper in it. The absence of a fire damper to separate 3-CR-1 from 1-CR-2 and the combination of the BVPS-1 and BVPS-2 control room in the same fire compartment with no separating barrier was evaluated using a performance based approach allowed by the exception stated in NFPA 805, Section 3.11.3.

Adequacy of the separation between these compartments is documented in the following:

- 2701.620-000-053, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0059, "Fire Risk Evaluation of Control Room (3-CR-1)"
- 8700-01.062-0013, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"
- 2701.620-000-022, "NFPA 805 Fire PRA Task 5.11c Multi Compartment Fire Analysis"

(b) The compliance strategy for NFPA 805, Section 3.10.1, for the CO_2 testing frequency, will be revised to "Submit for NRC Approval." The 18-month testing frequency for the CO_2 system at BVPS was established prior to issuance of EPRI TR-1006756; however, it is consistent with the recommended target testing frequency. FENOC will be requesting NRC approval to utilize a performance-based surveillance program that is consistent with the methodology recommended in EPRI TR-1006756. In accordance with this program, the surveillance frequencies of all fire protection systems can be adjusted and refined as additional data and experience are obtained. Approval of the performance-based surveillance program for all fire protection systems will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The approval request will also discuss how the use of this methodology satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

A revision to the LAR for this changed item will be provided in a future submittal.

FPE RAI 06.01

In its response to FPE RAI 06 in letter dated April 27, 2015, the licensee stated that the compliance statement for NFPA 805, Section 3.3.3, is changed from "Complies with Clarification" to "Complies by Previous NRC Approval" and provided the appropriate excerpts from its licensing bases documents that demonstrate that the interior finishes for both BVPS-1 and BVPS-2 have a flame spread rating of less than 25 per American Society for Testing and Materials Standard E-84 test method or equivalent. The licensee further stated that the requirements of NFPA 805, Section 3.3.3., with respect to compliance with NFPA 101, "Life Safety Code," will be incorporated into the appropriate procurement and plant documents as an implementation item in LAR Attachment S. However, in its response to FPE RAI 05(b) in letter dated June 26, 2015, the licensee stated that the compliance statement for NFPA 805, Section 3.3.3, will be changed from "Complies with Clarification" to "Complies" and/or "Complies with Use of EEEE," and did not provide information as to whether its response to FPE RAI 05(b) will supersede its earlier response to FPE RAI 06 with respect to compliance with NFPA 805, Section 3.3.3.

Clarify how BVPS-1 and BVPS-2 will comply with NFPA 805, Section 3.3.3. If an implementation item will be required to meet its compliance bases, then provide the implementation item number and a clear description of the implementation item. If the licensee determines that it "Complies with Use of EEEE," then in accordance with the guidance in FAQ 07-0036 and FAQ 06-0008, provide a summary of the fire protection feature or system that is evaluated in the EEEE, the bases for concluding whether the EEEE meets functional equivalency of the NFPA 805, Chapter 3, requirement, and the reference source.

Response:

The compliance strategy for NFPA 805, Section 3.3.3, for interior finish flame spread rating, will be revised to “Complies by Previous NRC Approval” as stated in the original response to FPE RAI 06 (letter dated April 27, 2015; Accession No. ML15118A484). This section was erroneously included in the previous response to FPE RAI 05(b).

FPE RAI 12.01

In its response to FPE RAI 12 and FPE RAI 14(a) in letter dated June 26, 2015, the licensee stated that Approval Request 1 in LAR Attachment L will be withdrawn, and that the compliance statement for the requirements of NFPA 805, Section 3.3.5.1, will be changed to "Complies with Use of an EEEE" in LAR Attachment A. The licensee stated that an EEEE was performed and determined that cables that are not in conformance with NFPA 805, Section 3.3.5.1, above suspended ceilings do not adversely affect the nuclear safety capability; do not impact the

radiological release performance goals and performance objectives and performance criteria of NFPA 805, Section 1.5; and maintain the safety margins and fire protection defense-in-depth. This NFPA 805, Chapter 3, requirement is not associated with NFPA code compliance or a fire protection system or feature necessary to meet NFPA 805, Chapter 4, deterministic requirements. Therefore, the guidance in FAQ 06-0008, Revision 9, and limitations described in the NRC closure memo for FAQ 06-0008, states that this type of EEEE would require prior NRC approval.

Describe how BVPS-1 and BVPS-2 will comply with NFPA 805, Section 3.3.5.1. If the licensee decides to re-submit LAR Attachment L, Approval Request 1, or a new engineering evaluation to obtain NRC staff approval in accordance with 10 CFR 50.48(c)(2)(vii), then provide the information requested in FPE RAI 12 and FPE RAI 14(a), which was provided in the NRC letter dated March 4, 2015 (ADAMS Accession No. ML15049A507).

Response:

The compliance strategy for NFPA 805, Section 3.3.5.1, for wiring above suspended ceilings at BVPS-1 and BVPS-2, will not be changed to "Complies with the Use of an EEEE" as specified in the letter dated June 26, 2015, and will stay as "Submit for NRC Approval." Approval will be requested from the NRC as an Attachment L item in accordance with 10 CFR 50.48(c)(2)(vii). The approval request will be developed to demonstrate, by a performance-based analysis, that the subject cable configurations are adequate for the hazard. The approval request will provide a list of areas containing wiring above suspended ceilings, will describe the proximity of the wiring to nuclear safety capability components or cables, and will address the likelihood and significance of potential fires adjacent to those nuclear safety capability components or cables. Additionally, the approval request will discuss how the configuration satisfies the nuclear safety and radiological release performance goals, performance objectives and performance criteria, maintains safety margins, and maintains fire protection defense-in-depth.

A revision to the LAR for this changed item will be provided in a future submittal.