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10CFR50.90

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

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
Docket Nos. 50-277 and 50-278

Subject: License Amendment Request for Non-Conservative Technical Specification Associated with the Amount of Liquid Nitrogen Storage

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (Exelon) requests amendments to the Technical Specifications (TS), Appendix A of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

The proposed amendments would revise the TS and associated Bases for PBAPS, Units 2 and 3, to address non-conservative TS Surveillance Requirements (SRs) associated with the amount of nitrogen available in the liquid nitrogen storage tank to support operation of the Primary Containment Isolation Valves (PCIVs) and Reactor Building-to-Suppression Chamber Vacuum Breakers by the Safety Grade Instrument Gas (SGIG) system. The liquid nitrogen storage tank is common to both PBAPS units. Exelon determined that the amount of nitrogen needed in the liquid nitrogen storage tank as described in TS SR 3.6.1.3.1 and SR 3.6.1.5.1 was non-conservative based on newly derived system design leakage.

Currently, TS SR 3.6.1.3.1 and SR 3.6.1.5.1 specify that the liquid nitrogen storage tank is to be maintained at a level ≥ 16 inches water column. A re-analysis of the amount of design leakage associated with the SGIG system, which is based on empirical data, indicates the liquid nitrogen storage tank should be maintained at ≥ 22 inches water column, or equivalent volume of ≥ 124,000 standard cubic feet (scf) at 250 psig, to satisfy TS SR 3.6.1.3.1 and SR 3.6.1.5.1.

Therefore, the current TS value of ≥ 16 inches water column is non-conservative and requires revision. In accordance with NRC Administrative Letter 98-10, "*Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety,*" Exelon has implemented administrative controls to ensure the liquid nitrogen storage tank volume is ≥ 22 inches water column to satisfy SR 3.6.1.3.1 and SR 3.6.1.5.1.

Attachment 1 provides an evaluation of the proposed TS changes to address the non-conservative TS SR values associated with the amount of nitrogen available in the liquid nitrogen storage tank. Attachment 2 contains the TS page mark-ups for the proposed TS changes. Attachment 3 contains the mark-ups for the associated TS Bases pages for information only.

The proposed changes have been reviewed by the Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the Exelon Quality Assurance Program.

Exelon requests approval of the proposed amendments by June 25, 2011. Once approved, the amendments shall be implemented within 60 days.

There are no regulatory commitments contained in this submittal.

Pursuant to 10 CFR 50.91(b)(1), a copy of this License Amendment Request is being provided to the designated official of the Commonwealth of Pennsylvania.

Should you have any questions concerning this submittal, please contact Mr. Richard Gropp at (610) 765-5557.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 25th day of June 2010.

Respectfully,

Pamela B. Cowan
Director – Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachments: 1 - Evaluation of Proposed Changes
2 - Mark-ups of Technical Specification Pages
3 - Mark-ups of Technical Specification Bases Pages (For Information Only)

cc: S. J. Collins, Administrator, Region I, USNRC
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ATTACHMENT 1

Evaluation of Proposed Changes

PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56

"Technical Specifications Changes to Address Non-Conservative Surveillance Requirement Value for Safety Grade Instrument Gas (SGIG) System Nitrogen Storage"

1.0 SUMMARY DESCRIPTION

Exelon Generation Company, LLC, (Exelon) is requesting amendments to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3.

Exelon has determined that the current PBAPS, Units 2 and 3, TS value for nitrogen available in the liquid nitrogen storage tank to support operation of the Primary Containment Isolation Valves (PCIVs) and Reactor Building-to-Suppression Chamber Vacuum Breakers by the Safety Grade Instrument Gas (SGIG) system is non-conservative based on newly derived system leakage values. Therefore, the guidance of Nuclear Regulatory Commission (NRC) Administrative Letter 98-10, "*Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety,*" applies. Exelon has implemented administrative controls to maintain the amount of nitrogen in the liquid nitrogen storage tank at a level of ≥ 22 inches water column in support of SGIG system operation, and is submitting this License Amendment Request (LAR) to address this non-conservative TS condition. This proposed change would revise TS Surveillance Requirement (SR) 3.6.1.3.1 and SR 3.6.1.5.1 to require the minimum amount of nitrogen inventory in the liquid nitrogen storage tank be maintained at ≥ 22 inches water column, not the currently stated level of ≥ 16 inches water column. The methodology for determining the minimum required inventory is discussed in Section 4.0 of this submittal.

2.0 DETAILED DESCRIPTION

Currently, the TS SR 3.6.1.3.1 and SR 3.6.1.5.1 specify that the liquid nitrogen storage tank be maintained at a level of ≥ 16 inches water column to support the operation of the PCIVs and Reactor Building-to-Suppression Chamber Vacuum Breakers. Specifically, the current TS SRs require the following:

SURVEILLANCE		*FREQUENCY*
SR 3.6.1.3.1	*Verify Containment Atmospheric Dilution (CAD) System liquid nitrogen storage tank level is ≥ 16 inches water column.*	*24 hours*

SURVEILLANCE		*FREQUENCY*
SR 3.6.1.5.1	*Verify Containment Atmospheric Dilution (CAD) System nitrogen storage tank level is ≥ 16 inches water column.*	*24 hours*

These TS SRs verify that the level in the liquid nitrogen storage tank is sufficient to ensure at least seven days of post Loss of Coolant Accident (LOCA) operation for the PCIVs and Reactor Building-to-Suppression Chamber Vacuum Breakers.

The proposed TS change would revise TS SR 3.6.1.3.1 and TS SR 3.6.1.5.1 to increase the minimum level in the liquid nitrogen storage tank from ≥ 16 inches water column to ≥ 22 inches water column or equivalent volume of ≥ 124,000 scf at 250 psig. The SR will

only have reference to the required level in the liquid nitrogen storage tank, and the calculated equivalent inventory will be maintained in the TS Bases. The proposed TS changes are as follows:

SURVEILLANCE		*FREQUENCY*
SR 3.6.1.3.1	*Verify nitrogen inventory is equivalent to ≥ 22 inches water column in the liquid nitrogen storage tank.*	*24 hours*

SURVEILLANCE		*FREQUENCY*
SR 3.6.1.5.1	*Verify nitrogen inventory is equivalent to ≥ 22 inches water column in the liquid nitrogen storage tank.*	*24 hours*

3.0 BACKGROUND

Following a Design Basis Accident (DBA) LOCA coincident with a loss of instrument air, the SGIG system supplies pressurized nitrogen gas as a backup pneumatic source to the Containment Atmospheric Control (CAC) purge and vent isolation valves, Reactor Building-to-Suppression Chamber Vacuum Breakers, and the Containment Atmospheric Dilution (CAD) system vent control valves. Nitrogen for the SGIG system is supplied from a 6000-gallon liquid storage tank which is common to both units. The SGIG system performs three distinct post-LOCA functions: (1) supports the containment vacuum relief function, (2) supports primary containment isolation for PCIVs, and (3) supports control of containment atmosphere via the CAD system. SGIG system requirements are addressed for each of the supported systems and components in Limiting Condition for Operation (LCO) 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.6.1.5, "Reactor Building-to-Suppression Chamber Vacuum Breakers."

To support SGIG system operation, the liquid nitrogen storage tank minimum required level is currently required to be maintained at ≥ 16 inches water column in accordance with TS SR 3.6.1.3.1 and SR 3.6.1.5.1. Exelon has implemented administrative controls to maintain the amount of nitrogen in the liquid nitrogen storage tank at a level of ≥ 22 inches water column in support of SGIG system operation based on a revised analysis of system losses.

4.0 TECHNICAL EVALUATION

A non-conservative TS condition was identified based on SGIG system leakage being found in excess of that previously assumed. As a result, the value of ≥ 16 inches water column currently specified in TS SR 3.6.1.3.1 for the PCIVs and TS SR 3.6.1.5.1 for Reactor Building-to-Suppression Chamber Vacuum Breakers is non-conservative.

TS SR 3.6.1.3.1 and TS SR 3.6.1.5.1 currently require a minimum of ≥16 inches water column of nitrogen in the liquid nitrogen storage tank to ensure PCIV and Reactor Building-to-Suppression Chamber Vacuum Breaker operability. This value is based on the tank having a 7-day supply of nitrogen assuming that one unit is in post-LOCA and

the other unit is in Safe Shutdown. SGIG system inoperability due to insufficient tank inventory would affect both units' containment ventilation PCIVs (TS 3.6.1.3) and Reactor Building-to-Suppression Chamber Vacuum Breakers (TS 3.6.1.5).

Current Analysis

The current analysis specifies that a total of approximately 50,000 scf of nitrogen is required for the operation of the SGIG system under design bases conditions. This amount of nitrogen (which includes a 25% margin and rounded up from 49,905 scf) is required for seven days of post-accident SGIG system operation, which supports PCIV and Reactor Building-to-Suppression Chamber Vacuum Breaker functions. The 25% margin amounts to 9,981 scf over the 7-day period which may be considered available to compensate for leakage losses.

The table below shows the current TS values for nitrogen capacity needed in the liquid nitrogen storage tank.

Current Requirements – Liquid Nitrogen Storage Tank Capacity

TS Requirements	Inches water column
TS SR 3.6.1.3.1	≥ 16
TS SR 3.6.1.5.1	≥ 16

Upgraded Analysis

An updated daily leakage estimate has been derived based on actual historical plant data. This leakage exceeds the assumed leakage that was the basis for the current allowed value.

Each fill cycle in the analyzed historical time period was identified and the difference in volume of nitrogen in the liquid nitrogen storage tank on a 24-hour interval was calculated based on Operations' rounds data points. Using this data, the amount of nitrogen operationally evacuated from the liquid nitrogen storage tank per fill cycle was calculated. The amount of nitrogen evacuated from the tank was subtracted by the amount consumed to yield the estimated leakage.

Since the liquid nitrogen storage tank is required to provide seven days of post-LOCA operation, a 7-day rolling leakage total was calculated. Within each fill cycle, an average and maximum 7-day rolling leakage total was used to determine the updated assumed leakage.

This leakage value (total combined for both units) is assumed to exist for seven days. The maximum operating 7-day leakage was 74,917 scf with an average operating 7-day leakage of 53,498 scf. An assumed maximum leakage of 80,422 scf was selected to bound the maximum 7-day leakage by approximately 5500 scf, or 7% of the maximum operating 7-day leakage. When the assumed maximum leakage is combined with the required amount of nitrogen for seven days of post-LOCA SGIG operation, the total

SGIG inventory required is 120,000 scf. An operational required amount of 22 inches water column in the liquid nitrogen storage tank, or an equivalent volume of 124,000 scf at 250 psig was selected to provide a margin of 4000 scf above the total SGIG demand. The following table provides a summary of the different values utilized:

Total Demand for Dual Unit Operation	
Source	Volume (scf)
1) SGIG Usage for 7 days of post-LOCA operation	39,578
2) Average Operating 7-day leakage	53,498
3) Maximum Operating 7-day leakage	74,917
4) Assumed Maximum 7-day Leakage	80,422
5) Total SGIG Inventory Required for 7-day Post LOCA (1)+(4) =	120,000
6) Operational Required Inventory for SGIG (22" water column) at 250 psig	124,000
7) Margin above Total SGIG Inventory Required (6)-(5)=	4,000
8) Margin above SGIG demand with maximum 7-day leakage (6)-((1)+(3))=	9,505
9) Margin above SGIG demand with average 7-day leakage (6)-((1)+(2))=	30,924

In order to support operation of the PCIVs and Reactor Building-to-Suppression Chamber Vacuum Breakers, a minimum amount of liquid nitrogen must be maintained in the liquid nitrogen storage tank. This level is currently established in TS at ≥ 16 inches water column. This new analysis, which utilizes system leakage based on operational data, determined that the amount of nitrogen in the liquid nitrogen storage tank should be maintained at a level of ≥ 22 inches water column, or equivalent volume of ≥ 124,000 scf at 250 psig. The proposed TS changes would revise TS SR 3.6.1.3.1 and TS SR 3.6.1.5.1 to increase the minimum level in the liquid nitrogen storage tank from ≥ 16 inches water column to ≥ 22 inches water column, for ensuring operability of the PCIVs and Reactor Building-to-Suppression Chamber Vacuum Breakers. As previously stated, a level of ≥ 22 inches water column in the liquid nitrogen storage tank would be equivalent to a volume of ≥ 124,000 scf at 250 psig.

It is desired that the TS allow for two equal measurements of nitrogen inventory (i.e., liquid nitrogen storage tank level or the equivalent standard volume of nitrogen). This clearly states the level of liquid nitrogen required in the TS, while giving flexibility for temporary modifications that require use of an auxiliary source, provided technical equivalency of the vessel and the required minimum inventory is monitored and maintained.

5.0 REGULATORY EVALUATION

5.1 No Significant Hazards Consideration (NSHC)

In accordance with 10 CFR 50.90, *"Application for amendment of license or construction permit,"* Exelon Generation Company, LLC (Exelon) requests the following amendments to Appendix A, Technical Specifications (TS), of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The proposed amendments would revise the PBAPS, Units 2 and 3, TS Surveillance Requirements (SRs) to address a non-conservative value associated with the amount of nitrogen available in the liquid nitrogen storage tank to support operation of the Primary Containment Isolation Valves (PCIVs) and Reactor Building-to-Suppression Chamber Vacuum Breakers by the Safety Grade Instrument Gas (SGIG) system.

The proposed TS changes would revise TS SR 3.6.1.3.1 and TS SR 3.6.1.5.1 to increase the minimum level in the liquid nitrogen storage tank from ≥ 16 inches water column to a level of ≥ 22 inches water column. A level of ≥ 22 inches water column in the liquid nitrogen storage tank would be an equivalent volume of ≥ 124,000 scf at 250 psig.

According to 10 CFR 50.92, *"Issuance of amendment,"* paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendments would not:

(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

In support of this determination, Exelon has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, *"Issuance of amendment,"* as discussed below:

1. **Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

   Response: No.

   The proposed TS changes to increase the level in the liquid nitrogen storage tank from ≥ 16 inches water column to a level of ≥ 22 inches water column, or equivalent volume of ≥ 124,000 scf at 250 psig, is necessary in order to correct a non-conservative TS value. Increasing the level is intended to ensure continued operability of the PCIVs (SR 3.6.1.3.1) and Reactor Building-to-Suppression Chamber Vacuum Breakers (SR 3.6.1.5.1) via the SGIG system. The non-

conservative TS condition was identified based on a re-analysis of the liquid nitrogen storage tank operation. The leakage allowance that was previously assumed was not based on a rigorous empirical value. The re-analysis of the leakage allowance assumes more reasonable system leakage based on operational data. Exelon has determined that the current PBAPS, Units 2 and 3, TS SR value for the minimum level in the liquid nitrogen storage tank of ≥ 16 inches water column is non-conservative and that the guidance of Nuclear Regulatory Commission (NRC) Administrative Letter 98-10, *"Dispositioning of Technical Specifications that are Insufficient to Assure Plant Safety,"* applies. Exelon has implemented administrative controls to maintain the amount of nitrogen in the liquid nitrogen storage tank at a level of ≥ 22 inches water column in support of SGIG system operation.

Exelon is submitting this License Amendment Request to address this non-conservative condition. The proposed TS changes do not introduce new equipment or new equipment operating modes, nor do the proposed changes alter existing system relationships. The proposed changes do not affect plant operation, design function or any analysis that verifies the capability of a system, structure or component (SSC) to perform a design function. Further, the proposed changes do not increase the likelihood of the malfunction of any SSC or impact any analyzed accident. Consequently, the probability or consequences of an accident previously evaluated are not affected.

Therefore, the proposed amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed TS change to increase the level in the liquid nitrogen storage tank from ≥ 16 inches water column to a level of ≥ 22 inches water column, or equivalent volume of ≥ 124,000 scf at 250 psig, for the PCIVs (SR 3.6.1.3.1) and Reactor Building-to-Suppression Chamber Vacuum Breakers (SR 3.6.1.5.1) is needed to correct a non-conservative value based on a revised analysis. The proposed TS changes do not alter the design function or operation of any SSC. There is no new system component being installed, no construction of a new facility, and no performance of a new test or maintenance function. The proposed TS changes do not create the possibility of a new credible failure mechanism or malfunction. The proposed changes do not modify the design function or operation of any SSC. Further, the proposed changes do not introduce new accident initiators. Consequently, the proposed changes cannot create the possibility of a new or different kind of accident from any accident previously evaluated.

Therefore, the proposed amendments do not create the possibility of a new or different kind of accident from any accident previously analyzed.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed TS changes to increase the level in the liquid nitrogen storage tank from ≥ 16 inches water column to a level of ≥ 22 inches water column, or equivalent volume of ≥ 124,000 scf at 250 psig, for the PCIVs (SR 3.6.1.3.1) and Reactor Building-to-Suppression Chamber Vacuum Breakers (SR 3.6.1.5.1) are necessary to correct an existing non-conservative TS value. The proposed TS changes are needed based on a revised analysis that utilizes empirical data for nitrogen system uses and losses. The proposed changes do not exceed or alter a design basis or a safety limit for a parameter established in the PBAPS, Units 2 and 3, Updated Final Safety Analysis Report (UFSAR) or the PBAPS, Units 2 and 3, Renewed Facility Operating License (FOL). Consequently, the proposed changes do not result in a reduction in the margin of safety.

Therefore, the proposed amendments do not involve a significant reduction in a margin of safety.

5.2 Applicable Regulatory Requirements

Exelon reviewed the proposed TS changes against the regulatory requirements listed below to ensure that there is reasonable assurance that the SGIG system will continue to function as designed.

10 CFR 50.36(c)(1)(ii)(A) states: "Limiting safety system settings for nuclear reactors are settings for automatic protective devices related to those variables having significant safety functions. Where a limiting safety system setting [LSSS] is specified for a variable on which a safety limit has been placed, the setting must be so chosen that automatic protective action will correct the abnormal situation before a safety limit is exceeded."

10 CFR 50.36(c)(3), *"Surveillance requirements,"* are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

As discussed above, the proposed TS changes would revise TS SR 3.6.1.3.1 and TS SR 3.6.1.5.1 to establish a minimum level in the liquid nitrogen storage tank of ≥ 22 inches water column, rather than a level of ≥ 16 inches water column which is currently stipulated. A level of ≥ 22 inches water column in the liquid nitrogen storage tank would be an equivalent volume of ≥ 124,000 scf at 250 psig. The proposed TS changes are necessary to correct a non-conservative TS value that was determined based on revised leakage analysis for the SGIG system. The proposed TS changes will ensure that a sufficient volume of nitrogen is available to support SGIG system operation. The proposed TS changes do not involve a change to an LSSS as specified in 10 CFR 50.36(c)(1)(ii)(A).

5.3 Conclusion

Based on the considerations discussed above: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. NRC Administrative Letter 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety"

ATTACHMENT 2

Markups of Technical Specifications Pages

PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56

REVISED TECHNICAL SPECIFICATIONS PAGES

Unit 2	Unit 3
3.6-12	3.6-12
3.6-19	3.6-19

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Purge/Vent flowpath open for an accumulated time greater than 90 hours for the calendar year while in MODE 1 or 2 with Reactor Pressure greater than 100 psig.	E.1 Isolate the penetration. OR E.2.1 Be in MODE 3. AND E.2.2 Be in MODE 4.	4 hours 12 hours 36 hours
F. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours
G. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	G.1 Initiate action to suspend operations with a potential for draining the reactor vessel. OR G.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	Verify ~~Containment Atmospheric Dilution (CAD) System liquid~~ nitrogen inventory ~~storage tank level~~ is equivalent to ≥ ~~16~~ 22 inches water column in the liquid nitrogen storage tank.	24 hours
SR 3.6.1.3.2	Verify Safety Grade Instrument Gas (SGIG) System header pressure is ≥ 80 psig.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	12 hours
E. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	E.1 Restore all vacuum breakers in one line to OPERABLE status.	1 hour
F. Required Action and Associated Completion Time of Conditions A, B, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify ~~Containment Atmospheric Dilution (CAD) System~~ nitrogen ~~storage~~ inventory is equivalent to ~~tank level is~~ ≥ ~~16~~ 22 inches water column in the liquid nitrogen storage tank.	24 hours
SR 3.6.1.5.2	Verify Safety Grade Instrument Gas (SGIG) System header pressure ≥ 80 psig.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Purge/Vent flowpath open for an accumulated time greater than 90 hours for the calendar year while in MODE 1 or 2 with Reactor Pressure greater than 100 psig.	E.1 Isolate the penetration. OR E.2.1 Be in MODE 3. AND E.2.2 Be in MODE 4.	4 hours 12 hours 36 hours
F. Required Action and associated Completion Time of Condition A, B, C, or D not met in MODE 1, 2, or 3.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours
G. Required Action and associated Completion Time of Condition A, B, C, or D not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	G.1 Initiate action to suspend operations with a potential for draining the reactor vessel. OR G.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.1	Verify ~~Containment Atmospheric Dilution (CAD) System liquid~~ nitrogen inventory ~~storage tank level~~ is equivalent to ≥ ~~16~~ 22 inches water column in the liquid nitrogen storage tank.	24 hours
SR 3.6.1.3.2	Verify Safety Grade Instrument Gas (SGIG) System header pressure is ≥ 80 psig.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3.	12 hours
E. Two lines with one or more reactor building-to-suppression chamber vacuum breakers inoperable for opening.	E.1 Restore all vacuum breakers in one line to OPERABLE status.	1 hour
F. Required Action and Associated Completion Time of Conditions A, B, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.1.5.1	Verify ~~Containment Atmospheric Dilution (CAD) System~~ nitrogen ~~storage~~ inventory is equivalent to ~~tank level is~~ ≥ ~~16~~ 22 inches water column in the liquid nitrogen storage tank.	24 hours
SR 3.6.1.5.2	Verify Safety Grade Instrument Gas (SGIG) System header pressure ≥ 80 psig.	24 hours

(continued)

ATTACHMENT 3

Markups of Technical Specifications Bases Pages

PBAPS, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56

REVISED TECHNICAL SPECIFICATIONS BASES PAGES
(For Information Only)

Unit 2	Unit 3
B 3.6-16	B 3.6-16
B.3.6-24	B 3.6-24
B 3.6-35	B 3.6-35
B 3.6-39	B 3.6-39

BASES

BACKGROUND (continued)

each of the supported system and components in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.6.1.5, "Reactor Building-to-Suppression Chamber Vacuum Breakers." For the SGIG System, liquid nitrogen from the ~~CAD System~~ liquid nitrogen storage tank passes through the ~~CAD System~~ liquid nitrogen vaporizer where it is converted to a gas. The gas then flows into a Unit 2 header and a Unit 3 header separated by two manual globe valves. From each header, the gas then branches to each valve operator or valve seal supplied by the SGIG System. Each branch is separated from the header by a manual globe valve and a check valve.

To support SGIG System functions, the ~~CAD System liquid~~ nitrogen ~~storage tank minimum~~inventory ~~required level~~ is equivalent to a storage tank minimum required level of ≥ ~~16~~ 22 inches water column, or a technically justified source of equivalent inventory ≥ 124,000 scf at 250 psig, and a minimum required SGIG System header pressure of 80 psig.

APPLICABLE SAFETY ANALYSES

The PCIVs LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory, and establishing the primary containment boundary during major accidents. As part of the primary containment boundary, PCIV OPERABILITY supports leak tightness of primary containment. Therefore, the safety analysis of any event requiring isolation of primary containment is applicable to this LCO.

The DBAs that result in a release of radioactive material and are mitigated by PCIVs are a LOCA and a main steam line break (MSLB). In the analysis for each of these accidents, it is assumed that PCIVs are either closed or close within the required isolation times following event initiation. This ensures that potential paths to the environment through PCIVs (including primary containment purge valves) are minimized. Of the events analyzed in Reference 1, the LOCA is a limiting event due to radiological consequences. The closure time of the main steam isolation valves (MSIVs) is the most significant variable from a radiological standpoint. The MSIVs are required to close within 3 to 5 seconds after signal generation. Likewise, it is assumed that the primary containment is isolated such that release of fission products to the environment is controlled.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

Verifying that the nitrogen inventory is equivalent to a level in the ~~CAD~~ liquid nitrogen tank ~~is~~ of ≥ ~~16~~ 22 inches water column (≥ 124,000 scf at 250 psig) will ensure at least 7 days of post-LOCA SGIG System operation. This minimum volume of ~~liquid~~ nitrogen allows sufficient time after an accident to replenish the nitrogen supply in order to maintain the containment isolation function. The ~~level~~ inventory is verified every 24 hours to ensure that the system is capable of performing its intended isolation function when required. The 24 hour Frequency is based on operating experience, which has shown to be an acceptable period to verify ~~liquid~~ nitrogen supply. The 24 hour Frequency also signifies the importance of the SGIG System for maintaining the containment isolation function of the primary containment purge and exhaust valves.

SR 3.6.1.3.2

This SR ensures that the pressure in the SGIG System header is ≥ 80 psig. This ensures that the post-LOCA nitrogen pressure provided to the valve operators and valve seals is adequate for the SGIG System to perform its design function. The 24 hour Frequency was developed considering the importance of the SGIG System for maintaining the containment isolation function. The 24 hour Frequency is also considered to be adequate to ensure timely detection of any breach in the SGIG System which would render the system incapable of performing its isolation function.

SR 3.6.1.3.3

This SR ensures that the primary containment purge and exhaust valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable (Condition A applies). The SR is modified by a Note stating that the SR is not required to be met when the purge and exhaust valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. The 6 inch and 18 inch purge valves and 18 inch exhaust

(continued)

BASES

BACKGROUND (continued)

suppression chamber atmosphere. Low spray temperatures and atmospheric conditions that yield the minimum amount of contained noncondensible gases are assumed for conservatism.

The Safety Grade Instrument Gas (SGIG) System supplies pressurized nitrogen gas (from the Containment Atmospheric Dilution (CAD) System liquid nitrogen storage tank) as a safety grade pneumatic source to the CAC System purge and exhaust isolation valve inflatable seals, the reactor building-to-suppression chamber vacuum breaker air operated isolation butterfly valves and inflatable seal, and the CAC and CAD Systems vent control air operated valves. The SGIG System thus performs two distinct post-LOCA functions: (1) supports containment isolation and (2) supports CAD System vent operation. SGIG System requirements are addressed for each of the supported system and components in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," LCO 3.6.1.5, and "Reactor Building-to-Suppression Chamber Vacuum Breakers." For the SGIG System, liquid nitrogen from the ~~CAD System~~ liquid nitrogen storage tank passes through the ~~CAD System~~ liquid nitrogen vaporizer where it is converted to a gas. The gas then flows into a Unit 2 header and a Unit 3 header separated by two manual globe valves. From each header, the gas then branches to each valve operator or valve seal supplied by the SGIG System. Each branch is separated from the header by a manual globe valve and a check valve.

To support SGIG System functions, the ~~CAD System liquid~~ nitrogen inventory is equivalent to a storage tank minimum required level of ~~is a~~ ≥ ~~16~~ 22 inches water column, or a technically justified source of equivalent inventory ≥ 124,000 scf at 250 psig, and a minimum required SGIG System header pressure of 80 psig.

APPLICABLE SAFETY ANALYSES

Analytical methods and assumptions involving the reactor building-to-suppression chamber vacuum breakers are used as part of the accident response of the containment systems. Internal (suppression-chamber-to-drywell) and external (reactor building-to-suppression chamber) vacuum breakers

(continued)

BASES

ACTIONS (continued)

E.1

With two lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost. Therefore, all vacuum breakers in one line must be restored to OPERABLE status within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

F.1 and F.2

If any Required Action and associated Completion Time for Conditions A, B, or E cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Verifying that the nitrogen inventory is equivalent to a level in the ~~CAD~~ liquid nitrogen tank ~~is~~ of ≥ ~~16~~ 22 inches water column (≥ 124,000 scf at 250 psig) will ensure at least 7 days of post-LOCA SGIG System operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply in order to maintain the design function of the reactor building-to-suppression vacuum breakers. The ~~level~~ inventory is verified every 24 hours to ensure that the system is capable of performing its intended isolation function when required. The 24 hour Frequency is based on operating experience, which has shown to be an acceptable period to verify ~~liquid~~ nitrogen supply. The 24 hour Frequency also signifies the importance of the SGIG System for maintaining the design function of the reactor building-to-suppression chamber vacuum breakers.

SR 3.6.1.5.2

This SR ensures that the pressure in the SGIG System header is ≥ 80 psig. This ensures that the post-LOCA nitrogen pressure provided to the valve operators and valve seals that is adequate for the SGIG to perform its design function. The 24 hour Frequency was developed considering the importance of the SGIG System for maintaining the design function of the reactor building-to-suppression chamber vacuum breakers. The 24 hour Frequency is also considered to be adequate to ensure timely detection of any breach in the SGIG System which would render the system incapable of performing its function.

(continued)

BASES

BACKGROUND (continued)

each of the supported system and components in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," and LCO 3.6.1.5, "Reactor Building-to-Suppression Chamber Vacuum Breakers." For the SGIG System, liquid nitrogen from the ~~CAD System~~ liquid nitrogen storage tank passes through the ~~CAD System~~ liquid nitrogen vaporizer where it is converted to a gas. The gas then flows into a Unit 2 header and a Unit 3 header separated by two manual globe valves. From each header, the gas then branches to each valve operator or valve seal supplied by the SGIG System. Each branch is separated from the header by a manual globe valve and a check valve.

To support SGIG System functions, the ~~CAD System liquid~~ nitrogen ~~storage tank minimum~~inventory ~~required level~~ is equivalent to a storage tank minimum required level of ≥ ~~16~~ 22 inches water column, or a technically justified source of equivalent inventory ≥ 124,000 scf at 250 psig, and a minimum required SGIG System header pressure of 80 psig.

APPLICABLE SAFETY ANALYSES

The PCIVs LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory, and establishing the primary containment boundary during major accidents. As part of the primary containment boundary, PCIV OPERABILITY supports leak tightness of primary containment. Therefore, the safety analysis of any event requiring isolation of primary containment is applicable to this LCO.

The DBAs that result in a release of radioactive material and are mitigated by PCIVs are a LOCA and a main steam line break (MSLB). In the analysis for each of these accidents, it is assumed that PCIVs are either closed or close within the required isolation times following event initiation. This ensures that potential paths to the environment through PCIVs (including primary containment purge valves) are minimized. Of the events analyzed in Reference 1, the LOCA is a limiting event due to radiological consequences. The closure time of the main steam isolation valves (MSIVs) is the most significant variable from a radiological standpoint. The MSIVs are required to close within 3 to 5 seconds after signal generation. Likewise, it is assumed that the primary containment is isolated such that release of fission products to the environment is controlled.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.6.1.3.1

Verifying that the nitrogen inventory is equivalent to a level in the ~~CAD~~ liquid nitrogen tank ~~is~~ of ≥ ~~16~~ 22 inches water column (≥ 124,000 scf at 250 psig) will ensure at least 7 days of post-LOCA SGIG System operation. This minimum volume of ~~liquid~~ nitrogen allows sufficient time after an accident to replenish the nitrogen supply in order to maintain the containment isolation function. The ~~level~~ inventory is verified every 24 hours to ensure that the system is capable of performing its intended isolation function when required. The 24 hour Frequency is based on operating experience, which has shown to be an acceptable period to verify ~~liquid~~ nitrogen supply. The 24 hour Frequency also signifies the importance of the SGIG System for maintaining the containment isolation function of the primary containment purge and exhaust valves.

SR 3.6.1.3.2

This SR ensures that the pressure in the SGIG System header is ≥ 80 psig. This ensures that the post-LOCA nitrogen pressure provided to the valve operators and valve seals is adequate for the SGIG System to perform its design function. The 24 hour Frequency was developed considering the importance of the SGIG System for maintaining the containment isolation function. The 24 hour Frequency is also considered to be adequate to ensure timely detection of any breach in the SGIG System which would render the system incapable of performing its isolation function.

SR 3.6.1.3.3

This SR ensures that the primary containment purge and exhaust valves are closed as required or, if open, open for an allowable reason. If a purge valve is open in violation of this SR, the valve is considered inoperable (Condition A applies). The SR is modified by a Note stating that the SR is not required to be met when the purge and exhaust valves are open for the stated reasons. The Note states that these valves may be opened for inerting, de-inerting, pressure control, ALARA or air quality considerations for personnel entry, or Surveillances that require the valves to be open. The 6 inch and 18 inch purge valves and 18 inch exhaust

(continued)

BASES

BACKGROUND (continued)

suppression chamber atmosphere. Low spray temperatures and atmospheric conditions that yield the minimum amount of contained noncondensible gases are assumed for conservatism.

The Safety Grade Instrument Gas (SGIG) System supplies pressurized nitrogen gas (from the Containment Atmospheric Dilution (CAD) System liquid nitrogen storage tank) as a safety grade pneumatic source to the CAC System purge and exhaust isolation valve inflatable seals, the reactor building-to-suppression chamber vacuum breaker air operated isolation butterfly valves and inflatable seal, and the CAC and CAD Systems vent control air operated valves. The SGIG System thus performs two distinct post-LOCA functions: (1) supports containment isolation and (2) supports CAD System vent operation. SGIG System requirements are addressed for each of the supported system and components in LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," LCO 3.6.1.5, and "Reactor Building-to-Suppression Chamber Vacuum Breakers." For the SGIG System, liquid nitrogen from the ~~CAD System~~ liquid nitrogen storage tank passes through the ~~CAD System~~ liquid nitrogen vaporizer where it is converted to a gas. The gas then flows into a Unit 2 header and a Unit 3 header separated by two manual globe valves. From each header, the gas then branches to each valve operator or valve seal supplied by the SGIG System. Each branch is separated from the header by a manual globe valve and a check valve.

To support SGIG System functions, the ~~CAD System liquid~~ nitrogen inventory is equivalent to a storage tank minimum required level of ~~is a~~ ≥ ~~16~~ 22 inches water column, or a technically justified source or equivalent inventory ≥ 124,000 scf at 250 psig, and a minimum required SGIG System header pressure of 80 psig.

APPLICABLE SAFETY ANALYSES

Analytical methods and assumptions involving the reactor building-to-suppression chamber vacuum breakers are used as part of the accident response of the containment systems. Internal (suppression-chamber-to-drywell) and external (reactor building-to-suppression chamber) vacuum breakers

(continued)

BASES

ACTIONS (continued)

E.1

With two lines with one or more vacuum breakers inoperable for opening, the primary containment boundary is intact. However, in the event of a containment depressurization, the function of the vacuum breakers is lost. Therefore, all vacuum breakers in one line must be restored to OPERABLE status within 1 hour. This Completion Time is consistent with the ACTIONS of LCO 3.6.1.1, which requires that primary containment be restored to OPERABLE status within 1 hour.

F.1 and F.2

If any Required Action and associated Completion Time for Conditions A, B, or E cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.6.1.5.1

Verifying that the nitrogen inventory is equivalent to a level in the ~~CAD~~ liquid nitrogen tank ~~is~~ of ≥ ~~16~~ 22 inches water column (≥ 124,000 scf at 250 psig) will ensure at least 7 days of post-LOCA SGIG System operation. This minimum volume of liquid nitrogen allows sufficient time after an accident to replenish the nitrogen supply in order to maintain the design function of the reactor building-to-suppression vacuum breakers. The ~~level~~ inventory is verified every 24 hours to ensure that the system is capable of performing its intended isolation function when required. The 24 hour Frequency is based on operating experience, which has shown to be an acceptable period to verify ~~liquid~~ nitrogen supply. The 24 hour Frequency also signifies the importance of the SGIG System for maintaining the design function of the reactor building-to-suppression chamber vacuum breakers.

SR 3.6.1.5.2

This SR ensures that the pressure in the SGIG System header is ≥ 80 psig. This ensures that the post-LOCA nitrogen pressure provided to the valve operators and valve seals that is adequate for the SGIG to perform its design function. The 24 hour Frequency was developed considering the importance of the SGIG System for maintaining the design function of the reactor building-to-suppression chamber vacuum breakers. The 24 hour Frequency is also considered to be adequate to ensure timely detection of any breach in the SGIG System which would render the system incapable of performing its function.

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