



September 14, 2018

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
NRC Docket Nos. 50-277 and 50-278

Subject: Response to Request for Additional Information
Application to Revise Technical Specifications to Adopt Technical
Specification Task Force (TSTF)-500, Revision 2, "DC Electrical Rewrite-
Update to TSTF-360"

- References:
1. Exelon Letter to the NRC, "Application to Revise Technical Specifications to Adopt Technical Specification Task Force (TSTF)-500, Revision 2, "DC Electrical Rewrite-Update to TSTF-360," dated September 29, 2017 (ADAMS Accession No. ML17275A069)
 2. Exelon Letter to NRC, "Supplemental Information to Support Application to Revise Technical Specifications to Adopt Technical Specification Task Force (TSTF) -500. Revision 2, DC Electrical Rewrite Update to TSTF-360," dated August 14, 2018 (ADAMS Accession No. No. ML18227A610)
 3. NRC Email to Exelon, "Peach Bottom Units 2 and 3 - Request for Additional Information (FINAL) - Adopt TSTF-500 Battery TS Changes LAR (EPID L-2017-LLA-0312)," dated August 28, 2018 (ADAMS Accession No. ML18240A174)

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon), proposed a change to the Technical Specifications (TSs), Appendix A of Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, on September 29, 2017 to adopt TSTF-500, Revision 2 (Reference 1).

During their technical review of the application, the NRC Staff identified the need for additional information. Reference 2 provided the first response to one of the three questions communicated in a teleconference on August 3, 2018. The Attachment to this letter provides the response to the two remaining questions as documented in the final Request for Additional Information (RAI) received on August 28, 2018 (Reference 3).

Attachment 1 contains the RAI Response. Attachment 2 contains the revised clean TS pages. Attachment 2 supersedes previously submitted clean TS pages and incorporates Reference 2 TS Markups.

Exelon has reviewed the information supporting a finding of no significant hazards consideration, and the environmental consideration, that were previously provided to the NRC in Attachment 1 of the Reference 1 letter. Exelon has concluded that the information provided in this response does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92. In addition, Exelon has concluded that the information in this response does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

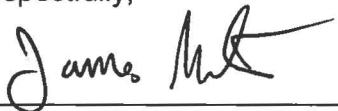
In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is notifying the Commonwealth of Pennsylvania of this response by transmitting a copy of this letter to the designated State Official.

There are no regulatory commitments contained in this response.

Should you have any questions concerning this response, please contact Mr. Frank J. Mascitelli at (610) 765-5512.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14th day of September 2018.

Respectfully,



James Barstow
Director - Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachments:

1. Response to Request for Additional Information, Application to Revise Technical Specifications to Adopt Technical Specification Task Force (TSTF)-500, Revision 2, "DC Electrical Rewrite-Update to TSTF-360"
2. TS Clean pages

cc:	Regional Administrator - NRC Region I	w/ attachments
	NRC Senior Resident Inspector - PBAPS	"
	NRC Project Manager, NRR - PBAPS	"
	R. R. Janati, Pennsylvania Bureau of Radiation Protection	"
	D. A. Tancabel, State of Maryland	"

ATTACHMENT 1

License Amendment Request

**Peach Bottom Atomic Power Station, Units 2 and 3
Docket Nos. 50-277 and 50-278**

**Response to Request for Additional Information
Application to Revise Technical Specifications to Adopt Technical
Specification Task Force (TSTF)-500, Revision 2,
"DC Electrical Rewrite-Update to TSTF-360"**

Response to NRC Staff's Request for Additional Information

By application dated September 29, 2017 (Agency wide Documents Access and Management System (ADAMS) Accession No. ML17275A069), Exelon Generation Company, LLC (EGC, the licensee) requested changes to the Technical Specifications (TSs) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, to adopt U.S. Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) -500, Revision 2, "DC [direct current] Electrical Rewrite – Update to TSTF-360." The License Amendment Request (LAR) proposes to revise TS requirements related to DC electrical power systems in TS limiting condition for operation (LCO) 3.8.4, "DC Sources - Operating," LCO 3.8.5, "DC Sources - Shutdown," and LCO 3.8.6, "Battery Cell Parameters." A new "Battery Monitoring and Maintenance Program" is being proposed for TS 5.5, "Programs and Manuals."

In an email dated August 28, 2018, from the NRC (Jennifer Tobin) to Exelon (David Helker) (ADAMS Accession No. ML18240A174), the NRC provided a Final Request for Additional Information (RAI) seeking clarification of certain issues related to the submittal. In a previous clarification teleconference on 8/21/18 to discuss the draft RAI, Mr. Frank Mascitelli stated that Exelon would provide a response to the RAI by September 14, 2018.

EEOB RAI -1 QUESTION

Regulatory Requirement

1. Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50)

The regulation at Appendix A to 10 CFR 50, General Design Criterion (GDC) 17, "Electric power systems," states, in part, that:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety....

The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

2. The regulation at 10 CFR Part 50, Appendix A, GDC 18, "Inspection and testing of electric power systems," states, in part, that "[e]lectric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features.

EEOB RAI-1

Attachment 2 of the LAR discusses TS 3.8.4 new Condition D., current Condition C. (revised and renumbered to Condition E.), associated Required Actions and CTs for Required Actions.

Additionally, in Section 2.2.5 in Attachment 1 of the LAR, the licensee states, "PBAPS will not be requesting a Completion Time longer than 2 hours for an inoperable battery or greater than 2 hours for an inoperable DC subdivision for other reasons than an inoperable battery or inoperable battery charger."

The Reviewer Note for TSTF Section 3.8.4 Required Action B.1.2 stated that Condition B (D in LAR) is included if Required Action B.1 (D.1 in LAR) (One [or two] batter[y][ies on one subsystem] inoperable) and Required Action C.1 (E.1 in LAR) (One DC electrical power subsystem inoperable for reasons other than Condition A [or B]), (C [or D in LAR]) would have different Completion Times. If the plant design supports different Completion Times when a battery is inoperable but the charger is OPERABLE, then Condition B (D in LAR) is used. If not, Condition B (D in LAR) is deleted and only Condition C (E in LAR) is used." Since Section 2.2.5 in Attachment 1 of LAR stated that PBAPS would like to keep the same (2 hours) Completion Time for both Required Action D.1 for an inoperable battery and Required Action E.1 for an inoperable DC subdivision for other reasons than an inoperable battery or inoperable battery charger, the proposed CONDITION D, Required Action D.1 and CT for Required Action D.1 appears to be duplicative.

Further, the proposed new Condition D (one battery on one subsystem inoperable) in the LAR would be acceptable if the new Condition D and revised Condition E (one unit 2/3 DC electrical power subsystem inoperable) have different CTs. But the proposed Condition D and revised Condition E have the same CTs (2 hours), which means that the new Condition D should not be adopted.

The NRC staff requests the licensee to provide justification for deviation from the TSTF-500, Revision 2 for adoption of new Condition D with same CTs (2 hours) for new Required Actions D.1 and E.1.

RESPONSE

After a careful review of the Reviewer Note for TSTF 500, Revision 2, Section 3.8.4 Required Action B.1.2, Exelon agrees that the proposed inoperable battery CONDITION D is duplicative since both the inoperable battery condition completion time and the one DC electrical power subsystem inoperable completion time are the same (i.e., 2 hours). Accordingly, the proposed CONDITION D will be deleted, and the subsequent Conditions will be renumbered. See Attachment 2 for the revised clean TS pages.

EEOB RAI -2 QUESTION

Regulatory Requirement

1. Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50)

The regulation at Appendix A to 10 CFR 50, General Design Criterion (GDC) 17, "Electric power systems," states, in part, that:

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety.

The onsite electric power supplies, including the batteries, and the onsite electric distribution system, shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure.

2. The regulation at 10 CFR Part 50, Appendix A, GDC 18, "Inspection and testing of electric power systems," states, in part, that "[e]lectric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features....

TS Section 5.5.15.b.2, Battery Monitoring and Maintenance Program in Attachment 2 of the LAR states, "Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.07 V when the float voltage of a battery cell has been found to be < 2.13 V." However, TS 5.5.14.b.2, "Battery Monitoring and Maintenance Program," of TSTF-500, Revision 2 states, "Actions to determine whether the float voltage of the remaining battery cells is $\geq [2.13]$ V when the float voltage of a battery cell has been found to be $< [2.13]$ V." There appears to be a discrepancy between TSTF-500 recommended float voltage $\geq [2.13]$ V limit and the LAR recommended ≥ 2.07 limit in the proposed TS Section 5.5.15.b.2, Battery Monitoring and Maintenance Program.

Please provide a discussion explaining the discrepancy between ≥ 2.07 V in the LAR and TSTF-500 recommended float voltage $\geq [2.13]$ V limit in the proposed TS Section 5.5.15.b.2, Battery Monitoring and Maintenance Program.

RESPONSE

Exelon has reviewed the proposed TSTF-500, Revision 2 proposed Battery Maintenance Program requirements for extent of condition actions when one battery cell is found to be in a degraded condition due to low float voltage. The original intent of establishing 2.07 volts as the limit was to verify operability of the remaining cells using the inoperable cell float voltage limit. However, Exelon agrees that the intent of the TSTF-500, Revision 2 is to perform an extent of condition of remaining battery cells using the degraded cell float voltage limit, indicated by the 2.13 volts value. Therefore, the TS 5.5.15.b.2 Action will be revised to be consistent with the TSTF 500, Revision 2. TS 5.5.15.b.2 Action is revised to state:

"Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be ≤ 2.13 V."

ATTACHMENT 2

License Amendment Request

Peach Bottom Atomic Power Station, Units 2 and 3 Docket Nos. 50-277 and 50-278

Clean TS Pages

Unit 2 TS Pages

3.8-28	3.8-32	3.8-38a
3.8-29	3.8-34	3.8-39
3.8-29a	3.8-35	3.8-39a
3.8-30	3.8-36	3.8-40
3.8-31	3.8-37	5.0-18b
3.8-31a	3.8-38	5.0-18c

Unit 3 TS Pages

3.8-28	3.8-32	3.8-38a
3.8-29	3.8-34	3.8-39
3.8-29a	3.8-35	3.8-39a
3.8-30	3.8-36	3.8-40
3.8-31	3.8-37	5.0-18b
3.8-31a	3.8-38	5.0-18c

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Operating

- LCO 3.8.4 The following DC electrical power subsystems shall be OPERABLE:
- a. Unit 2 Division I and Division II DC electrical power subsystems; and
 - b. Unit 3 Division I and Division II DC electrical power subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Unit 3 DC electrical power subsystem inoperable due to performance of SR 3.8.4.7 or SR 3.8.6.6.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition A results in de-energization of a Unit 2 4 kV emergency bus or de-energization of a Unit 3 DC bus. -----</p>	
	A.1 Restore Unit 3 DC electrical power subsystem to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Unit 3 DC electrical power subsystem inoperable for reasons other than Condition A.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition B results in de-energization of a Unit 2 4 kV emergency bus. -----</p>	
	B.1 Restore Unit 3 DC electrical power subsystem to OPERABLE status.	12 hours
C. One battery charger on one subsystem inoperable.	C.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<p><u>AND</u></p> C.2 Verify battery float current ≤ 2 amps.	Once per 12 hours
	<p><u>AND</u></p> C.3 Restore battery charger to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Unit 2 DC electrical power subsystem inoperable for reasons other than Condition C.	D.1 Restore Unit 2 DC electrical power subsystem to OPERABLE status.	2 hours
E. Required Action and Associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours
F. Two or more inoperable DC electrical power subsystems.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 2 DC electrical power subsystems. SR 3.8.4.9 is applicable only to the Unit 3 DC electrical power subsystems.

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.4.2 DELETED	
SR 3.8.4.3 DELETED	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	DELETED	
SR 3.8.4.5	DELETED	
SR 3.8.4.6	<p>Verify each required battery charger supplies ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours.</p> <p><u>OR</u></p> <p>Verify each battery charger can recharge the battery to the fully charged state within 20 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.</p>	In accordance with the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.7 -----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4.8 DELETED	

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

- LC0 3.8.5 The following DC electrical power subsystems shall be OPERABLE:
- a. Unit 2 DC electrical power subsystems needed to support the DC electrical power distribution subsystem(s) required by LC0 3.8.8, "Distribution Systems—Shutdown"; and
 - b. Unit 3 DC electrical power subsystems needed to support the DC electrical power distribution subsystem(s) required by LC0 3.8.8, "Distribution Systems—Shutdown."

APPLICABILITY: MODES 4 and 5,
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

-----NOTE-----
LC0 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One battery charger on one subsystem inoperable.</p> <p><u>AND</u></p> <p>The redundant subsystem battery and chargers OPERABLE.</p>	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u>	
	A.2 Verify battery float current ≤ 2 amps.	Once per 12 hours
	<u>AND</u>	
	A.3 Restore battery charger to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required actions and associated completion time of Condition A not met.</p>	<p>B.1 Declare affected required feature(s) inoperable.</p>	Immediately
	<p><u>OR</u></p> <p>B.2.1 Suspend CORE ALTERATIONS.</p>	Immediately
	<p><u>AND</u></p> <p>B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.</p>	Immediately
	<p><u>AND</u></p> <p>B.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.4.6 and SR 3.8.4.7. ----- For required Unit 2 DC electrical power subsystems, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.6 SR 3.8.4.7</p>	<p>In accordance with applicable SRs</p>
<p>SR 3.8.5.2 -----NOTE----- When Unit 3 is in MODE 4 or 5, or moving irradiated fuel assemblies in the secondary containment, the Note to Unit 3 SR 3.8.5.1 is applicable. ----- For required Unit 3 DC electrical power subsystems, the SRs of Unit 3 Specification 3.8.4 are applicable.</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6 Battery parameters for the station electrical power subsystem batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery on one subsystem with one or more battery cells float voltage < 2.07.	A.1 Perform SR 3.8.4.1	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1	2 hours
	<u>AND</u>	
	A.3 Restore affected cell float voltage \geq 2.07 V.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One battery on one subsystem with float current > 2 amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u> B.2 Restore battery float current to \leq 2 amps.	12 hours
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One battery on one subsystem with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore affected cell electrolyte level to above the top of plates.</p> <p><u>AND</u></p> <p>C.2 Verify no evidence of leakage.</p> <p><u>AND</u></p> <p>C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One battery with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant subsystems with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one system to within limits.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One battery on one subsystem with one or more battery cells with float voltage < 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is ≤ 2 amps.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.6.2 Verify each battery pilot cell float voltage is ≥ 2.07.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.6.5 Verify each battery cell float voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program.
<p>SR 3.8.6.6 -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of the expected life with capacity < 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating</p>

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5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

- a. The program allows the following RG 1.129, Revision 2 exceptions:
 1. Battery temperature correction may be performed before or after conducting discharge tests.
 2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.
 3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."
 4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."
 5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."
- b. The program shall include the following provisions:

5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program (continued)

1. Actions to restore battery cells with float voltage < 2.13 V;
2. Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be < 2.13 V;
3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;
4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and
5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Operating

- LCO 3.8.4 The following DC electrical power subsystems shall be OPERABLE:
- a. Unit 3 Division I and Division II DC electrical power subsystems; and
 - b. Unit 2 Division I and Division II DC electrical power subsystems.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Unit 2 DC electrical power subsystem inoperable due to performance of SR 3.8.4.7 or SR 3.8.6.6.	-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition A results in de-energization of a Unit 3 4 kV emergency bus or de-energization of a Unit 2 DC bus. -----	
	A.1 Restore Unit 2 DC electrical power subsystem to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One Unit 2 DC electrical power subsystem inoperable for reasons other than Condition A.	<p>-----NOTE----- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when Condition B results in de-energization of a Unit 3 4 kV emergency bus. -----</p>	
	B.1 Restore Unit 2 DC electrical power subsystem to OPERABLE status.	12 hours
C. One battery charger on one subsystem inoperable.	C.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	AND	
	C.2 Verify battery float current ≤ 2 amps.	Once per 12 hours
	AND	
	C.3 Restore battery charger to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One Unit 3 DC electrical power subsystem inoperable for reasons other than Condition C.	D.1 Restore Unit 3 DC electrical power subsystem to OPERABLE status.	2 hours
E. Required Action and Associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours
F. Two or more inoperable DC electrical power subsystems.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.8.4.1 through SR 3.8.4.8 are applicable only to the Unit 3 DC electrical power subsystems. SR 3.8.4.9 is applicable only to the Unit 2 DC electrical power subsystems.

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.4.2 DELETED	
SR 3.8.4.3 DELETED	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.4	DELETED	
SR 3.8.4.5	DELETED	
SR 3.8.4.6	<p>Verify each required battery charger supplies ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours.</p> <p><u>OR</u></p> <p>Verify each battery charger can recharge the battery to the fully charged state within 20 hours while supplying the largest combined demands of the various continuous steady state loads, after a battery discharge to the bounding design basis event discharge state.</p>	In accordance with the Surveillance Frequency Control Program.

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.7 -----NOTES-----</p> <ol style="list-style-type: none"> 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.7. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.4.8 DELETED	

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources—Shutdown

- LC0 3.8.5 The following DC electrical power subsystems shall be OPERABLE:
- a. Unit 3 DC electrical power subsystems needed to support the DC electrical power distribution subsystem(s) required by LC0 3.8.8, "Distribution Systems—Shutdown"; and
 - b. Unit 2 DC electrical power subsystems needed to support the DC electrical power distribution subsystem(s) required by LC0 3.8.8, "Distribution Systems—Shutdown."

APPLICABILITY: MODES 4 and 5,
During movement of irradiated fuel assemblies in the secondary containment.

ACTIONS

-----NOTE-----
LC0 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery charger on one subsystem inoperable. <u>AND</u> The redundant subsystem battery and chargers OPERABLE.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
	<u>AND</u> A.2 Verify battery float current ≤ 2 amps.	Once per 12 hours
	<u>AND</u> A.3 Restore battery charger to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A.</p> <p><u>OR</u></p> <p>Required actions and associated completion time of Condition A not met.</p>	<p>B.1 Declare affected required feature(s) inoperable.</p> <p><u>OR</u></p>	<p>Immediately</p>
	<p>B.2.1 Suspend CORE ALTERATIONS.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment.</p> <p><u>AND</u></p>	<p>Immediately</p>
	<p>B.2.3 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.5.1 -----NOTE----- The following SRs are not required to be performed: SR 3.8.4.6 and SR 3.8.4.7. ----- For required Unit 3 DC electrical power subsystems, the following SRs are applicable: SR 3.8.4.1 SR 3.8.4.6 SR 3.8.4.7</p>	<p>In accordance with applicable SRs</p>
<p>SR 3.8.5.2 -----NOTE----- When Unit 2 is in MODE 4 or 5, or moving irradiated fuel assemblies in the secondary containment, the Note to Unit 2 SR 3.8.5.1 is applicable. ----- For required Unit 2 DC electrical power subsystems, the SRs for Unit 2 Specification 3.8.4 are applicable.</p>	<p>In accordance with applicable SRs</p>

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LC0 3.8.6 Battery parameters for the station electrical power subsystem batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One battery on one subsystem with one or more battery cells float voltage < 2.07.	A.1 Perform SR 3.8.4.1	2 hours
	<u>AND</u>	
	A.2 Perform SR 3.8.6.1	2 hours
	<u>AND</u>	
	A.3 Restore affected cell float voltage ≥ 2.07 V.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One battery on one subsystem with float current > 2 amps.	B.1 Perform SR 3.8.4.1.	2 hours
	<u>AND</u> B.2 Restore battery float current to ≤ 2 amps.	12 hours
<p>-----NOTE----- Required Action C.2 shall be completed if electrolyte level was below the top of plates. -----</p> <p>C. One battery on one subsystem with one or more cells electrolyte level less than minimum established design limits.</p>	<p>-----NOTE----- Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates. -----</p> <p>C.1 Restore affected cell electrolyte level to above the top of plates.</p> <p><u>AND</u></p> <p>C.2 Verify no evidence of leakage.</p> <p><u>AND</u></p> <p>C.3 Restore electrolyte level to greater than or equal to minimum established design limits.</p>	<p>8 hours</p> <p>12 hours</p> <p>31 days</p>

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One battery with pilot cell electrolyte temperature less than minimum established design limits.	D.1 Restore battery pilot cell temperature to greater than or equal to minimum established design limits.	12 hours
E. One or more batteries in redundant subsystems with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one system to within limits.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. <u>OR</u> One battery on one subsystem with one or more battery cells with float voltage < 2.07 V and float current > 2 amps.	F.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.6.1 -----NOTE----- Not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. -----</p> <p>Verify each battery float current is ≤ 2 amps.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.6.2 Verify each battery pilot cell float voltage is ≥ 2.07.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.6.3 Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.6.4 Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.6.5 Verify each battery cell float voltage is ≥ 2.07 V.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.6.6 -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However credit may be taken for unplanned events that satisfy this SR. ----- Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	In accordance with the Surveillance Frequency Control Program. <u>AND</u> 12 months when battery shows degradation or has reached 85% of the expected life with capacity $< 100\%$ of manufacturer's rating <u>AND</u> 24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating

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5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program

This Program provides controls for battery restoration and maintenance. The program shall be in accordance with IEEE Standard (Std) 450-2002, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," as endorsed by Regulatory Guide 1.129, Revision 2 (RG), with RG exceptions and program provisions as identified below:

- a. The program allows the following RG 1.129, Revision 2 exceptions:
 1. Battery temperature correction may be performed before or after conducting discharge tests.
 2. RG 1.129, Regulatory Position 1, Subsection 2, "References," is not applicable to this program.
 3. In lieu of RG 1.129, Regulatory Position 2, Subsection 5.2, "Inspections," the following shall be used: "Where reference is made to the pilot cell, pilot cell selection shall be based on the lowest voltage cell in the battery."
 4. In Regulatory Guide 1.129, Regulatory Position 3, Subsection 5.4.1, "State of Charge Indicator," the following statements in paragraph (d) may be omitted: "When it has been recorded that the charging current has stabilized at the charging voltage for three consecutive hourly measurements, the battery is near full charge. These measurements shall be made after the initially high charging current decreases sharply and the battery voltage rises to approach the charger output voltage."
 5. In lieu of RG 1.129, Regulatory Position 7, Subsection 7.6, "Restoration," the following may be used: "Following the test, record the float voltage of each cell of the string."
- b. The program shall include the following provisions:

5.5 Programs and Manuals

5.5.15 Battery Monitoring and Maintenance Program (continued)

1. Actions to restore battery cells with float voltage < 2.13 V;
2. Actions to determine whether the float voltage of the remaining battery cells is ≥ 2.13 V when the float voltage of a battery cell has been found to be < 2.13 V;
3. Actions to equalize and test battery cells that had been discovered with electrolyte level below the top of the plates;
4. Limits on average electrolyte temperature, battery connection resistance, and battery terminal voltage; and
5. A requirement to obtain specific gravity readings of all cells at each discharge test, consistent with manufacturer recommendations.